

FY2023 - FY2027 Capital Plan

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**CPS Energy Capital Project Master List (without AFUDC)
FY2023 - 2027**

Business Area	Strategic Category	WBS Description	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	TOTAL
Business & Economic Development	Special Projects							
Business & Economic Development	I-2021-0000001	San Antonio Water System (SAWS) Resiliency Project	2,100,000	-	-	-	-	2,100,000
Business & Economic Development	I-2021-0000002	Flexible Path Projects	5,080,850	5,080,850	5,080,850	5,080,850	5,080,850	25,404,250
Business & Economic Development	Special Projects Total		7,180,850	5,080,850	5,080,850	5,080,850	5,080,850	27,504,250
Business & Economic Development Total			7,180,850	5,080,850	5,080,850	5,080,850	5,080,850	27,504,250
Business & Technology Excellence	Environmental/Legislative/Regulatory							
Business & Technology Excellence	I-0749-5000000	Infoblox for North American Electric Reliability Corporation (NERC)	750,000	-	260,000	-	-	1,010,000
Business & Technology Excellence	I-0810-5000000	Polled Settlement Metering Ethernet To The Meter (ETTM)	175,000	-	-	-	-	175,000
Business & Technology Excellence	I-0840-5000000	North American Electric Reliability Corporation (NERC) Platform Upgrade	375,000	375,000	125,000	375,000	383,250	1,633,250
Business & Technology Excellence	NEW_20	CEP: Communications	2,684,000	4,584,000	2,484,000	2,484,000	2,484,000	14,720,000
Business & Technology Excellence	Environmental/Legislative/Regulatory Total		3,984,000	4,959,000	2,869,000	2,859,000	2,867,250	17,538,250
Business & Technology Excellence	Infrastructure Modernization							
Business & Technology Excellence	D-0010-2022001	Communication Sites Uninterruptible Power Supply (UPS) Life-Cycle Replacement	193,000	193,000	193,000	193,000	193,000	965,000
Business & Technology Excellence	D-0010-2022002	Telecommunication Tools & Test Equipment	128,852	129,339	133,219	140,000	143,080	674,491
Business & Technology Excellence	D-0010-2022003	Radio Replacements - End-of-life Cambiums	23,454	23,717	24,158	25,000	25,550	121,879
Business & Technology Excellence	D-0010-2022004	Fiber Tools & Test Equipment	50,000	50,000	50,000	50,000	50,000	250,000
Business & Technology Excellence	D-0031-2022000	Direct Purchase of Personal Computers/Rugged Computers	3,237,665	3,237,665	3,237,665	3,237,665	3,237,665	16,188,325
Business & Technology Excellence	D-0200-2022001	Audio Visual Equipment/Device Life Cycle Multi Functional Printers	1,015,663	1,215,660	1,200,000	1,200,000	1,226,400	5,857,723
Business & Technology Excellence	I-0656-5000000	Alamo Area Regional Radio System (AARRS)	2,800,000	500,000	250,000	250,000	255,500	4,055,500
Business & Technology Excellence	I-0739-5000000	Smart Grid Network Operations (Formerly Post Go)	3,000,000	4,000,000	4,000,000	4,000,000	4,000,000	19,000,000
Business & Technology Excellence	I-0740-5000000	Disaster Recovery	500,000	250,000	-	-	-	750,000
Business & Technology Excellence	I-0743-5000000	SAP (Enterprise Resource Planning Software) Software Service Packs	700,000	500,000	500,000	500,000	500,000	2,700,000
Business & Technology Excellence	I-0744-5000000	Fiber Lifecycle Re-routes	5,250,000	5,250,000	5,250,000	2,250,000	2,299,500	20,299,500
Business & Technology Excellence	I-0750-5000000	Infrastructure Lifecycle Management	2,500,000	2,500,000	2,500,000	2,500,000	2,500,000	12,500,000
Business & Technology Excellence	I-0751-5000000	Network Hardware: Logical Management Regulatory Requirements Network Upgrade	149,852	150,339	150,339	150,339	150,339	751,209
Business & Technology Excellence	I-0755-5000000	Unified Communication	1,385,000	750,000	900,000	1,000,000	2,022,000	6,057,000
Business & Technology Excellence	I-0802-5000000	Substation Power Line Carrier Programmable Logic Controller & Wave	50,000	50,000	50,000	50,000	50,000	250,000
Business & Technology Excellence	I-0803-5000000	JungleMux (JMUX) Multiplexer Life Cycle Program	3,579,481	4,000,000	4,000,000	4,000,000	4,000,000	19,579,481
Business & Technology Excellence	I-0804-5000000	JungleMux (JMUX) Upgrade	500,000	-	-	-	-	500,000
Business & Technology Excellence	I-0806-5000000	Active Fiber Monitoring System	25,000	25,000	25,000	25,000	25,000	125,000
Business & Technology Excellence	I-0808-5000000	Cisco Optical Networking Service (ONS) Channel Upgrade	125,000	125,000	125,000	125,000	125,000	625,000
Business & Technology Excellence	I-0809-5000000	Communication Sites Battery Replacement	33,000	33,000	33,000	33,000	33,000	165,000
Business & Technology Excellence	I-0814-5000000	Enterprise Resource Planning (ERP) Transformation	-	27,799,560	71,500,000	71,400,000	17,219,325	187,918,885

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Business Area	Strategic Category	WBS Description	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	TOTAL
Business & Technology Excellence	I-0816-5000000	Geographic Information System (GIS) Upgrade	900,000	500,000	2,500,000	2,500,000	-	6,400,000
		North American Electric Reliability Corporation (NERC)						
Business & Technology Excellence	I-0823-5000000	Platform Upgrade	1,828,218	-	-	1,000,000	1,022,000	3,850,218
Business & Technology Excellence	I-0838-5000000	Data Center Co-Location	9,575,000	6,750,000	500,000	500,000	4,000,000	21,325,000
Business & Technology Excellence	I-0848-5000000	American Disability Act (ADA) Compliance	100,000	100,000	100,000	100,000	100,000	500,000
		EnergyIP (Meter Data Management), UtilityIQ (UIQ)						
Business & Technology Excellence	I-0858-5000000	Upgrade	-	1,500,000	-	1,800,000	1,839,600	5,139,600
		Asset Resource Manager (ARM) Work Manager Lifecycle						
Business & Technology Excellence	I-0860-5000000	Management	500,000	300,000	450,000	300,000	300,000	1,850,000
Business & Technology Excellence	I-0861-5000000	Data Platform Modernization	-	1,900,000	-	1,500,000	1,533,000	4,933,000
Business & Technology Excellence	I-0862-5000000	Digital Signage	-	-	125,000	125,000	127,750	377,750
Business & Technology Excellence	I-0863-5000000	Enterprise Architecture	995,000	-	-	-	-	995,000
Business & Technology Excellence	I-0864-5000000	Data Engineering/Data Science toolkit	350,000	300,000	300,000	300,000	300,000	1,550,000
Business & Technology Excellence	Infrastructure Modernization Total		39,494,185	62,132,280	98,096,382	99,254,004	47,277,709	346,254,561
Business & Technology Excellence Total			43,478,185	67,091,280	100,965,382	102,113,004	50,144,959	363,792,811
Customer Engineering	Customer Growth							
Customer Engineering	A-0003-0000001	Overhead Service/Meter-Residential Services	931,185	931,185	931,185	931,185	931,185	4,655,927
Customer Engineering	A-0005-0000001	All Night Security Light-Residential Customers	1,985,254	1,985,254	1,985,254	1,985,254	1,985,254	9,926,272
		All Night Security Light & Streetlight-Residential						
Customer Engineering	A-0006-0000001	Subdivision/Apartment	407,926	407,926	407,926	407,926	407,926	2,039,630
Customer Engineering	A-0007-0000001	All Night Security Light-Commercial Customers	652,374	652,374	652,374	652,374	652,374	3,261,871
Customer Engineering	A-0008-0000001	Install Street Lights - Underground - New Service Delivery	4,139,464	4,139,464	4,139,464	4,139,464	4,139,464	20,697,321
Customer Engineering	A-0009-0000001	Line Extension, Service & Meter-Residential Services	8,455,643	8,455,643	8,455,643	8,455,643	8,455,643	42,278,214
Customer Engineering	A-0010-0000001	Residential Development Removal or Relocation	377,030	377,030	377,030	377,030	377,030	1,885,152
Customer Engineering	A-0011-0000001	Overhead Line Extension-New Residential Subdivision	6,787,679	6,787,679	6,787,679	6,787,679	6,787,679	33,938,396
Customer Engineering	A-0012-0000001	Underground Residential Distribution Systems-New Residential Subdivision	29,751,661	29,751,661	29,751,661	29,751,661	29,751,661	148,758,306
Customer Engineering	A-0017-0000001	Underground Service & Meter-Commercial Services	691,974	691,974	691,974	691,974	691,974	3,459,868
Customer Engineering	A-0018-0000001	Overhead Service & Meter-Commercial Services	3,847,268	3,847,268	3,847,268	3,847,268	3,847,268	19,236,338
		Overhead Line Extension, Service & Meter-Commercial						
Customer Engineering	A-0019-1000001	Service	10,066,442	10,066,442	10,066,442	10,066,442	10,066,442	50,332,210
Customer Engineering	A-0020-0000001	Underground Commercial Line Extension/Service/Meter	2,055,454	2,055,454	2,055,454	2,055,454	2,055,454	10,277,272
		Overhead Line Extension-New Apartment & Mobile						
Customer Engineering	A-0021-0000001	Home Park	2,266,840	2,266,840	2,266,840	2,266,840	2,266,840	11,334,201
Customer Engineering	A-0022-0000001	Underground Residential Distribution Systems-New Apartment Complexes & Mobile Home Park	5,385,125	5,385,125	5,385,125	5,385,125	5,385,125	26,925,627
		Overhead Line, Extension Padmount Transformer/Meter						
Customer Engineering	A-0025-0000001	Large Commercial Service	90,851	90,851	90,851	90,851	90,851	454,253
Customer Engineering	A-0048-0000001	Install Underground Service/Meter Residential	13,582,442	27,956,967	42,276,143	65,324,572	20,340,622	169,480,746
Customer Engineering	E-0006-0000001	Overhead Electric Service-Commercial	873,134	873,134	873,134	873,134	873,134	4,365,668
Customer Engineering	E-0020-0000001	Overhead Electric Main Extension-Residential	3,492	3,492	3,492	3,492	3,492	17,462

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Business Area	Strategic Category	WBS Description	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	TOTAL
Customer Engineering	E-0022-0000001	Overhead Electric Main Extension-Commercial	90,549	90,549	90,549	90,549	90,549	452,744
Customer Engineering	E-0025-0000001	Reroute Overhead Line-Commercial/Industrial Customer	5,943,059	5,943,059	5,943,059	5,943,059	5,943,059	29,715,295
Customer Engineering	E-0034-0000001	Overhead All Night Streetlight	63,093	63,093	63,093	63,093	63,093	315,463
Customer Engineering	E-0048-0000001	Underground Line & Service for Commercial/Industrial Customer	7,845,934	7,845,934	7,845,934	7,845,934	7,845,934	39,229,672
Customer Engineering	E-0084-0000001	Underground Line/Service Downtown Network Customer	2,060,534	2,060,534	2,060,534	2,060,534	2,060,534	10,302,672
Customer Engineering	E-0141-0000001	Underground Electric Service-Residential	3,093,324	3,093,324	3,093,324	3,093,324	3,093,324	15,466,619
Customer Engineering	E-0152-0000001	Overhead Electric Service-Residential	221,207	221,207	221,207	221,207	221,207	1,106,034
Customer Engineering	E-0153-0000001	Overhead Electric Service-Residential	3,209,325	3,209,325	3,209,325	3,209,325	3,209,325	16,046,624
Customer Engineering	Customer Growth Total		114,878,265	129,252,790	143,571,966	166,620,394	121,636,445	675,959,859
Customer Engineering Total			114,878,265	129,252,790	143,571,966	166,620,394	121,636,445	675,959,859
Customer Success	Customer Growth							
Customer Success	D-0800-0000001	Dir Purch Pre-Cap Elect Meters w/Current Transformers and Voltage Transformers	720,000	750,000	770,000	800,000	817,600	3,857,600
Customer Success	D-0810-0000001	Direct Purchase Pre-Cap ION Meters	273,634	300,997	331,097	364,207	372,219	1,642,153
Customer Success	D-0820-0000001	Dir Purch Pre-Cap Elect Meters without Current Transformers and Voltage Transformers(CTVT)	30,824	30,824	30,000	30,000	30,660	152,308
Customer Success	D-0840-0000001	Dir Purch Pre-Cap Electric Meter Cabinet	550,000	560,000	570,000	450,000	459,900	2,589,900
Customer Success	D-0850-0000001	Dir Purch Pre-Cap Electric Transocket	310,000	320,000	335,000	350,000	357,700	1,672,700
Customer Success	D-0880-0000001	Pre-Cap Advanced Metering Infrastructure (AMI) Meters	13,800,000	12,500,000	13,000,000	13,500,000	13,731,000	66,531,000
Customer Success	I-2018-8000004	Interval Billing Quality Data	1,500,000	-	-	-	-	1,500,000
Customer Success	I-2018-8100001	Data Presentation	2,000,000	1,000,000	-	-	-	3,000,000
Customer Success	Customer Growth Total		19,184,458	15,461,821	15,036,097	15,494,207	15,769,079	80,945,661
Customer Success	Infrastructure Modernization							
Customer Success	D-0058-0000001	Meter Measurement - Tools & Equipment	116,600	128,260	141,086	155,195	158,609	699,750
Customer Success	Infrastructure Modernization Total		116,600	128,260	141,086	155,195	158,609	699,750
Customer Success Total			19,301,058	15,590,081	15,177,183	15,649,401	15,927,688	81,645,411
Electric Distribution	Customer Growth							
Electric Distribution	S-0923-0000060	Westover Hills Expansion (Chevron) (Distribution)	100,000	-	-	-	-	100,000
Electric Distribution	Customer Growth Total		100,000	-	-	-	-	100,000
Electric Distribution	Infrastructure Modernization							
Electric Distribution	B-2021-0000010	Facility Recapitalization-Energy Delivery Services (EDS)	1,870,001	40,000	-	200,000	204,400	2,314,401
Electric Distribution	D-0052-0000001	Tools-Equipment - Distribution	10,000	90,000	10,000	90,000	90,000	290,000
Electric Distribution	E-0079-0000001	Overhead Emergency Replacement	4,963,616	4,963,616	4,963,616	4,963,616	4,963,616	24,818,080
Electric Distribution	E-0468-0000001	Underground Residential Distribution - Emergency	2,864,433	2,864,433	2,864,433	2,864,433	2,864,433	14,322,165
Electric Distribution	O-0889-0000001	Geographic Information System (GIS) to OMS Network Adapter Modernization	35,000	-	-	-	-	35,000
Electric Distribution	S-0566-0000001	Kirby - Replace Transformer/Switchgear #2 - Distribution	-	-	3,035,000	-	-	3,035,000
Electric Distribution	S-0597-0000029	Highland Hills - Replace Transformer/Switchgear #2, Switchgear #1 - Distribution	355,000	-	-	-	-	355,000

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Business Area	Strategic Category	WBS Description	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	TOTAL
Electric Distribution	S-0621-0000029	Chavaneaux Replace Transformer/Switchgear #2, Distr Feeder Relay Upgrade #3 - Distribution	2,555,000	-	-	-	-	2,555,000
Electric Distribution	S-0623-0000029	Bandera Road - Replace Transformer/Switchgear #3 - Distribution	365,000	2,411,000	-	-	-	2,776,000
Electric Distribution	S-0682-0000001	DGA Monitors	450,000	450,000	450,000	-	-	1,350,000
Electric Distribution	S-0818-0000029	Merida-Replace Transformer #2	-	-	1,580,000	-	-	1,580,000
Electric Distribution	S-0866-0000060	Medina Base - Replace Transformer/Switchgear #3 (Distribution)	2,895,000	-	-	-	-	2,895,000
Electric Distribution	S-0868-0000060	Pinn Rd - Replace Transformer/Switchgear #3	30,000	2,895,000	-	-	-	2,925,000
Electric Distribution	S-0869-0000060	South San - Replace Transformer/Switchgear #4 (Distribution)	1,540,000	1,385,000	-	-	-	2,925,000
Electric Distribution	S-0887-0000060	Talley Road # Replace Transformers 2 & 3	-	-	45,000	3,245,000	3,316,390	6,606,390
Electric Distribution	S-0891-0000060	Tenth Street Rebuild (Distribution)	-	-	4,400,000	3,600,000	3,679,200	11,679,200
Electric Distribution	S-0896-0000060	Distribution -USAA #1 - Replace Switchgear #1 and #3	2,281,000	119,000	-	-	-	2,400,000
Electric Distribution	S-0897-0000060	Westside - Replace Transformer & Switchgear (Distribution)	-	-	-	590,000	602,980	1,192,980
Electric Distribution	S-0898-0000060	Distribution - Construction - "Station 1"	-	645,000	400,000	65,000	66,430	1,176,430
Electric Distribution	S-0900-0000060	South San Antonio - Replace Transformer (Distribution)	-	-	-	10,000	10,220	20,220
Electric Distribution	S-0903-0000060	Fratt - Replace Transformer & Switchgear (Distribution)	-	-	-	1,660,000	1,696,520	3,356,520
Electric Distribution	S-0913-0000060	Distribution- Non-Microprocessor Protective Relay Upgrade	415,000	595,000	870,000	870,000	889,140	3,639,140
Electric Distribution	S-0916-0000060	Five Points - Replace Transformer/Switchgear #6 (Distribution)	-	-	25,000	1,935,000	1,977,570	3,937,570
Electric Distribution	S-0921-0000060	Walzem Rd # Replace Switchgears 1 & 2	-	-	-	100,000	102,200	202,200
Electric Distribution	S-0932-0000060	Dresden - Replace XFMR#1	1,715,000	-	-	-	-	1,715,000
Electric Distribution	S-1402-0000039	Capital Replacement-Distribution	400,000	425,000	450,000	450,000	459,900	2,184,900
Electric Distribution		Infrastructure Modernization Total	22,744,050	16,883,049	19,093,049	20,643,049	20,922,999	100,286,196
Electric Distribution		Special Projects						
Electric Distribution	D-0051-0000001	Computer Equipment - Utility/Distribution	587,526	78,276	78,276	80,000	81,760	905,838
Electric Distribution	D-0066-0000001	Personal Protective Equipment Radio Frequency Identification (RFID) Tracking and Software	1,800	1,800	30,717	1,800	1,840	37,957
Electric Distribution	D-0433-0000008	Diagnostic Equipment	260,000	270,000	280,000	290,000	296,380	1,396,380
Electric Distribution	O-0042-0000001	Control Room	500,000	1,500,000	-	-	-	2,000,000
Electric Distribution	O-0076-0000001	Energy Management System (EMS) Upgrade-Capital	5,000,000	7,000,000	500,000	300,000	708,800	13,508,800
Electric Distribution	O-0520-0000024	Supervisory Control and Data Acquisition Equipment	150,000	150,000	150,000	150,000	150,000	750,000
Electric Distribution	O-0809-0000001	Outage Management System (OMS)/Distribution Management System (DMS) Software Upgrade	500,000	250,000	5,000,000	5,000,000	6,022,000	16,772,000
Electric Distribution	O-0837-0000001	GAS System Control and Data Acquisition (SCADA) Upgrade	400,000	500,000	1,500,000	200,000	200,000	2,800,000
Electric Distribution	O-0886-0000001	Energy Management System (EMS) Time Clock Replacement	65,000	-	-	-	-	65,000

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Business Area	Strategic Category	WBS Description	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	TOTAL
Electric Distribution	O-0887-0000001	Gas Remote Terminal Unit (RTU) Upgrades	6,000	6,000	6,000	6,000	6,000	30,000
Electric Distribution	O-0888-0000001	Remote Operations Computers (ROC) 800 Upgrades	600,000	-	50,000	-	-	650,000
Electric Distribution	O-0892-0000001	Energy Management System (EMS) Software(Redhat/Oracle) Upgrade	100,000	-	-	-	-	100,000
Electric Distribution	O-0893-0000001	Energy Delivery Service (EDS) OS/soft Pi Data Historian System Software Upgrade	200,000	-	-	200,000	-	400,000
Electric Distribution	Special Projects Total		8,370,326	9,756,076	7,594,993	6,227,800	7,466,780	39,415,975
Electric Distribution	System Growth							
Electric Distribution	S-0601-0000060	Converse - New Substation	-	-	-	75,000	76,650	151,650
Electric Distribution	S-0722-0000029	Pinn Road- New 40 Megavolt-Ampere (MVA) Transformer/Switchgear - Distribution	-	-	-	25,000	25,550	50,550
Electric Distribution	S-0744-0000001	Ft. Sam to Tenth - Most Limiting Series Element - Distribution	-	410,000	2,090,000	-	-	2,500,000
Electric Distribution	S-0821-0000029	Tezel Rd-New Substation - Distribution	270,000	510,000	1,950,000	-	-	2,730,000
Electric Distribution	S-0882-0000060	Distribution - Construction - S0882a HH J423 Rep	134,000	268,000	-	-	-	402,000
Electric Distribution	S-0885-0000060	Northwest #6 New Substation - Distribution	180,000	2,150,000	-	-	-	2,330,000
Electric Distribution	S-0905-0000060	Chavaneaux Rd. - New Transformer/Switchgear #1 (Distribution)	-	-	-	30,000	30,660	60,660
Electric Distribution	S-0908-0000060	Distribution - 36th St - New 40 Megavolt-ampere (MVA) Transmission/Switchgear #4	-	65,000	2,555,000	-	-	2,620,000
Electric Distribution	S-0909-0000060	Distribution - Anderson - New 100 Megavolt-ampere (MVA) Transformer/Switchgear#1	2,790,000	-	-	-	-	2,790,000
Electric Distribution	S-0910-0000060	Distribution - Midtown - New Substation	2,430,000	-	-	-	-	2,430,000
Electric Distribution	S-0917-0000060	Texas Research - New Transformer/Switchgear #4 (Transmission)	-	-	50,000	2,835,000	2,897,370	5,782,370
Electric Distribution	S-0918-0000060	Trumbo - New Transformer/Switchgear #2 & Tie Breaker 12E4 (Distribution)	-	-	60,000	1,480,000	1,512,560	3,052,560
Electric Distribution	S-0920-0000060	SW6 # New Substation (Distribution)	-	-	-	50,000	51,100	101,100
Electric Distribution	S-0934-0000060	Shepherd - Install (1) - Relocated from Talley Rd 138/36kV, 50 MVA XFMR#2	-	-	-	243,000	248,346	491,346
Electric Distribution	S-0935-0000060	Martinez-New 100MVA Transformer/Switchgear #1, Add Circuit Switcher, Add 138kV Tie Breaker	485,000	2,308,000	-	-	-	2,793,000
Electric Distribution	S-0936-0000060	Southton - New 40MVA Transformer/Switchgear #1	485,000	2,010,000	-	-	-	2,495,000
Electric Distribution	S-0937-0000060	Navistar - New 100 Mega Volt Ampere Transformer/Switchgear #1	-	-	-	485,000	495,670	980,670
Electric Distribution	System Growth Total		6,774,000	7,721,000	6,705,000	5,223,000	5,337,906	31,760,906
Electric Distribution Total			37,988,376	34,360,125	33,393,042	32,093,849	33,727,685	171,563,077
Energy Supply & Market Operations	Infrastructure Modernization							
Energy Supply & Market Operations	NEW_5	New Flexible Path Capacity to Serve Retail Demand Growth & Replace Generating Units Projected to Retire	-	-	1,144,000	9,909,000	324,277,000	335,330,000
Energy Supply & Market Operations	Infrastructure Modernization Total		-	-	1,144,000	9,909,000	324,277,000	335,330,000
Energy Supply & Market Operations	Special Projects							
Energy Supply & Market Operations	D-0081-0000022	Computer Hardware Replacement Reserve	51,500	53,045	54,636	56,275	57,514	272,971

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Business Area	Strategic Category	WBS Description	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	TOTAL
Energy Supply & Market Operations	F-0135-1800001	ESMO Generation Management System Annual Application Update	1,500,000	550,000	1,500,000	550,000	550,000	4,650,000
Energy Supply & Market Operations	F-0135-2100001	Business Critical System Real-time Co-Optimization Upgrade	4,550,000	3,600,000	2,750,000	500,000	1,124,200	12,524,200
Energy Supply & Market Operations	F-0135-2100003	Generation Management System Real-time Co-Optimization Upgrade	5,219,000	3,971,000	2,065,000	600,000	-	11,855,000
Energy Supply & Market Operations	Special Projects Total		11,320,500	8,174,045	6,369,636	1,706,275	1,731,714	29,302,171
Energy Supply & Market Operations	System Growth							
Energy Supply & Market Operations	F-0135-1500003	Demand Response Management System Expansion & Upgrades	1,250,000	1,250,000	1,250,000	1,250,000	1,250,000	6,250,000
Energy Supply & Market Operations	F-0135-1800006	ESMO Business Critical System Unit Enhancements & Upgrades	1,800,000	1,145,000	1,105,000	1,205,000	1,231,510	6,486,510
Energy Supply & Market Operations	System Growth Total		3,050,000	2,395,000	2,355,000	2,455,000	2,481,510	12,736,510
Energy Supply & Market Operations Total			14,370,500	10,569,045	9,868,636	14,070,275	328,490,224	377,368,681
Enterprise & Public Safety	Special Projects							
Enterprise & Public Safety	I-5000-1003105	Driving Simulator	500,000	-	-	-	-	500,000
Enterprise & Public Safety	Special Projects Total		500,000	-	-	-	-	500,000
Enterprise & Public Safety Total			500,000	-	-	-	-	500,000
Financial Services	Special Projects							
Financial Services	I-4001-5000000	Large Commercial Power Green Tariff (LCP-GRN)	325,000	-	-	-	-	325,000
Financial Services	I-4004-5000000	Redwood Financial Close Automation Upgrade	-	-	-	-	408,800	408,800
Financial Services	Special Projects Total		325,000	-	-	-	408,800	733,800
Financial Services Total			325,000	-	-	-	408,800	733,800
Fleet	Infrastructure Modernization							
Fleet	D-0033-0000072	Direct Purchase Vehicles	15,878,000	17,108,000	17,108,000	17,108,000	17,108,000	84,310,000
Fleet	Infrastructure Modernization Total		15,878,000	17,108,000	17,108,000	17,108,000	17,108,000	84,310,000
Fleet	Special Projects							
Fleet	I-5000-1003104	Bosch Scanning Tool Replacement	40,000	-	-	-	-	40,000
Fleet	I-5011-5000000	Telematics	400,000	15,000	500,000	15,000	15,000	945,000
Fleet	Special Projects Total		440,000	15,000	500,000	15,000	15,000	985,000
Fleet Total			16,318,000	17,123,000	17,608,000	17,123,000	17,123,000	85,295,000
Gas & Corporate Compliance	Environmental/Legislative/Regulatory							
Gas & Corporate Compliance	I-0747-0000001	Corporate Compliance Tracking System (CMO) Implementation Strategy	20,000	-	-	-	-	20,000
Gas & Corporate Compliance	Environmental/Legislative/Regulatory Total		20,000	-	-	-	-	20,000
Gas & Corporate Compliance Total			20,000	-	-	-	-	20,000
Gas Solutions	Civic Improvements							
Gas Solutions	G-0272-0000001	Civic Improvement - City of San Antonio	6,000,000	5,500,000	5,000,000	5,000,000	5,110,000	26,610,000
Gas Solutions	G-0273-0000001	Civic Improvement - Bexar County	3,000,000	2,750,000	2,500,000	2,500,000	2,555,000	13,305,000
Gas Solutions	G-0281-0000001	Civic Improvement Texas Department of Transportation (TXDOT) Reimbursable	85,000	85,000	85,000	85,000	85,000	425,000
Gas Solutions	G-0309-0000001	Civic Improvement Texas Department of Transportation (TXDOT) Nonreimbursable	4,000,000	3,000,000	3,000,000	3,000,000	3,000,000	16,000,000
Gas Solutions	G-0312-0000001	Civic Improvements - Other	450,000	450,000	450,000	450,000	450,000	2,250,000
Gas Solutions	G-0315-0000001	Civic Improvement Renewal - Other	2,000,000	2,100,000	2,150,000	2,250,000	2,299,500	10,799,500
Gas Solutions	Civic Improvements Total		15,535,000	13,885,000	13,185,000	13,285,000	13,499,500	69,389,500

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Business Area	Strategic Category	WBS Description	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	TOTAL
Gas Solutions	Customer Growth							
Gas Solutions	D-0231-0000001	Direct Purchase Encoder Receiver Transmitters (ERT) Modules	14,470	14,615	14,761	14,908	15,236	73,990
Gas Solutions	D-0900-0000001	Direct Purchase Pre-Cap Gas Meters	2,680,374	2,707,178	2,734,249	2,761,592	2,822,347	13,705,740
Gas Solutions	D-0920-0000001	Direct Purchase Pre-Cap Gas Service Regulator	604,887	604,887	604,887	604,887	604,887	3,024,435
Gas Solutions	D-0940-0000001	Direct Purchase Pre-Cap Gas Commercial/Industrial Regulator	83,132	83,641	87,823	92,214	94,243	441,053
Gas Solutions	D-2016-0000001	Direct Purchase Obsolete Gas Meter Replacement	1,267,177	1,279,849	1,292,647	1,305,575	1,334,298	6,479,546
Gas Solutions	G-0028-0000001	Install Plastic Services	4,121,846	4,180,804	4,389,845	4,223,506	4,316,423	21,232,424
Gas Solutions	G-0111-0000001	Install Gas Mains Residential	32,414	32,615	34,246	33,022	33,748	166,044
Gas Solutions	G-0112-0000001	Install Gas Mains Commercial/Industrial	1,482,205	1,497,066	1,571,919	1,508,505	1,541,692	7,601,387
Gas Solutions	G-0113-0000001	Remodel, Remove & Reroute Gas Service Restoration	2,058,387	2,071,478	2,175,052	2,091,690	2,137,707	10,534,314
Gas Solutions	G-0114-1111111	Install & Remove Gas Service >800CFH (Cubic Feet per Hour)	903,043	976,300	1,025,115	949,145	970,027	4,823,630
Gas Solutions	G-0115-0000001	Install & Remove Gas Service <800CFH (Cubic Feet per Hour)	1,291,060	1,311,743	1,377,330	1,323,510	1,352,627	6,656,269
Gas Solutions	G-0116-0000001	Install Gas Mains Apartments	367,036	367,925	386,321	372,400	380,593	1,874,275
Gas Solutions	G-0118-0000001	Install Gas Subdivision Infrastructure	8,560,870	8,613,209	9,052,811	8,714,466	8,906,184	43,847,539
Gas Solutions	G-0224-0000001	Gas Customer Growth	2,593,652	4,298,467	2,803,450	3,286,392	3,358,693	16,340,654
Gas Solutions	G-0900-0000001	Install New Gas Devices >800CFH (Cubic Feet per Hour)	341,183	363,518	360,000	351,448	359,180	1,775,330
Gas Solutions	G-0975-0000001	Gas Growth Strategy	618,429	620,099	1,000,000	746,176	762,592	3,747,296
Gas Solutions		Customer Growth Total	27,020,165	29,023,393	28,910,456	28,379,436	28,990,477	142,323,927
Gas Solutions		Environmental/Legislative/Regulatory						
Gas Solutions	G-0500-0000001	Generation Company (Genco) Construction of Gas Company (Gasco) Assets	393,750	413,438	434,109	455,815	465,843	2,162,955
Gas Solutions		Environmental/Legislative/Regulatory Total	393,750	413,438	434,109	455,815	465,843	2,162,955
Gas Solutions		Infrastructure Modernization						
Gas Solutions	G-0014-0000001	Replace Steel Gas Services with Plastic	7,551,345	7,981,139	8,380,196	7,867,472	8,040,557	39,820,709
Gas Solutions	G-0201-0000001	Gate Station Upgrades	234,500	234,500	234,500	233,675	238,816	1,175,991
Gas Solutions	G-0209-0000001	Replace Steel & Plastic Mains	389,519	401,852	429,439	403,780	412,663	2,037,253
Gas Solutions	G-0210-0000001	Renewal Program - Replace Distribution Pressure (DP) Facilities	3,150,000	3,307,500	3,472,875	3,646,519	3,726,742	17,303,636
Gas Solutions	G-0236-0000001	Renewal Program - Replace Supply Pressure (SP) Mains	3,150,000	3,307,500	3,472,875	3,646,519	3,726,742	17,303,636
Gas Solutions	G-0300-0000001	Military Base Conversion Gas - 20 year System Rehabilitation	47,822	48,486	48,000	48,203	49,263	241,774
Gas Solutions	G-0931-0000001	Over Pressure Protection (OPP)	2,551,364	2,832,483	2,500,000	2,598,177	2,655,337	13,137,361
Gas Solutions	G-1012-0000001	Damaged Gas Main Replacements	143,805	157,975	165,874	152,376	155,728	775,758
Gas Solutions	NEW_19	Gas IMU Battery Replacement and Reprogram Project	2,300,000	-	-	-	-	2,300,000
Gas Solutions		Infrastructure Modernization Total	19,518,356	18,271,435	18,703,758	18,596,721	19,005,848	94,096,118
Gas Solutions		Special Projects						
Gas Solutions	D-0062-0000052	Direct Purchase Capital Tools-Equipment - Utilities/Gas Company (Gasco)	414,061	1,716,495	437,320	1,763,559	1,802,357	6,133,792

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Business Area	Strategic Category	WBS Description	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	TOTAL
Gas Solutions	D-0232-0000001	Direct Purchase Advanced Metering Infrastructure (AMI) Modules	300,000	200,000	200,000	200,000	200,000	1,100,000
Gas Solutions	G-9303-0059174	Electronic Pressure Recorder (EPR) New Installation	42,000	44,100	46,305	48,620	49,690	230,715
Gas Solutions	G-9641-0000001	Track/Traceability	830,967	830,967	172,592	-	-	1,834,526
Gas Solutions	Special Projects Total		1,587,028	2,791,562	856,217	2,012,179	2,052,047	9,299,033
Gas Solutions	System Growth							
Gas Solutions	D-0960-0000001	Direct Purchase Pre-Cap Gas System Regulator	52,609	52,984	53,000	53,170	54,339	266,101
Gas Solutions	G-0200-0000001	City Gate Stations	84,016	85,071	85,000	84,859	86,726	425,672
Gas Solutions	G-0223-0000001	Gas Distribution Mains	3,272,275	3,546,812	3,081,465	3,219,830	3,290,666	16,411,048
Gas Solutions	G-0932-0000001	District Regulators	590,740	650,666	550,846	491,263	502,071	2,785,586
Gas Solutions	G-0990-0000001	Gas Supply Lines	4,759,413	5,318,811	5,320,884	5,737,599	5,863,826	27,000,534
Gas Solutions	System Growth Total		8,759,054	9,654,344	9,091,195	9,586,720	9,797,628	46,888,941
Gas Solutions Total			72,813,353	74,039,172	71,180,735	72,315,870	73,811,343	364,160,474
Grid Transformation & Engineering	Civic Improvements							
Grid Transformation & Engineering	E-0002-0000001	Overhead Electric Civic Improvements	121,201	121,201	123,625	123,625	126,345	615,998
Grid Transformation & Engineering	E-0090-0000001	Relocate Overhead for City of San Antonio (COSA) Civic Projects	2,125,654	2,125,654	2,125,654	2,125,654	2,125,654	10,628,269
Grid Transformation & Engineering	E-0091-0000001	Relocate Overhead for Bexar County Civic Projects	1,500,000	1,500,000	1,530,000	1,530,000	1,563,660	7,623,660
Grid Transformation & Engineering	E-0096-0000001	Reimbursable Overhead Relocation - Texas Department of Transportation (TxDOT) Project	2,500,000	2,000,000	2,000,000	2,000,000	2,000,000	10,500,000
Grid Transformation & Engineering	E-0097-0000001	Civic Improvement-State Highway	2,500,000	2,500,000	2,550,000	2,500,000	2,555,000	12,605,000
Grid Transformation & Engineering	E-0102-0000001	Relocate Underground for Civic Improvement Projects	3,882,278	3,843,455	2,500,000	2,500,000	2,555,000	15,280,733
Grid Transformation & Engineering	E-0120-0000001	Relocate Network for Civic Improvement Project San Pedro Creek - Nueva	1,303,773	1,250,000	1,250,000	-	-	3,803,773
Grid Transformation & Engineering	E-0316-0000001	High Thermal Event System (HTES) for Downtown Network Reliability	2,794,000	2,794,000	2,794,000	2,794,000	2,794,000	13,970,000
Grid Transformation & Engineering	Civic Improvements Total		16,726,906	16,134,310	14,873,279	13,573,279	13,719,659	75,027,433
Grid Transformation & Engineering	Customer Growth							
Grid Transformation & Engineering	D-0500-0000001	Pre-Capitalization 3 Phase Padmount Transformer	4,369,257	4,500,335	4,500,000	4,500,000	4,599,000	22,468,593
Grid Transformation & Engineering	D-0520-0000001	Pre-Capitalization 1 Phase Padmount Transformer	9,292,684	9,292,684	9,292,684	9,292,684	9,292,684	46,463,419
Grid Transformation & Engineering	D-0540-0000001	Pre-Capitalization Network (2) Transformers	3,172,734	3,216,622	5,515,268	-	-	11,904,624
Grid Transformation & Engineering	D-0560-0000001	Pre-Capitalization Overhead Transformers	6,695,000	6,895,850	7,102,726	7,315,807	7,476,755	35,486,138
Grid Transformation & Engineering	D-0580-0000001	Pre-Capitalization Overhead Transformer 3-Phase Only	3,090,000	3,182,700	3,278,181	3,376,526	3,450,810	16,378,217
Grid Transformation & Engineering	E-0028-0000001	Overhead Streetlights - City of San Antonio (COSA)/Suburban Cities	1,385,771	1,385,771	1,413,486	1,413,486	1,444,583	7,043,097
Grid Transformation & Engineering	E-0069-0000001	Make-Ready Adjustments for Phone Company	59,293	59,293	59,293	59,293	59,293	296,465
Grid Transformation & Engineering	E-0070-0000001	Make-Ready Adjustments for Telecommunications	2,100,000	2,100,000	2,100,000	2,100,000	2,100,000	10,500,000
Grid Transformation & Engineering	Customer Growth Total		30,164,739	30,633,255	33,261,638	28,057,797	28,423,125	150,540,553
Grid Transformation & Engineering	Infrastructure Modernization							
Grid Transformation & Engineering	D-0600-0000001	Pre-Capitalization Capacitor Banks	400,000	400,000	400,000	400,000	400,000	2,000,000
Grid Transformation & Engineering	D-0620-0000001	Pre-Capitalization Capacitors (Individual)	391,513	394,196	403,052	400,000	408,800	1,997,562
Grid Transformation & Engineering	E-0039-0000002	Overhead Line Customer Assistance	24,244	24,244	24,244	24,244	24,244	121,220

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Business Area	Strategic Category	WBS Description	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	TOTAL
Grid Transformation & Engineering	E-0086-0000001	Install Capacitor Banks	300,000	300,000	300,000	300,000	300,000	1,500,000
Grid Transformation & Engineering	E-0095-0000001	Circuit Upgrades Due to Poor Reliability	2,887,000	4,088,500	1,920,905	3,377,500	3,451,805	15,725,710
Grid Transformation & Engineering	E-0100-0000001	Reclosers for Circuit Reliability	10,000,000	10,000,000	10,000,000	10,000,000	10,000,000	50,000,000
Grid Transformation & Engineering	E-0105-0000001	Downtown Network System Improvement	2,500,914	2,500,914	5,268,704	-	-	10,270,532
Grid Transformation & Engineering	E-0112-0000001	Underground Facility System Improvements	3,819,382	3,933,964	3,973,303	4,013,036	4,101,323	19,841,009
Grid Transformation & Engineering	E-0115-0000001	Cable Rehabilitation	15,000,000	15,118,000	15,238,360	15,361,127	15,699,072	76,416,559
Grid Transformation & Engineering	E-0163-0000001	Overhead Distribution System Improvement-Circuit Patrol	450,000	450,000	459,000	450,000	459,900	2,268,900
Grid Transformation & Engineering	E-0164-0000001	Overhead Electric Distribution System Improvement-Districts	2,500,000	2,500,000	2,550,000	2,550,000	2,606,100	12,706,100
Grid Transformation & Engineering	E-0191-0000001	Joint Base San Antonio System (JBSA) Rehabilitation	2,000,000	2,000,000	2,000,000	2,000,000	2,000,000	10,000,000
Grid Transformation & Engineering	E-0193-0000001	Downtown Network Facility Rehabilitation	1,193,750	1,193,750	1,193,750	-	-	3,581,250
Grid Transformation & Engineering	E-0217-0000001	Underground Feeder Replacement	958,165	986,910	1,000,000	1,000,000	1,022,000	4,967,075
Grid Transformation & Engineering	E-0266-0000001	Downtown Network - Network Protector VaultGard Supervisory Control and Data Acquisition	2,450,000	2,450,000	2,450,000	2,450,000	2,450,000	12,250,000
Grid Transformation & Engineering	E-0269-0000001	Fault Location and Isolation Service Restoration (FLISR)	750,000	750,000	750,000	750,000	750,000	3,750,000
Grid Transformation & Engineering	E-0270-0000001	LED Streetlight Transition and Billing	2,500,000	2,500,000	2,500,000	2,500,000	2,500,000	12,500,000
Grid Transformation & Engineering	E-0274-0000001	Underground Line Strategy	10,000,000	10,000,000	16,907,180	20,000,000	20,000,000	76,907,180
Grid Transformation & Engineering	E-0304-0000001	Pole Replacement	9,092,243	9,092,243	9,092,243	9,092,243	9,092,243	45,461,217
Grid Transformation & Engineering		Infrastructure Modernization Total	67,217,212	68,682,722	76,430,742	74,668,151	75,265,487	362,264,314
Grid Transformation & Engineering		Special Projects						
Grid Transformation & Engineering	E-0154-0000001	Distribution Automation Equipment	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	5,000,000
Grid Transformation & Engineering	E-0176-0000001	Distributed Generation	343,771	343,771	343,771	343,771	343,771	1,718,854
Grid Transformation & Engineering	E-0307-0000001	Bullet Sleeve Replacement	5,961,024	5,961,024	3,008,012	-	-	14,930,060
Grid Transformation & Engineering	U-1005-0000005	Electric Vehicle (EV) Charging Station Upgrades	-	250,000	250,000	-	-	500,000
Grid Transformation & Engineering		Special Projects Total	7,304,795	7,554,795	4,601,783	1,343,771	1,343,771	22,148,914
Grid Transformation & Engineering		System Growth						
Grid Transformation & Engineering	D-0700-0000001	Pre-Capitalization Voltage Regulators	300,000	300,000	300,000	300,000	300,000	1,500,000
Grid Transformation & Engineering	D-0720-0000001	Pre-Capitalization Network Protectors	1,138,215	1,147,555	1,170,702	-	-	3,456,472
Grid Transformation & Engineering	E-0066-0000001	Underground Street Light for City of San Antonio (COSA) / Suburban Cities	3,354,714	3,455,355	3,559,016	3,665,786	3,746,434	17,781,305
Grid Transformation & Engineering	E-0087-0000001	Electric Overhead Improvements	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	5,000,000
Grid Transformation & Engineering	E-0092-0000001	Overhead System Voltage Conversions	8,303,538	6,652,862	1,349,239	2,194,500	2,242,779	20,742,918
Grid Transformation & Engineering	E-0093-0000001	New Feeder Circuits for Growth	5,995,082	7,485,530	6,763,750	3,050,000	3,117,100	26,411,462
Grid Transformation & Engineering	E-0098-0000001	Upgrade Conductor	7,446,104	4,848,629	9,894,861	10,327,300	10,554,501	43,071,395
Grid Transformation & Engineering	E-0216-0000001	Underground New Feeder Circuits/Substation	3,784,956	4,577,600	5,043,685	2,700,000	2,759,400	18,865,641
Grid Transformation & Engineering	E-0306-0000001	Extend Underground In Downtown San Antonio	2,096,696	2,500,000	2,500,000	2,500,000	2,500,000	12,096,696
Grid Transformation & Engineering		System Growth Total	33,419,305	31,967,532	31,581,253	25,737,586	26,220,214	148,925,889
Grid Transformation & Engineering Total			154,832,956	154,972,613	160,748,694	143,380,584	144,972,256	758,907,104
Integrated Security	Infrastructure Modernization							
Integrated Security	NEW_16	MyID Replacement	-	-	1,600,000	-	-	1,600,000
Integrated Security	NEW_17	IT/OT Interface (dragos)	550,000	-	-	-	-	550,000
Integrated Security	NEW_18	Managed Detection & Response	850,000	-	-	-	-	850,000



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Business Area	Strategic Category	WBS Description	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	TOTAL
Integrated Security	Infrastructure Modernization	Total	1,400,000	-	1,600,000	-	-	3,000,000
Integrated Security	Special Projects							
Integrated Security	I-5000-1002000	Security Tools Refresh	-	1,800,000	2,500,000	2,500,000	2,555,000	9,355,000
Integrated Security	I-5000-1002101	Physical Security Fencing	655,195	805,195	581,396	581,396	594,187	3,217,369
Integrated Security	I-5000-1002102	Physical Security Cameras	871,805	1,029,805	731,181	731,181	747,267	4,111,239
Integrated Security	I-5000-1002202	Threat Intelligence Platform	295,000	-	-	-	-	295,000
Integrated Security	I-5000-1002203	Cyber Risk Information Sharing Program (CRISP)	-	265,000	-	-	-	265,000
Integrated Security	I-5000-1012001	Identity Management System	1,600,000	-	-	-	-	1,600,000
Integrated Security	I-5000-1012002	Managed Endpoint Services	1,600,000	-	-	-	-	1,600,000
Integrated Security	I-5000-1012003	Dragos Sensor Expansion	500,000	-	-	-	-	500,000
Integrated Security	Special Projects Total		5,522,000	3,900,000	3,812,577	3,812,577	3,896,454	20,943,608
Integrated Security Total			6,922,000	3,900,000	5,412,577	3,812,577	3,896,454	23,943,608
Military Strategic Cooperation & Support	Infrastructure Modernization							
Military Strategic Cooperation & Support	J-0010-0000001	Joint Base San Antonio (JBSA) Lackland - Transformer Replacements	419,112	-	-	-	-	419,112
Military Strategic Cooperation & Support	J-0013-0000001	Joint Base San Antonio (JBSA)-Randolph-50YR-Electric	80,600	82,280	83,994	85,741	87,628	420,243
Military Strategic Cooperation & Support	J-0014-0000001	Joint Base San Antonio (JBSA)-Lackland-50YR-Electric Renewals & Replacement	79,000	80,680	82,394	84,141	85,993	412,208
Military Strategic Cooperation & Support	J-0015-0000001	Joint Base San Antonio (JBSA)-Lackland Training Annex 50YR-Elec Renewals & Replacements	9,700	9,940	10,185	10,435	10,664	50,923
Military Strategic Cooperation & Support	J-0016-0000001	Joint Base San Antonio (JBSA)-Randolph-50YR Contract-Renewals & Replacements - Gas	-	220,054	269,574	419,252	428,475	1,337,355
Military Strategic Cooperation & Support	J-0017-0000001	Joint Base San Antonio (JBSA)-Lackland-50YR-Gas	1,066,281	901,147	830,647	830,647	848,921	4,477,642
Military Strategic Cooperation & Support	J-0018-0000001	Joint Base San Antonio (JBSA)-Lackland Training Annex-50YR-Gas	221,028	146,349	9,682	-	-	377,059
Military Strategic Cooperation & Support	J-0019-0000001	Joint Base San Antonio (JBSA)-Lackland-Emergency Replacement-Electric	30,000	30,000	30,000	30,000	30,000	150,000
Military Strategic Cooperation & Support	J-0020-0000001	Joint Base San Antonio (JBSA)-Lackland TA Emergency Replacement-Electric	12,000	12,240	12,485	12,735	13,015	62,474
Military Strategic Cooperation & Support	J-0021-0000001	Joint Base San Antonio (JBSA)-Randolph-Emergency Replacement-Electric	6,000	6,000	6,000	6,000	6,000	30,000
Military Strategic Cooperation & Support	J-0025-0000001	Joint Base San Antonio Utilization Prioritization - Electric Critical Switch Replacement	743,512	-	-	-	-	743,512
Military Strategic Cooperation & Support	J-0030-0000001	Joint Base San Antonio (JBSA)-Critical Pipe Replacement-Gas-Randolph	370,263	-	-	-	-	370,263
Military Strategic Cooperation & Support	J-0059-0000001	Joint Base San Antonio (JBSA) Utilities Privatization Anode Installation -Gas	100,000	-	-	-	-	100,000
Military Strategic Cooperation & Support	J-0066-5000000	Joint Base San Antonio (JBSA) Utilities Privatization Relay Upgrade - Lackland	233,454	-	-	-	-	233,454
Military Strategic Cooperation & Support	J-0071-0000001	Joint Base San Antonio (JBSA) Utilities Privatization Pole Replacements - Lackland	296,000	296,000	296,000	216,000	220,752	1,324,752
Military Strategic Cooperation & Support	J-0072-0000001	Joint Base San Antonio (JBSA) Lackland - Transformer Replacements	277,289	-	-	-	-	277,289
Military Strategic Cooperation & Support	J-0073-0000001	Joint Base San Antonio (JBSA) Utilities Privatization-Customer Driven Projects-Elec	635,000	651,000	667,320	683,966	699,014	3,336,300



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Business Area	Strategic Category	WBS Description	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	TOTAL
Military Strategic Cooperation & Support	J-0074-0000001	Joint Base San Antonio (JBSA) Utilities Privatization - Customer Driven Projects-Gas	71,000	72,500	74,000	75,560	77,222	370,282
Military Strategic Cooperation & Support	J-0075-0000001	Joint Base San Antonio (JBSA) Utilities Priv Pole Replacements - Chapman Training Annex	296,000	296,000	296,000	216,000	220,752	1,324,752
Military Strategic Cooperation & Support	Infrastructure Modernization Total		4,946,240	2,804,190	2,668,280	2,670,477	2,728,436	15,817,622
Military Strategic Cooperation & Support Total			4,946,240	2,804,190	2,668,280	2,670,477	2,728,436	15,817,622
People & Culture	Infrastructure Modernization							
People & Culture	I-0814-5000000	ERP: Vendor/People System	-	-	-	-	1,000	1,000
People & Culture	Infrastructure Modernization Total		-	-	-	-	1,000	1,000
People & Culture	Special Projects							
People & Culture	NEW_21	Broadleaf / Managed Services Provider RFP	25,000	-	-	-	-	25,000
People & Culture	Special Projects Total		25,000	-	-	-	-	25,000
People & Culture Total			25,000	-	-	-	1,000	26,000
Power Generation	Environmental/Legislative/Regulatory							
Power Generation	F-0022-1800008	Power Generation ERCOT PRC/Modeling, Data, and Analysis (MOD) Standards Engineering	134,156	135,387	136,967	138,253	141,295	686,058
Power Generation	F-0062-2200011	Spruce Power Plant Pump Replacements for Environmental Systems	103,800	103,900	104,000	104,200	106,492	522,392
Power Generation	F-0115-1700088	Deely North & South Bottom Ash (BA) Pond Closure	2,729,304	-	-	-	-	2,729,304
Power Generation	F-0115-1800032	Deely Demolition Project	332,927	-	-	-	-	332,927
Power Generation	F-0184-1600061	Spruce2 Baghouse Bag Replacement	2,958,115	-	-	-	-	2,958,115
Power Generation	F-0217-0000020	Spruce1 Baghouse Bag Replacement Project	-	2,955,073	-	-	-	2,955,073
Power Generation	F-0222-0000020	von Rosenberg (AvR) BOP Controls Upgrade Project	2,274,856	-	-	-	-	2,274,856
Power Generation	F-0234-2100041	Spruce - Install Catalyst Future Years	3,063,500	-	3,363,000	-	-	6,426,500
Power Generation	F-0583-0000013	Power Generation Env Monitoring Wells	55,700	55,900	56,050	56,050	57,283	280,983
Power Generation	F-0583-1800077	Calaveras Sanitary Sewer Improvement/Upgrade	3,404,160	-	-	-	-	3,404,160
Power Generation	F-0583-2100005	Calaveras Evaporation Pond Closure	1,266,618	-	-	-	-	1,266,618
Power Generation	F-9999-1200101	Power Plant Improvement to meet EPA 316B	-	1,474,878	181,723	4,425,705	4,523,071	10,605,377
Power Generation	F-9999-1300001	Spruce Wastewater Treatment/Effluent	19,638,605	6,715,922	19,728,480	24,981,031	25,530,614	96,594,652
Power Generation	NEW_2	C.E.P.: Freeze Protection (-10F; 30 mphr) \$46M	8,400,000	23,800,000	-	-	-	32,200,000
Power Generation	NEW_6	Spruce2 Gas Conversion	-	2,000,000	3,000,000	15,000,000	27,000,000	47,000,000
Power Generation	NEW_7	Spruce2 Gas Conversion Pipeline Upgrades	-	-	1,000,000	2,000,000	4,300,000	7,300,000
Power Generation	Environmental/Legislative/Regulatory Total		44,361,741	37,241,060	27,570,220	46,705,239	61,658,755	217,537,015
Power Generation	Infrastructure Modernization							
Power Generation	F-0022-1500002	Power Plant Large Motor Rewinds	745,455	745,757	1,256,300	1,265,112	1,292,944	5,305,568
Power Generation	F-0022-1600037	Power Generation Traveling Water Screen Replacement	-	-	-	4,243,393	4,336,748	8,580,141
Power Generation	F-0022-1700055	Power Generation System Protection Relay Upgrade Project	186,193	188,489	191,765	194,314	198,589	959,350
Power Generation	F-0022-1800009	Power Generation Battery Monitoring System	389,401	-	-	-	-	389,401
Power Generation	F-0022-2200010	Circuit Emulation (CEM) Spectrum SpectraPak Upgrade	425,787	100,989	-	-	-	526,776
Power Generation	F-0024-0000007	Coal Yard Stacker Reclaimer Demolition	-	-	-	1,687,500	1,724,625	3,412,125
Power Generation	F-0024-1600023	Coal Yard Freeze Protection Upgrades	2,682,919	-	-	-	-	2,682,919

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Business Area	Strategic Category	WBS Description	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	TOTAL
Power Generation	F-0024-1700051	Coal Yard 4160V Power Feed	50,606	263,622	812,144	-	-	1,126,372
Power Generation	F-0024-1700092	PG Secondary Unit Substation (SUS) Transformer Replacement Program	95,700	95,880	96,030	96,270	98,388	482,268
Power Generation	F-0024-1800014	Coal Yard HVAC Replacement Program	66,840	33,540	33,630	-	-	134,010
Power Generation	F-0024-1800015	Coal Yard Gearbox Program	167,100	167,700	168,150	168,750	172,463	844,163
Power Generation	F-0024-2100006	Coal Yard Dumper Holding Devices	1,230,679	252,770	-	-	-	1,483,449
Power Generation	F-0024-2200018	Coal Yard Dust Collector-201 Upgrade	383,226	-	-	-	-	383,226
Power Generation	F-0024-2200037	Coal Yard Chute Upgrades	55,550	2,785,000	111,800	-	-	2,952,350
Power Generation	F-0024-2200054	Coal Yard Magnetic Separators Upgrade	891,200	894,400	-	-	-	1,785,600
Power Generation	F-0055-0000017	Braunig Dam Spillway Enclosure Project	1,671,000	-	-	-	-	1,671,000
Power Generation	F-0055-2100002	Braunig 4160 Motor Rewinds	89,120	89,440	89,680	-	-	268,240
Power Generation	F-0055-2100003	Braunig General Service Pump	72,410	72,670	72,865	-	-	217,945
Power Generation	F-0055-2100004	Braunig Plant Power Cable Replacement Program	346,801	348,405	349,951	-	-	1,045,157
Power Generation	F-0055-2200051	Braunig S&L Assessments (Sargent & Lundy)	547,000	2,420,000	-	-	-	2,967,000
Power Generation	F-0062-0000012	Spruce Tripper Wash Down	568,165	1,465,904	-	-	-	2,034,069
Power Generation	F-0062-0000014	Spruce2 Forced Draft Fan Spare Motor	-	488,628	362,209	-	-	850,837
Power Generation	F-0062-0000016	Spruce2 Induced Draft Fan Spare Motor	-	1,082,560	820,351	-	-	1,902,911
Power Generation	F-0062-0000017	Spruce2 Coal Mill Pulverizer Spare Motor	159,754	-	-	-	-	159,754
Power Generation	F-0062-0000018	Spruce1 Primary Air Fan Spare Motor	-	340,659	-	-	-	340,659
Power Generation	F-0062-1700090	Spruce Outfall Pier Pump Platform	557,000	-	-	-	-	557,000
Power Generation	F-0062-2100050	Spruce1&2 HVAC Replacements	77,850	51,950	52,000	-	-	181,800
Power Generation	F-0062-2200017	Spruce 2 Recycle Pump Gearbox Cooling System Upgrade	20,410	-	-	-	-	20,410
Power Generation	F-0062-2200021	Spruce1 - 1A Air Compressor Replacement	318,500	-	-	-	-	318,500
Power Generation	F-0062-2200028	Rewind of Spruce 1B Motor for Circulating Water Pump (CWP)	252,346	-	-	-	-	252,346
Power Generation	F-0062-2200032	Spruce Turbine Floor Ventilation	16,328	-	-	-	-	16,328
Power Generation	F-0062-2200035	Spruce2 Spare Switch Gear Breakers	9,147	-	-	-	-	9,147
Power Generation	F-0062-2200039	Spruce Turbine Lighting Project	184,385	185,184	186,004	-	-	555,573
Power Generation	F-0062-2200042	Spruce 1 and 2 Ovation Playback Recorder Stations	-	184,101	-	-	-	184,101
Power Generation	F-0062-2200056	Spruce2 Air Pre-Heater (APH) Cold End (CE) Basket Replacement	2,544,400	223,600	-	-	-	2,768,000
Power Generation	F-0062-2200067	Spruce1 - 1B Air Compressor Replacement	326,681	-	-	-	-	326,681
Power Generation	F-0062-2200068	Spruce1 1C Air Compressor Replacement	-	327,912	-	-	-	327,912
Power Generation	F-0062-2512339	Spruce1 Induced Draft (ID) Fan Motor Spare	-	903,573	-	-	-	903,573
Power Generation	F-0062-2512961	Spruce1 Forced Draft (FD) Fan Motor Spare	611,183	-	-	-	-	611,183
Power Generation	F-0114-0000006	Sommers Plant Power Cable Replacement Program	200,000	200,000	200,000	-	-	600,000
Power Generation	F-0114-1700101	Sommers Oil Delivery System	-	1,677,000	-	-	-	1,677,000
Power Generation	F-0114-2200024	Sommers HVAC Replacement Project	75,000	40,000	40,000	-	-	155,000
Power Generation	F-0114-2200033	Sommers1 & 2 Superheat and Reheat Seal Box Upgrade	23,405	188,743	-	-	-	212,148
Power Generation	F-0114-2200043	Sommers1 Heater Drain Pump Variable Frequency Drives (VFD) Upgrade	231,221	197,606	-	-	-	428,827
Power Generation	F-0114-2200044	Sommers2 Condensate Pump Variable Frequency Drives (VFD) Upgrades	16,560	454,528	359,474	-	-	830,562

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Business Area	Strategic Category	WBS Description	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	TOTAL
Power Generation	F-0114-2200045	Sommers 2 Heater Drain Pump Variable Frequency Drives (VFD) Upgrade	5,450	196,174	310,941	-	-	512,565
Power Generation	F-0114-2200047	Sommers 1 Boiler circulating Pump Upgrade	311,400	300,000	300,000	-	-	911,400
Power Generation	F-0114-2200050	Sommers Sargent & Lundy (S&L) Assessments	1,114,000	1,121,000	-	-	-	2,235,000
Power Generation	F-0114-2200053	Sommers1 Condensate Pump Variable Frequency Drives (VFD) Upgrade	359,210	-	-	-	-	359,210
Power Generation	F-0126-0000001	Lee West Craft Maintenance Building	308,870	965,774	876,601	-	-	2,151,245
Power Generation	F-0126-0000015	Lee West HVAC Replacement Project	44,560	44,720	44,840	45,000	45,990	225,110
Power Generation	F-0126-1700089	Lee East CT5 & CT7 Area Paving	668,400	-	-	-	-	668,400
Power Generation	F-0126-2100017	Lee West Nox Catalyst Replacements CT1-4	1,000,000	-	-	-	-	1,000,000
Power Generation	F-0126-2100019	Lee West Units 1 and 3 Low Pressure Turbine Overhaul (OH)	-	-	3,363,000	-	-	3,363,000
Power Generation	F-0138-1400073	Rio Nogales High Pressure/Intermediate Pressure (HP/IP) Turbine Retrofit	27,994	-	-	-	-	27,994
Power Generation	F-0138-1600020	Rio Nogales Replace 4160 Breaker	1,107,384	-	-	-	-	1,107,384
Power Generation	F-0138-1600023	Rio Nogales Continuous Emission Monitoring System (CEMS) Analyzer Upgrade	155,700	-	-	-	-	155,700
Power Generation	F-0138-1600029	Rio Nogales Platforms and Covers	55,700	55,900	56,050	56,250	57,488	281,388
Power Generation	F-0138-1600032	Rio Nogales Aux Transformer	845,600	-	-	-	-	845,600
Power Generation	F-0138-1600033	Rio Nogales Heat Recovery Steam Generator (HRSG) Leak Detector	529,150	-	-	-	-	529,150
Power Generation	F-0138-1700045	Rio Nogales Cooling Tower Louvers/Sides upgrade	-	335,400	-	-	-	335,400
Power Generation	F-0138-1800038	Rio Nogales Advanced Gas Path (AGP) Escalation annual true-up	56,257	57,577	58,853	60,188	61,512	294,387
Power Generation	F-0138-2100028	Rio Nogales Circulating Water Pump Motor Rewind	250,650	251,550	252,225	253,125	258,694	1,266,244
Power Generation	F-0138-2100029	Rio Nogales Condensate Pump motor rewind	167,100	167,700	168,150	168,750	172,463	844,163
Power Generation	F-0138-2100031	Rio Nogales Cooling Tower Fan Motor Rewind	81,322	89,440	95,285	95,625	97,729	459,401
Power Generation	F-0138-2100056	Rio Nogales Aux Cooling Water Pump Motor Rewind	88,007	88,469	88,938	89,411	91,378	446,203
Power Generation	F-0138-2200012	Rio Nogales Condensate LP Drum Control Valves	206,090	-	-	-	-	206,090
Power Generation	F-0138-2200013	Rio Nogales Fuel Gas System Upgrade	167,100	-	-	-	-	167,100
Power Generation	F-0138-2200023	Rio Nogales Condensate Cavitation Study	-	-	-	65,244	66,679	131,923
Power Generation	F-0138-2200034	Rio Nogales Heat Recovery Steam Generator (HRSG) Life Assessment Implementation	287,214	-	8,440,200	8,440,200	8,625,884	25,793,498
Power Generation	F-0138-2200038	Rio Nogales Auxiliary Cooling Water Pump	-	111,100	612,700	614,900	628,428	1,967,128
Power Generation	F-0138-2200040	Rio Nogales Bleach Tank Replacement	-	134,479	-	-	-	134,479
Power Generation	F-0138-2200049	Rio Nogales Diesel Fire Pump	55,700	670,800	28,025	-	-	754,525
Power Generation	F-0138-2200052	Rio Nogales Low Set Limit Study (LSL) & Upgrades	69,307	559,000	560,500	562,500	574,875	2,326,182
Power Generation	F-0138-2200055	Rio Nogales Cooling Tower Building Upgrade	83,550	280,171	-	-	-	363,721
Power Generation	F-0138-2200057	Rio Nogales CT101 GSU Transformer Replacement Project	-	-	-	5,366,691	5,484,758	10,851,449
Power Generation	F-0138-2200058	Rio Nogales CT201 GSU Transformer Replacement Project	-	-	-	5,366,691	5,484,758	10,851,449
Power Generation	F-0138-2200059	Rio Nogales Unit Aux Transformer Replacement Project	-	-	306,954	748,572	765,041	1,820,567

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Business Area	Strategic Category	WBS Description	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	TOTAL
Power Generation	F-0138-2200060	Rio Nogales UPS Replacement & Spare Battery Chargers	-	-	112,100	-	-	112,100
Power Generation	F-0138-2200061	Rio Nogales Fuel Gas Pig Lancher/Receiver	807,650	39,130	-	-	-	846,780
Power Generation	F-0138-2200063	Rio Nogales Generator Excitation System Replacement Project	-	-	94,904	1,337,562	1,366,988	2,799,454
Power Generation	F-0138-2200070	Rio Nogales CT Filter Replacement	300,780	603,720	-	-	-	904,500
Power Generation	F-0138-2200071	Rio Nogales Water Storage Tank Installation	-	4,708,200	-	-	-	4,708,200
Power Generation	F-0138-2380220	Rio Nogales Pavement Projects	-	1,235,106	520,660	-	-	1,755,766
Power Generation	F-0138-2552141	Rio Nogales CT1 Rotor Replacement	16,004,440	6,504,355	-	-	-	22,508,795
Power Generation	F-0138-2552142	Rio Nogales CT2 Rotor Replacement	7,426,640	16,063,255	6,411,672	-	-	29,901,567
Power Generation	F-0138-2552143	Rio Nogales CT3 Rotor Replacement	7,426,640	9,914,255	12,578,998	-	-	29,919,893
Power Generation	F-0143-0000015	Lee East CT8 - Rotor No. 191-640	2,785,000	-	-	-	-	2,785,000
Power Generation	F-0143-0000016	Lee East CT5 - Rotor No. 191-624	2,673,600	111,800	-	-	-	2,785,400
Power Generation	F-0143-0000017	Lee East CT7 - Rotor No. 191-637	-	2,683,200	112,100	-	-	2,795,300
Power Generation	F-0143-0000018	Lee East CT6 - Rotor No. 191-626	-	2,795,000	-	-	-	2,795,000
Power Generation	F-0143-1800044	Lee East SCR Catalyst Replacement	1,917,020	-	-	-	-	1,917,020
Power Generation	F-0143-2200048	Lee East Primary Filter Replacements	-	-	-	168,750	172,463	341,213
Power Generation	F-0143-2495432	Lee East HVAC Upgrade Project	44,560	44,720	44,840	45,000	45,990	225,110
Power Generation	F-0145-0000012	Tuttle Well #1 Plugging Project	177,024	-	-	-	-	177,024
Power Generation	F-0181-1600014	Braunig3 Air Preheater Basket and Seal	622,800	1,118,000	-	-	-	1,740,800
Power Generation	F-0183-1700030	Spruce1 Exciter Controls Upgrade	109,942	666,722	-	-	-	776,664
Power Generation	F-0185-1800052	Spruce2 MS Lead Replacement	878,132	-	-	-	-	878,132
Power Generation	F-0185-2100042	Spruce 2 Ammonia Vaporizer Upgrade Modification Replacements	203,719	-	-	-	-	203,719
Power Generation	F-0198-1700004	Braunig3 Blowdown Line Replacement	504,873	55,900	-	-	-	560,773
Power Generation	F-0199-1700016	Sommers 2 Boiler Blowdown Line Replacement	731,429	-	-	-	-	731,429
Power Generation	F-0200-2482252	Spruce1&2 Battery Monitoring System	285,684	-	-	-	-	285,684
Power Generation	F-0214-1800069	von Rosenberg (AvR) Steam Turbine HP/IP Retrofit	-	-	-	10,198,125	10,422,484	20,620,609
Power Generation	F-0214-2100001	von Rosenberg (AvR) Generator Breaker Replacement Project	3,536,668	1,789,177	-	-	-	5,325,845
Power Generation	F-0217-2100045	Spruce1 Fans Variable Frequency Drives (VFD) Upgrade	-	706,180	11,509,910	1,334,418	1,363,775	14,914,283
Power Generation	F-0218-0000017	Spruce1 Induced Draft (ID) & Forced Draft (FD) Fan Drive Exciter Refresh	66,508	414,589	-	-	-	481,097
Power Generation	F-0219-2100027	Rio Nogales Boiler Feed Pump Motor Rewind	155,960	162,110	168,150	168,750	172,463	827,433
Power Generation	F-0224-0000024	Rio Nogales Cooling Tower/Decking/Shrouds/Siding Upgrades	26,664	1,715,051	-	-	-	1,741,715
Power Generation	F-0224-0000031	Rio Nogales Steamer TWIPS Upgrades	325,000	-	-	-	-	325,000
Power Generation	F-0226-2100051	von Rosenberg (AvR) CT1 Rotor Replacement	9,431,840	21,423,455	5,298,220	-	-	36,153,515
Power Generation	F-0226-2100052	von Rosenberg (AvR) CT2 Rotor Replacement	74,240	9,467,055	21,646,062	5,130,000	5,242,860	41,560,217
Power Generation	F-0236-2100022	Rio Nogales - Fire Protection Indicating Valve (PIV) Upgrade	144,430	144,820	-	-	-	289,250
Power Generation	F-0237-2100034	Rio Nogales Generator Breaker Replacement Project	-	3,690,839	3,727,075	-	-	7,417,914
Power Generation	F-0242-0000001	Power Generation New Build Projects	-	-	-	109,038,853	235,565,279	344,604,132
Power Generation	F-0243-2200073	Community Solar Emerson Upgrades	107,223	-	-	-	-	107,223

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Power Generation	F-0372-1800071	von Rosenberg (AvR) HVAC Replacement Project	167,100	167,700	168,150	168,750	172,463	844,163
Power Generation	F-0372-1800075	von Rosenberg (AvR) AGP Escalation Annual true-up	287,634	330,020	372,372	-	-	990,026
Power Generation	F-0372-2100053	von Rosenberg (AvR) Inlet Filters	-	-	504,450	-	-	504,450
Power Generation	F-0372-2200005	Replace Corroded Fuel Gas Piping	389,162	-	-	-	-	389,162
Power Generation	F-0372-2200009	Replace Reheater Desuperheater Spray Control Valve	58,425	-	-	-	-	58,425
Power Generation	F-0372-2200019	von Rosenberg (AvR) MT2 GSU Replacement	10,901	541,736	1,690,325	2,399,164	2,451,946	7,094,072
Power Generation	F-0372-2200022	von Rosenberg (AvR) UPS Replacement & Spare Battery Charger	103,700	-	112,100	-	-	215,800
Power Generation	F-0372-2200027	Replace Feedwater Control Valves	123,869	45,925	-	-	-	169,794
Power Generation	F-0372-2200029	von Rosenberg (AvR) HRSG 1&2 Life Assessment Implementation	67,615	194,313	5,626,800	5,626,800	5,750,590	17,266,118
Power Generation	F-0372-2200030	von Rosenberg (AvR) Critical Valve Asset Management	473,313	213,670	-	-	-	686,983
Power Generation	F-0372-2200031	von Rosenberg (AvR) High Pressure Piping Survey and Inspection	26,006	350,528	-	-	-	376,534
Power Generation	F-0372-2200036	von Rosenberg (AvR) - Spare CT Fan/Blower Assemblies	62,220	-	-	-	-	62,220
Power Generation	F-0372-2200041	von Rosenberg (AvR) Instrument Air Dryer Upgrade	248,076	-	-	-	-	248,076
Power Generation	F-0372-2200062	von Rosenberg (AvR) CT1 Station Service Battery Replacement	-	-	-	181,475	185,467	366,942
Power Generation	F-0372-2200064	von Rosenberg (AvR) Generator Excitation System Replacement Project	-	-	94,904	936,437	957,039	1,988,380
Power Generation	F-0372-2200065	von Rosenberg (AvR) CT2 Station Service Battery Replacement	-	180,520	-	-	-	180,520
Power Generation	F-0372-2498332	von Rosenberg (AvR) Circulating Water Pump Spare Motor	38,990	-	-	-	-	38,990
Power Generation	F-0372-2550259	von Rosenberg (AvR) HP Train Valve Replacement	409,277	-	-	-	-	409,277
Power Generation	F-0518-0000001	Coal Yard Conveyor Belt Replacements	100,000	100,000	100,000	100,000	100,000	500,000
Power Generation	NEW_1	C.E.P.: Plant Performance and Reliability Improvements	8,000,000	10,000,000	-	-	-	18,000,000
Power Generation	NEW_4	C.E.P.: Braunig Power Station City Water Supply Assessment	-	-	-	-	1,000	1,000
Power Generation		Infrastructure Modernization Total	91,669,791	120,080,915	91,659,407	166,422,570	294,210,241	764,042,924
Power Generation		Special Projects						
Power Generation	D-0081-0000001	Power Generation Computer Equipment	25,023	24,936	24,960	25,008	25,558	125,485
Power Generation	D-0082-1000001	Power Generation Direct Purchase Tools & Equipment	286,488	286,764	251,160	260,500	266,231	1,351,143
Power Generation	D-0450-0000001	Power Generation Direct Purchase Office Equipment	16,814	15,850	16,167	20,840	21,298	90,969
Power Generation	F-0022-0000020	Power Generation Ozone Monitor Replacement	22,280	22,360	22,360	22,360	22,360	111,720
Power Generation	F-0062-2200020	Spruce 2 Spare Boiler Feed Pump Element Procurement	738,636	-	-	-	-	738,636
Power Generation	F-0062-2200025	Spruce2 Bowl Mill Vane Wheel Upgrade 1	161,026	-	-	-	-	161,026

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Business Area	Strategic Category	WBS Description	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	TOTAL
Power Generation	F-0062-2200026	Spruce1 (JKS1) Spare Bowl Mill Roller Procurement	-	414,800	-	-	-	414,800
Power Generation	F-0062-2200066	Spruce2 Bowl Mill Vane Wheel Upgrade 2	164,243	-	-	-	-	164,243
Power Generation	F-0062-2200069	Spruce2 Online Equipment Condition Monitoring	-	1,414,000	-	-	-	1,414,000
Power Generation	F-0113-0000006	Leon Creek Power Plant Demolition	-	419,986	6,880,669	7,058,041	7,213,318	21,572,014
Power Generation	F-0143-2100009	Lee East 4160 Motor Rewinds	83,550	-	-	-	-	83,550
Power Generation	F-0217-2100047	Spruce1 Online Equipment Condition Monitoring	1,365,737	-	-	-	-	1,365,737
Power Generation	F-0583-1700087	Calaveras Fuel Oil Tank Demolition	1,225,400	-	-	-	-	1,225,400
Power Generation	NEW_3	C.E.P.: Fuel Oil (Lee West) (Option 1B)	1,000,000	6,200,000	10,000,000	-	-	17,200,000
Power Generation	NEW_5	Unit Retirement Driven Workforce Transition (VHB-2024, OWS-2026,2028, JKS-2027/2028)	-	-	-	-	1,000	1,000
Power Generation	Special Projects Total		5,089,197	8,798,696	17,195,316	7,386,749	7,549,765	46,019,723
Power Generation Total			141,120,729	166,120,671	136,424,943	220,514,558	363,418,761	1,027,599,662
Product Development	Special Projects							
Product Development	U-0031-1000000	Resiliency Service - Previously E-Rock	500,000	500,000	500,000	500,000	500,000	2,500,000
Product Development	Special Projects Total		500,000	500,000	500,000	500,000	500,000	2,500,000
Product Development Total			500,000	500,000	500,000	500,000	500,000	2,500,000
Real Estate & Master Planning	Infrastructure Modernization							
Real Estate & Master Planning	B-2017-1000001	Malone Construction	-	-	2,054,016	2,829,543	2,891,793	7,775,352
Real Estate & Master Planning	B-2022-0000001	Facility Recapitalization	4,596,703	3,551,077	5,000,000	-	-	13,147,780
Real Estate & Master Planning	B-2022-0000002	Phase 2 development of Corporate Headquarters	5,000,000	-	-	-	-	5,000,000
Real Estate & Master Planning	B-2022-0000003	Furniture Program	2,000,000	2,000,000	2,000,000	-	-	6,000,000
Real Estate & Master Planning	Infrastructure Modernization Total		11,596,703	5,551,077	9,054,016	2,829,543	2,891,793	31,923,132
Real Estate & Master Planning	Special Projects							
Real Estate & Master Planning	B-2019-0400000	Fleet Operations Building Design and Construction (Gembler)	-	-	800,000	7,200,000	7,358,400	15,358,400
Real Estate & Master Planning	B-2019-0500000	Westside Service District (Design & New Construction)	1,802,583	10,500,000	5,899,000	-	-	18,201,583
Real Estate & Master Planning	B-2019-0600000	Gas Operations Center (Design & New construction)	1,002,345	750,300	8,006,299	-	-	9,758,945
Real Estate & Master Planning	B-2019-0900000	Southwest Service District (Demo / Repurpose)	-	-	1,492,191	10,391,597	10,620,212	22,504,000
Real Estate & Master Planning	B-2022-0000004	Northeast Service District (Design & New Construction)	1,500,000	7,500,000	5,000,000	-	-	14,000,000
Real Estate & Master Planning	B-2022-0000005	Walk-In Pay Center Consolidation	-	1,000,000	-	-	-	1,000,000
Real Estate & Master Planning	Special Projects Total		4,304,929	19,750,300	21,197,490	17,591,597	17,978,612	80,822,928
Real Estate & Master Planning Total			15,901,632	25,301,377	30,251,506	20,421,140	20,870,405	112,746,060
STP	Infrastructure Modernization							
STP	N-0001-1000001	STP 1&2 Capital Project	26,360,000	26,560,000	25,800,000	29,960,000	33,691,753	142,371,753
STP	Infrastructure Modernization Total		26,360,000	26,560,000	25,800,000	29,960,000	33,691,753	142,371,753
STP Total			26,360,000	26,560,000	25,800,000	29,960,000	33,691,753	142,371,753
Substation & Transmission	Civic Improvements							
Substation & Transmission	T-0296-0000001	Texas Department of Transportation IH-410_IH-10E Transmission Upgrade	2,740,730	1,160,000	-	-	-	3,900,730
Substation & Transmission	T-0298-0000001	IH-35 NEX: Tuttle - Kirby	42,000	-	-	-	-	42,000
Substation & Transmission	T-0299-0000001	IH-35 NEX: Skyline - Deely	1,865,000	-	-	-	-	1,865,000
Substation & Transmission	T-0300-0000001	IH-35 NEX: Skyline - Spruce 345kV	978,000	1,591,000	-	-	-	2,569,000

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Business Area	Strategic Category	WBS Description	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	TOTAL
Substation & Transmission	Civic Improvements Total		5,625,730	2,751,000	-	-	-	8,376,730
Substation & Transmission	Customer Growth							
Substation & Transmission	NEW_10	Customer Growth (Lrg Customers)- Mauermann Rd.	1,051,040	-	-	-	-	1,051,040
Substation & Transmission	NEW_11	Customer Growth (Lrg Customers)- Nabers Bitterblue	2,547,368	2,652,632	-	-	-	5,200,000
Substation & Transmission	NEW_12	Customer Growth (Lrg Customers)- SAT 14	3,321,961	978,039	-	-	-	4,300,000
Substation & Transmission	NEW_13	Customer Growth (Lrg Customers)- SAT 15	3,825,000	3,851,563	823,438	-	-	8,500,000
Substation & Transmission	NEW_14	Customer Growth (Lrg Customers)- TRP 180 Acres	3,183,030	2,016,970	-	-	-	5,200,000
Substation & Transmission	NEW_9	Customer Growth (Lrg Customers)- COPT Potranco	3,202,439	1,997,561	-	-	-	5,200,000
Substation & Transmission	NEW_TRANS_11	Customer Growth (Lrg Customers)- Nabers Bitterblue - Transmission	3,502,632	3,647,368	-	-	-	7,150,000
Substation & Transmission	NEW_TRANS_12	Customer Growth (Lrg Customers)- SAT 14 - Transmission	6,528,039	1,921,961	-	-	-	8,450,000
Substation & Transmission	NEW_TRANS_13	Customer Growth (Lrg Customers)- SAT 15 - Transmission	10,575,000	10,648,438	2,276,563	-	-	23,500,000
Substation & Transmission	NEW_TRANS_14	Customer Growth (Lrg Customers)- TRP 180 Acres - Transmission	6,916,970	4,383,030	-	-	-	11,300,000
Substation & Transmission	NEW_TRANS_9	Customer Growth (Lrg Customers)- COPT Potranco - Transmission	6,897,561	4,302,439	-	-	-	11,200,000
Substation & Transmission	Customer Growth Total		51,551,040	36,400,000	3,100,000	-	-	91,051,040
Substation & Transmission	Environmental/Legislative/Regulatory							
Substation & Transmission	S-0814-0000001	Transmission Station Construction - T4 - 138kV Federal Energy Regulatory Commission (FERC) 754	945,000	-	-	-	-	945,000
Substation & Transmission	S-0816-0000001	Substation Relay Upgrades - Cagnon	74,400	-	-	-	-	74,400
Substation & Transmission	S-0941-0000001	Helotes Switchyard	-	-	3,000,000	7,000,000	7,154,000	17,154,000
Substation & Transmission	Environmental/Legislative/Regulatory Total		1,019,400	-	3,000,000	7,000,000	7,154,000	18,173,400
Substation & Transmission	Infrastructure Modernization							
Substation & Transmission	D-0072-0000001	Tools-Equipment - Transmission	120,000	125,000	130,000	140,000	143,080	658,080
Substation & Transmission	NEW_TRANS_22	Howard Switchyard Expansion	7,000,000	10,900,000	22,600,000	11,300,000	-	51,800,000
Substation & Transmission	S-0566-0000040	Kirby - Replace Transformer/Switchgear #2 (Transmission)	-	-	100,000	-	-	100,000
Substation & Transmission	S-0597-0000023	Highland Hills - Replace Transformer/Switchgear #2, Switchgear #1 (Transmission)	355,000	-	-	-	-	355,000
Substation & Transmission	S-0621-0000023	Chavaneaux Replace Transformer/Switchgear #2, Distr Feeder Relay Upgrade #3 (Transmission)	95,000	-	-	-	-	95,000
Substation & Transmission	S-0623-0000023	Bandera Road - Replace Transformer/Switchgear #3 (Transmission)	15,000	105,000	-	-	-	120,000
Substation & Transmission	S-0769-0000023	Hill Country - Replace Autotransformer #4	250,000	5,250,000	-	-	-	5,500,000
Substation & Transmission	S-0804-0000001	Braunig-Upgrade Bus #1	-	-	3,000,000	-	-	3,000,000
Substation & Transmission	S-0805-0000001	Braunig-Upgrade Bus #2	-	-	3,000,000	-	-	3,000,000
Substation & Transmission	S-0806-0000001	Braunig-Upgrade Bus #3	-	-	1,351,160	1,648,840	1,685,114	4,685,114
Substation & Transmission	S-0807-0000001	Braunig-Upgrade Bus #4	-	-	1,351,160	1,648,840	1,685,114	4,685,114
Substation & Transmission	S-0824-0000001	Substation Fence Program	500,000	500,000	1,300,000	-	-	2,300,000
Substation & Transmission	S-0825-0000001	Substation Paving/Drainage Improvements	729,537	750,000	750,000	-	-	2,229,537
Substation & Transmission	S-0826-0000001	Grounding Grid Upgrades	177,037	75,000	195,000	-	-	447,037

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Substation & Transmission	S-0846-0000001	Transmission - Construction - Quintana Breaker Replace	391,000	-	-	-	-	391,000
Substation & Transmission	S-0852-0000001	AVR - Replace six (6) 345kV Breakers	565,000	1,073,000	-	-	-	1,638,000
Substation & Transmission	S-0860-0000001	Rio Nogales - Replace 345kV Breakers	-	1,035,000	1,920,000	-	-	2,955,000
Substation & Transmission	S-0866-0000001	Medina Base - Replace Transformer/Switchgear #3 (Transmission)	100,000	-	-	-	-	100,000
Substation & Transmission	S-0868-0000001	Pinn Rd - Replace Transformer/Switchgear #3	-	100,000	-	-	-	100,000
Substation & Transmission	S-0869-0000001	South San Antonio - Replace Transformer/Switchgear #4 (Transmission)	20,000	80,000	-	-	-	100,000
Substation & Transmission	S-0881-0000001	Transmission - Construction - Arrester Program - D5	230,000	-	-	-	-	230,000
Substation & Transmission	S-0891-0000001	Tenth Street Rebuild	-	300,000	3,700,000	3,000,000	3,066,000	10,066,000
Substation & Transmission	S-0892-0000001	Austin Rd Rebuild	-	-	2,000,000	-	-	2,000,000
Substation & Transmission	S-0896-0000001	Transmission -USAA #1 - Replace Switchgear #1 and #3	2,214,000	239,000	-	-	-	2,453,000
Substation & Transmission	S-0897-0000001	Westside - Replace Transformer & Switchgear (Transmission)	-	-	-	20,000	20,440	40,440
Substation & Transmission	S-0901-0000001	Harlandale - Replace Transformer/Switchgear #1 & Split 138kV Bus	-	-	-	35,000	35,770	70,770
Substation & Transmission	S-0903-0000001	Fratt - Replace Transformer & Switchgear (Transmission)	-	-	-	40,000	40,880	80,880
Substation & Transmission	S-0904-0000001	Transmission - Capacitor Bank Replacement/Upgrade Program	1,660,000	830,000	830,000	-	-	3,320,000
Substation & Transmission	S-0913-0000001	Transmission- Non-Microprocessor Protective Relay Upgrade	229,536	500,000	-	-	-	729,536
Substation & Transmission	S-0914-0000001	Transmission- Chulie Substation Rebuild	-	-	-	75,000	76,650	151,650
Substation & Transmission	S-0916-0000001	Five Points - Replace Transformer/Switchgear #6 & Add CS	-	-	-	125,000	127,750	252,750
Substation & Transmission	S-0929-0000001	Substation Physical Barriers	548,000	-	-	-	-	548,000
Substation & Transmission	S-1402-0000034	Capital Replacement-Transmission	1,500,000	1,500,000	1,500,000	1,550,000	1,584,100	7,634,100
Substation & Transmission	T-0190-0000001	Hunt Lane to Pinn Rd Rebuild	3,400,000	-	-	-	-	3,400,000
Substation & Transmission	T-0194-0000001	Braunig - Highland Hills/Brooks	-	4,199,479	4,490,521	-	-	8,690,000
Substation & Transmission	T-0196-0000001	36th Street to Merida 138kV Rebuilt	-	4,830,000	2,840,000	-	-	7,670,000
Substation & Transmission	T-0233-0000001	Merida to Harlandale (Single Ckt)	-	-	-	530,000	541,660	1,071,660
Substation & Transmission	T-0237-0000001	Harlandale to Sommers Rebuild Segment 3	-	-	320,000	11,190,277	11,436,463	22,946,740
Substation & Transmission	T-0238-0000001	Braunig to Highland Hills/Brooks Rebuild	10,213,840	5,945,000	-	-	-	16,158,840
Substation & Transmission	T-0250-0000001	Randolph Tap to Randolph Rebuild	-	380,000	1,530,000	2,370,000	2,422,140	6,702,140
Substation & Transmission	T-0251-0000001	Harlandale to Sommers Rebuild Segment 5	-	-	170,000	1,970,000	2,013,340	4,153,340
Substation & Transmission	T-0256-0000001	Brooks to Chavaneaux Rebuild (Tap West)	2,980,000	1,170,000	-	-	-	4,150,000
Substation & Transmission	T-0260-0000001	Brooks to Chavaneaux Rebuild (Tap East)	-	-	420,000	3,140,000	3,209,080	6,769,080
Substation & Transmission	T-0271-0000001	Quintana to South San Rebuild	-	-	3,648,108	1,291,892	1,320,314	6,260,314
Substation & Transmission	T-0273-0000001	Grandview to Highland Tap Rebuild	-	590,000	14,100,000	5,380,000	5,498,360	25,568,360
Substation & Transmission	T-0279-0000001	Braunig to Valley Rd. rebuild	-	-	-	210,000	214,620	424,620
Substation & Transmission	T-0280-0000280	Cagnon to Valley rebuild (Phase A)	8,170,000	3,710,000	-	-	-	11,880,000
Substation & Transmission	T-0281-0000001	Cagnon to Valley rebuild (Phase B)	906,976	12,943,024	5,570,000	-	-	19,420,000
Substation & Transmission	T-0282-0000001	Cagnon to Valley rebuild (Phase C)	-	-	420,000	6,320,000	6,459,040	13,199,040

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Substation & Transmission	T-0285-0000001	United Services Automobile Association #1 Transmission Loop	1,325,000	-	-	-	-	1,325,000
Substation & Transmission	T-0286-0000001	Chulie Transmission Rebuild	-	-	-	160,000	163,520	323,520
Substation & Transmission	T-0291-0000001	Cagnon to Valley rebuild (Phase C) (Transmission Line Project)	-	-	1,810,000	13,000,000	13,286,000	28,096,000
Substation & Transmission	T-0297-0000001	Tenth Street Substation Rebuild	-	40,000	1,353,000	420,000	429,240	2,242,240
		Infrastructure Modernization Total	43,694,926	57,169,503	80,398,949	65,564,849	55,458,675	302,286,902
		Special Projects						
Substation & Transmission	S-0915-0000023	Capital Addition	1,000,000	900,000	-	-	-	1,900,000
		Special Projects Total	1,000,000	900,000	-	-	-	1,900,000
		System Growth						
Substation & Transmission	NEW_TRANS_23	Transmission Interconnect- BRP Batura BESS	900,000	3,100,000	-	-	-	4,000,000
Substation & Transmission	NEW_TRANS_24	Transmission Interconnect- BRP Denali BESS	4,458,268	2,198,387	-	-	-	6,656,655
Substation & Transmission	NEW_TRANS_25	Transmission Interconnect- BRP Galan BESS	5,250,000	-	-	-	-	5,250,000
Substation & Transmission	NEW_TRANS_26	Transmission Interconnect- BRP Libra BESS	4,407,751	-	-	-	-	4,407,751
Substation & Transmission	NEW_TRANS_27	Transmission Interconnect- BRP Quela BESS	4,458,268	2,198,387	-	-	-	6,656,655
Substation & Transmission	NEW_TRANS_28	Transmission Interconnect- Cachena Solar	2,664,932	10,991,934	-	-	-	13,656,866
Substation & Transmission	NEW_TRANS_29	Transmission Interconnect- Cachena Storage	755,000	604,000	-	-	-	1,359,000
Substation & Transmission	NEW_TRANS_30	Transmission Interconnect- Old Hickory Solar	10,361,357	-	-	-	-	10,361,357
Substation & Transmission	NEW_TRANS_31	Transmission Interconnect- Padua Grid BESS	3,951,938	-	-	-	-	3,951,938
Substation & Transmission	NEW_TRANS_32	Transmission Interconnect- Shaula 1	3,379,760	742,440	-	-	-	4,122,200
Substation & Transmission	NEW_TRANS_33	Transmission Interconnect- Shaula 2	10,925,946	2,006,983	-	-	-	12,932,929
Substation & Transmission	NEW_TRANS_34	Transmission Interconnect- Lunar Solar	2,664,932	10,991,934	-	-	-	13,656,866
Substation & Transmission	NEW_TRANS_35	Transmission Interconnect- Nockenut Springs 3	-	500,000	2,500,000	2,000,000	-	5,000,000
Substation & Transmission	NEW_TRANS_36	Transmission Interconnect- Shaula 3	700,000	4,200,000	2,100,000	-	-	7,000,000
Substation & Transmission	NEW_TRANS_37	Transmission Interconnect- Bayside Solar	2,664,932	10,991,934	-	-	-	13,656,866
Substation & Transmission	NEW_TRANS_38	Transmission Interconnect- Ebony Energy Storage	3,160,852	930,230	-	-	-	4,091,082
Substation & Transmission	NEW_TRANS_39	Transmission Interconnect- Ferdinand Grid BESS	3,032,852	701,230	-	-	-	3,734,082
Substation & Transmission	NEW_TRANS_40	Transmission Interconnect- Madrone Energy Storage	3,127,324	815,743	-	-	-	3,943,067
Substation & Transmission	NEW_TRANS_41	Transmission Interconnect- Nockenut Springs 1	2,664,932	10,991,934	-	-	-	13,656,866
Substation & Transmission	NEW_TRANS_42	Transmission Interconnect- Nockenut Springs 2	500,000	2,500,000	2,000,000	-	-	5,000,000
Substation & Transmission	NEW_TRANS_43	Transmission Interconnect- Painted Horse Solar	2,664,932	10,991,934	-	-	-	13,656,866
Substation & Transmission	NEW_TRANS_44	Transmission Interconnect- Painted Horse Storage	755,000	604,000	-	-	-	1,359,000
Substation & Transmission	NEW_TRANS_45	Transmission Interconnect- Pandora Solar	2,664,932	10,991,934	-	-	-	13,656,866
Substation & Transmission	NEW_TRANS_46	Transmission Interconnect- Stockdale Solar	2,664,932	10,991,934	-	-	-	13,656,866
Substation & Transmission	S-0601-0000001	Converse - New Substation	-	-	-	550,000	562,100	1,112,100
Substation & Transmission	S-0722-0000023	Pinn Road- New 40 Megavolt-Ampere (MVA) Transformer/Switchgear (Transmission)	-	-	-	470,000	480,340	950,340
Substation & Transmission	S-0744-0000023	Ft. Sam to Tenth - Most Limiting Series Element (Transmission)	-	2,100,000	2,500,000	-	-	4,600,000
Substation & Transmission	S-0821-0000023	Tezel Rd-New Substation - Transmission	2,580,000	2,625,000	245,000	-	-	5,450,000
Substation & Transmission	S-0885-0000001	Northwest #6 New Substation (Transmission)	1,965,000	2,615,000	-	-	-	4,580,000
Substation & Transmission	S-0893-0000001	Elm Creek Reactor Bank	174,371	2,475,629	-	-	-	2,650,000
Substation & Transmission	S-0908-0000001	Transmission - 36th St - New 40 Megavolt-ampere (MVA) Transmission/Switchgear #4	-	5,000	120,000	-	-	125,000

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**CPS Energy Capital Project Master List (without AFUDC)
FY2023 - 2027**

Business Area	Strategic Category	WBS Description	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	TOTAL
Substation & Transmission	S-0909-0000001	Transmission - Anderson - New 100 Megavolt-ampere (MVA) Transmission/Switchgear #1	125,000	-	-	-	-	125,000
Substation & Transmission	S-0910-0000001	Transmission- Midtown - New Substation	5,224,537	-	-	-	-	5,224,537
Substation & Transmission	S-0917-0000001	Texas Research - New Transformer/Switchgear #4 (Transmission)	-	-	5,000	90,000	91,980	186,980
Substation & Transmission	S-0918-0000001	Trumbo - New Transformer/Switchgear #2 & Tie Breaker 12E4 (Distribution)	-	-	496,000	-	-	496,000
Substation & Transmission	S-0920-0000001	SW6 New Substation (Transmission)	-	-	50,000	2,910,000	2,974,020	5,934,020
Substation & Transmission	S-0922-0000001	Rafter 138kV Capacitor Bank Addition	35,000	795,000	-	-	-	830,000
Substation & Transmission	S-0931-0000001	Howard Rd. Switchyard	6,681,506	10,495,986	13,371,772	7,776,845	7,947,936	46,274,044
Substation & Transmission	S-0934-0000001	Shepherd - Install (1) - Relocated from Talley Rd 138/36kV, 50 MVA XFMR#2	-	-	-	491,000	501,802	992,802
Substation & Transmission	S-0935-0000001	Martinez-New 100MVA Transformer/Switchgear #1, Add Circuit Switcher, Add 138kV Tie Breaker	477,000	-	-	-	-	477,000
Substation & Transmission	S-0936-0000001	Southton - New 40MVA XFMR/SWGR #1, add circuit switcher, add 138kV Tie Breaker	502,000	-	-	-	-	502,000
Substation & Transmission	S-0937-0000001	Navistar-New 100MVA Transformer/Switchgear #1, Add Circuit Switcher, Add 138kV Tie Breaker	-	-	-	477,000	487,494	964,494
Substation & Transmission	T-0240-0000001	Howard Road Switching Station	-	440,000	9,260,000	2,490,000	2,544,780	14,734,780
Substation & Transmission	T-0246-0000001	Capitol Cement Second Circuit	537,693	-	-	-	-	537,693
Substation & Transmission	T-0252-0000001	Tezel Rd Substation Loop	150,000	1,670,000	530,000	-	-	2,350,000
Substation & Transmission	T-0275-0000001	NW6 Transmission Loop	11,995,000	6,035,000	-	-	-	18,030,000
Substation & Transmission	T-0283-0000001	Midtown Transmission Loop	1,870,000	-	-	-	-	1,870,000
Substation & Transmission	T-0292-0000001	SW6 Transmission Loop	-	-	-	290,000	296,380	586,380
Substation & Transmission	System Growth Total		111,095,947	127,301,553	33,177,772	17,544,845	15,886,832	305,006,948
Substation & Transmission Total			213,987,042	224,522,056	119,676,721	90,109,694	78,499,507	726,795,019
Supply Chain	Special Projects							
Supply Chain	P-0012-0000001	Supply Chain -Fuel Islands	950,000	500,000	1,150,000	1,400,000	2,712,000	6,712,000
Supply Chain	P-2022-0000001	Supply Chain - Climate Control	700,000	595,000	-	-	-	1,295,000
Supply Chain	P-2022-0000002	Supply Chain - Electric Fleet	50,000	-	-	-	-	50,000
Supply Chain	Special Projects Total		1,700,000	1,095,000	1,150,000	1,400,000	2,712,000	8,057,000
Supply Chain Total			1,700,000	1,095,000	1,150,000	1,400,000	2,712,000	8,057,000
Business Case Total			893,469,185	958,882,250	879,478,515	937,835,674	1,297,641,566	4,967,307,190
Grand Total			893,469,185	958,882,250	879,478,515	937,835,674	1,297,641,566	4,967,307,190



FISCAL YEAR 2023 BUDGET REPORT Summary Descriptions of Strategic Categories

There are six Strategic Categories under which CPS Energy capital spending is budgeted. The categories are defined below. Projects are assigned to a Strategic Category based on the primary driver for the project. Once the Capital Budget is established, any changes to the Strategic Category assignment for a project are to be coordinated with Financial Planning & Analysis (FP&A). To ensure consistency across the company, FP&A will make the final determination of the appropriate Strategic Category assignment for projects.

- **(P1) Customer Growth Projects:** Projects associated with adding individual gas and/or electric customers to the infrastructure. Typically associated with new subdivision activities and new Commercial and Industrial customer installation activities.
- **(P2) System Growth Projects:** Initiatives required to grow the infrastructure to accommodate the increasing load, but not directly associated with individual customers. These projects would be identified by the business units and would be aggregated at the strategic category level to provide flexibility as market needs change. Examples of System Growth Projects include: new substation, growth in substations, purchases of switchgear, capacitor bank, step voltage regulators, projects to upgrade conductors, new distribution feeder for the substations, new gas supply pressure mains, capacity growth of existing transmission infrastructure, etc.
- **(P1) Environmental/Legislative/Regulatory Mandated Projects:** Projects required by proscribed time frames to meet mandatory goals. These projects can be federal requirements, such as NERC Compliance and EPA directives; state requirements, implementation of ERCOT mandates and local ordinances. Major components of this category are environmental projects.
- **(P2) Infrastructure Modernization:** Projects associated with the capital repair, refurbishment or replacement of infrastructure during its useful life. The project life of equipment will vary significantly by type. In short term, our goal is to identify major assets and, using benchmarking and historical data, determine the cycle time and relative costs for major refurbishments, periodic repair processes involving purchases of capital components and the replacement of various assets.



FISCAL YEAR 2023 BUDGET REPORT
Summary Descriptions of
Strategic Categories

- **(P1) Civic Improvements:** Projects associated with city, county or TxDOT road improvements or other utility activity affecting the CPS Energy infrastructure. Coordination with road construction planners will be necessary to identify the level of activity for each given year, and an estimate of the costs to relocation our facilities. Also included in this category are underground conversions on the military bases, the downtown and inner city underground conversions and transmission line relocations.

- **(P3) Special Projects (Strategic Capital Projects):** Initiatives of a non-recurring multi-year nature, with a definite start and end date. These projects will be examined for flexibility of applications and linkage to the strategic direction of the business unit. Examples of Special Projects include items such as the following:
 - New power plants
 - New technology or market trials
 - New product commercialization
 - Information systems, including software and hardware, to accomplish new functionality
 - Business acquisitions
 - Transmission projects outside the CPS Energy service territory
 - Real estate related items, such as land acquisitions, new building construction, and parking facility purchases or construction
 - Communications licenses
 - Wellness center development
 - Large purchases of office equipment, furniture, capital tools or special vehicles

Project Justifications

Business & Economic Development

Special Projects





WBS Description: San Antonio Water System (SAWS) Resiliency Project

WBS Element: I-2021-0000001

Business Area: Business & Economic Development

Executive: Jonathan Tijerina

Strategic Category: Special Projects

Project Cost: ¹ \$2,100,000

FY23: \$2,100,000

FY24: \$0

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Install natural gas generators at one of SAWS critical pumping stations for resiliency in the event of a major catastrophe where power is out for an extended period of time.

Project Justification

Contributes to Flexible Path Strategy by providing CPS Energy with additional distributed generation and provides resiliency for our sister utility, SAWS.

Expected Benefits

CPS Energy has distributed generation to help during peak demand periods and SAWS has resiliency at one of its critical pumping stations in the event of a catastrophic event where power is out for an extended period of time.

Project Risk

Less distributed generation to meet peak demand and lack of resiliency at SAWS critical pump station.

¹ Dollars exclude AFUDC
Competitive and Confidential Information



WBS Description: Flexible Path Projects

WBS Element: I-2021-0000002

Business Area: Business & Economic Development

Executive: Jonathan Tijerina

Strategic Category: Special Projects

Project Cost: ¹ \$25,404,250

FY23: \$5,080,850

FY24: \$5,080,850

FY25: \$5,080,850

FY26: \$5,080,850

FY27: \$5,080,850

Project Description

Allowance for future projects that align with and support the Flexible Path strategy.

Project Justification

Contributes to Flexible Path Strategy by providing new technology energy solutions such as energy storage, distributed generation, renewable energy solutions, etc.

Expected Benefits

Flexible path projects that provide new technology energy solutions to meet customers' expectations.

Project Risk

Lack of projects that support Flexible Path strategy

¹ Dollars exclude AFUDC
Competitive and Confidential Information

Business & Technology Excellence

Environmental/ Legislative/ Regulatory





WBS Description: Infoblox for North American Electric Reliability Corporation (NERC)

WBS Element: I-0749-5000000

Business Area: Business & Technology Excellence

Executive: Demetrius Payton

Strategic Category: Environmental/ Legislative/ Regulatory

Project Cost: ¹ \$1,010,000

FY23: \$750,000

FY24: \$0

FY25: \$260,000

FY26: \$0

FY27: \$0

Project Description

Purchase and implement Infoblox in the NERC landscapes to manage all Domain Name System (DNS) and Dynamic Host Configuration Protocol (DHCP) requirements in the NERC landscapes as CPS Energy has in all corporate landscapes. This will standardize the solutions between the CPS Energy Corporate and Operational environments. This will extend the Internet Protocol Address Manager (IPAM) solution into the operational area.

Project Justification

Purchase and implement Infoblox in the NERC landscapes to manage all DNS and DHCP requirements in the NERC landscapes as CPS Energy has in all corporate landscapes. This will standardize solutions between the CPS Energy corporate and operational environments. This will extend the IPAM solution into the operational area.

Expected Benefits

This will standardize solutions between the CPS Energy corporate and operational environments. This will extend the IPAM solution into the operational area.

Project Risk

Audit Compliance - violation within 3 budget cycles.



WBS Description: Polled Settlement Metering Ethernet To The Meter (ETTM)

WBS Element: I-0810-5000000

Business Area: Business & Technology Excellence

Executive: Evan O'Mahoney

Strategic Category: Environmental/ Legislative/ Regulatory

Project Cost: ¹ \$175,000

FY23: \$175,000

FY24: \$0

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Migration of Electric Reliability Council of Texas (ERCOT) Polled Settlement metering from dial-up Plain Old Telephone Set (POTS) to Ethernet communications. ERCOT Regulatory requirement to complete by 2023.

Project Justification

ERCOT Regulatory requirement to complete by 2023.

Expected Benefits

Decommission of unreliable dial-up circuits. Faster reads of meter data by ERCOT. Easier to support solution.

Project Risk

Non-compliance with ERCOT regulatory requirement. Fines could apply.

WBS Description: North American Electric Reliability Corporation (NERC) Platform Upgrade

WBS Element: I-0840-5000000

Business Area: Business & Technology Excellence

Executive: Demetrius Payton

Strategic Category: Environmental/ Legislative/ Regulatory

Project Cost: ¹ \$1,633,250

FY23: \$375,000

FY24: \$375,000

FY25: \$125,000

FY26: \$375,000

FY27: \$383,250

Project Description

-Provide NERC Compliance System applications functionality supporting the performance of cybersecurity processes within the NERC Environment for Energy Management System (EMS) & Generation Management System (GMS) Supervisory Control & Data Acquisition (SCADA) Systems.

- Current system capacities (compute, storage, infrastructure licenses) will be increased in performing similar cybersecurity compliance tasks and collection of compliance artifacts in satisfying National Institute of Standards and Technology (NIST) cybersecurity compliance tasks for Gas SCADA and Automated Distribution Management System (ADMS)/Outage Management System (OMS)/ Mobile Data System (MDS).

- Need to satisfy NERC and NIST physical access network isolation requirements identified in next NERC Critical Information Protection (CIP) version from the range of CCURE (vendor name) physical access system field assets running in the Corporate network needing to access the NERC Compliance Demilitarized Management Zone (DMZ). The CCURE physical access management system application is currently running in the NERC Compliance DMZ. The isolation needed is to avoid potential self report issues.

- System to capture, store and provide dashboard metrics on Supply Chain vendor CIP-013 cyber security artifacts submitted to CPS Energy after purchase order (PO) becomes active. Vendor submittals based on PO Appendix D and N requirements satisfying CIP-013 requirements.

Project Justification

Loss of system functionality requires CPS Energy to generate NERC Critical Information Protection (CIP) Self Reports to Texas Reliability Regional Entity (TRE). Results of this action will in turn lead to a fines being assessed by NERC for non-compliance with respect to the NERC CIP cybersecurity requirements. Move of NERC and Compliance systems into Hyper Converged Infrastructure (HCI)/NSX (vendor name) environment allows security isolation requirements to be satisfied using less operating and maintenance (O&M) dollars each month associated with NERC CIP artifacts. The CCURE (vendor name) physical access management system application is currently running in the NERC CIP Compliance Demilitarized Management Zone (DMZ). The isolation needed is to avoid potential self report issues. The gunfire detection capability created the need for a solution to be deployed in the McCullough building requiring a mitigation plan resolving potential cybersecurity issues when the CCURE physical access control system is upgraded from the PureFlex platform to the HCI/VmWare NSX platform. NERC CIP artifacts captured in demonstrating to TRE that NERC CIP-013 Supply Chain Vendor cybersecurity processes are being implemented.

Expected Benefits

-Upgrading the NERC CIP tasks and creation of NERC CIP and NIST Compliance System to perform on the HCI/VmWare NSX platform provides additional flexibility in deploying cybersecurity solutions satisfying NERC CIP virtualization.

-Long term maintenance support costs on the HCI/NSX platform drop significantly compared to increasing maintenance costs being incurred with the PureFlex platform.

-Benefits such as improve operational excellence, enhance asset tracking, and advanced mean time to repair.

-Avoidance of potential self reports due to the reduction in the number of firewall ports needing to be opened between the Corporate environment and the NERC/NIST Cybersecurity Compliance Environment.

-Provide artifacts in demonstrating to future properly skilled resources. Potential Self Reports/Fines from TRE. NERC CIP audits that Vendor Management cybersecurity requirements are being satisfied.

Project Risk

-Environmental/Legal/Regulatory/Audit Compliance - violation and fines within 2 budget cycles.

-Loss of functionality will require CPS Energy to generate NERC Self Reports to TRE.

-Potential conflicts with the Department of Energy based on the Presidential Executive Order (5/31/2020) identifying China as one to the 5 countries that Bulk Electric System components (PureFlex) should not be purchased. Not performing NIST cybersecurity compliance tasks and collecting artifacts in satisfying an independent third party audit in either fiscal year 23 or fiscal year 24 to be required through the Joint Base San Antonio (JBSA) Contracting Officer to support Defense Federal Acquisition Regulation (DFAR) requirements being imposed in fiscal year 2022. Potential fines based on the TRE review of the CPS Energy submitted self reports. Potential self reports and fines from TRE if vendor performance is not in accordance with CIP-013 supply chain cybersecurity requirements within two budget cycles.



WBS Description: CEP: Communications

WBS Element: NEW_20

Business Area: Business & Technology Excellence

Executive: Jatinder Singh

Strategic Category: Environmental/ Legislative/ Regulatory

Project Cost: ¹ \$14,720,000

FY23: \$2,684,000

FY24: \$4,584,000

FY25: \$2,484,000

FY26: \$2,484,000

FY27: \$2,484,000

Project Description

Identify and implement a situational awareness “data driven” platform that can display evolving information remotely from operational teams to leadership

Project Justification

A core element of resiliency during an outage event. Also recommended by the Community Emergency Preparedness Committee.

Expected Benefits

Potential benefits include: understanding energy flow across grid to enhance effective decision making, faster and more accurate response to outages, infrastructure issues, better insights into asset health; better and timely communication to field operations and customers

Project Risk

To be determined once the charter has been developed, market research and stakeholder interviews concluded.

Infrastructure Modernization





WBS Description: Communication Sites Uninterruptible Power Supply (UPS) Life-Cycle Replacement

WBS Element: D-0010-2022001

Business Area: Business & Technology Excellence

Executive: Evan O'Mahoney

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$965,000

FY23: \$193,000

FY24: \$193,000

FY25: \$193,000

FY26: \$193,000

FY27: \$193,000

Project Description

Refresh of battery sets in communication facilities, automatic throw-over switches, modular battery chargers, and generators needed for Communication Site Back-up Power Systems.

Life cycle replacement of battery sets and replacement of failing chargers for backup power for communication systems such as radio systems and optical networking equipment.

Project Justification

Change out existing battery sets and chargers that are at the end of life and not capable of providing backup power in the event of power outages. This puts the communication systems that support electric/gas operations in jeopardy. If back-up power is inoperable, then CPS Energy will not be able to control many of its systems including, but not limited to, electric/gas operations and power restoration activities cannot be managed.

Expected Benefits

Having backup power for communications systems, such as the radio system and optical networking platforms, is necessary to coordinate work for field crews and control electric/gas activities. These back-up power systems also support the JungleMux (JMUX) and communications throughout the company.

Project Risk

Power outages in locations with failing back-up power will impact electric/gas system operations, Energy Marketing Office and voice and data communications systems. If failures occur at radio sites, voice communications necessary to coordinate field crew work will be impacted.

¹ Dollars exclude AFUDC
Competitive and Confidential Information



WBS Description: Telecommunication Tools & Test Equipment

WBS Element: D-0010-2022002

Business Area: Business & Technology Excellence

Executive: Evan O'Mahoney

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$674,491

FY23: \$128,852

FY24: \$129,339

FY25: \$133,219

FY26: \$140,000

FY27: \$143,080

Project Description

This is a direct purchase of communication tools, communication equipment, and test equipment required for the installation, administration, operation and monitoring of fiber, radio, communication facilities or Dense Wavelength Division Multiplexing (DWDM) infrastructure operated by CPS Energy. These equipment items are necessary to assure high reliability of the communication infrastructure for CPS Energy. Examples of products include, but are not limited to, Optical Time Domain Reflectometer (OTDR) fiber testing units, fiber fusion splicers, radio frequency testing units, and traffic generating appliances. CPS Energy has significantly increased its infrastructure this past year and these funds are used to assist in supporting new and existing critical infrastructure, such as the new Data Center, City of San Antonio network, and the new Regional Emergency Operations Center 911 for Bexar County.

Project Justification

As new systems, applications, and services are implemented, the technical support team requires the necessary tools and test equipment to support them. This will provide means to leverage new hardware and/or software products allowing the communication group to maintain both new and existing informational and operational technology infrastructure.

Expected Benefits

Having the correct equipment and tools enables prompt diagnostics and restoration of service for core services. Benefits include improved reliability and communications for electric, gas and power plant operations.

Project Risk

Long-term electric and gas outages due to the inability to troubleshoot and repair communication circuits. Support capabilities will be diminished since tools & equipment are outdated or not compatible. An increase in response time to issues/outages may occur since staff will not have the proper tools to isolate trouble.

¹ Dollars exclude AFUDC
Competitive and Confidential Information

WBS Description: Radio Replacements - End-of-life Cambiums

WBS Element: D-0010-2022003

Business Area: Business & Technology Excellence

Executive: Evan O'Mahoney

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$121,879

FY23: \$23,454

FY24: \$23,717

FY25: \$24,158

FY26: \$25,000

FY27: \$25,550

Project Description

Replacement of end-of-life radio equipment.

Project Justification

Radios providing gas and electric Supervisory Control and Data Acquisition (SCADA) and Distributed Energy Resource (DER) communications at various locations throughout service territory have reached end-of-life and need to be replaced. The vendor can no longer support the in-service radios.

Expected Benefits

- Improve reliability in data communications
- Improve internal customer satisfaction and services provided to gas/electric operations
- provide a fully supported product

Project Risk

- Inability to support gas & electric SCADA requirements if radios fail
- Inability to make break/fix repairs



WBS Description: Fiber Tools & Test Equipment

WBS Element: D-0010-2022004

Business Area: Business & Technology Excellence

Executive: Evan O'Mahoney

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$250,000

FY23: \$50,000

FY24: \$50,000

FY25: \$50,000

FY26: \$50,000

FY27: \$50,000

Project Description

This is a direct purchase of fiber tools and data test equipment to equip one (1) additional communications technology in 2021 and provide data test sets for 10 Transport Services Communications Technician's in 2021. This is a direct purchase of communication tools, communication equipment and test equipment required for the installation, administration, operation and monitoring of fiber, Synchronous Optical Networking (SONET), Dense Wavelength Division Multiplexing (DWDM) infrastructure operated by CPS Energy. These equipment items are necessary to assure high reliability of the communication infrastructure for CPS Energy. Examples of products include, but are not limited to, Optical Time Domain Reflectometer (OTDR) fiber testing units, fiber fusion splicers, and traffic generating appliances. Transport Services is preparing for more packet services which requires new testing capabilities.

Project Justification

This provides the required tools for 1 additional Communication Technician, plus added capabilities for the entire Transport Services team to manage, test, and maintain a system with an increased reliance on packet based services for internal customers, as well as strategic partnerships with external customers.

Expected Benefits

Ability to test and repair fiber network systems including packet based interfaces.

Project Risk

New position will not be equipped properly to perform required functions. Packet based service testing and certification will be slowed and restricted to only 20% of workforce.

¹ Dollars exclude AFUDC
Competitive and Confidential Information

WBS Description: Direct Purchase of Personal Computers/Rugged Computers

WBS Element: D-0031-2022000

Business Area: Business & Technology Excellence

Executive: Demetrius Payton

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$16,188,325

FY23: \$3,237,665

FY24: \$3,237,665

FY25: \$3,237,665

FY26: \$3,237,665

FY27: \$3,237,665

Project Description

Replacement of laptops/tablets that are no longer under warranty, new requests or replace computers that are not feasible to repair. CPS Energy follows industry standards for its information technology equipment lifecycle, referred to internally as personal computer (PC) refresh.

- Ensure employees have a device of sufficient capability to fulfill his/her responsibilities.
- Unforeseen circumstances may require Business & Technology Excellence (BTE) to replace laptops or tablets ahead of schedule.
- When cost of replacement is less than the cost to support and maintain as the old equipment no longer meets the minimum specifications for the current information technology environment, information technology is replaced.
- Ensure the devices are up-to-date on the security patches & timely Windows update. The average life expectancy of a desktop or laptop is 3-4 years. Information technology industry standards recommend a minimum of 20-25% replacement of their equipment each year to keep everything up to date and spread the cost over a 3 year period.

Project Justification

CPS Energy established a systematic replacement process to promote standardization and compatibility of equipment, simplify CPS Energy's support model to control costs, and to allow for better budgeting for Personal Computers (PC's)/laptop/Microsoft Deployment Toolkits (MDTs)/tablet purchases.

Following the established plan, about 1000 PCs/laptops/tablets are eligible to be replaced for fiscal year 2022 along with 650 MDTs. Approximately 10% of the budget is added for unscheduled replacement due to equipment failure and new personal computer requests.

A change in standards has been made to make laptops with desktop setups the standard with solid state hard drives which should provide greater efficiency and reduce maintenance. Standardization to laptops is estimated to save between 15% and 20% in overall cost and support in future years.

Expected Benefits

The budget includes the ability to reduce the number of personal computers over the next two years.

Project Risk

Risks include: failure to adequately project the processing capacity needed for future applications, choosing a financially unstable vendor, and underestimating the cost increases in outer years which would limit the ability to meet the necessary and planned replacements. Open Speech Attendant (OSA) is not aware of the long-term staffing plans where a staffing increase requires an increase in equipment needed. Special projects, which require contractors who would need equipment, would also increase the number of units needed. If PCs are not refreshed at all, then other software tools and upgrades may not be able to be completed because the processing capacity needed will not be available for the individual units. The greater risk is in not continuing the replacement process resulting in increased operating and maintenance (O&M) expenses for parts and service and the loss of productivity due to equipment being out of service for extended periods.



WBS Description: Audio Visual Equipment/Device Life Cycle Multi Functional Printers

WBS Element: D-0200-2022001

Business Area: Business & Technology Excellence

Executive: Demetrius Payton

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$5,857,723

FY23: \$1,015,663

FY24: \$1,215,660

FY25: \$1,200,000

FY26: \$1,200,000

FY27: \$1,226,400

Project Description

Equipment necessary for communication and presentation for both internal and external customers.

Project Justification

Equipment necessary for communication and presentation for both internal and external customers.

Expected Benefits

More reliable equipment, less repair time.

Project Risk

The risk is in not continuing the replacement process which will result in increased operating and maintenance expenses for parts and service and the loss of productivity due to equipment being out of service for extended periods.



WBS Description: Alamo Area Regional Radio System (AARRS)

WBS Element: I-0656-5000000

Business Area: Business & Technology Excellence

Executive: Evan O'Mahoney

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$4,055,500

FY23: \$2,800,000

FY24: \$500,000

FY25: \$250,000

FY26: \$250,000

FY27: \$255,500

Project Description

Direct purchase of capital radios to add new radios to the AARRS network.

Project Justification

The radio system is the primary means of communications for CPS Energy's field personnel. The radio system must be reliable and provide adequate coverage in order for field personnel to work and communicate in a safe environment. Because the current system is end-of-life and rapidly approaching end-of-support, CPS Energy needs to establish a replacement. It does not wish to assume the risk of self-supporting. Due to advancements in technology, a new system will provide substantial improvements in voice communications, particularly in loud noise environments.

Expected Benefits

Meet internal customer need for new radios. Ability to install devices in new purchase vehicles.

Project Risk

Inability to provide critical communications for field personnel.

WBS Description: Smart Grid Network Operations (Formerly Post Go)

WBS Element: I-0739-5000000

Business Area: Business & Technology Excellence

Executive: Sreevidya Ranganathan

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$19,000,000

FY23: \$3,000,000

FY24: \$4,000,000

FY25: \$4,000,000

FY26: \$4,000,000

FY27: \$4,000,000

Project Description

Grid modernization project. The Itron Inc. infrastructure would be expanded dependent on the San Antonio Water System (SAWS) Advanced Metering Infrastructure (AMI) roll out using the shared components of CPS Energy. The expansion of new construction sites with the new access point will be implemented. The optimization report is to update & expand the access point that are more than 8,000 devices. The current capacity is to balance less than 8,000 devices per access points. The budget also covers the battery replacements for the meters after the upgrade specifically for gas meters. The inertial measurement units (IMU) upgrades is also considered to provide the gas business unit with remote functionalities.

Project Justification

Modernizing the grid through improved technology, equipment and controls. Yearly review of current network by the vendor & expansion of the access point depending on the SAWS AMI roll out in phased with the AMI meter using the CPS Energy mesh network. Also considering the expansion of CPS Energy's new subdivision extensions, the network needs to be optimized & evaluated to meet the needs of the customers. Gas meter upgrades, with IMU updates require battery replacements and provides the business units remote function capabilities.

Expected Benefits

Delivering electricity more reliability and efficiently can reduce frequency and duration of outages, reduce storm impacts, and improve restoration time. Other benefits include improved security, reduced peak loads, increased integration of renewables and lower operational costs. Gas business unit to use the remote function capabilities. Required IMU battery replacements and upgrades to the meters will enhance the customer experience.

Project Risk

Risk to the congestion of the network and impact to the operational meter reads performance due to the load on the network.



WBS Description: Disaster Recovery

WBS Element: I-0740-5000000

Business Area: Business & Technology Excellence

Executive: Demetrius Payton

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$750,000

FY23: \$500,000

FY24: \$250,000

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Document and implement disaster recovery processes across the enterprise.

Project Justification

Without proper disaster recovery planning, the execution during an actual disaster could be suboptimal or even incorrect.

Expected Benefits

Better planning for disasters and more confidence in execution during a disaster.

Project Risk

Lack of resources and project pacing.



WBS Description: SAP (Enterprise Resource Planning Software) Software Service Packs

WBS Element: I-0743-5000000

Business Area: Business & Technology Excellence

Executive: Sreevidya Ranganathan

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$2,700,000

FY23: \$700,000

FY24: \$500,000

FY25: \$500,000

FY26: \$500,000

FY27: \$500,000

Project Description

As part of SAP Application LifeCycle Management, CPS Energy maintains the system with updated tax rules & regulations as part of regulatory & statutory compliance. Support package stacks allow you to keep SAP applications up to date on a regular basis with a minimal cost of ownership.

Annually, CPS Energy reviews both SAP support packages and Human Resources (HR) support packages. SAP's HR Support Packages provides time-sensitive legal change updates and corrections. Year-end support packages not only encompasses the end of year compliance filings and forms, it also includes the new year's taxation changes.

Project Justification

Annual updates are needed to optimally maintain SAP.

Expected Benefits

Reduced calls to service desk.

Project Risk

The risk for not updating the application will be non-compliant.



WBS Description: Fiber Lifecycle Re-routes

WBS Element: I-0744-5000000

Business Area: Business & Technology Excellence

Executive: Evan O'Mahoney

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$20,299,500

FY23: \$5,250,000

FY24: \$5,250,000

FY25: \$5,250,000

FY26: \$2,250,000

FY27: \$2,299,500

Project Description

Replace/upgrade of Outside Plant (OSP) fiber-optic cables of various count and mount types throughout the service territory.

Project Justification

A significant portion of CPS Energy's fiber (~80%) is at or approaching 20 years old and has reached its end of useful life. In order to maintain continuity of operations and ensure safety CPS Energy needs to replace this cable within the next 5 years. This will allow CPS Energy to implement a program to replace and improve the cable infrastructure on an annual basis. Fiber falling over roadways, railways or other transportation/public areas poses a hazard to the general public and significant liabilities for CPS Energy.

Expected Benefits

Benefits include improved fiber capacity, capabilities and accessibility, lower risk to CPS Energy, and reduced safety hazard.

Project Risk

Audit Compliance - violation within 3 budget cycles.

WBS Description: Infrastructure Lifecycle Management

WBS Element: I-0750-5000000

Business Area: Business & Technology Excellence

Executive: Demetrius Payton

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$12,500,000

FY23: \$2,500,000

FY24: \$2,500,000

FY25: \$2,500,000

FY26: \$2,500,000

FY27: \$2,500,000

Project Description

This Enterprise Server Program (ESP) is to project purchases for server hardware due to end of life or current platform expansion needs that may arise. For example, but not limited to the following, adding memory to current computer blades because of performance requirements.

Project Justification

This ESP is to project purchases for server hardware due to end of life or current platform expansion needs that may arise. For example, but not limited to the following, adding memory to current compute blades because of performance requirements. Supervisory Control & Data Acquisition (SCADA) environment is transitioning the Hyper Converged Infrastructure (HCI) technology that will require the CommVault to be replaced.

Expected Benefits

Keeping same hardware/software reduces the amount of non-standardized technology existing within the CPS Energy Enterprise so as to streamline and reduce the number of skill sets required to maintain the infrastructure platforms within CPS Energy. CPS Energy will use a new solution in processes needed to satisfy the North American Electric Reliability Corporation (NERC) Critical Information Protection (CIP) and National Institute of Standards and Technology (NIST) requirements for backup and recovery.

Project Risk

Potential Self Reports/Fines from Texas Reliability Regional Entity (TRE). NERC Critical Information Protection (CIP) requirements for backup and recovery within an Hyper Converged Infrastructure (HCI) environment will not be satisfied unless Rubric or a similar tool replaces CommVault. Similar backup and recovery requirements for cybersecurity compliance systems supporting SCADA and Advanced Distribution Management System (ADMS)/ Outage Management Systems (OMS)/Mobile Data System (MDS) are required through Joint Base San Antonio (JBSA), Defense Federal Acquisition Regulation (DFAR), driven NIST, and the Cybersecurity Maturity Model Certification (CMMC) requirements.



WBS Description: Network Hardware: Logical Management Regulatory Requirements Network Upgrade

WBS Element: I-0751-5000000

Business Area: Business & Technology Excellence

Executive: Demetrius Payton

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$751,209

FY23: \$149,852

FY24: \$150,339

FY25: \$150,339

FY26: \$150,339

FY27: \$150,339

Project Description

Ongoing management of the access layer switch hardware lifecycle. The standard is a 5 year lifecycle and such rotating replacements must occur. It is also necessary to increase the reliability and advance capabilities of Quality of Service (QoS), 10 gigabyte and 40 gigabyte connections.

Project Justification

Ongoing management of the access layer switch hardware lifecycle. The standard is a 5 year lifecycle and such rotating replacements must occur. It is also necessary to increase the reliability and advance capabilities of QoS, 10 gigabyte and 40 gigabyte connections.

Expected Benefits

Provide for the timely replacement of hardware in the access layer of the enterprise network, avoiding rising maintenance costs and avoiding failures due to aging equipment. It will also provide advanced services such as software defined networking and QoS.

Project Risk

Resources and requests from business units such as power plants.

WBS Description: Unified Communication

WBS Element: I-0755-5000000

Business Area: Business & Technology Excellence

Executive: Demetrius Payton

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$6,057,000

FY23: \$1,385,000

FY24: \$750,000

FY25: \$900,000

FY26: \$1,000,000

FY27: \$2,022,000

Project Description

Contact Center Modernization (CCM) Upgrade and High Availability (HA) program:

- Multi-vendor environments include: Unified Contact Center Express (UCCM), Network Information and Control Exchange (NICE), Virtual Hold, Nuance, Acqueon, Task, etc. UCCM/Call Manger - 11.x Upgrade
- To include the following landscapes: Production/quality assurance/development and various vendor software upgrades
- Segmentation form corporate network to increase reliability, availability and stability; monitoring for Call Center
- Prime Collaboration Assurance and Synthetic Call Flow Transaction Monitoring
- 5 Synthetic Interactive Voice Response/Contact Center Call Flow Monitoring Drills
- Drills performed 24x7 with 4 Virtual Customer Test Calls Per Hour X per drill
- Monitoring and Alerting of any test point, threshold and failed test call and deployment project and 1-Year ongoing support
- Test call recordings and access to reports portal; Customer Service Dashboards

Team will assess which applications are not redundant and determine best strategy for migrating or rebuilding environments to meet standard high availability architecture and functionality. CCM development/quality assurance landscapes: Team to research current options for creating a development and quality assurance environment for critical applications to CCM. Team will implement the landscapes and work with 3rd parties i.e. Acqueon, Nuance, etc. to configure each application to communicate with like environment applications.

Project Justification

CCM Program to design and build a high availability core that is segmented from the company in order to provide reliability, availability and stability. This will be accomplished by eliminating the single points of failure and building the proper landscape environments. The critical systems will have high availability/failover and each critical application will have development and quality assurance environments. This will support:

- Lack of real time and predictive monitoring of physical, operating system (OS), application services, network and communications to SAP (enterprise resource planning software) customer data
- Lack of holistic mapping of all data flows and application interdependencies
- Lack of tuned recovery procedures to expedite return to operations
- Lack of testing through environment in order to insure upgrades patches and enhancements are successful in the production environment

Expected Benefits

Improve reliability and availability for the Contact Center. Indirect support of Customer Engagement and Enhance Customer Survey.

Project Risk

Continued emergency response around reliability, availability and stability for the Contact Center. Indirect support for Customer Engagement and Enhance Customer Survey.



WBS Description: Substation Power Line Carrier Programmable Logic Controller & Wave

WBS Element: I-0802-5000000

Business Area: Business & Technology Excellence

Executive: Evan O'Mahoney

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$250,000

FY23: \$50,000

FY24: \$50,000

FY25: \$50,000

FY26: \$50,000

FY27: \$50,000

Project Description

Replace Power Line Carrier that has failed due to excessive aging or failure from storms.

Project Justification

This is the only equipment CPS Energy currently uses as a form of communications with other utility companies at tie-site substations. CPS Energy only replaces upon failure of equipment.

Expected Benefits

Continued communications for relay and system protection with neighboring utilities on transmission lines.

Project Risk

With lead times for these items extending up to 26 weeks, immediate replacement of spare materials are requested. Without the correct equipment, communications between utilities could make safety concerns a priority for an extended period of time.

WBS Description: JungleMux (JMUX) Multiplexer Life Cycle Program

WBS Element: I-0803-5000000

Business Area: Business & Technology Excellence

Executive: Evan O'Mahoney

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$19,579,481

FY23: \$3,579,481

FY24: \$4,000,000

FY25: \$4,000,000

FY26: \$4,000,000

FY27: \$4,000,000

Project Description

Replacement and upgrade of end of life JungleMux (JMUX) Synchronous Optical Networking (SONET) Multiplexer platform.

Project Justification

JMUX has a end of life forecast of 7-10 years. This initiative will fund a pilot program and selection of next generation Operational Technology (OT) device to replace JMUX. The JMUX network has over 300 network elements supporting all critical customers at substations, power generation, and district centers which will require a paced deployment schedule to minimize disruption to critical services. Starting in 2021, this project will allow CPS Energy to complete the upgrade within the 7-10 year timeframe forecasted and invest capital expenditures on new technology for new substation builds.

Expected Benefits

JMUX replacement platforms will provide a flexible platform which is capable of transitioning from the end of life Time Division Multiplexing (TDM) platform to a packet based platform. The new platform will support new client services which demand more ethernet and Internet Protocol (IP)-based connectivity.

Project Risk

Increase risk of not completing deployment of JMUX replacement prior to end of sale and/or end of support. The JMUX component failure rates may start to increase beyond acceptable levels in the later years as the platform ages.



WBS Description: JungleMux (JMUX) Upgrade

WBS Element: I-0804-5000000

Business Area: Business & Technology Excellence

Executive: Evan O'Mahoney

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$500,000

FY23: \$500,000

FY24: \$0

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Upgrade JungleMUX (JMUX) Synchronous Optical Networking (SONET) Multiplexer OC12 service cards to OC48.

Project Justification

JMUX OC12's (bandwidth) failure rate is creeping beyond an acceptable level of 3%. This program will replace the modules with new bandwidth OC48 cards to increase capacity and reduce failure rates over the next 5 years.

Expected Benefits

Reduced failure rates and increased capacity to support new ethernet interfaces.

Project Risk

Slow increase in operating expenses as OC12 cards age and failure rate increases. More frequent degradation of all Operational Technology (OT) circuits due to card failures.



WBS Description: Active Fiber Monitoring System

WBS Element: I-0806-5000000

Business Area: Business & Technology Excellence

Executive: Evan O'Mahoney

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$125,000

FY23: \$25,000

FY24: \$25,000

FY25: \$25,000

FY26: \$25,000

FY27: \$25,000

Project Description

Direct purchase of fiber monitoring system which utilizes Optical Time Domain Reflectance (OTDR) to actively monitor CPS Energy fiber. It will be integrated into Business & Technology Excellence (BTE) systems to allow for short message service (SMS) text and email of alarms generated by the system when fiber is cut or disturbed. It will also be integrated with the fiber management platform to produce accurate fiber damage locations.

Project Justification

Currently CPS Energy does not have the capability to track changes or cuts in fiber network and accurately locate them when network services are disrupted. When fiber cuts occur it can take 2-6 hours to locate the damage before repairs can even be planned. The Active Fiber Monitoring System tracks the changes in system and correlates the changes accurately using Geographic Information Systems data to notify Transport Services Communication Technicians. It provides very accurate locations, reducing the location of damaged fiber by hours. Additionally, the sensitivity of the system can help to identify other activity that may be affecting services, like macro bend in jumpers caused during other work activities, malicious tampering, pressure from backhoes, and animal chewing activity.

Expected Benefits

This system would allow CPS Energy to be more proactive with identifying potential fiber cuts, as well as react much faster in a more efficient manor when damage does occur. Reduced outage times and lower operating expenses. A major benefit is the ability to see the changes in the fiber which could help identify a cable that is about to break due to age and/or environmental damage. The system baselines the fiber characteristics then tracks the changes to get the above mentioned benefits.

Project Risk

- Continued preventable fiber outages
- Continued slow response to identify fiber break locations
- Increases in operating expenses to maintain fiber infrastructure as foot print and age increase

¹ Dollars exclude AFUDC
Competitive and Confidential Information



WBS Description: Cisco Optical Networking Service (ONS) Channel Upgrade

WBS Element: I-0808-5000000

Business Area: Business & Technology Excellence

Executive: Evan O'Mahoney

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$625,000

FY23: \$125,000

FY24: \$125,000

FY25: \$125,000

FY26: \$125,000

FY27: \$125,000

Project Description

Upgrades the existing Cisco ONS Dense Wavelength Division Multiplexing (DWDM) systems Optical Service Channel from bandwidth OC3 to Gigabit Ethernet optical transceivers.

Project Justification

This addresses a congested management circuit on the Cisco ONS DWDM system which is currently causing some intermittent anomalies.

Expected Benefits

Increased capacity for management traffic on the ONS DWDM system and a reduction of intermittent anomalies caused by congestion.

Project Risk

Continued intermittent disruption of services on the Cisco ONS DWDM system.



WBS Description: Communication Sites Battery Replacement

WBS Element: I-0809-5000000

Business Area: Business & Technology Excellence

Executive: Evan O'Mahoney

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$165,000

FY23: \$33,000

FY24: \$33,000

FY25: \$33,000

FY26: \$33,000

FY27: \$33,000

Project Description

Battery Monitoring System to monitor CPS Energy's communication sites batteries life-cycle and records.

Project Justification

CPS Energy currently utilizes multiple departments to test and maintain existing Communication Sites batteries. This system would allow for constant testing/monitoring of existing conditions of batteries in-use. Allowing CPS Energy to replace immediately as needed, rather than waiting for yearly testing, or power failures resulting in emergency after-hour responses.

Expected Benefits

A battery monitoring system would improve documentation of existing conditions, reduce significant operating and maintenance (O&M) spending for annual physical testing, and battery failures, and improve proactive replacement of catching possible failures before they become an emergency, or high priority issue.

Project Risk

Power outages in locations with failing back-up power will impact electric/gas system operations, Energy Marketing Office and voice and data communications systems. If failures occur at radio sites, then voice communications are necessary to coordinate field activities.

¹ Dollars exclude AFUDC
Competitive and Confidential Information

WBS Description: Enterprise Resource Planning (ERP) Transformation

WBS Element: I-0814-5000000

Business Area: Business & Technology Excellence

Executive: Sreevidya Ranganathan

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$187,918,885

FY23: \$0

FY24: \$27,799,560

FY25: \$71,500,000

FY26: \$71,400,000

FY27: \$17,219,325

Project Description

Align core system functionality to enterprise business capabilities with speed and agility to support evolving requirements. Enhance the user experience through an integrated ecosystem that streamlines processes through automation and insights. Leverage inherent best practices from technology capabilities to optimize processes. This is to account for the engagement of a 3rd party firm with experience in ERP transformations for companies such as CPS Energy.

Project Justification

- Assess current state of ERP enablement based on business capability first approach
- Complete business case & obtain approval from Senior Leadership to support program scope
- Develop Statement of Work (SOW) and release ERP for future state ecosystem
- Align internal teams & development organizational change management programs

Expected Benefits

- Stakeholders are aligned on transformation scope & roles/responsibilities to ensure success
- Identified business capabilities and process optimization opportunities for future state
- Senior leadership is aligned with investment requirements supported by business case
- Current state technologies are identified for future solution consolidation

Project Risk

ERP Platform will be outdated, and CPS Energy will not be able to deliver newer enhancements and additional capabilities faster. Additionally, maintenance costs with SAP will continue to rise, and the technical team will not be able to deliver other valuable projects.

WBS Description: Geographic Information System (GIS) Upgrade

WBS Element: I-0816-5000000

Business Area: Business & Technology Excellence

Executive: Sreevidya Ranganathan

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$6,400,000

FY23: \$900,000

FY24: \$500,000

FY25: \$2,500,000

FY26: \$2,500,000

FY27: \$0

Project Description

GIS application, Database and Operating Systems are near the end of life. As part of application life cycle, the application, database and operating system (OS) will be upgraded to the latest versions to be in compliant with the vendor support, avoid extended maintenance fees and reduce security risk. GIS is a critical application used by operations teams, such as Energy Delivery Services (EDS) and Gas, to design and maintain electric and gas assets.

Project Justification

The current version, 10.2.1x, is in mature support (for example no patches, no quick fixes and no certification). Upgraded application will support latest version of Operating Systems and Oracle Databases with updated security patch levels & less vulnerabilities.

Additional supports include:

- Easier access to GIS maps from any type of devices.
- Near-real time updates from the field to Enterprise GIS.
- The electric network data export from GIS to Outage Management Systems (OMS) to better enable the system operators to be more efficient in service reliability.
- Gives additional time before larger Environmental Systems Research Institute (ESRI) Utility Network upgrade that will follow in upcoming years.

Expected Benefits

Below are a few benefits of the GIS application upgrade:

- The platform will be more secure, reliable & improve overall performance.
- Maps can be viewed/edited in online mode & when there is no network coverage they can be viewed/edited in offline mode.
- Near real-time updates from the field so that OMS Circuit exports will have the latest information.
- Reduce/eliminate paper maps for viewing and updates from the field technicians.

Project Risk

Current version of the software is on a limited support and needs to be upgraded to support the business needs for providing reliable customer service.

WBS Description: North American Electric Reliability Corporation (NERC) Platform Upgrade

WBS Element: I-0823-5000000

Business Area: Business & Technology Excellence

Executive: Demetrius Payton

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$3,850,218

FY23: \$1,828,218

FY24: \$0

FY25: \$0

FY26: \$1,000,000

FY27: \$1,022,000

Project Description

Provide compute, Storage Area Network (SAN) switch, and storage functionality for Energy Management System (EMS) Supervisory Control & Data Acquisition (SCADA) management modules and Generation Management System (GMS) SCADA in fully moving off the PureFlex by the end of fiscal year 2022. Internal and external labor needed to transition from PureFlex Virtualization environment to Hyper Converged Infrastructure (HCI) environment.

- 4 nodes per landscape x 4 landscapes = 16 nodes each for GMS SCADA, EMS SCADA and Compliance.
- VmWare License for 16 nodes
- Internal labor to move applications off the PureFlex into the HCI Environment, configure firewalls, implement zero trust. (GMS, EMS & Compliance)
- Internal labor for EMS, GMS and Compliance engineers to reperform and initial all acceptance test line items (NERC artifacts)
- Implement a zero trust process and virtual device policy configurations at layer 7 micro segmentation level

Project Justification

Loss of SCADA Control System functionality for EMS and GMS SCADA Systems. CPS Energy will need to activate and staff Business Continuity plans to perform relevant tasks manually. Removes CPS Energy incurring additional increased maintenance costs occurring by extending the operational End of Life of the PureFlex system through purchasing additional spare parts. Removes potential compliance issues by transferring EMS, SCADA, and GMS SCADA functions off the PureFlex owned by Lenovo (China) that is on the 5 Eyes and Department of Energy (DOE) do not buy list. Loss of functionality will require CPS Energy to generate North American Electric Reliability Corporation (NERC) Critical Information Protection (CIP) Self Reports to TRE/NERC. Results of this action will in turn lead to a fines being assessed by NERC for non-compliance with respect to the NERC CIP requirements.

Expected Benefits

Upgrading the EMS SCADA and GMS SCADA management modules to perform on the HCI/VmWare NSX (vendor name) platform provides additional flexibility in deploying solutions satisfying NERC CIP virtualization requirements becoming effective within the next two years. Long term maintenance support costs on the HCI/VmWare NSX platform drop significantly compared to increasing maintenance costs being incurred with the PureFlex platform. Increase cybersecurity levels through zero trust in satisfying NERC CIP requirements incorporating virtualization that are scheduled to become enforceable in fiscal year 2023.

Project Risk

Audit Compliance - violation within 2 budget cycles. Loss of functionality will require CPS Energy to generate NERC CIP Self Reports to Texas Reliability Entity (TRE)/NERC CIP Potential conflicts with the Department of Energy based on the Presidential Executive Order (5/31/2020) identifying China as one of the 5 countries that Bulk Electric System components (PureFlex) should not be purchased.



WBS Description: Data Center Co-Location

WBS Element: I-0838-5000000

Business Area: Business & Technology Excellence

Executive: Demetrius Payton

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$21,325,000

FY23: \$9,575,000

FY24: \$6,750,000

FY25: \$500,000

FY26: \$500,000

FY27: \$4,000,000

Project Description

Capital for buildout to area not covered by contributions in aid of construction (CIAC).

Project Justification

Play a leadership role in San Antonio by implementing a best practice among public institutions that results in the efficient use of public funds serving the community. Other benefits include:

- Lower costs for governmental entities that provide public services.
- Eliminate wasteful for city and county services by not duplicating investment in infrastructure.
- Use some of the cost-recovery fees to fund the tools and resources needed to improve support of critical infrastructure.

Expected Benefits

Offset operation cost for CPS Energy and improve efficiency and utilization of existing assets.

Project Risk

Civic Partners are relying on CPS Energy to provide data center assets before expiration of their current data center environment.



WBS Description: American Disability Act (ADA) Compliance

WBS Element: I-0848-5000000

Business Area: Business & Technology Excellence

Executive: Jatinder Singh

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$500,000

FY23: \$100,000

FY24: \$100,000

FY25: \$100,000

FY26: \$100,000

FY27: \$100,000

Project Description

An accessibility review of digital assets being directed by Legal Services for the purpose of providing legal advice. This project is confidential and privileged. Project Charter has been shared with Chiefs and others based on need to know.

Project Justification

An accessibility review of digital assets being directed by Legal Services for the purpose of providing legal advice. This project is confidential and privileged. Project charter has been shared with Chiefs and others based on need to know.

Expected Benefits

An accessibility review of digital assets being directed by Legal Services for the purpose of providing legal advice. This project is confidential and privileged. Project charter has been shared with Chiefs and others based on need to know.

Project Risk

An accessibility review of digital assets being directed by Legal Services for the purpose of providing legal advice. This project is confidential and privileged. Project charter has been shared with Chiefs and others based on need to know.



WBS Description: EnergyIP (Meter Data Management), UtilityIQ (UIQ) Upgrade

WBS Element: I-0858-5000000

Business Area: Business & Technology Excellence

Executive: Sreevidya Ranganathan

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$5,139,600

FY23: \$0

FY24: \$1,500,000

FY25: \$0

FY26: \$1,800,000

FY27: \$1,839,600

Project Description

Upgrade the current version/release of the EnergyIP (Meter Data Management) application, along with the UtilityIQ (UIQ) automated meter reading infrastructure, access point updates, and providing network as a service. CPS Energy has to upgrade the shared components as the current version has limited functionalities and to meet CPS Energy's contractual agreement so that CPS Energy can mitigate extended support fees from both the applications.

Project Justification

The application upgrade is to enhance the functionalities that are available for both electric & gas meters. This is also a contractual agreement that CPS Energy is required to meet.

Expected Benefits

UIQ/Gridscape upgrade needed to provide functionality to the gas and electric devices. The latest version would keep CPS Energy current to mitigate a contractual agreement. Extended Support considerations include:

- Support (Severity 1 and 2 only)
- Enhancements and new features are not considered
- Excludes limitations caused by third party components like Siebel, Tibco, Internet Explorer

Project Risk

Current version of the software is on a limited support and has to be upgraded to support the business needs for providing reliable customer service.

¹ Dollars exclude AFUDC
Competitive and Confidential Information



WBS Description: Asset Resource Manager (ARM) Work Manager Lifecycle Management

WBS Element: I-0860-5000000

Business Area: Business & Technology Excellence

Executive: Evan O'Mahoney

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$1,850,000

FY23: \$500,000

FY24: \$300,000

FY25: \$450,000

FY26: \$300,000

FY27: \$300,000

Project Description

Part of the application lifecycle management perspective to maintain the application with current patch and versions. The initiative also includes version release upgrade to ensure CPS Energy is current from patching of the application perspective. This will provide business areas with new functionalities that improves the efficiency and productivity of the business users.

Project Justification

The upgraded version release will keep the application lifecycle current and provide the enhanced features for the business areas. This will allow CPS Energy to be aligned with patching cycle of the product.

Expected Benefits

The patching cycle will provide enhanced functionalities for the business users and improve the customer experience from the portal aspect. If the patch levels are maintained to the product standards, it will mitigate any security vulnerabilities.

Project Risk

We receive the patches to add functionalities, fixes to the core product needs to be reviewed, and implement partnering with business areas to provide value delivery.

WBS Description: Data Platform Modernization

WBS Element: I-0861-5000000

Business Area: Business & Technology Excellence

Executive: Sreevidya Ranganathan

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$4,933,000

FY23: \$0

FY24: \$1,900,000

FY25: \$0

FY26: \$1,500,000

FY27: \$1,533,000

Project Description

Includes the database upgrades (Oracle, Structured Query Language (SQL), Mongo etc.), adaptive query processing, Automatic Plan Correction & Modern connectors, reduce costs while increasing management with Flex Automatic Storage Management (ASM) storage infrastructure. Each of the above features are a direct benefit for the business. Upgrade to Cloudera Data platform (CDP) 7.x to become familiar with new Cloudera Manager that replaces Ambari and enable future hybrid option.

Project Justification

Databases are upgraded to fix security risks to mitigate from cyberattack vulnerabilities. Upgraded database brings enhanced and additional features. This offers multitenant architecture, which makes organizing categories and individual entries much easier and quicker. Being able to organize databases much more readily means being able to find information easier, which increased productivity. The Hadoop platform upgrade positions CPS Energy for enablement and readiness of a 3-5 year Hybrid solution. Lighter burden to the administrator (improved cluster management).

Expected Benefits

Upgrading a database means that bugs, internal errors, and other technical issues can be identified and resolved as soon as possible, thereby reducing downtime. Another benefit of upgrading a database is any issues identified by users in later versions are corrected, which means you do not deal with them when/if they arise. Usually, an upgraded database can take on more storage and operations than it did in previous versions, possibly replacing other software and hardware, thereby reducing costs for organizations. The hardware and software associated with the database were optimized as well, which enabled users to do more in less time, which reduced employee costs. Additional benefits include:

- CDP platform upgrade provides easier & faster analytical (Impala) and ad-hoc (Hue) querying
- New SQL pivot option to enable customer segmentation, support reading images (drone image/video processing). This will provide business units better user experience.

Project Risk

Mitigate the application security patches and enhance the user experience.



WBS Description: Digital Signage

WBS Element: I-0862-5000000

Business Area: Business & Technology Excellence

Executive: Demetrius Payton

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$377,750

FY23: \$0

FY24: \$0

FY25: \$125,000

FY26: \$125,000

FY27: \$127,750

Project Description

Deployment of new digital signage equipment to maintain communication to the employee base. The upgrade will include a new video repository, Internet Protocol (IP) Television (TV) management to allow cable to be sent across the enterprise reducing per TV cost. This will also allow the integration of the live streaming channel into the digital signage product.

Project Justification

The upgrade and consolidation of digital signage, live streaming, and video hosting for the enterprise. This will reduce cable monthly cost while combining services for easier management.

Expected Benefits

The goal is to combine several products and reduce monthly run rate cost.

Project Risk

We will continue to maintain several tools to manage video, streaming , and video file storage. The cost of monthly service will remain the same or increase.

¹ Dollars exclude AFUDC
Competitive and Confidential Information



WBS Description: Enterprise Architecture

WBS Element: I-0863-5000000

Business Area: Business & Technology Excellence

Executive: Guillermo De Hoyos

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$995,000

FY23: \$995,000

FY24: \$0

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Enterprise Architecture (EA) assessment and update to current EA maturity, establish new standards used to support the enterprise, supplement the EA team, and provide training.

Project Justification

Foundational work needs to be established for new EA standards utilized to properly document the core and supporting systems. There is a significant initial lift to identify and establish standards.

Expected Benefits

Enhance operational excellence by bringing the ability to analyze current in house technologies with new requirements. The project will also minimize risk assessments and introduce the capability to have enforce technology standards.

Project Risk

Projects/Programs going over budget, over time. No insight into technology risks.



WBS Description: Data Engineering/Data Science toolkit

WBS Element: I-0864-5000000

Business Area: Business & Technology Excellence

Executive: Rolando Vega-Avila

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$1,550,000

FY23: \$350,000

FY24: \$300,000

FY25: \$300,000

FY26: \$300,000

FY27: \$300,000

Project Description

Complete implementation of tool selected and initiated in fiscal year 2021. Reduced coding and allows more rapid analytics; being procured through Texas Department of Information Resources (DIR). Fiscal year 2025 - fiscal year 2026 is estimated lifecycle replacement requirement.

Project Justification

Tool evaluation, selection and implementation occurred in fiscal year 2021 with some completion of implementation carrying over into fiscal year 2022.

Expected Benefits

Data traceability, significant reduction in coding needed to prepare data and feed reports and analytics models. This creates capacity for the Advanced Analytics team and also for other data subject matter experts (SME) teams including, Energy Supply & Market Operations (ESMO) Demand Side Analytics and Grid Support as examples.

Project Risk

Continue significant efforts to prepare data for reporting and analytics and heavy coding requirements for developing even simple models. This means organization will continue to struggle to manage demand.

¹ Dollars exclude AFUDC
Competitive and Confidential Information

Customer Engineering

Customer Growth





WBS Description: Overhead Service/Meter-Residential Services

WBS Element: A-0003-0000001

Business Area: Customer Engineering

Executive: Karma Nilsson

Strategic Category: Customer Growth

Project Cost: ¹ \$4,655,927

FY23: \$931,185

FY24: \$931,185

FY25: \$931,185

FY26: \$931,185

FY27: \$931,185

Project Description

Installation of new overhead electric residential (single lot) temporaries and permanent services and/or meter only upon customer request by application. These services are connected to pre-installed CPS Energy distribution lines.

Project Justification

Our legal obligation as a municipally owned utility to provide new electric service to our customers.

Expected Benefits

- Increased revenues through customer growth
- Increased customer satisfaction.

Project Risk

- Inability to meet customer's expectations
- Support city growth by providing utilities
- Loss of revenues

¹ Dollars exclude AFUDC
Competitive and Confidential Information



WBS Description: All Night Security Light-Residential Customers

WBS Element: A-0005-0000001

Business Area: Customer Engineering

Executive: Karma Nilsson

Strategic Category: Customer Growth

Project Cost: ¹ \$9,926,272

FY23: \$1,985,254

FY24: \$1,985,254

FY25: \$1,985,254

FY26: \$1,985,254

FY27: \$1,985,254

Project Description

Installation of overhead All Night Security Lights (ANSL) on private property upon customer's new service request.

Project Justification

CPS Energy legal obligation as a municipally-owned utility is to provide new electric service to customers.

Expected Benefits

- Increased revenues through customer growth
- Increased customer satisfaction

Project Risk

- Inability to meet customer's expectations
- Support city growth by providing utilities
- Loss of revenues

¹ Dollars exclude AFUDC
Competitive and Confidential Information



WBS Description: All Night Security Light & Streetlight-Residential Subdivision/Apartment

WBS Element: A-0006-0000001

Business Area: Customer Engineering

Executive: Karma Nilsson

Strategic Category: Customer Growth

Project Cost: ¹ \$2,039,630

FY23: \$407,926

FY24: \$407,926

FY25: \$407,926

FY26: \$407,926

FY27: \$407,926

Project Description

This project is for the purpose of the installation of All Night Security Lights (ANSL) & Streetlight for residential subdivision/apartments upon customer's new service request.

Project Justification

CPS Energy legal obligation as a municipally-owned utility, to provide new electric service to customers.

Expected Benefits

- Increased revenues through customer growth
- Increased customer satisfaction.

Project Risk

- Inability to meet customer's expectations
- Support city growth by providing utilities
- Loss of revenues



WBS Description: All Night Security Light-Commercial Customers

WBS Element: A-0007-0000001

Business Area: Customer Engineering

Executive: Karma Nilsson

Strategic Category: Customer Growth

Project Cost: ¹ \$3,261,871

FY23: \$652,374

FY24: \$652,374

FY25: \$652,374

FY26: \$652,374

FY27: \$652,374

Project Description

This project is for installation of All Night Security Lights (ANSL) for commercial customers upon customer's new service request.

Project Justification

CPS Energy legal obligation as a municipally-owned utility is to provide new electric service to customers.

Expected Benefits

- Increased revenues through customer growth
- Increased customer satisfaction

Project Risk

- Inability to meet customer's expectations
- Support city growth by providing utilities
- Loss of revenues



WBS Description: Install Street Lights - Underground - New Service Delivery

WBS Element: A-0008-0000001

Business Area: Customer Engineering

Executive: Karma Nilsson

Strategic Category: Customer Growth

Project Cost: ¹ \$20,697,321

FY23: \$4,139,464

FY24: \$4,139,464

FY25: \$4,139,464

FY26: \$4,139,464

FY27: \$4,139,464

Project Description

Installation of streetlights-underground upon customer's new service request.

Project Justification

Our legal obligation as a municipally owned utility to provide new electric service to our customers.

Expected Benefits

- Increased revenues through customer growth
- Increased customer satisfaction.

Project Risk

- Inability to meet customer's expectations
- Support city growth by providing utilities
- Loss of revenues

¹ Dollars exclude AFUDC
Competitive and Confidential Information



WBS Description: Line Extension, Service & Meter-Residential Services

WBS Element: A-0009-0000001

Business Area: Customer Engineering

Executive: Karma Nilsson

Strategic Category: Customer Growth

Project Cost: ¹ \$42,278,214

FY23: \$8,455,643

FY24: \$8,455,643

FY25: \$8,455,643

FY26: \$8,455,643

FY27: \$8,455,643

Project Description

Installation of new overhead distribution lines for residential (single lot) temporary or permanent service and meter upon customer request in accordance with CPS Energy's line extension guidelines. This includes the overhead distribution line extension, transformer and/or service and meter. These services are not connected to pre-installed CPS Energy distribution lines.

Project Justification

Our legal obligation as a municipally owned utility to provide new electric service to our customers.

Expected Benefits

- Increased revenues through customer growth
- Increased customer satisfaction.

Project Risk

- Inability to meet customer's expectations
- Support city growth by providing utilities
- Loss of revenues

¹ Dollars exclude AFUDC
Competitive and Confidential Information



WBS Description: Residential Development Removal or Relocation

WBS Element: A-0010-0000001

Business Area: Customer Engineering

Executive: Karma Nilsson

Strategic Category: Customer Growth

Project Cost: ¹ \$1,885,152

FY23: \$377,030

FY24: \$377,030

FY25: \$377,030

FY26: \$377,030

FY27: \$377,030

Project Description

Installation of new underground distribution lines for residential (single lot) temporary or permanent service, and meter upon customer request in accordance with CPS Energy's line extension guidelines. This includes the underground distribution line extension, transformer and/or service and meter. These services are not connected to pre-installed CPS Energy distribution lines. (Line extension only or Line extension with service and meter).

Project Justification

CPS Energy legal obligation as a municipally-owned utility is to provide new electric service to customers.

Expected Benefits

- Increased revenues through customer growth
- Increased customer satisfaction.

Project Risk

- Inability to meet customer's expectations
- Support city growth by providing utilities
- Loss of revenues.

¹ Dollars exclude AFUDC
Competitive and Confidential Information



WBS Description: Overhead Line Extension-New Residential Subdivision

WBS Element: A-0011-0000001

Business Area: Customer Engineering

Executive: Karma Nilsson

Strategic Category: Customer Growth

Project Cost: ¹ \$33,938,396

FY23: \$6,787,679

FY24: \$6,787,679

FY25: \$6,787,679

FY26: \$6,787,679

FY27: \$6,787,679

Project Description

Installation of new overhead main distribution lines only for new subdivision (multiple lot) developments.

Project Justification

Our legal obligation as a municipally owned utility to provide new electric service to our customers.

Expected Benefits

- Increased revenues through customer growth
- Increased customer satisfaction.

Project Risk

- Inability to meet customer's expectations
- Support city growth by providing utilities
- Loss of revenues

¹ Dollars exclude AFUDC
Competitive and Confidential Information



WBS Description: Underground Residential Distribution Systems-New Residential Subdivision

WBS Element: A-0012-0000001

Business Area: Customer Engineering

Executive: Karma Nilsson

Strategic Category: Customer Growth

Project Cost: ¹ \$148,758,306

FY23: \$29,751,661

FY24: \$29,751,661

FY25: \$29,751,661

FY26: \$29,751,661

FY27: \$29,751,661

Project Description

Installation of new underground main distribution lines for new subdivision (multiple lot) developments.

Project Justification

CPS Energy legal obligation as a municipally-owned utility to provide new electric service to customers.

Expected Benefits

- Increased revenues through customer growth
- Increased customer satisfaction.

Project Risk

- Inability to meet customer's expectations
- Support city growth by providing utilities
- Loss of revenues

¹ Dollars exclude AFUDC
Competitive and Confidential Information



WBS Description: Underground Service & Meter-Commercial Services

WBS Element: A-0017-0000001

Business Area: Customer Engineering

Executive: Karma Nilsson

Strategic Category: Customer Growth

Project Cost: ¹ \$3,459,868

FY23: \$691,974

FY24: \$691,974

FY25: \$691,974

FY26: \$691,974

FY27: \$691,974

Project Description

Installation of new underground electric commercial (non-residential) temporaries and permanent services and/or meter only upon customer request by application. These services are connected to pre-installed CPS Energy distribution lines.

Project Justification

Our legal obligation as a municipally owned utility to provide new electric service to our customers.

Expected Benefits

- Increased revenues through customer growth
- Increased customer satisfaction.

Project Risk

- Inability to meet customer's expectations
- Support city growth by providing utilities
- Loss of revenues



WBS Description: Overhead Service & Meter-Commercial Services

WBS Element: A-0018-0000001

Business Area: Customer Engineering

Executive: Karma Nilsson

Strategic Category: Customer Growth

Project Cost: ¹ \$19,236,338

FY23: \$3,847,268

FY24: \$3,847,268

FY25: \$3,847,268

FY26: \$3,847,268

FY27: \$3,847,268

Project Description

Installation of new overhead electric commercial (non-residential) temporaries and permanent services and/or meter only upon customer request by application. These services are connected to pre-installed CPS Energy distribution lines.

Project Justification

Our legal obligation as a municipally owned utility to provide new electric service to our customers.

Expected Benefits

- Increased revenues through customer growth
- Increased customer satisfaction.

Project Risk

- Inability to meet customer's expectations
- Support city growth by providing utilities
- Loss of revenues



WBS Description: Overhead Line Extension, Service & Meter-Commercial Service

WBS Element: A-0019-1000001

Business Area: Customer Engineering

Executive: Karma Nilsson

Strategic Category: Customer Growth

Project Cost: ¹ \$50,332,210

FY23: \$10,066,442

FY24: \$10,066,442

FY25: \$10,066,442

FY26: \$10,066,442

FY27: \$10,066,442

Project Description

Installation of new overhead distribution lines for commercial (non-residential) temporary or permanent service and meter upon customer request in accordance with CPS Energy's line extension guidelines. This includes the overhead distribution line extension, transformer and/or service and meter. These services are not connected to pre-installed CPS Energy distribution lines.

Project Justification

Our legal obligation as a municipally owned utility is to provide new electric service to our customers.

Expected Benefits

- Increased revenues through customer growth
- Increased customer satisfaction.

Project Risk

- Inability to meet customer's expectations
- Support city growth by providing utilities
- Loss of revenues



WBS Description: Underground Commercial Line Extension/Service/Meter

WBS Element: A-0020-0000001

Business Area: Customer Engineering

Executive: Karma Nilsson

Strategic Category: Customer Growth

Project Cost: ¹ \$10,277,272

FY23: \$2,055,454

FY24: \$2,055,454

FY25: \$2,055,454

FY26: \$2,055,454

FY27: \$2,055,454

Project Description

Installation of new underground distribution lines for commercial (non-residential) temporary or permanent service and meter upon customer request in accordance with CPS Energy's line extension guidelines. This includes the underground distribution line extension, transformer and/or service and meter. These services are not connected to pre-installed CPS Energy distribution lines.

Project Justification

Our legal obligation as a municipally owned utility to provide new electric service to our customers.

Expected Benefits

- Increased revenues through customer growth
- Increased customer satisfaction.

Project Risk

- Inability to meet customer's expectations
- Support city growth by providing utilities
- Loss of revenues

¹ Dollars exclude AFUDC
Competitive and Confidential Information



WBS Description: Overhead Line Extension-New Apartment & Mobile Home Park

WBS Element: A-0021-0000001

Business Area: Customer Engineering

Executive: Karma Nilsson

Strategic Category: Customer Growth

Project Cost: ¹ \$11,334,201

FY23: \$2,266,840

FY24: \$2,266,840

FY25: \$2,266,840

FY26: \$2,266,840

FY27: \$2,266,840

Project Description

These projects are required for both on-site and off-site overhead electric extensions required to serve new residential multi-family projects being requested by multi-family developers.

Project Justification

These projects provide CPS Energy the ability to serve new multi-family projects under construction as requested by customers in accordance with CPS Energy Policy for Electric Line Extensions and Service Installations. Budget amounts are based on trends in the new multi-family construction market.

Expected Benefits

- Customer service/satisfaction
- Increased revenues through customer growth.

Project Risk

- Inability to meet customer's requests for electric service
- Loss of additional revenue opportunities



WBS Description: Underground Residential Distribution Systems-New Apartment Complexes & Mobile Home Park

WBS Element: A-0022-0000001

Business Area: Customer Engineering

Executive: Karma Nilsson

Strategic Category: Customer Growth

Project Cost: ¹ \$26,925,627

FY23: \$5,385,125

FY24: \$5,385,125

FY25: \$5,385,125

FY26: \$5,385,125

FY27: \$5,385,125

Project Description

Installation of new underground main distribution lines for new apartment/mobile home park (multiple-family) developments.

Project Justification

CPS Energy legal obligation as a municipally-owned utility is to provide new electric service to customers.

Expected Benefits

- Increased revenues through customer growth
- Increased customer satisfaction.

Project Risk

- Inability to meet customer's expectation
- Support city growth by providing utilities
- Loss of revenues.

¹ Dollars exclude AFUDC
Competitive and Confidential Information



WBS Description: Overhead Line, Extension Padmount Transformer/Meter Large Commercial Service

WBS Element: A-0025-0000001

Business Area: Customer Engineering

Executive: Karma Nilsson

Strategic Category: Customer Growth

Project Cost: ¹ \$454,253

FY23: \$90,851

FY24: \$90,851

FY25: \$90,851

FY26: \$90,851

FY27: \$90,851

Project Description

Installation of new overhead distribution lines for commercial (non-residential) temporary or permanent service and meter upon customer request in accordance with CPS Energy's line extension guidelines. This includes the overhead distribution line extension, transformer and/or service and meter. These services are not connected to pre-installed CPS Energy distribution lines.

Project Justification

Our legal obligation as a municipally owned utility is to provide new electric service to our customers.

Expected Benefits

- Increased revenues through customer growth
- Increased customer satisfaction.

Project Risk

- Inability to meet customer's expectations
- Support city growth by providing utilities
- Loss of revenues



WBS Description: Install Underground Service/Meter Residential

WBS Element: A-0048-0000001

Business Area: Customer Engineering

Executive: Karma Nilsson

Strategic Category: Customer Growth

Project Cost: ¹ \$169,480,746

FY23: \$13,582,442

FY24: \$27,956,967

FY25: \$42,276,143

FY26: \$65,324,572

FY27: \$20,340,622

Project Description

Installation of new underground electric residential (single lot) temporaries and permanent services and/or meter only upon customer request by application. These services are connected to pre-installed CPS Energy distribution lines. (service and/or meter only).

Project Justification

CPS Energy legal obligation as a municipally-owned utility to provide new electric service to customers.

Expected Benefits

- Increased revenues through customer growth
- Increased customer satisfaction

Project Risk

- Inability to meet customer's expectations
- Support city growth by providing utilities
- Loss of revenues.



WBS Description: Overhead Electric Service-Commercial

WBS Element: E-0006-0000001

Business Area: Customer Engineering

Executive: Karma Nilsson

Strategic Category: Customer Growth

Project Cost: ¹ \$4,365,668

FY23: \$873,134

FY24: \$873,134

FY25: \$873,134

FY26: \$873,134

FY27: \$873,134

Project Description

Installation of electric overhead service (3-phase) to accommodate existing commercial customer's service and meter modification requests related to remodels, reroutes, and increased load.

Project Justification

CPS Energy is obligated to provide electric service to existing commercial customers.

Expected Benefits

Customer Service/Satisfaction and increased revenues through customer growth.

Project Risk

Poor customer service/satisfaction and potential loss of revenues.



WBS Description: Overhead Electric Main Extension-Residential

WBS Element: E-0020-0000001

Business Area: Customer Engineering

Executive: Karma Nilsson

Strategic Category: Customer Growth

Project Cost: ¹ \$17,462

FY23: \$3,492

FY24: \$3,492

FY25: \$3,492

FY26: \$3,492

FY27: \$3,492

Project Description

Installation of electric overhead residential service to accommodate existing residential customers service and meter modifications (remodel, reroute and increase load) requests.

Project Justification

CPS Energy is obligated to provide electric service to existing residential customers.

Expected Benefits

Customer Service/Satisfaction and increased revenue.

Project Risk

Poor customer service/satisfaction and potential loss of revenues.

¹ Dollars exclude AFUDC
Competitive and Confidential Information



WBS Description: Overhead Electric Main Extension-Commercial

WBS Element: E-0022-0000001

Business Area: Customer Engineering

Executive: Karma Nilsson

Strategic Category: Customer Growth

Project Cost: ¹ \$452,744

FY23: \$90,549

FY24: \$90,549

FY25: \$90,549

FY26: \$90,549

FY27: \$90,549

Project Description

Installation of electric overhead commercial service to accommodate existing commercial customers service and meter modifications (remodel, reroute and increase load) requests.

Project Justification

CPS Energy is obligated to provide electric service to existing commercial customers.

Expected Benefits

Customer Service/Satisfaction and increased revenue.

Project Risk

Poor customer service/satisfaction and potential loss of revenues.

WBS Description: Reroute Overhead Line-Commercial/Industrial Customer

WBS Element: E-0025-0000001

Business Area: Customer Engineering

Executive: Karma Nilsson

Strategic Category: Customer Growth

Project Cost: ¹ \$29,715,295

FY23: \$5,943,059

FY24: \$5,943,059

FY25: \$5,943,059

FY26: \$5,943,059

FY27: \$5,943,059

Project Description

This project is for the purpose of upgrading or re-routing overhead electric lines associated with the upgrade or relocation of services to existing commercial and industrial electric customers. This project also captures new line extensions associated with new electric services for large commercial and industrial customers that are not handled by New Service Delivery. These projects are typically more complex and require specialized engineering involvement.

Project Justification

This project is needed to meet commercial and industrial customer electric service upgrade/remodel request in CPS Energy's service territory. These upgrades are required due to existing customers remodeling their buildings and developing the need for added capacity, or a change of existing service location. Power line relocations are required based on construction needs (e.g. building relocation, street re-routes, etc.).

Expected Benefits

Upgrading the service of a customer has the expected benefit of increased revenues through expanded power usage. Effective response to customer requests on remodel work maintains or provides an impetus for improved customer satisfaction.

Project Risk

Without this project, CPS Energy runs the risk of not fully supporting the rebuilding of infrastructure that existing commercial and industrial customers are requiring and requesting to be relocated or upgraded. It will also be unable to provide power to support customer remodeling construction.



WBS Description: Overhead All Night Streetlight

WBS Element: E-0034-0000001

Business Area: Customer Engineering

Executive: Karma Nilsson

Strategic Category: Customer Growth

Project Cost: ¹ \$315,463

FY23: \$63,093

FY24: \$63,093

FY25: \$63,093

FY26: \$63,093

FY27: \$63,093

Project Description

All Night Security Lights (ANSL) are pole-mounted overhead power supplied lights that are installed on customer properties per their request to increase night time lighting and security. These requests are from existing customers for all ANSL that are not associated with a new service & meter request.

Project Justification

CPS Energy is obligated to provide ANSL to requesting customers.

Expected Benefits

Customer Service/Satisfaction and increased revenue.

Project Risk

Poor customer service/satisfaction and potential loss of revenues.



WBS Description: Underground Line & Service for Commercial/Industrial Customer

WBS Element: E-0048-0000001

Business Area: Customer Engineering

Executive: Karma Nilsson

Strategic Category: Customer Growth

Project Cost: ¹ \$39,229,672

FY23: \$7,845,934

FY24: \$7,845,934

FY25: \$7,845,934

FY26: \$7,845,934

FY27: \$7,845,934

Project Description

This project is for the purpose of upgrading or re-routing underground services to existing commercial and industrial electric customers. This project also captures new underground electric services for large commercial and industrial customers that are not handled by New Service Delivery. These projects are typically more complex and require specialized engineering involvement.

Project Justification

This project is needed to meet commercial and industrial customer electric service upgrade/remodel request in CPS Energy's service territory. These upgrades are required due to existing customers remodeling their existing buildings and developing the need for added capacity, or a change of existing service location. Power line relocations are required based on construction needs (e.g. building relocation, street re-routes, etc.).

Expected Benefits

Upgrading the service of a customer has the expected benefit of increased revenues through expanded power usage. Effective response to customer requests on remodel work maintains or boosts customer satisfaction.

Project Risk

Without this project, CPS Energy runs the risk of not fully supporting the rebuilding of infrastructure that existing commercial and industrial customers are requiring and requesting to be relocated or upgraded. It will also be unable to provide power to support customer remodeling construction.



WBS Description: Underground Line/Service Downtown Network Customer

WBS Element: E-0084-0000001

Business Area: Customer Engineering

Executive: Karma Nilsson

Strategic Category: Customer Growth

Project Cost: ¹ \$10,302,672

FY23: \$2,060,534

FY24: \$2,060,534

FY25: \$2,060,534

FY26: \$2,060,534

FY27: \$2,060,534

Project Description

This project is for the purpose of installing or upgrading downtown network facilities in order to connect new customers in the Downtown Network System. This project is also used to upgrade infrastructure to support existing customers upgrading/remodeling in the downtown area.

Project Justification

This project is needed to meet commercial and industrial customer electric service upgrade/remodels requests on CPS Energy's Downtown Network System. These upgrades are required due to existing customers remodeling their existing buildings and developing the need for added capacity, or a change of existing service location. Power line relocations are required based on construction needs (e.g. building relocation, street re-routes, etc.).

Expected Benefits

Upgrading the service of a customer has the expected benefit of increased revenues through expanded power usage. Effective response to customer requests on remodel work maintains or serves as a catalyst for improved customer satisfaction.

Project Risk

Without this project, CPS Energy runs the risk of not fully supporting the rebuilding of infrastructure that existing commercial and industrial customers are requiring and requesting to be relocated or upgraded. CPS Energy will also be unable to provide power to support customer remodeling construction. The risk exists of instability in the downtown network if the facilities are not maintained and upgraded to support increased customer electric demand.

¹ Dollars exclude AFUDC
Competitive and Confidential Information



WBS Description: Underground Electric Service-Residential

WBS Element: E-0141-0000001

Business Area: Customer Engineering

Executive: Karma Nilsson

Strategic Category: Customer Growth

Project Cost: ¹ \$15,466,619

FY23: \$3,093,324

FY24: \$3,093,324

FY25: \$3,093,324

FY26: \$3,093,324

FY27: \$3,093,324

Project Description

Installation of electric underground residential service to accommodate existing residential customers service and meter modifications (remodel, reroute and increase load) requests.

Project Justification

CPS Energy is obligated to provide electric service to existing residential customers.

Expected Benefits

Customer Service/Satisfaction and increased revenue.

Project Risk

Poor customer service/satisfaction and potential loss of revenues.



WBS Description: Overhead Electric Service-Residential

WBS Element: E-0152-0000001

Business Area: Customer Engineering

Executive: Karma Nilsson

Strategic Category: Customer Growth

Project Cost: ¹ \$1,106,034

FY23: \$221,207

FY24: \$221,207

FY25: \$221,207

FY26: \$221,207

FY27: \$221,207

Project Description

Installation of electric infrastructure for new single family homes.

Project Justification

As the City of San Antonio grows, so does CPS Energy's commitment to provide electricity to new customers, which includes new single-family homes.

Expected Benefits

Electric infrastructure will allow for electricity to be provided to customers of new single-family homes.

Project Risk

New single-family homes would not have the needed infrastructure to allow for electricity to be provided to customers. This could also result in poor customer service/satisfaction and potential loss in revenues.



WBS Description: Overhead Electric Service-Residential

WBS Element: E-0153-0000001

Business Area: Customer Engineering

Executive: Karma Nilsson

Strategic Category: Customer Growth

Project Cost: ¹ \$16,046,624

FY23: \$3,209,325

FY24: \$3,209,325

FY25: \$3,209,325

FY26: \$3,209,325

FY27: \$3,209,325

Project Description

Installation of electric overhead residential service to accommodate existing residential customers service and meter modifications (remodel, reroute and increase load) requests.

Project Justification

CPS Energy is obligated to provide electric service to existing residential customers.

Expected Benefits

Customer Service/Satisfaction and increased revenue.

Project Risk

Poor customer service/satisfaction and potential loss of revenues.

Customer Success

Customer Growth





WBS Description: Dir Purch Pre-Cap Elect Meters w/Current Transformers and Voltage Transformers

WBS Element: D-0800-0000001

Business Area: Customer Success

Executive: DeAnna Hardwick

Strategic Category: Customer Growth

Project Cost: ¹ \$3,857,600

FY23: \$720,000

FY24: \$750,000

FY25: \$770,000

FY26: \$800,000

FY27: \$817,600

Project Description

Electric meters, voltage transformers, and current transformers for commercial class customers.

Project Justification

Required establishing connection for new customers, system growth.

Expected Benefits

Measure electric consumption for new customers.

Project Risk

Connection for new customers will not be obtainable.



WBS Description: Direct Purchase Pre-Cap ION Meters

WBS Element: D-0810-0000001

Business Area: Customer Success

Executive: DeAnna Hardwick

Strategic Category: Customer Growth

Project Cost: ¹ \$1,642,153

FY23: \$273,634

FY24: \$300,997

FY25: \$331,097

FY26: \$364,207

FY27: \$372,219

Project Description

ION meters are distinct high-end meters used for metering power plants, substations, Energy Reliability Council of Texas (ERCOT), and CPS Energy's largest Industrial and Commercial Customers. ION meters are also used at Automatic Throwover (ATO) sites and for advanced power quality measurements. Spend is lowered to maintain annual growth and usage. Years 2023-2025 have utilized a 10% growth factor.

Project Justification

ION meters provide data and features not available with any other meter currently used at CPS Energy. Features and functions provided by ION meters are highly desired and necessary, and are often requested by both our internal and external customers.

Expected Benefits

ION meters are at least twice as precise as all other CPS Energy meters. ION meters provide near real time alerts, as well as load and supply metrics, which proactively prevent erroneous billings. The ION metering system can immediately define and report power quality which falls outside of Computer Business Equipment Manufacturers Association (CBEMA) curves. ION meter data can be viewed remotely which allows CPS Energy to provide the best attention and response to our most significant customers and metering sites.

Project Risk

Internal customers (Key Accounts, Power Quality, Engineering, Power Generation, etc.) and external high profile customers (Joint Base San Antonio, Datacenters, Super Large Power customers, etc.) request and utilize many of the special features and functions provided by the ION meter. The service provided to our most demanding and critical customers would be less efficient without use of the meter.

¹ Dollars exclude AFUDC
Competitive and Confidential Information



WBS Description: Dir Purch Pre-Cap Elect Meters without Current Transformers and Voltage Transformers(CTVT)

WBS Element: D-0820-0000001

Business Area: Customer Success

Executive: DeAnna Hardwick

Strategic Category: Customer Growth

Project Cost: ¹ \$152,308

FY23: \$30,824

FY24: \$30,824

FY25: \$30,000

FY26: \$30,000

FY27: \$30,660

Project Description

Electric meters for residential and small commercial class customers that "Opt out" of using Advanced Metering Infrastructure (AMI) meters. These meters are meters without Current Transfer / Voltage Transfers. These meters will be used for those customers.

Project Justification

Required to connect customers who "Opt-out" of using Advanced Metering Infrastructure (AMI) meters.

Expected Benefits

Measure electric consumption for new customers.

Project Risk

There will be no meter option to support CPS Energy Opt Out program



WBS Description: Dir Purch Pre-Cap Electric Meter Cabinet

WBS Element: D-0840-0000001

Business Area: Customer Success

Executive: DeAnna Hardwick

Strategic Category: Customer Growth

Project Cost: ¹ \$2,589,900

FY23: \$550,000

FY24: \$560,000

FY25: \$570,000

FY26: \$450,000

FY27: \$459,900

Project Description

Sockets (Meter Cans) for residential electric meters and cabinets (large enclosures) used for large commercial customers; both Advanced Metering Infrastructure (AMI) and Non-Advanced Metering Infrastructure (AMI). Years 2023-2025 have utilized a 10% growth factor.

Project Justification

Required establishing connection for new customers, system growth.

Expected Benefits

Measure electric consumption for new customers.

Project Risk

Connection for new customers will not be obtainable.



WBS Description: Dir Purch Pre-Cap Electric Transocket

WBS Element: D-0850-0000001

Business Area: Customer Success

Executive: DeAnna Hardwick

Strategic Category: Customer Growth

Project Cost: ¹ \$1,672,700

FY23: \$310,000

FY24: \$320,000

FY25: \$335,000

FY26: \$350,000

FY27: \$357,700

Project Description

Sockets (Meter Can) for commercial electric meters used for new construction installs for both Advanced Metering Infrastructure (AMI) and non-Advanced Metering Infrastructure (AMI) installs.

Project Justification

Required establishing connection for new customers, system growth.

Expected Benefits

Measure electric consumption for new customers.

Project Risk

Connection for new customers will not be obtainable.



WBS Description: Pre-Cap Advanced Metering Infrastructure (AMI) Meters

WBS Element: D-0880-0000001

Business Area: Customer Success

Executive: DeAnna Hardwick

Strategic Category: Customer Growth

Project Cost: ¹ \$66,531,000

FY23: \$13,800,000

FY24: \$12,500,000

FY25: \$13,000,000

FY26: \$13,500,000

FY27: \$13,731,000

Project Description

Precapitalized purchase of single and three phase electric Advanced Metering Infrastructure (AMI) meters.

Project Justification

Materials required to complete electric meter installations for single and three phase new and existing customers. Advanced Metering Infrastructure (AMI) meters is considered as the standard meter used by customers.

Expected Benefits

Meters are required to supply new construction and maintenance needs compatible with our Advanced Metering Infrastructure (AMI) Mesh Network and Advanced Metering Infrastructure (AMI) installation to recognize full Advanced Metering Infrastructure (AMI) benefits for over air reads in regards to billing, outage notifications, and remote disconnects and reconnects for residential meters, as well as other benefits.

Project Risk

These meters will be needed to maintain the Advanced Metering Infrastructure (AMI) Mesh Network of the entire Service Territory in order to realize full Advanced Metering Infrastructure (AMI) benefits. This will also supply new construction needs as the service territory sees growth. Lack of Advanced Metering Infrastructure (AMI) meters will prevent us from fully utilizing and optimizing our Advanced Metering Infrastructure (AMI) Mesh Network and cause delays in service issue recognition and impacted customer service.

¹ Dollars exclude AFUDC
Competitive and Confidential Information



WBS Description: Interval Billing Quality Data

WBS Element: I-2018-8000004

Business Area: Customer Success

Executive: DeAnna Hardwick

Strategic Category: Customer Growth

Project Cost: ¹ \$1,500,000

FY23: \$1,500,000

FY24: \$0

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Interval billing quality data will allow CPS Energy to implement flexible billing options, including Time Of Use (TOU) for the entire population of customers.

Project Justification

Interval data validation is necessary to develop new product offerings such as Time Of Use (TOU). Validated data would provide a more accurate representation of customers energy usage profile. Forecast of energy consumption can be more accurately predicted.

Expected Benefits

Data analytics for product offerings, and customer presentment.

Project Risk

Analytics to support new product offerings and flexible billing options could not be performed with the level of accuracy as validated data.



WBS Description: Data Presentation

WBS Element: I-2018-8100001

Business Area: Customer Success

Executive: DeAnna Hardwick

Strategic Category: Customer Growth

Project Cost: ¹ \$3,000,000

FY23: \$2,000,000

FY24: \$1,000,000

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Upgrade MV90 system to support data presentment for Electric Reliability Council of Texas (ERCOT) type customers as well as support Advanced Metering Infrastructure (AMI) data presentment

Project Justification

Project will provide the means for commercial customers to view their data in near real time. Provide a more robust viewing tool for load profile. Rate comparison tool, allowing customers to evaluate other rate offerings.

Expected Benefits

Improved brand and image and improved customer experience for our largest customers. As well as near real time data presentment and improved data accuracy

Project Risk

Current aging data presentment tool is outdated and does not support newest features customer begin to expect from utility company. Potential opportunity loss of additional product offerings.

Infrastructure Modernization





WBS Description: Meter Measurement - Tools & Equipment

WBS Element: D-0058-0000001

Business Area: Customer Success

Executive: DeAnna Hardwick

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$699,750

FY23: \$116,600

FY24: \$128,260

FY25: \$141,086

FY26: \$155,195

FY27: \$158,609

Project Description

Tools, equipment, and instrumentation needed by Metering Services shop and field personnel to perform essential duties. Fiscal Year (FY) 2022- Knopp Current Transformers and Voltage Transformers (CTVT) \$60k, Bantam \$20K, Probewell meter tester-2 at \$26k. FY 2023-2025 increase of 10% year over year.

Project Justification

CPS Energy has the responsibility of ensuring that its deployed metering and measurement devices are safe, reliable, and accurate. These attributes cannot be guaranteed without appropriate tools and advanced test equipment for both our meter shop and field operations.

Expected Benefits

Proper (and highly accurate) tools, instrumentation, test equipment, and test consoles are necessary in order for our personnel to accurately, consistently, and safely ensure deployed metering and measurement device are within CPS Energy's requirements as well as any relevant Electric Reliability Council of Texas (ERCOT), North American Electric Reliability Corporation (NERC), American National Standards Institute (ANSI), or Public Utility Commission of Texas (PUCT) expectations.

Project Risk

Without appropriate tools and equipment, CPS Energy's metering workforce will not be able to efficiently and consistently diagnose erroneous metering and measurements systems, as well as, proactively prevent failed metering and measurement equipment. Absence of precise metering and measurement data can adversely impact Billing, System Operations, Energy Supply & Market Operations (ESMO), ERCOT, Power Plant Operations, Industrial, Commercial, Residential, and Joint Base San Antonio customers, etc.

¹ Dollars exclude AFUDC
Competitive and Confidential Information

Electric Distribution

Customer Growth





WBS Description: Westover Hills Expansion (Chevron) (Distribution)

WBS Element: S-0923-0000060

Business Area: Electric Distribution

Executive: Ricardo Renteria

Strategic Category: Customer Growth

Project Cost: 1 \$100,000

FY23: \$100,000

FY24: \$0

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

This is a station expansion to add 2 new transformer/switchgear lineups at the existing Westover Hills substation. The expansion will necessitate the extension of the 138kV bus, 1 new line terminal, and 1 new tap position to accommodate one of the transformer/switchgear lineups. The substation perimeter would also need to be extended to the southwest by approximately 3/4 of an acre which will require additional perimeter fencing.

Project Justification

Large customer request for additional substation infrastructure to support their expansion.

Expected Benefits

Additional substation capacity to support large customer.

Project Risk

Large customer would not be able to expand their operations as they wish.

Infrastructure Modernization





WBS Description: Facility Recapitalization-Energy Delivery Services (EDS)

WBS Element: B-2021-0000010

Business Area: Electric Distribution

Executive: Paul Barham

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$2,314,401

FY23: \$1,870,001

FY24: \$40,000

FY25: \$0

FY26: \$200,000

FY27: \$204,400

Project Description

Renovation of multiple districts facilities (e.g. conference rooms, dock area and parking lots).

Project Justification

- The current surface area of the dock has been worn down over time and has created a slipping hazard for employees walking on it. There is a current need for a controllable area to manage spare staging equipment and to enable approved employees to access items.

Expected Benefits

- Improved safety results, and better footing and traction in an area that has the most pedestrian traffic each day.
- Controlled access to our equipment and implementation of proper procedures to ensure assets are managed appropriately.

Project Risk

- Possible risk of having an injury of an employee falling and hurting themselves.
- Safety risk as well as controls are limited. There is a significant amount of space not being utilized that is causing congestion within the yard and too many pieces of equipment and vehicles moving at one time.



WBS Description: Tools-Equipment - Distribution

WBS Element: D-0052-0000001

Business Area: Electric Distribution

Executive: Darrell Clifton

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$290,000

FY23: \$10,000

FY24: \$90,000

FY25: \$10,000

FY26: \$90,000

FY27: \$90,000

Project Description

Metal casings to store augers for diggers, and two replacement radar units for service restoration.

Project Justification

Currently, the metal augers are being staged on pallets that tend to break due to the weight, presenting a safety hazard and environmental issue. Per environmental guidelines, metal is not to be staged on the ground due to run off water. Additionally, the augers will roll from time to time due to their dimensions and the metal casings will allow easier access and safety measures put in place to hold them securely.

Expected Benefits

Easier access to the augers and safety improvements due to holding them in place, abiding by the environmental guidelines and ensuring they are being properly handled with limited safety risks applied.

Project Risk

Subject to operational event by having to manually handle the augers that have fallen through pallets and potential environmental issue by having metal staged on the ground.



WBS Description: Overhead Emergency Replacement

WBS Element: E-0079-0000001

Business Area: Electric Distribution

Executive: Marian Braggs

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$24,818,080

FY23: \$4,963,616

FY24: \$4,963,616

FY25: \$4,963,616

FY26: \$4,963,616

FY27: \$4,963,616

Project Description

Emergency (unplanned) upgrade or replacement of overhead electric distribution capital assets (including poles, transformers, switches, conductors, etc.,) which is caused by storms, vehicles crashes, premature equipment failure, and animals.

Project Justification

Unplanned replacement of overhead capital assets that have failed in service (unforeseen failure), and are either beyond repair or have outlived their depreciated life cycle. Therefore, it is more cost effective to replace than repair.

Expected Benefits

Maintains integrity and reliability of the overhead electric distribution system. Improved reliability metrics including reducing duration and frequency of outages. Improved customer satisfaction.

Project Risk

Reduced system reliability and customer service/satisfaction; potential increased costs.



WBS Description: Underground Residential Distribution - Emergency

WBS Element: E-0468-0000001

Business Area: Electric Distribution

Executive: Janna Junkin

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$14,322,165

FY23: \$2,864,433

FY24: \$2,864,433

FY25: \$2,864,433

FY26: \$2,864,433

FY27: \$2,864,433

Project Description

Emergency (unplanned) upgrade or replacement of the single-phase Underground Residential Distribution (URD) capital assets, such as transformers, conduits, and cables.

Project Justification

Unplanned replacement of Underground Residential Distribution (URD) capital assets that have failed in service (unforeseen failure), and are either beyond repair, or have outlived their depreciated life cycle, therefore more cost effective to replace than repair.

Expected Benefits

Maintains integrity and reliability of the electric Underground Residential Distribution (URD) system. Improved reliability metrics including reducing duration and frequency of outages. Improved customer satisfaction.

Project Risk

- Reduced system reliability
- Customer service/satisfaction
- Potential increased costs

¹ Dollars exclude AFUDC
Competitive and Confidential Information

WBS Description: Geographic Information System (GIS) to OMS Network Adapter Modernization

WBS Element: O-0889-0000001

Business Area: Electric Distribution

Executive: Lee Byrd

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$35,000

FY23: \$35,000

FY24: \$0

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

GIS to Outage Management System (OMS) Network Adapter Modernization

Project Justification

The current network adapter tool uses very old technology and runs very slow. Future needs dictate a need for vastly expanded export capacity to support smart grid applications. More circuits will be exported per batch and the frequency of the exports will need to be daily. Simultaneous exports will also be necessary. All of these requirements must be enhanced, and the current state of the process is not sufficient.

Additionally, the data fidelity requirements contained in the exports will increase significantly. Consumption data, and additional data fields will require additional processing power. The OMS team is also looking to export the circuits they need themselves, on demand. Again, the current version does not support these capabilities.

This software is very near to the end of its life cycle; but it is absolutely past the point of patchwork fixes having the needed impact to support future Smart Grid applications.

Expected Benefits

This project will improve service levels by enabling system operations to leverage current technology making them more efficient and effective for managing field crews, environmental and situational awareness which yields quicker decision-making protocols when outside conditions are at their worst.

This project will decrease the cost to serve our Community through increased capacity for GIS to OMS circuit exports. Currently, the age and vintage of our software is nearing its end of life. Accordingly, the software has been patched for 15 years. The effective approach is to gather requirements from all business units to fall in line with other best practices applied by other utilities of larger size than CPS Energy.

This project will provide our Community a better product with a drop in outage minutes to the customer as operations becomes more effective.

Our brand image has opportunities for improvement because perceived customer satisfaction will grow due to the increased efficiency of our outage management teams to address both planned and unplanned outages.

Project Risk

The existing technology in use today by CPS Energy is 15 years old. The OMS software that this data is exported to is also near the end of its lifecycle and is, itself, being upgraded. The age and inefficiency of old technology will maintain the process constraint/labor sink, even with a brand new OMS software process. Our existing network adapter process is also highly customized for specific CPS Energy business processes. The technology is dated and the cost of maintaining this customized software is becoming more expensive each year. As new needs are added to the existing processes, more customized code is needed. We miss out on new advances and functionality available off the shelf that support a more agile and configurable process to meet ever changing demands from internal and external customers. This will minimize the value of our smart grid programs. The export process is also bloated and the time needed to export more circuits is increasing more and more each year. Export process time has been defined as a key indicator for lost time efficiencies and will soon not be able to keep up with demand.

¹ Dollars exclude AFUDC
Competitive and Confidential Information

WBS Description: Kirby - Replace Transformer/Switchgear #2 - Distribution

WBS Element: S-0566-0000001

Business Area: Electric Distribution

Executive: Ricardo Renteria

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$3,035,000

FY23: \$0

FY24: \$0

FY25: \$3,035,000

FY26: \$0

FY27: \$0

Project Description

Install a new 138/13kV, 39.2 Megavolt-ampere (MVA) power transformer to replace the 39.2 MVA, 13kV Federal Pacific transformer installed at the Kirby substation in position #2 in 1976. Install a new switchgear to replace the Allis Chalmers switchgear installed in 1975 at the Kirby substation in position #2. Install a new 138/13kV, 40 MVA power transformer to replace the 40 MVA, 13kV McGraw Edison transformer installed in 1985 at the Kirby substation in position #3. Install a new switchgear to replace the ITE switchgear installed in 1972 at the Kirby substation in position #3.

Project Justification

The transformer and switchgear at Kirby substation has been identified as part of the Infrastructure Modernization capital replacement program based on the age of the equipment. This equipment has been in service for 33/42/43/46 years and are at the end of their useful life. Replacing the equipment at this substation will improve the overall reliability of the system and provide for continued service to our customers for many years forward. This project also implements a newer technology of switchgear that allows CPS Energy to reduce the amount of spare parts on hand and reduces the frequency of required periodic maintenance.

Expected Benefits

Replacing the transformer and switchgear produces the following benefits:

- Avoids unexpected failure due to age and condition.
- Reduces the risk of transformer failure well into the future.
- Reduces maintenance expenses.
- Increases system reliability.
- Reduces risk of adjacent damages caused by an unexpected failure.
- Newer style of switchgear is a more robust operating mechanism.
- Standardizes equipment to reduce spare part and training costs.

Project Risk

The primary risk of not replacing the transformer and switchgear is the risk of unexpected failure resulting in unserved customer load, possible property damage and potential environmental contamination. If the equipment is replaced on a reactive basis, significant increases in cost due to unplanned replacement can occur.

This equipment is currently 33/42/43/46 years old. Approximately 4 transformers and 33 switchgear breakers per year must be replaced to sustain a 50 year life cycle for transformers and a 40 year life cycle for switchgear breakers or an unmanageable number of replacements (asset wall) will develop over time. Failure can be catastrophic. The metalclad switchgear requires frequent maintenance to rainproof the switchgear. Replacement is recommended to minimize risk associated with this type of equipment.

WBS Description: Highland Hills - Replace Transformer/Switchgear #2, Switchgear #1 - Distribution

WBS Element: S-0597-0000029

Business Area: Electric Distribution

Executive: Ricardo Renteria

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$355,000

FY23: \$355,000

FY24: \$0

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Install two new switchgears to replace the Westinghouse common aisle switchgear installed in 1962 and 1971 at the Highland Hills substation in positions #1 and #2. Install a new 138/13kV, 39.2 Megavolt-ampere (MVA) power transformer to replace the 39.2 MVA, 13kV Westinghouse transformer installed in 1971 in position #2. Install a new control house to replace the common aisle control house.

Project Justification

The transformer and switchgear at Highland Hills substation has been identified as part of the Infrastructure Modernization capital replacement program based on the age of the equipment. This equipment has been in service for 56/47 years and is at the end of its useful life. Replacing the equipment at this substation will improve the overall reliability of the system and provide for continued service to our customers for many years forward. This project also implements a newer technology of switchgear that allows CPS Energy to reduce the amount of spare parts on hand and reduces the frequency of required periodic maintenance.

Expected Benefits

Replacing the transformer and switchgear produces the following benefits:

- Avoids unexpected failure due to age and condition.
- Reduces the risk of transformer failure well into the future.
- Reduces maintenance expenses.
- Increases system reliability.
- Reduces risk of adjacent damages caused by an unexpected failure.
- Newer style of switchgear is a more robust operating mechanism.
- Standardizes equipment to reduce spare part and training costs.

Project Risk

The primary risk of not replacing the transformer and switchgear is the risk of unexpected failure resulting in unserved customer load, possible property damage and potential environmental contamination. If the equipment is replaced on a reactive basis, significant increases in cost due to unplanned replacement can occur.

This equipment is currently 56 and 47 years old. Approximately four transformers and 33 switchgear breakers per year must be replaced to sustain a 50 year life cycle for transformers and a 40 year life cycle for switchgear breakers or an unmanageable number of replacements (asset wall) will develop over time. Failure can be catastrophic. The metalclad switchgear requires frequent maintenance to rainproof the switchgear. Replacement is recommended to minimize risk associated with this type of equipment.

WBS Description: Chavaneaux Replace Transformer/Switchgear #2, Distr Feeder Relay Upgrade #3 - Distribution

WBS Element: S-0621-0000029

Business Area: Electric Distribution

Executive: Ricardo Renteria

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$2,555,000

FY23: \$2,555,000

FY24: \$0

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Install new metalclad switchgear to replace the Allis Chalmers switchgear installed in 1972 at the Chavaneaux substation in position #2. Install a new 138/13kV, 40 Megavolt-ampere (MVA) power transformer to replace the 40 MVA, 13kV Westinghouse transformer installed in 1972 at the Chavaneaux Road substation in position #2.

Project Justification

The transformer and switchgear at Chavaneaux substation has been identified as part of the Infrastructure Modernization capital replacement program based on the age of the equipment. This equipment has been in service for 46 years and is at the end of its useful life. Replacing the equipment at this substation will improve the overall reliability of the system and provide for continued service to our customers for many years forward. This project also implements a newer technology of switchgear that allows CPS Energy to reduce the amount of spare parts on hand and reduces the frequency of required periodic maintenance.

Expected Benefits

Replacing the transformer and switchgear produces the following benefits:

- Avoids unexpected failure due to age and condition.
- Reduces the risk of transformer failure well into the future.
- Reduces maintenance expenses.
- Increases system reliability.
- Reduces risk of adjacent damages caused by an unexpected failure.
- Newer style of switchgear is a more robust operating mechanism.
- Standardizes equipment to reduce spare part and training costs.

Project Risk

The primary risk of not replacing the transformer and switchgear is the risk of unexpected failure resulting in unserved customer load, possible property damage and potential environmental contamination. If the equipment is replaced on a reactive basis, significant increases in cost due to unplanned replacement can occur.

This equipment is currently 46 years old. Approximately 4 transformers and 33 switchgear breakers per year must be replaced to sustain a 50 year life cycle for transformers and a 40 year life cycle for switchgear breakers or an unmanageable number of replacements (asset wall) will develop over time. Failure can be catastrophic. The metalclad switchgear requires frequent maintenance to rainproof the switchgear. Replacement is recommended to minimize risk associated with this type of equipment.

WBS Description: Bandera Road - Replace Transformer/Switchgear #3 - Distribution

WBS Element: S-0623-0000029

Business Area: Electric Distribution

Executive: Ricardo Renteria

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$2,776,000

FY23: \$365,000

FY24: \$2,411,000

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Install a new switchgear to replace the Allis Chalmers switchgear installed in 1971 at the Bandera Road substation in position #3. Install a new 138/13kV, 39.2 Megavolt-ampere (MVA) power transformer to replace the 39.2 MVA, 13kV Westinghouse transformer installed in 1971 in position #3. Install a new 138/13kV, 40 MVA power transformer to replace the 39.2 MVA, 13kV Westinghouse transformer installed in 1972 in position #2. Install a new switchgear to replace the Instrument Transformer switchgear installed in 1972 in position #2. Replace switches 55 and 03O21 (replace motor operator).

Project Justification

The transformer and switchgear at the Bandera substation has been identified as part of the Infrastructure Modernization capital replacement program based on the age of the equipment. This equipment has been in service for 47 years and is at the end of its useful life. Replacing the equipment at this substation will improve the overall reliability of the system and provide for continued service to our customers for many years forward. This project also implements a newer technology of switchgear that allows CPS Energy to reduce the amount of spare parts on hand and reduces the frequency of required periodic maintenance.

Expected Benefits

Replacing the transformer and switchgear produces the following benefits:

- Avoids unexpected failure due to age and condition.
- Reduces the risk of transformer failure well into the future.
- Reduces maintenance expenses.
- Increases system reliability.
- Reduces risk of adjacent damages caused by an unexpected failure.
- Newer style of switchgear is a more robust operating mechanism.
- Standardizes equipment to reduce spare part and training costs.

Project Risk

The primary risk of not replacing the transformer and switchgear is the risk of unexpected failure resulting in unserved customer load, possible property damage and potential environmental contamination. If the equipment is replaced on a reactive basis, significant increases in cost due to unplanned replacement can occur.

This equipment is currently 47 years old. Approximately 4 transformers and 33 switchgear breakers per year must be replaced to sustain a 50 year life cycle for transformers and a 40 year life cycle for switchgear breakers or an unmanageable number of replacements (asset wall) will develop over time. Failure can be catastrophic. The metalclad switchgear requires frequent maintenance to rainproof the switchgear. Replacement is recommended to minimize risk associated with this type of equipment.

WBS Description: DGA Monitors

WBS Element: S-0682-0000001

Business Area: Electric Distribution

Executive: Ricardo Renteria

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$1,350,000

FY23: \$450,000

FY24: \$450,000

FY25: \$450,000

FY26: \$0

FY27: \$0

Project Description

Install Dissolved Gas Analysis (DGA) Monitors on substation transformers and autotransformers.

Project Justification

DGA Monitors have been identified as part of the Infrastructure Modernization capital program to provide condition assessment. With the ability to monitor transformers 24 hours a day, this will aid in avoiding unexpected failures, lowering maintenance cost, and extending the useful life of power transformers.

Expected Benefits

Installation of DGA Monitors will provide the following benefits:

- Avoids unexpected transformer failures due to age or condition.
- Reduces the risk of transformer failures well into the future.
- Reduces maintenance expenses.
- Increases system reliability.
- Limits adjacent damages due to unexpected transformer failures.

Project Risk

The primary risk of not installing Dissolved Gas Analysis (DGA) Monitors is unexpected transformer failures. These failures can be catastrophic, resulting in unserved customer load, property damage and environmental contamination. Significant cost increases occur due to the unplanned replacements. This results in increased operational expense and decreased ability to proactively manage the fleet of transformers.



WBS Description: Merida-Replace Transformer #2

WBS Element: S-0818-0000029

Business Area: Electric Distribution

Executive: Ricardo Renteria

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$1,580,000

FY23: \$0

FY24: \$0

FY25: \$1,580,000

FY26: \$0

FY27: \$0

Project Description

Install a new 138/13kV, 40 Megavolt-ampere (MVA) power transformer to replace the 40 MVA, 13kV Southwest Electric transformer installed in 1988 at the Merida substation in position #2.

Project Justification

The transformer at the Merida substation has been identified as part of the Infrastructure Modernization capital replacement program based on the age of the equipment. Replacing the equipment at this substation will improve the overall reliability of the system and provide for continued service to our customers for many years forward.

Expected Benefits

Replacing the transformer produces the following benefits:

- Avoids unexpected failure due to age and condition.
- Reduces the risk of transformer failure well into the future.
- Reduces maintenance expenses.
- Increases system reliability.
- Reduces risk of adjacent damages caused by an unexpected failure.

Project Risk

The primary risk of not replacing the transformer is the risk of unexpected failure resulting in unserved customer load, possible property damage and potential environmental contamination. If the transformer is replaced on a reactive basis, significant increases in cost due to unplanned replacement can occur. This unit has a presence of acetylene, indicating electrical discharge activity that increases the risk for unit failure, safety hazards and loss of service. This unit is being monitored frequently for increases in this key gas. This increases our operational expenses and decreases our ability to proactively manage our fleet of transformers. Failure can be catastrophic.

¹ Dollars exclude AFUDC
Competitive and Confidential Information

WBS Description: Medina Base - Replace Transformer/Switchgear #3 (Distribution)

WBS Element: S-0866-0000060

Business Area: Electric Distribution

Executive: Ricardo Renteria

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$2,895,000

FY23: \$2,895,000

FY24: \$0

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Install a new 138/13kV, 40 Megavolt-ampere (MVA) power transformer to replace the 40 MVA, 13kV Westinghouse transformer installed in 1976 at the Medina Base substation in position #3. Install new switchgear to replace the Federal Pacific switchgear installed in 1968 at the Medina Base substation in position #3.

Project Justification

The transformer and switchgear at the Medina Base substation have been identified as part of the Infrastructure Modernization capital replacement program based on the age of the equipment. This equipment has been in service for 40/48 years and is at the end of its useful life. Replacing the equipment at this substation will improve the overall reliability of the system and provide for continued service to our customers for many years forward. This project also implements a newer technology of switchgear that allows CPS Energy to reduce the amount of spare parts on hand and reduces the frequency of required periodic maintenance.

Expected Benefits

Replacing the transformer and switchgear produces the following benefits:

- Avoids unexpected failure due to age and condition.
- Reduces the risk of transformer failure well into the future.
- Reduces maintenance expenses.
- Increases system reliability.
- Reduces risk of adjacent damages caused by an unexpected failure.
- Standardizes equipment to reduce spare part and training costs.

Project Risk

The primary risk of not replacing the transformer and switchgear is the risk of unexpected failure resulting in unserved customer load, possible property damage, and potential environmental contamination. If the equipment is replaced on a reactive basis, significant increases in cost due to unplanned replacement can occur. This equipment is currently 40/48 years old. Approximately 4 transformers and 33 switchgear breakers per year must be replaced to sustain a 50 year life cycle for transformers and a 40 year life cycle for switchgear breakers or an unmanageable number of replacements (asset wall) will develop over time. Failure can be catastrophic. The metal clad switchgear requires frequent maintenance to rainproof the switchgear. Replacement is recommended to minimize risk associated with this type of equipment.

WBS Description: Pinn Rd - Replace Transformer/Switchgear #3

WBS Element: S-0868-0000060

Business Area: Electric Distribution

Executive: Ricardo Renteria

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$2,925,000

FY23: \$30,000

FY24: \$2,895,000

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Install a new 138/13kV, 40 Megavolt-ampere (MVA) power transformer to replace the 40 MVA, 13kV Allis Chalmers transformer installed in 1970 at the Pinn Road substation in position #3. Install new switchgear in position #3 to replace the Allis Chalmers switchgear installed in 1971.

Project Justification

The transformer and switchgear at the Pinn Road substation have been identified as part of the Infrastructure Modernization capital replacement program based on the age of the equipment. This equipment has been in service for 46/45 years and is at the end of its useful life. Replacing the equipment at this substation will improve the overall reliability of the system and provide for continued service to our customers for many years forward. This project also implements a newer technology of switchgear that allows CPS Energy to reduce the amount of spare parts on hand and reduces the frequency of required periodic maintenance.

Expected Benefits

Replacing the transformer and switchgear produces the following benefits:

- Avoids unexpected failure due to age and condition.
- Reduces the risk of transformer failure well into the future.
- Reduces maintenance expenses.
- Increases system reliability.
- Reduces risk of adjacent damages caused by an unexpected failure.
- Newer style of switchgear is a more robust operating mechanism.
- Standardizes equipment to reduce spare part and training costs.

Project Risk

The primary risk of not replacing the transformer and switchgear is the risk of unexpected failure resulting in unserved customer load, possible property damage, and potential environmental contamination. If the equipment is replaced on a reactive basis, significant increases in cost due to unplanned replacement can occur. This equipment is currently 46/45 years old. Approximately 4 transformers and 33 switchgear breakers per year must be replaced to sustain a 50 year life cycle for transformers and a 40 year life cycle for switchgear breakers or an unmanageable number of replacements (asset wall) will develop over time. Failure can be catastrophic. The metal clad switchgear requires frequent maintenance to rainproof the switchgear. Replacement is recommended to minimize risk associated with this type of equipment.

WBS Description: South San - Replace Transformer/Switchgear #4 (Distribution)

WBS Element: S-0869-0000060

Business Area: Electric Distribution

Executive: Ricardo Renteria

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$2,925,000

FY23: \$1,540,000

FY24: \$1,385,000

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Install a new 138/13kV, 40 Megavolt-ampere (MVA) power transformer to replace the 40 MVA, 13kV Maloney transformer installed in 1973 at the South San substation in position #4. Install new switchgear to replace the Allis Chalmers switchgear installed in 1973 at the South San substation in position #4.

Project Justification

The transformer and switchgear at the South San substation has been identified as part of the Infrastructure Modernization capital replacement program based on the age of the equipment. This equipment has been in service for 45 years and is at the end of its useful life. Replacing the equipment at this substation will improve the overall reliability of the system and provide for continued service to our customers for many years forward. This project also implements a newer technology of switchgear that allows CPS Energy to reduce the amount of spare parts on hand and reduces the frequency of required periodic maintenance.

Expected Benefits

Replacing the transformer and switchgear produces the following benefits:

- Avoids unexpected failure due to age and condition.
- Reduces the risk of transformer failure well into the future.
- Reduces maintenance expenses.
- Increases system reliability.
- Reduces risk of adjacent damages caused by an unexpected failure.
- Newer style of switchgear is a more robust operating mechanism.
- Standardizes equipment to reduce spare part and training costs.

Project Risk

The primary risk of not replacing the transformer and switchgear is the risk of unexpected failure resulting in unserved customer load, possible property damage and potential environmental contamination. If the equipment is replaced on a reactive basis, significant increases in cost due to unplanned replacement can occur.

This equipment is currently 45 years old. Approximately 4 transformers and 33 switchgear breakers per year must be replaced to sustain a 50 year life cycle for transformers and a 40 year life cycle for switchgear breakers or an unmanageable number of replacements (asset wall) will develop over time. Failure can be catastrophic. The metalclad switchgear requires frequent maintenance to rainproof the switchgear. Replacement is recommended to minimize risk associated with this type of equipment.



WBS Description: Talley Road # Replace Transformers 2 & 3

WBS Element: S-0887-0000060

Business Area: Electric Distribution

Executive: Ricardo Renteria

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$6,606,390

FY23: \$0

FY24: \$0

FY25: \$45,000

FY26: \$3,245,000

FY27: \$3,316,390

Project Description

Install two new 138/35kV, 100 Megavolt-ampere (MVA) power transformer to replace the two 50 MVA, 38kV transformer installed in 2012 at the Talley Rd substation in position #2 and #3.

Project Justification

The transformers at the Talley Rd substation were installed to serve a small amount of customers. Over the last 5 years, the loads on these transformers have grown by 36%. They are predicted to grow by another 20% over the next 5 years.

Expected Benefits

With larger transformers, we will be able to serve the growing number of customers, as well as, keep ties to pick up load during outage restoration or maintenance.

Project Risk

Without the larger transformers, we will not be able to serve new customers or pick up loads during outages.

WBS Description: Tenth Street Rebuild (Distribution)

WBS Element: S-0891-0000060

Business Area: Electric Distribution

Executive: Ricardo Renteria

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$11,679,200

FY23: \$0

FY24: \$0

FY25: \$4,400,000

FY26: \$3,600,000

FY27: \$3,679,200

Project Description

Rebuild Tenth Street Substation that has been in-service since 1956. The high side of Tenth Street Substation consists of a 'lattice box structure' system. The project will be phased and involve removing the 'lattice box structure' one bay per phase, and replacing it with modern substation equipment.

Project Justification

The 'lattice box structure' at Tenth Street Substation has been identified as an Infrastructure Modernization project based on the age of the structures. The Tenth Street Substation has been in service since 1956 and feeds 4 of the downtown networks. Portions of this 'lattice box structure' have been in service for over 60 years, which places it out of its service life. Replacing the 'lattice box structure' at Tenth Street Substation will improve the reliability of the system and provide for continued service to our customers by removing a known risk with newer, more modern substation equipment.

Expected Benefits

Rebuilding the Tenth Street Substation will provide the following benefits:

- Resolve the issue of in-service equipment that has surpassed its useful life
- Provide a safer work environment
- Increase reliability expectations

Project Risk

Risks of not rebuilding the Tenth Street Substation include:

- Mechanical failure of the 138kV bus system
- Increased danger to personnel working around the aging infrastructure
- Decreased reliability to customers including the downtown network distribution system



WBS Description: Distribution -USAA #1 - Replace Switchgear #1 and #3

WBS Element: S-0896-0000060

Business Area: Electric Distribution

Executive: Ricardo Renteria

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$2,400,000

FY23: \$2,281,000

FY24: \$119,000

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Install new Out-Door, Walk-In Metalclad Medium Voltage Switchgear to replace the two Westinghouse switchgears installed in 1975 at the United Services Automobile Association (USAA) #1 substation in positions #1 and #3.

Project Justification

The switchgear units at the USAA #1 substation have been identified as part of the Infrastructure Modernization capital replacement program based on the age of the equipment. This equipment has been in service for 43 years and are at the end of its useful life. Replacing the equipment at this substation will improve the overall reliability of the system and provide for continued service to our customers for many years forward. This project also implements a newer technology of switchgear that allows CPS Energy to reduce the amount of spare parts on hand and reduces the frequency of required periodic maintenance.

Expected Benefits

Replacing the switchgear produces the following benefits:

- Avoids unexpected failure due to age and condition.
- Reduces the risk of failure well into the future.
- Reduces maintenance expenses.
- Reduces switchgear maintenance costs.
- Newer style of switchgear is a more robust operating mechanism.
- Standardizes equipment to reduce spare part and training costs.

Project Risk

The primary risk of not replacing the transformer and switchgear is the risk of unexpected failure resulting in unserved customer load, possible property damage and potential environmental contamination. If the equipment is replaced on a reactive basis, significant increases in cost due to unplanned replacement can occur.

Approximately 4 transformers and 33 switchgear breakers per year must be replaced to sustain a 50 year life cycle for transformers and a 40 year life cycle for switchgear breakers or an unmanageable number of replacements (asset wall) will develop over time. Failure can be catastrophic. The metalclad switchgear requires frequent maintenance to rainproof the switchgear. Replacement is recommended to minimize risk associated with this type of equipment.

WBS Description: Westside - Replace Transformer & Switchgear (Distribution)

WBS Element: S-0897-0000060

Business Area: Electric Distribution

Executive: Ricardo Renteria

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$1,192,980

FY23: \$0

FY24: \$0

FY25: \$0

FY26: \$590,000

FY27: \$602,980

Project Description

Install a new 138/13.8kV, 40 Megavolt-ampere (MVA) power transformer to replace the 39.2 MVA, 13kV US Transformer installed in 1999 at the Westside substation in position #3.

Install new Out-Door, Walk-In Metalclad Medium Voltage Switchgear to replace the Allis Chalmers switchgear installed in 1972 at the Westside substation in position #3.

Project Justification

The transformer and switchgear at the Westside substation has been identified as part of the Infrastructure Modernization capital replacement program based on the age of the equipment. This equipment has been in service for 46 years and is at the end of its useful life. Replacing the equipment at this substation will improve the overall reliability of the system and provide for continued service to our customers for many years forward. This project also implements a newer technology of switchgear that allows CPS Energy to reduce the amount of spare parts on hand and reduces the frequency of required periodic maintenance.

Expected Benefits

Replacing the transformer and switchgear produces the following benefits:

- Avoids unexpected failure due to age and condition.
- Reduces the risk of transformer failure well into the future.
- Reduces maintenance expenses.
- Increases system reliability.
- Reduces risk of adjacent damages caused by an unexpected failure.
- Newer style of switchgear is a more robust operating mechanism.
- Standardizes equipment to reduce spare part and training costs.

Project Risk

The primary risk of not replacing the transformer and switchgear is the risk of unexpected failure resulting in unserved customer load, possible property damage and potential environmental contamination. If the equipment is replaced on a reactive basis, significant increases in cost due to unplanned replacement can occur.

This equipment is currently 46 years old. Approximately 4 transformers and 33 switchgear breakers per year must be replaced to sustain a 50 year life cycle for transformers and a 40 year life cycle for switchgear breakers or an unmanageable number of replacements (asset wall) will develop over time. Failure can be catastrophic. The metalclad switchgear requires frequent maintenance to rainproof the switchgear. Replacement is recommended to minimize risk associated with this type of equipment.



WBS Description: Distribution - Construction - "Station 1"

WBS Element: S-0898-0000060

Business Area: Electric Distribution

Executive: Ricardo Renteria

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$1,176,430

FY23: \$0

FY24: \$645,000

FY25: \$400,000

FY26: \$65,000

FY27: \$66,430

Project Description

Install new SF6 circuit breakers to replace SF6 circuit breakers R01T

Project Justification

The SF6 circuit breakers have been identified as part of the Infrastructure Modernization capital program based on the age of the equipment and the technology type. Due to greenhouse gas potential legislation, aging or leaking SF6 breakers are being targeted for replacement. Replacing the equipment will improve overall reliability of the system and will address growing environmental concerns related to greenhouse gas emissions. Replacing these breakers will reduce the scope of our greenhouse gas emissions monitored by the Environmental Protection Agency's memorandum of understanding with CPS Energy.

Expected Benefits

Replacing older SF6 circuit breakers modernizes our fleet by eliminating equipment that is leaking SF6 into the atmosphere. Circuit breaker replacement results in reduced maintenance trips to recharge the leaking circuit breaker. This will reduce overall maintenance costs for the circuit breaker and free up the electrician to work on other tasks that are more value added.

Project Risk

The primary risk of not replacing the leaking SF6 circuit breakers is the loss of SF6 gas. SF6 is very high on the list of greenhouse gasses. One unit of SF6 gas is equivalent to 23,900 units of Carbon. This gas is not yet regulated, but it is highly likely that it will be in the very near future. Replacing leaking SF6 circuit breakers demonstrates our commitment to environmental stewardship. Risks can be mitigated by implementing epoxy patches on applicable existing breakers. Additional cost is associated with these measures and effectiveness is not 100%.

¹ Dollars exclude AFUDC
Competitive and Confidential Information



WBS Description: South San Antonio - Replace Transformer (Distribution)

WBS Element: S-0900-0000060

Business Area: Electric Distribution

Executive: Ricardo Renteria

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$20,220

FY23: \$0

FY24: \$0

FY25: \$0

FY26: \$10,000

FY27: \$10,220

Project Description

Install a new 138/13.8kV, 39.2 Megavolt-ampere (MVA) power transformer to replace the 39.2 MVA, 13kV Westinghouse installed in 1976 at the South San Antonio substation in position #1.

Project Justification

The transformer at the South San Antonio substation has been identified as part of the Infrastructure Modernization capital replacement program based on the age of the equipment. Replacing the equipment at this substation will improve the overall reliability of the system and provide for continued service to our customers for many years forward.

Expected Benefits

Replacing the transformer produces the following benefits:

- Avoids unexpected failure due to age and condition.
- Reduces the risk of transformer failure well into the future.
- Reduces maintenance expenses.
- Increases system reliability.
- Reduces risk of adjacent damages caused by an unexpected failure.

Project Risk

The primary risk of not replacing the transformer is the risk of unexpected failure resulting in unserved customer load, possible property damage and potential environmental contamination. If the transformer is replaced on a reactive basis, significant increases in cost due to unplanned replacement can occur. This unit is ranking high in our system and has problematic Load Tap Changer (LTC) with possible contact heating, and water content of the oil is high. This increases our operational expenses and decreases our ability to proactively manage our fleet of transformers. Failure can be catastrophic.

¹ Dollars exclude AFUDC
Competitive and Confidential Information

WBS Description: Fratt - Replace Transformer & Switchgear (Distribution)

WBS Element: S-0903-0000060

Business Area: Electric Distribution

Executive: Ricardo Renteria

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$3,356,520

FY23: \$0

FY24: \$0

FY25: \$0

FY26: \$1,660,000

FY27: \$1,696,520

Project Description

Install a new 138/13.8kV, 39.2 Megavolt-ampere (MVA) power transformer to replace the 39.2 MVA, 13kV Westinghouse installed in 1976 at the Fratt substation in position #3. Install new Out-Door, Walk-In Metalclad Medium Voltage Switchgear to replace the existing switchgear at Harlandale substation in position #3.

Project Justification

The transformer and switchgear at the Harlandale substation has been identified as part of the Infrastructure Modernization capital replacement program based on the age of the equipment. This equipment has been in service for 42/46 years and is at the end of its useful life. Replacing the equipment at this substation will improve the overall reliability of the system and provide for continued service to our customers for many years forward. This project also implements a newer technology of switchgear that allows CPS Energy to reduce the amount of spare parts on hand and reduces the frequency of required periodic maintenance.

Expected Benefits

Replacing the transformer and switchgear produces the following benefits:

- Avoids unexpected failure due to age and condition.
- Reduces the risk of transformer failure well into the future.
- Reduces maintenance expenses.
- Increases system reliability.
- Reduces risk of adjacent damages caused by an unexpected failure.
- Newer style of switchgear is a more robust operating mechanism.
- Standardizes equipment to reduce spare part and training costs.

Project Risk

The primary risk of not replacing the transformer and switchgear is the risk of unexpected failure resulting in unserved customer load, possible property damage and potential environmental contamination. If the equipment is replaced on a reactive basis, significant increases in cost due to unplanned replacement can occur. This equipment is currently 42/46 years old. Approximately 4 transformers and 33 switchgear breakers per year must be replaced to sustain a 50 year life cycle for transformers and a 40 year life cycle for switchgear breakers or an unmanageable number of replacements (asset wall) will develop over time. Failure can be catastrophic. The metalclad switchgear requires frequent maintenance to rainproof the switchgear. Replacement is recommended to minimize risk associated with this type of equipment.



WBS Description: Distribution- Non-Microprocessor Protective Relay Upgrade

WBS Element: S-0913-0000060

Business Area: Electric Distribution

Executive: Ricardo Renteria

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$3,639,140

FY23: \$415,000

FY24: \$595,000

FY25: \$870,000

FY26: \$870,000

FY27: \$889,140

Project Description

Upgrade all non-microprocessor protective relays to CPS Energy's standard Schweitzer Engineering Laboratories (SEL) microprocessor-based relays at every substation. This will include all Electromechanical and Solid State relays.

Project Justification

Statistically, electromechanical relays suffer from the effect of age more than other types of relays. As time passes, the mechanical parts start to deteriorate and drift apart which requires periodic maintenance, calibration, and testing. These factors increase the rate of failure and misoperation which impacts the availability of the protective equipment and reliability of our system. In addition, traditional electromechanical and static protection relays offer a single function which requires installation of multiple relays (i.e. one for each phase), auxiliary relays, and communication equipment. More components results in more interconnections and increased component failures.

Expected Benefits

Microprocessor-based protective relays deliver more information and superior reliability with lower maintenance costs. They are multi-function devices that can be programmed to perform a variety of protection functions. They are faster, more sensitive, and more reliable. They provide remote communication access for settings, monitoring, and control. They are capable of recording fault and disturbance data.

Project Risk

Delaying the upgrade of outdated existing protective relaying equipment will have negative impacts on the reliability of our power system in addition to increasing the maintenance cost.

¹ Dollars exclude AFUDC
Competitive and Confidential Information

WBS Description: Five Points - Replace Transformer/Switchgear #6 (Distribution)

WBS Element: S-0916-0000060

Business Area: Electric Distribution

Executive: Ricardo Renteria

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$3,937,570

FY23: \$0

FY24: \$0

FY25: \$25,000

FY26: \$1,935,000

FY27: \$1,977,570

Project Description

Install a new 138/13kV, 39.2 Megavolt-ampere (MVA) power transformer to replace the 39.2 MVA, 13kV Westinghouse transformer installed in 1973 at the Five Points substation in position #6. Install a new switchgear to replace the Allis Chalmers switchgear installed in 1973 at the Five Points substation in position #6. Install new Out-Door, Walk-In Metalclad Medium Voltage Switchgear to replace the existing switchgear in positions #6.

Project Justification

The transformer and switchgear at the Five Points substation has been identified as part of the Infrastructure Modernization capital replacement program based on the age of the equipment. This equipment has been in service for 46 years and is at the end of its useful life. Replacing the equipment at this substation will improve the overall reliability of the system and provide for continued service to our customers for many years forward. This project also implements a newer technology of switchgear that allows CPS Energy to reduce the amount of spare parts on hand and reduces the frequency of required periodic maintenance.

Expected Benefits

Replacing the transformer and switchgear produces the following benefits:

- Avoids unexpected failure due to age and condition.
- Reduces the risk of transformer failure well into the future.
- Reduces maintenance expenses.
- Increases system reliability.
- Reduces risk of adjacent damages caused by an unexpected failure.
- Newer style of switchgear is a more robust operating mechanism.
- Standardizes equipment to reduce spare part and training costs.

Project Risk

The primary risk of not replacing the transformer and switchgear is the risk of unexpected failure resulting in unserved customer load, possible property damage and potential environmental contamination. If the equipment is replaced on a reactive basis, significant increases in cost due to unplanned replacement can occur.

This equipment is currently 46 years old. Approximately 4 transformers and 33 switchgear breakers per year must be replaced to sustain a 50 year life cycle for transformers and a 40 year life cycle for switchgear breakers or an unmanageable number of replacements (asset wall) will develop over time. Failure can be catastrophic. The metalclad switchgear requires frequent maintenance to rainproof the switchgear. Replacement is recommended to minimize risk associated with this type of equipment.

¹ Dollars exclude AFUDC
Competitive and Confidential Information

WBS Description: Walzem Rd # Replace Switchgears 1 & 2

WBS Element: S-0921-0000060

Business Area: Electric Distribution

Executive: Ricardo Renteria

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$202,200

FY23: \$0

FY24: \$0

FY25: \$0

FY26: \$100,000

FY27: \$102,200

Project Description

Install a new switchgear to replace the Allis Chalmers switchgear installed in 1976 and 1970 at the Walzem substation in positions #2 and #3. Install new Out-Door, Walk-In Metalclad Medium Voltage Switchgear to replace the existing switchgear in positions #2 and #3.

Project Justification

The transformer and switchgear at the Walzem substation has been identified as part of the Infrastructure Modernization capital replacement program based on the age of the equipment. This equipment has been in service for 43/49 years and is at the end of its useful life. Replacing the equipment at this substation will improve the overall reliability of the system and provide for continued service to our customers for many years forward. This project also implements a newer technology of switchgear that allows CPS Energy to reduce the amount of spare parts on hand and reduces the frequency of required periodic maintenance.

Expected Benefits

Replacing the transformer and switchgear produces the following benefits:

- Avoids unexpected failure due to age and condition.
- Reduces the risk of transformer failure well into the future.
- Reduces maintenance expenses.
- Increases system reliability.
- Reduces risk of adjacent damages caused by an unexpected failure.
- Newer style of switchgear is a more robust operating mechanism.
- Standardizes equipment to reduce spare part and training costs.

Project Risk

The primary risk of not replacing the transformer and switchgear is the risk of unexpected failure resulting in unserved customer load, possible property damage and potential environmental contamination. If the equipment is replaced on a reactive basis, significant increases in cost due to unplanned replacement can occur.

This equipment is currently 43/49 years old. Approximately 4 transformers and 33 switchgear breakers per year must be replaced to sustain a 50 year life cycle for transformers and a 40 year life cycle for switchgear breakers or an unmanageable number of replacements (asset wall) will develop over time. Failure can be catastrophic. The metalclad switchgear requires frequent maintenance to rainproof the switchgear. Replacement is recommended to minimize risk associated with this type of equipment.

WBS Description: Dresden - Replace XFMR#1

WBS Element: S-0932-0000060

Business Area: Electric Distribution

Executive: Ricardo Renteria

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$1,715,000

FY23: \$1,715,000

FY24: \$0

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Install a new 138/13.8kV, 40 Megavolt-ampere (MVA) power transformer to replace the 35 MVA, 13kV Westinghouse installed in 1968 at the Dresden substation in position #1.

Project Justification

The transformer and switchgear at the Dresden substation has been identified as part of the Infrastructure Modernization capital replacement program based on the age of the equipment. This equipment has been in service since 1968 and is at the end of its useful life. Replacing the equipment at this substation will improve the overall reliability of the system and provide for continued service to our customers for many years forward. This project also implements a newer technology of switchgear that allows CPS Energy to reduce the amount of spare parts on hand and reduces the frequency of required periodic maintenance.

Expected Benefits

Replacing the transformer produces the following benefits:

- Avoids unexpected failure due to age and condition.
- Reduces the risk of transformer failure well into the future.
- Reduces maintenance expenses.
- Increases system reliability.
- Reduces risk of adjacent damages caused by an unexpected failure.

Project Risk

The primary risk of not replacing the transformer is the risk of unexpected failure resulting in unserved customer load, possible property damage and potential environmental contamination. If the transformer is replaced on a reactive basis, significant increases in cost due to unplanned replacement can occur.

This equipment has been in service since 1968. Approximately 4 transformers per year must be replaced to sustain a 50 year life cycle or an unmanageable number of replacements (asset wall) will develop over time. Failure can be catastrophic.



WBS Description: Capital Replacement-Distribution

WBS Element: S-1402-0000039

Business Area: Electric Distribution

Executive: David Lentz

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$2,184,900

FY23: \$400,000

FY24: \$425,000

FY25: \$450,000

FY26: \$450,000

FY27: \$459,900

Project Description

Purchase and install replacement distribution equipment for unexpected failed capital substation distribution equipment.

Project Justification

Although our diagnostic testing and on-line monitoring systems better predict impending failures, there are unexpected failures that must be addressed.

Expected Benefits

Improved customer support and reliability of the substation associated with failed equipment.

Project Risk

Failure to purchase and install replacement equipment for failed equipment risks the ability to reliably serve customers during emergency situations.

Special Projects





WBS Description: Computer Equipment - Utility/Distribution

WBS Element: D-0051-0000001

Business Area: Electric Distribution

Executive: Paul Barham

Strategic Category: Special Projects

Project Cost: ¹ \$905,838

FY23: \$587,526

FY24: \$78,276

FY25: \$78,276

FY26: \$80,000

FY27: \$81,760

Project Description

Twenty-one computers for the computer lab training room at the Energy Delivery System Technical Learning Center facility.

Project Justification

Update computer equipment/software, projector monitors and Crew Manning Boards that periodically break down.

Expected Benefits

Updated computer equipment and peripherals allows for timely and relevant training in a more efficient and low-cost training environment.

Project Risk

Inability to conduct the new computer-based National Joint Apprenticeship and Training Committee (NJATC) curriculum course, thus affecting the Distribution, Substation and Underground Apprenticeship programs.

WBS Description: Personal Protective Equipment Radio Frequency Identification (RFID) Tracking and Software

WBS Element: D-0066-0000001

Business Area: Electric Distribution

Executive: Jose H Escamilla

Strategic Category: Special Projects

Project Cost: ¹ \$37,957

FY23: \$1,800

FY24: \$1,800

FY25: \$30,717

FY26: \$1,800

FY27: \$1,840

Project Description

The Radio Frequency Identification (RFID) tagging, scanners, and software will make it easier for CPS Energy Personal Protective Equipment (PPE) testing laboratory management to ensure the electrical and gas employees have the right certified PPE gloves that have been tested every ninety days. The data can be compiled automatically into reports eliminating time-consuming manual audits and data logs, and creating a birth-to-death history of the product that can be accessed for real-time awareness of PPE life cycles. Information gathered such as the life of the glove, common failure areas, or any known trends, can be reported back to the manufacture to help make the gloves an even safer product to use. The software will track where the gloves are located and who they were issued to in the event the manufacturer ever notifies us of issues later identified. PPE testing laboratory management can identify failure trends to the individual users by creating a historical log of the glove. Currently, PPE historical logs are not available.

Project Justification

Primary glove manufacturer are offering enhanced product life traceability with available imbedded Radio Frequency Identification (RFID) technology. The PPE testing laboratory would enhance the safety of CPS Energy employees by utilizing the RFID tagging, scanners, and software. This technology allows the PPE Testing Laboratory the ability to track glove failures, to thoroughly analyze rubber product use and life traceability. It is also another way for us to track and verify inventory levels as gloves transfer in and out of our storerooms. The software will also capture information regarding the gloves (i.e. size, manufacturing dates, testing cycles, etc.). The tool will track where the gloves are within each process (i.e. PPE process, safety testing, and shipping process). If the glove fails in any of the processes the issue will be tracked. The solution will also keep a historical record of the end-users that were issued the gloves. Currently, the PPE testing laboratory doesn't know any rubber glove use history.

Expected Benefits

Once the PPE test laboratory is able to input data for each new glove equipped with RFID technology, it will be able to begin tracking the glove. The data will include glove manufacturing date (born date) and its identity (manufacturer, class, size, left or right). Once the glove has its identity and has been tested and inspected it can be issued out. We will track it through its process in the lab from receiving/washing, testing/inspection, and finally shipping. The storeroom will receive the gloves and begin issuing out to the end-user which the glove will be assigned to. Tracking the glove through processes and keeping a history of the glove even up to its failure (death) through testing and inspection will give the benefit of improved employee confidence in the gloves safety.

Project Risk

PPE lab management will not have the data analytics to support enhanced analysis of rubber glove failures and end of life traceability. Therefore, the failure data would not be provided to the manufacturer. PPE lab management will not have the ability to individually track each rubber glove's historical information on the life of the gloves. Therefore, the safety performance of the glove would not be traceable.



WBS Description: Diagnostic Equipment

WBS Element: D-0433-0000008

Business Area: Electric Distribution

Executive: David Lentz

Strategic Category: Special Projects

Project Cost: ¹ \$1,396,380

FY23: \$260,000

FY24: \$270,000

FY25: \$280,000

FY26: \$290,000

FY27: \$296,380

Project Description

Specialized capital tools used for testing and maintenance of substation assets.

Project Justification

This project is required to acquire diagnostic equipment critical to testing and maintaining substation assets.

Expected Benefits

- Maintain/improve system reliability
- Decrease restoration time
- Provide a safe working environment

Project Risk

Equipment failure, impaired system reliability.

WBS Description: Control Room

WBS Element: O-0042-0000001

Business Area: Electric Distribution

Executive: Zachary Lyle

Strategic Category: Special Projects

Project Cost: ¹ \$2,000,000

FY23: \$500,000

FY24: \$1,500,000

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Renovation of the current Primary Control Room (EMC) to support social distancing (particularly for support staff during emergency/storm events), creation of a Center for Emergency and Business continuity events (with a focus on social distancing), and establishing new technology/security controls to support social distancing. The renovation also encompasses increase in office space, facilities, and replacing deteriorated infrastructure.

Project Justification

The renovation is necessary to meet internal growth and support COVID-19 and sequester facility needs. The current Primary Control Room (EMC) is no longer supporting the needs of System Operations and will be updated to meet social distancing needs, Wire down requirements, and customer communication expectations. The ancillary support area is inadequate to support critical functions during storm/emergency events and protect employees' social distancing needs while creating an environment that promotes open and robust communication between CPS teams to sustain a positive customer experience. Social distancing (SD) and health concerns in supplementary areas like restrooms and food preparation areas are a safety concern. The current layout does not have enough office space for Operations staff with the needed situational awareness tools onsite and remote.

Expected Benefits

Once the renovation is completed social distancing needs will be met, deteriorated infrastructure will receive necessary updates, and customer experience will be enhanced. Additionally, the renovations provide benefits of a much needed center to support senior leadership team/Executive involvement during critical events (with a focus on social distancing).

Project Risk

If the project is not undertaken customer commitments and expectations will be strained, communication will suffer across organizational divisions, and social distancing will not be implemented during emergency events. Additionally, health concerns due to deteriorated facilities will continue to burden the staff. Inadequate support for a successful tier 2/3 metric will continue, and customer average interruption duration index will suffer.



WBS Description: Energy Management System (EMS) Upgrade-Capital

WBS Element: O-0076-0000001

Business Area: Electric Distribution

Executive: Ricardo Maldonado

Strategic Category: Special Projects

Project Cost: ¹ \$13,508,800

FY23: \$5,000,000

FY24: \$7,000,000

FY25: \$500,000

FY26: \$300,000

FY27: \$708,800

Project Description

Installation of an all new Energy Management System and minor/major upgrades every two years in conjunction with hardware.

Project Justification

This project is part of the Supervisory Control and Data Acquisition Equipment (SCADA) roadmap program which will evaluate all SCADA systems for possible consolidation and improved adherence to CPS Energy IT standards. Upgrade/Replacement needed to remain in North American Electric Reliability Corporation (NERC) compliance for security and patch requirements along with new features needed to support FlexPOWERBundle and Operations.

Expected Benefits

Use of corporate standard operating systems and hardware for NERC compliance for security and patch requirements along with new features needed to support FlexPOWERBundle and Operations.

Project Risk

Upgrade will completely replace current system in order to keep in standards and NERC compliance. If not approved the project will be out of NERC compliance for patching and security. Mitigated risk with interim step to update oracle and linux hardware until this final decision on RFP for replacement vendor is completed.



WBS Description: Supervisory Control and Data Acquisition Equipment

WBS Element: O-0520-0000024

Business Area: Electric Distribution

Executive: Ricardo Maldonado

Strategic Category: Special Projects

Project Cost: ¹ \$750,000

FY23: \$150,000

FY24: \$150,000

FY25: \$150,000

FY26: \$150,000

FY27: \$150,000

Project Description

Miscellaneous capital purchases for the Energy Management System (EMS), Outage Management System (OMS)/Distribution Management System (DMS), and Gas System Control and Data Acquisition (SCADA) systems.

Project Justification

We need to replace failed equipment and replace equipment that is shown to perform below standards by online monitoring tools.

Expected Benefits

The project dollars will ensure we maintain operational functionality of real-time computer equipment.

Project Risk

Failure to repair System Control and Data Acquisition (SCADA) equipment will inhibit our ability to safely manage the transmission and distribution systems.



WBS Description: Outage Management System (OMS)/Distribution Management System (DMS) Software Upgrade

WBS Element: O-0809-0000001

Business Area: Electric Distribution

Executive: Ricardo Maldonado

Strategic Category: Special Projects

Project Cost: ¹ \$16,772,000

FY23: \$500,000

FY24: \$250,000

FY25: \$5,000,000

FY26: \$5,000,000

FY27: \$6,022,000

Project Description

Upgrade of the Outage Management System and Distribution Management System.

Project Justification

This project is part of the Supervisory Control and Data Acquisition Equipment (SCADA) roadmap program which will include an upgrade to mitigate hardware as part of Phase 1, process improvements for Phase 2 and replacement of Focal Point as part of a minor upgrade. The request for proposal for evaluation of SCADA systems for possible consolidation and improved adherence to CPS Energy IT standards. Upgrade/Replacement needed to remain in National Institute of Standards and Technology (NIST) compliance for security and patch requirements along with new features needed to support FlexPOWERBundle and Operations.

Expected Benefits

Phase 1: upgrade hardware to mitigate risk, improved user interface, use of corporate standard operating systems and hardware, process improvements for outage restoration and latest features. Phase 2: includes enhancements for OMS-MDS integration for auto dispatching, crew management, storm referrals to construction to manage emergency work, and AMI integration for power quality. Phase 3: includes replacement for focal point and better reporting tools.

Project Risk

Current project underway to mitigate hardware issues due to software support coming to an end, and aging hardware.

WBS Description: GAS System Control and Data Acquisition (SCADA) Upgrade

WBS Element: O-0837-0000001

Business Area: Electric Distribution

Executive: Ricardo Maldonado

Strategic Category: Special Projects

Project Cost: ¹ \$2,800,000

FY23: \$400,000

FY24: \$500,000

FY25: \$1,500,000

FY26: \$200,000

FY27: \$200,000

Project Description

Installation of an all new Gas Supervisory Control and Data Acquisition Equipment (SCADA) Management System and minor/major upgrade every 2 years with major upgrade in conjunction with hardware.

Project Justification

This project is part of the SCADA roadmap program which will evaluate all SCADA systems for possible consolidation and improved adherence to CPS Energy IT standards. Replacement of current system to new Open Systems International Monarch to be in National Institute of Standards and Technology (NIST) compliance for security and patch requirements, along with new features needed to support FlexPOWERBundle and Operations.

Expected Benefits

- Latest features
- Lower overall maintenance cost
- Move to standard hardware
- Maintain reliability
- Retire problematic virtual machine (VM) view infrastructure

Project Risk

Current project for replacement as part of request for proposal to mitigate hardware issues due to Windows 2008 support ending January 2020.



WBS Description: Energy Management System (EMS) Time Clock Replacement

WBS Element: O-0886-0000001

Business Area: Electric Distribution

Executive: Ricardo Maldonado

Strategic Category: Special Projects

Project Cost: ¹ \$65,000

FY23: \$65,000

FY24: \$0

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Replace GPS time clocks used to provide high resolution frequency to the EMS.

Project Justification

Existing GPS time clocks will need to be upgraded before September 2022 in order to maintain time sync between the Transmission Supervisory Control and Data Acquisition Equipment (SCADA) system and all substation Remote Terminal Units (RTUs) devices and SCADA field equipment as part of the official logs and reporting for Systems Operators, Transmission Operations, and ERCOT (Electric Reliability Council of Texas) as required by North American Electric Reliability Corporation (NERC) and CPS Energy Compliance standards.

Expected Benefits

Maintain time sync of EMS and all substation RTUs.

Project Risk

SCADA systems will not be in sync with field devices or reporting systems for official logs for Energy Management Center (EMC) Operators as part of NERC and CPS Energy standards.



WBS Description: Gas Remote Terminal Unit (RTU) Upgrades

WBS Element: O-0887-0000001

Business Area: Electric Distribution

Executive: Ricardo Maldonado

Strategic Category: Special Projects

Project Cost: ¹ \$30,000

FY23: \$6,000

FY24: \$6,000

FY25: \$6,000

FY26: \$6,000

FY27: \$6,000

Project Description

Purchase and install Relay Ladder Logic in Gas Remote Terminal Unit (RTUs) at three valve complexes.

Project Justification

Old valve panel and Programmable Logic Controller (PLC) parts are obsolete. Replace with logic solution. Needed for local & remote isolation of gas lines in case of rupture or due to maintenance.

Expected Benefits

Modern logic based solution; no longer need to stock hard to find spare parts

Project Risk

None



WBS Description: Remote Operations Computers (ROC) 800 Upgrades

WBS Element: O-0888-0000001

Business Area: Electric Distribution

Executive: Ricardo Maldonado

Strategic Category: Special Projects

Project Cost: ¹ \$650,000

FY23: \$600,000

FY24: \$0

FY25: \$50,000

FY26: \$0

FY27: \$0

Project Description

Replace Gas Remote Operations Computers to newer FB3000 to support security and National Institute of Standards and Technology (NIST) compliance requirements needed, as well as DNP3 protocol in conjunction with Gas Supervisory Control and Data Acquisition Equipment (SCADA) Replacement Project.

Project Justification

New units will provide updated security like password protection and Distributed Network Protocol 3 protocol of gas field SCADA assets as part of the current CPS Energy standard.

Expected Benefits

Improved cyber security of Gas Remote Controllers and Network Protocol 3 communications standard improving maintainability by Control Systems staff.

Project Risk

Remote Controller Units will be in NIST Compliance and other security and protocol requirements that are part of the current CPS Energy standards, making the units and SCADA system control and monitoring vulnerable.



WBS Description: Energy Management System (EMS) Software(Redhat/Oracle) Upgrade

WBS Element: O-0892-0000001

Business Area: Electric Distribution

Executive: Ricardo Maldonado

Strategic Category: Special Projects

Project Cost: ¹ \$100,000

FY23: \$100,000

FY24: \$0

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Upgrade Application Performance Monitoring (APM) server to Siemens base APM (RHEL 7) and Linux workstations to supported RHEL 6 server images.

Project Justification

Upgrading to base APM will allow for a predicable patching cadence, and upgrading the Linux workstations will allow for continuing RHEL 6 support in order to comply with North American Electric Reliability Corporation (NERC).

Expected Benefits

The project dollars will ensure we maintain operational functionality of Energy Management System (EMS) application, and remain in NERC compliance for security and patch requirements until the request for proposal is completed to determine Upgrade or Replacement Project is complete.

Project Risk

The organization will be out of NERC compliance and will not be able to perform patching and required security. Needed as interim step to mitigate risk until final decision on RFP for replacement vendor is completed.



WBS Description: Energy Delivery Service (EDS) OSIsoft Pi Data Historian System Software Upgrade

WBS Element: O-0893-0000001

Business Area: Electric Distribution

Executive: Ricardo Maldonado

Strategic Category: Special Projects

Project Cost: ¹ \$400,000

FY23: \$200,000

FY24: \$0

FY25: \$0

FY26: \$200,000

FY27: \$0

Project Description

Upgrade OSIsoft Pi Data Historian System Software and related interfaces.

Project Justification

Upgrading to newer software, and if needed, hardware to support patching and security requirements in order to maintain system.

Expected Benefits

The project dollars will ensure we maintain operational functionality of OSIsoft Pi application and reporting to support Asset Management and Operations areas.

Project Risk

Operations and Asset Management areas will not be able to utilize the system if it fails due to out of date patching needed.

System Growth



WBS Description: Converse - New Substation

WBS Element: S-0601-0000060

Business Area: Electric Distribution

Executive: Ricardo Renteria

Strategic Category: System Growth

Project Cost: ¹ \$151,650

FY23: \$0

FY24: \$0

FY25: \$0

FY26: \$75,000

FY27: \$76,650

Project Description

Converse (V1) will be a new 35kV substation located near FM 78, north of Coers St and in close proximity to the existing 138kV transmission lines. This substation will serve a fast growing area that is served by long circuits from Walzem (O3) and Fratt (S4) substations.

Project Justification

The addition of this substation will fill the critical need for electric capacity in this area. The Walzem and Fratt substations are at design limit and no additional power transformers can be added at these two substations. Approximately 28MW from Walzem and Fratt substations will be shifted to Converse initially.

The new substation will also improve reliability for this area with shorter circuits that reduce exposure to outages. The new circuits also create strong backbones and sufficient field ties to adjacent substation circuits that will prevent major loss of customer load in faulted conditions.

If this project is not completed, the 35kV power transformers at Walzem and Fratt will be at risk of overloading. Also, some contingency conditions may develop that lead to customer load at risk of lengthy outages due to exceeding emergency capacity limits.

Expected Benefits

The addition of this substation, in the northeast portion of the system, will increase system capacity and improve reliability. The area has long distribution circuits with limited switching opportunities. Once the substation is complete, new distribution circuits will shorten feeder lengths and increase interconnections. This will improve reliability and is expected to reduce outage durations when permanent faults occur. It will also lower the loading on the adjacent substation transformers providing for additional growth for these substations.

Project Risk

As electric demands increase, it will become difficult to provide adequate capacity and sufficient voltage. If the substation is not added, the system will reach a point at which connection of new customers will lead to unacceptable levels for reliability. Delay of this project will not allow for transformer loading reductions, improvements for system reliability nor support of customer load growth in this area.

WBS Description: Pinn Road- New 40 Megavolt-Ampere (MVA) Transformer/Switchgear - Distribution

WBS Element: S-0722-0000029

Business Area: Electric Distribution

Executive: Ricardo Renteria

Strategic Category: System Growth

Project Cost: ¹ \$50,550

FY23: \$0

FY24: \$0

FY25: \$0

FY26: \$25,000

FY27: \$25,550

Project Description

Install one 138/13kV, 40 MVA transformer, four-feeder switchgear and one 138kV circuit switcher.

Project Justification

The Pinn Road substation (D4) has two 13kV transformers. The demand loading forecast reached 85% of the substation capacity in 2017 and requires an additional 13kV transformer. The area served by Pinn Road experiences steady growth that requires more capacity to meet customer demand for electricity. Distribution projects are in place to transfer approximately 5 MW load to the Southwest Research substation which delays the transformer addition.

Expected Benefits

The addition of a transformer to this substation in this portion of the service territory will increase system capacity and improve reliability. The area has long distribution circuits with limited switching capacities. Once the transformer is added, new distribution circuits will shorten feeder lengths and increase interconnections. This will improve reliability and is expected to reduce outage durations. It will also lower the transformer loading of adjacent Westside (E1) and Medina (X1) substations providing for additional growth for these substations.

Project Risk

As the area grows and electric demands increase, it will become more difficult to provide adequate capacity and sufficient voltage to serve customers efficiently. If the transformer and switchgear are not added, the system will reach a point where connection of new customers will lead to unacceptable levels for reliability.



WBS Description: Ft. Sam to Tenth - Most Limiting Series Element - Distribution

WBS Element: S-0744-0000001

Business Area: Electric Distribution

Executive: Ricardo Renteria

Strategic Category: System Growth

Project Cost: ¹ \$2,500,000

FY23: \$0

FY24: \$410,000

FY25: \$2,090,000

FY26: \$0

FY27: \$0

Project Description

Upgrade terminal at Fort Sam and ensure a rating of 2000 A at both Fort Sam and Tenth Street terminals. This includes replacement of switches 10T21, 10T22, 12T21, 12T22, CT settings, and all buswork at Fort Sam, as well as, changing CT settings at Tenth St and Kirby.

Project Justification

This project is in support of project T-0164, Coliseum to Kirby Rebuild.

Expected Benefits

This project supports customer load growth by improving the load serving capability of the transmission system. It also provides increased transmission capacity, which reduces the possibility of overloaded transmission elements under contingent conditions and increases the overall reliability of the transmission system.

Project Risk

Failure to proceed with this project could result in:

- Overloaded transmission elements under adverse conditions, causing possible load curtailment in the long-term horizon
- Possible transmission congestion, causing increased costs to customers.

WBS Description: Tezel Rd-New Substation - Distribution

WBS Element: S-0821-0000029

Business Area: Electric Distribution

Executive: Ricardo Renteria

Strategic Category: System Growth

Project Cost: ¹ \$2,730,000

FY23: \$270,000

FY24: \$510,000

FY25: \$1,950,000

FY26: \$0

FY27: \$0

Project Description

The Tezel Road substation (H5) should be designed as a 35kV, three unit site with the initial buildout including one 100 Megavolt-ampere (MVA) transformer unit and one four-feeder switchgear. The substation will be looped into the existing Bandera to Helotes transmission lines, requiring two 138kV line terminals. It should include one 138kV circuit switcher and a 2000 A main bus design. Substation property needs to be acquired for this project.

Project Justification

Tezel Road (H5) will be a new 35kV substation located in the area north of Mainland surrounded by Guilbeau and Tezel Road to the east of the 138kV transmission line. This substation is needed to serve a growing area that is currently served by Bandera (O2), Grissom (Y2) and Helotes (H3) substations. The new substation will improve reliability for the area with shorter circuits, strong back bone routes and sufficient field ties for these substations. Approximately 25 MW of load will be shifted from Bandera, Grissom and Helotes substations. If this project is not completed, the power transformers at those substations will be at risk of overloading. Also, some contingency conditions may lead to customer load at risk of lengthy outages due to exceeding emergency capacity limits.

Expected Benefits

Addition of this substation, in the midwest portion of the system, will increase system capacity and improve reliability. The area has long distribution circuits with limited switching capacities. Once the substation is completed new distribution circuits will shorten feeder lengths and increase interconnections. This will improve reliability and is expected to reduce outage durations when permanent faults occur. It will also lower the loading on the adjacent substation transformers providing for additional growth for these substations.

Project Risk

As electric demands increase, it will become difficult to provide adequate capacity and sufficient voltage. If the substation is not added, the system will reach a point at which connection of new customers will lead to unacceptable levels for reliability. Delay of this project will not allow for transformer loading reductions, improvements for system reliability nor support of customer load growth in this area.



WBS Description: Distribution - Construction - S0882a HH J423 Rep

WBS Element: S-0882-0000060

Business Area: Electric Distribution

Executive: Ricardo Renteria

Strategic Category: System Growth

Project Cost: ¹ \$402,000

FY23: \$134,000

FY24: \$268,000

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Install feeder breaker and protective relay panel in association with new circuit.

Project Justification

This project is in support of the Project E-0093/E-0216, New Hot Wells Circuit.

Expected Benefits

This project maintains the integrity and reliability of the electric distribution system by providing increased capacity for a growing customer base. It also leads to increased revenues through customer growth and improved customer satisfaction.

Project Risk

Without a breaker, the new circuit cannot be interconnected, which will lead to system overloading, poor reliability and poor customer satisfaction.

WBS Description: Northwest #6 New Substation - Distribution

WBS Element: S-0885-0000060

Business Area: Electric Distribution

Executive: Ricardo Renteria

Strategic Category: System Growth

Project Cost: ¹ \$2,330,000

FY23: \$180,000

FY24: \$2,150,000

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

The Scenic Loop (NW6) substation will be designed as a three unit site with one 100 Megavolt-ampere (MVA) unit and one four-feeder switchgear lineup. The substation will be located south west of the existing Fair Oaks Ranch and north east of the existing Ranchtown substation and tap into the existing Ranchtown to LCRA (Menger Creek) 138 kV transmission line. It will include two 138kV line terminals, one 138kV circuit switcher with a 2000 A bus design. The substation property will be acquired for this project.

Project Justification

The Scenic Loop (NW6) substation is proposed to be a 35kV substation to meet the forecasted load in a large area in the North West part of Bexar County that currently is served by long circuits from the La Sierra (U1) and Fair Oaks Ranch (R0) substations. The new substation will improve reliability for the area with shorter circuits, strong backbones and sufficient field ties that will prevent major loss of customer load in faulted conditions. Initially an estimated load of 20 MW will be shifted to the new substation from the La Sierra and Fair Oaks Ranch substations.

Expected Benefits

Addition of this substation to this North West portion of the service territory will increase system capacity and improve reliability. The area has long distribution circuits with limited switching capacities. Once the substation is completed, new distribution circuits will shorten feeder lengths and increase interconnections. This will improve reliability and is expected to reduce outage durations when permanent faults occur.

Project Risk

As the area grows and the electric demands increase, it will become more difficult to provide adequate capacity and sufficient voltage to serve customers efficiently. If the substation is not added, the system will reach a point whereas connection of new customers will lead to unacceptable levels for reliability. Delay of this project will not allow for transformer loading reductions, improvements for system reliability nor support of customer load growth in this area.



WBS Description: Chavaneaux Rd. - New Transformer/Switchgear #1 (Distribution)

WBS Element: S-0905-0000060

Business Area: Electric Distribution

Executive: Ricardo Renteria

Strategic Category: System Growth

Project Cost: ¹ \$60,660

FY23: \$0

FY24: \$0

FY25: \$0

FY26: \$30,000

FY27: \$30,660

Project Description

Install one 138/13kV, 40 Megavolt-ampere (MVA) transformer, four-feeder switchgear and one 138kV circuit switcher.

Project Justification

The Chavaneaux Road substation (B4) has three 13kV transformers. The Texas A&M, San Antonio, area has been identified as an area of expected growth as part of the SA Tomorrow Plan. In order to add capacity for the future growth, a 40MVA 13kV transformer will be installed.

Expected Benefits

Addition of a transformer to this substation in this portion of the service territory will increase system capacity as part of the SA Tomorrow plan, while maintaining a higher level of reliability.

Project Risk

As the area grows and electric demands increase, it will become more difficult to provide adequate capacity and sufficient voltage to serve customers efficiently. If the transformer and switchgear are not added, the system will reach a point where connection of new customers will lead to unacceptable levels for reliability.



WBS Description: Distribution - 36th St - New 40 Megavolt-ampere (MVA) Transmission/Switchgear #4

WBS Element: S-0908-0000060

Business Area: Electric Distribution

Executive: Ricardo Renteria

Strategic Category: System Growth

Project Cost: ¹ \$2,620,000

FY23: \$0

FY24: \$65,000

FY25: \$2,555,000

FY26: \$0

FY27: \$0

Project Description

Install one 138/13kV, 40 MVA transformer, four-feeder switchgear and one 138kV circuit switcher.

Project Justification

The 36th Street substation (U4) has two 13kV transformers. Port San Antonio has been identified as one of the areas for growth in the SA Tomorrow Plan. In order to retain enough capacity for the expected growth, a 40 MVA 13kV transformer will need to be installed for the potential demand.

Expected Benefits

The addition of a transformer to this substation in this portion of the service territory will increase system capacity as part of the SA Tomorrow plan, while maintaining a higher level of reliability.

Project Risk

As the area grows and electric demands increase, it will become more difficult to provide adequate capacity and sufficient voltage to serve customers efficiently. If the transformer and switchgear are not added, the system will reach a point where connection of new customers will lead to unacceptable levels for reliability.

WBS Description: Distribution - Anderson - New 100 Megavolt-ampere (MVA) Transformer/Switchgear#1

WBS Element: S-0909-0000060

Business Area: Electric Distribution

Executive: Ricardo Renteria

Strategic Category: System Growth

Project Cost: ¹ \$2,790,000

FY23: \$2,790,000

FY24: \$0

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Install one 138/35kV, 100 MVA transformer, four-feeder switchgear and one 138kV circuit switcher.

Project Justification

The Anderson substation (L0) has two 35kV transformers. The Alamo Ranch area has been identified as one of the areas for growth in the SA Tomorrow Plan. In order to retain enough capacity for the expected growth, a 100 MVA 35kV transformer will need to be installed for the potential demand.

Expected Benefits

Addition of a transformer to this substation in this portion of the service territory will increase system capacity as part of the SA Tomorrow plan, while maintaining a higher level of reliability.

Project Risk

As the area grows and electric demands increase, it will become more difficult to provide adequate capacity and sufficient voltage to serve customers efficiently. If the transformer and switchgear are not added, the system will reach a point where connection of new customers will lead to unacceptable levels for reliability.

WBS Description: Distribution - Midtown - New Substation

WBS Element: S-0910-0000060

Business Area: Electric Distribution

Executive: Ricardo Renteria

Strategic Category: System Growth

Project Cost: ¹ \$2,430,000

FY23: \$2,430,000

FY24: \$0

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

The Midtown substation will be designed as a three unit site with one 100 Megavolt-ampere (MVA) unit and one four-feeder switchgear lineup. The substation will be located near Fredricksburg Rd and Blanco Rd., and tap into the existing Five Points and Olmos 138kV transmission line. It will include two 138kV line terminals, one 138kV circuit switcher with a 2000 Amp bus design. Four 35kV circuits will be constructed with two step down transformers in the substation to 13kV. The substation property will be acquired for this project.

Project Justification

Midtown (A1) is a new 35kV substation to be located in the quadrant within IH-10, 281, IH-35, and Hildebrand. It will serve infield development from major commercial and multifamily complexes that require capacity that adjacent substations such as Tenth Street (D0) and Five Points (M1) cannot adequately and reliably serve. Secondarily, it will be a 35kV leg to bolster infield reliability stretching outwardly north and northeasterly. Initially an estimated 15-20 MW of load will be served by this new substation. If this project is not completed, the power transformers at Tenth Street substation will be at risk of overloading. Also, some contingency conditions may lead to customer load at risk of lengthy outages due to exceeding emergency capacity limits.

Expected Benefits

The addition of this substation, in this part of the service area, will increase system capacity and improve reliability. Midtown is presently a major economic development center for tourism and Work-Live-Play for the local community and requires abundant and reliable electric supply. This project will improve reliability and is expected to reduce outage durations. It will also reduce transformer loading at adjacent substations providing for additional growth.

Project Risk

As electric demands increase, it will become difficult to provide adequate capacity and sufficient voltage. If the substation is not added, the system will reach a point at which connection of new customers will lead to unacceptable levels for reliability. Delay of this project will not allow for transformer loading reductions, improvements for system reliability, nor support of customer load growth in this area.



WBS Description: Texas Research - New Transformer/Switchgear #4 (Transmission)

WBS Element: S-0917-0000060

Business Area: Electric Distribution

Executive: Ricardo Renteria

Strategic Category: System Growth

Project Cost: ¹ \$5,782,370

FY23: \$0

FY24: \$0

FY25: \$50,000

FY26: \$2,835,000

FY27: \$2,897,370

Project Description

Install one 138/35kV, 100 Megavolt-ampere (MVA) transformer, 4-feeder switchgear and one 138kV circuit switcher.

Project Justification

The Texas Research Foundation currently has only one 35kV transformer. The demand loading forecast reached 80% of the substation capacity in 2019 and requires an additional 35kV transformer. The area served experiences rapid growth that requires more capacity to meet customer demand for electricity.

Expected Benefits

Addition of a transformer to this substation in this portion of the service territory will increase system capacity and improve reliability. The substation serves many large industrial and commercial customers that require redundancy for utmost reliability, and it also serves an area with rapid growth rate that is served by long circuits. Once the transformer is added, new distribution circuits will shorten feeder lengths and increase interconnections. This will improve reliability and is expected to reduce outage durations when permanent faults occur.

Project Risk

As the area grows and the electric demands increase, it will become more difficult to provide adequate capacity and sufficient voltage to serve customers efficiently. If the transformer is not added, the system will reach a point whereas connection of new customers will lead to unacceptable levels for reliability.

¹ Dollars exclude AFUDC
Competitive and Confidential Information



WBS Description: Trumbo - New Transformer/Switchgear #2 & Tie Breaker 12E4 (Distribution)

WBS Element: S-0918-0000060

Business Area: Electric Distribution

Executive: Ricardo Renteria

Strategic Category: System Growth

Project Cost: ¹ \$3,052,560

FY23: \$0

FY24: \$0

FY25: \$60,000

FY26: \$1,480,000

FY27: \$1,512,560

Project Description

Install one 138/35kV, 100 Megavolt-ampere (MVA) transformer, four-feeder switchgear and one 138kV circuit switcher.

Project Justification

The Trumbo substation (E4) has only one 35kV transformer. The demand loading forecast reached 80% of the substation capacity in 2019 and requires an additional 35kV transformer. The area served experiences rapid growth that requires more capacity to meet customer demand for electricity.

Expected Benefits

Addition of a transformer to this substation in this portion of the service territory will increase system capacity and improve reliability. The substation serves many large industrial and commercial customers that require redundancy for utmost reliability, and it also serves an area with rapid growth rate that is served by long circuits. Once the transformer is added, new distribution circuits will shorten feeder lengths and increase interconnections. This will improve reliability and is expected to reduce outage durations when permanent faults occur.

Project Risk

As the area grows and the electric demands increase, it will become more difficult to provide adequate capacity and sufficient voltage to serve customers efficiently. If the transformer is not added, the system will reach a point whereas connection of new customers will lead to unacceptable levels for reliability.

¹ Dollars exclude AFUDC
Competitive and Confidential Information

WBS Description: SW6 # New Substation (Distribution)

WBS Element: S-0920-0000060

Business Area: Electric Distribution

Executive: Ricardo Renteria

Strategic Category: System Growth

Project Cost: ¹ \$101,100

FY23: \$0

FY24: \$0

FY25: \$0

FY26: \$50,000

FY27: \$51,100

Project Description

SW6 substation will be designed as a three unit site with the initial buildout including one 100 Megavolt-ampere (MVA) unit and one four-feeder switchgear lineup.

Project Justification

- SW6 will be a new 35kV substation located near FM 78, north of Coers street and in close proximity to the existing 138kV transmission lines. This substation will serve a fast growing area that is served by long circuits from Walzem (O3) and Fratt (S4) substations. The addition of this substation will fill the critical need for electric capacity in this area. The Walzem and Fratt substations are at design limit and no additional power transformers can be added at these two substations. Approximately 28 MW from Walzem and Fratt substations will be shifted to Converse initially.
- The new substation will also improve reliability for this area with shorter circuits that reduce exposure to outages. The new circuits also create strong backbones and sufficient field ties to adjacent substation circuits that will prevent major loss of customer load in faulted conditions.
- If this project is not completed, the 35kV power transformers at Walzem and Fratt will be at risk of overloading. Also, some contingency conditions may develop that lead to customer load at risk of lengthy outages due to exceeding emergency capacity limits.

Expected Benefits

The addition of this substation, will increase system capacity and improve reliability. The area has long distribution circuits with limited switching opportunities. Once the substation is complete, new distribution circuits will shorten feeder lengths and increase interconnections. This will improve reliability and is expected to reduce outage durations when permanent faults occur. It will also lower the loading on the adjacent substation transformers providing for additional growth for these substations.

Project Risk

As electric demands increase, it will become difficult to provide adequate capacity and sufficient voltage. If the substation is not added, the system will reach a point at which connection of new customers will lead to unacceptable levels for reliability. Delay of this project will not allow for transformer loading reductions, improvements for system reliability, nor support of customer load growth in this area.



WBS Description: Shepherd - Install (1) - Relocated from Talley Rd 138/36kV, 50 MVA XFMR#2

WBS Element: S-0934-0000060

Business Area: Electric Distribution

Executive: Ricardo Renteria

Strategic Category: System Growth

Project Cost: ¹ \$491,346

FY23: \$0

FY24: \$0

FY25: \$0

FY26: \$243,000

FY27: \$248,346

Project Description

Relocate one 138/35kV, 50 Megavolt-ampere (MVA) transformer from Talley Rd. while replacing Talley with 100 MVA Transformers. No circuits will be taken out initially. Directly tie secondary of this new 50 MVA transformer to the existing 100 MVA transformer. Transformer will be connected directly to Switchgear #3, circuit switcher and 138kV tie-breaker.

Project Justification

The new transformer is needed to serve the load growth in this area.

Expected Benefits

The additional transformers will support potential load growth.

Project Risk

If the transformers are not added, the current system will not be able to supply the load at the required time.

¹ Dollars exclude AFUDC
Competitive and Confidential Information



WBS Description: Martinez-New 100MVA Transformer/Switchgear #1, Add Circuit Switcher, Add 138kV Tie Breaker

WBS Element: S-0935-0000060

Business Area: Electric Distribution

Executive: Ricardo Renteria

Strategic Category: System Growth

Project Cost: ¹ \$2,793,000

FY23: \$485,000

FY24: \$2,308,000

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Build one 35kV circuit to support growth in Martinez & Walzem & St. Hedwig growth. Building of a New 100 Megavolt-ampere (MVA) transformer/switchgear #1, add circuit switcher, and add 138kV Tie Breaker.

Project Justification

A new substation transformer is needed at Martinez to keep up with the growth. The rapid growth at Martinez-Randolph-St. Hedwig areas (FM 1518 & IH-10 & Loop 1604 & Foster road) and the subdivision projects have taken most of the capacity at Martinez substation. Currently, Circuit C531 supports Walzem growth, C532 will reach its capacity limit because it supports Walzem as well as W211 and W231 voltage conversion, C533 (10 Megavolt-ampere (MVA) step down) is used to support L215 and W211, and C534 attracts distribution centers and manufacturing plants. In addition, Martinez substation has one transformer only, and it needs a second transformer for backup.

Expected Benefits

The new transformer will provide power to all the new big subdivisions along FM 1518 and IH-10. The transformer will also pick up some of C532 load, provide capacity on Foster road for big commercial customer projects, and support St. Hedwig circuit L243 and Martinez C534. The new transformer will improve the power reliability and outage restoration by providing more circuit ties.

Project Risk

Martinez transformer #3 will reach its capacity limit soon, causing it to be overloaded, especially circuit capacity. Additionally, there will be no more capacity to support the customers if a new transformer is not added at the substation. St. Hedwig circuit L243 will also reach its limit, and it needs support. L243 will run out of capacity. In addition, there are big lands along Foster road, and the area attracts manufacturing plants and distribution centers (10 MW and above per customer). Moreover, there are voltage conversion projects that are adding load on Martinez, and there won't be any capacity left to support these projects.

¹ Dollars exclude AFUDC
Competitive and Confidential Information



WBS Description: Southton - New 40MVA Transformer/Switchgear #1

WBS Element: S-0936-0000060

Business Area: Electric Distribution

Executive: Ricardo Renteria

Strategic Category: System Growth

Project Cost: ¹ \$2,495,000

FY23: \$485,000

FY24: \$2,010,000

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Build two 13kV circuits to support Brooks substation and Brooks City Base development.

Project Justification

Many big commercial customers are interested in Brooks City Base, and Brooks Field substation doesn't have a position for a new transformer. Southton new transformer will support Brooks City developments. New Southton circuits will pick up some of Brooks circuits which in turn will support the growth. The new transformer will help Brook City attract more important manufacturing plants, such as Cuisine Solutions, and subdivisions. In addition, many industrial customers are interested in locations near Southton substation, and the new transformer will provide the power. The transformer will also support Highland Hills (especially circuit F666) and Elmendorf substation. Southton has one transformer, and the second transformer will provide backup.

Expected Benefits

To support Brooks City Base and to improve reliability by providing more circuits ties to pick up big loads in case of an outage. The new transformer will increase the capacity in the area to help new customers.

Project Risk

Brooks City Base does not have capacity now to support new customers. A new customer (Cuisine Solutions) is a 10 MW customer and is connected to two Brooks circuits. These two circuits don't have any more capacity. More capacity is needed at Brooks City especially that the area is attracting industrial customers. Moreover, Southton substation area needs more circuits to support the surrounding areas. Some data centers need 10 MW (one 13kV circuit) to start until they build their own substation, and Southton doesn't have that capacity to support data centers. Southton and Brooks substations will be overloaded if a new transformer is not added at Southton.



WBS Description: Navistar - New 100 Mega Volt Ampere Transformer/Switchgear #1

WBS Element: S-0937-0000060

Business Area: Electric Distribution

Executive: Ricardo Renteria

Strategic Category: System Growth

Project Cost: ¹ \$980,670

FY23: \$0

FY24: \$0

FY25: \$0

FY26: \$485,000

FY27: \$495,670

Project Description

Build two 35kV circuits for load growth and reliability with circuit ties to Trumbo and other 35kV stations in southern territory.

Project Justification

The new transformer is needed to serve the load growth in this area. This is also a part of 35kV conversion plan and supports Trumbo.

Expected Benefits

The additional transformers will support potential load growth.

Project Risk

If the transformers are not added, the current system will not be able to supply the load at the required time.

Energy Supply & Market Operations

Infrastructure Modernization





WBS Description: New Flexible Path Capacity to Serve Retail Demand Growth & Replace Generating Units Projected to R

WBS Element: NEW_5

Business Area: Energy Supply & Market Operations

Executive: John Kosub

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$335,330,000

FY23: \$0

FY24: \$0

FY25: \$1,144,000

FY26: \$9,909,000

FY27: \$324,277,000

Project Description

Placeholder for new Flexible Path capacity to serve retail demand growth, replace aging Sommers natural gas steam units, & replace Spruce 1 coal unit.

Project Justification

Placeholder for new Flexible Path capacity to serve retail demand growth, replace aging Sommers natural gas steam units, & replace Spruce 1 coal unit.

Expected Benefits

Protects our retail customers from high market price exposure through the use of physical generating assets. Supports Customer Affordability, Resiliency, & Reliability.

Project Risk

Financial: Inability to provide sufficient generation, potentially exposing our customers to high ERCOT market prices, which could increase costs to our customers.

Special Projects





WBS Description: Computer Hardware Replacement Reserve

WBS Element: D-0081-0000022

Business Area: Energy Supply & Market Operations

Executive: Kevin Pollo

Strategic Category: Special Projects

Project Cost: ¹ \$272,971

FY23: \$51,500

FY24: \$53,045

FY25: \$54,636

FY26: \$56,275

FY27: \$57,514

Project Description

Purchase replacement hardware for Business Critical System and North American Electric Reliability Corporation (NERC) System to ensure continuous operational requirements.

Project Justification

Resource availability for purchase of replacement hardware for Business Critical System and NERC System as required to ensure stability and reliability of operations.

Expected Benefits

Ensure availability of resources for purchase of replacement hardware for Business Critical System and NERC System as required, to maintain stability and reliability of operations.

Project Risk

Hardware failure for Business Critical System and NERC system can result in loss of revenue due to the interruption of operations and the inability to participate in the Electric Reliability Council of Texas market as a Qualified Scheduling Entity.



WBS Description: ESMO Generation Management System Annual Application Update

WBS Element: F-0135-1800001

Business Area: Energy Supply & Market Operations

Executive: Kevin Pollo

Strategic Category: Special Projects

Project Cost: ¹ \$4,650,000

FY23: \$1,500,000

FY24: \$550,000

FY25: \$1,500,000

FY26: \$550,000

FY27: \$550,000

Project Description

Internal Supervisory Control and Data Acquisition labor allocated to installation of the latest version of OSII Software Application Package to current Generation Management System (GMS). Update includes install of tested files in GMS Development, Quality Assurance System and Production landscapes. A Site Acceptance Test on a portion of the updated OSII baseline product will validate updated functionality for each landscape.

Project Justification

Installation of the OSII Software Application Package will enhance operation functionality of GMS and will update the system to the current OSII release.

Expected Benefits

GMS will remain North American Electric Reliability Corporation (NERC) compliant.

Project Risk

GMS will not meet market enhancements and NERC compliance regulations.

WBS Description: Business Critical System Real-time Co-Optimization Upgrade

WBS Element: F-0135-2100001

Business Area: Energy Supply & Market Operations

Executive: Kevin Pollo

Strategic Category: Special Projects

Project Cost: ¹ \$12,524,200

FY23: \$4,550,000

FY24: \$3,600,000

FY25: \$2,750,000

FY26: \$500,000

FY27: \$1,124,200

Project Description

Real-Time Co-optimization (RTC) redesign/upgrade to the Market Operating System. RTC is the process of procuring energy and ancillary services simultaneously in the Real-Time Market (RTM). In the current market, Electric Reliability Council of Texas (ERCOT) generally cannot use ancillary services to provide energy in Real-Time operations (RTO), except in emergency conditions. In some cases, these resources which are secured for specific reliability purposes, may be more economical. Co-optimization would be designed to find the most efficient solution to meet both energy and ancillary services requirements every five minutes. RTC is a significant change in the ERCOT market resulting in major changes to business and system workflows similar to the ERCOT Nodal project. This change will require building a new system to replace the existing Business Critical Systems. The new Business Critical Systems will be based on the best available technology. The systems will meet the minimum system requirements to support 24/7 energy market RTO and a maximum downtime tolerance of five minutes or less. Project must be aligned with the Generation Management System RTC Upgrade schedule.

Project Justification

Increased efficiency and reliable operation of the Real-Time Market.

Expected Benefits

ERCOT will be able to dispatch the most economical resources to provide energy in the RTM resulting in cost reduction for load-serving entities and consumers. Enhance ability to use a wider variety of generation resources to solve transmission constraints could help reduce the use of Out-Of-Market actions, such as Reliability Unit Commitments, by ERCOT to support system reliability needs that arise during Real-Time operations. Increase market's ability to find more economical reliability solutions could also reduce financial risk for market participants.

Project Risk

Loss of revenue due to interruption of operations and negative impact to participating in the ERCOT market as a Qualified Scheduling Entity could result if the current Business Critical Systems experience failures due to the age of the systems.



WBS Description: Generation Management System Real-time Co-Optimization Upgrade

WBS Element: F-0135-2100003

Business Area: Energy Supply & Market Operations

Executive: Kevin Pollo

Strategic Category: Special Projects

Project Cost: ¹ \$11,855,000

FY23: \$5,219,000

FY24: \$3,971,000

FY25: \$2,065,000

FY26: \$600,000

FY27: \$0

Project Description

Real-time Co-optimization redesign/upgrade to the Market Operating System. Real-time Co-Optimization is the process of procuring energy and ancillary services simultaneously in the Real-Time Market (RTM). In the current market, Electric Reliability Council of Texas (ERCOT) generally cannot use ancillary services to provide energy in Real-Time operations, except in emergency conditions. In some cases, these resources are secured for reliability.

Project Justification

Increased efficiency and reliable operation of the Real-Time Market.

Expected Benefits

ERCOT will be able to dispatch the most economical resources to provide energy in the RTM resulting in cost reduction for load-serving entities and consumers. Enhance ability to use a wider variety of generation resources to solve transmission constraints could help reduce the use of Out-Of-Market actions, such as Reliability Unit Commitments, by ERCOT to support system reliability needs that arise during Real-Time operations. Increase market’s ability to find more economical reliability solutions could also reduce financial risk for market participants.

Project Risk

Loss of revenue due to interruption of operations and negative impact to participating in the ERCOT market as a Qualified Scheduling Entity could result if the current Energy Market Systems are not compliant with ERCOT Regulations.

¹ Dollars exclude AFUDC
Competitive and Confidential Information

System Growth





WBS Description: Demand Response Management System Expansion & Upgrades

WBS Element: F-0135-1500003

Business Area: Energy Supply & Market Operations

Executive: Kevin Pollo

Strategic Category: System Growth

Project Cost: ¹ \$6,250,000

FY23: \$1,250,000

FY24: \$1,250,000

FY25: \$1,250,000

FY26: \$1,250,000

FY27: \$1,250,000

Project Description

Current Demand Response Management System (DRMS), or if applicable, Distributed Energy Resource Management System (DERMS), are required for managing CPS Energy's (CPSE) various demand resources. DRMS and DERMS require interface with SAP, various commercial customers, and a variety of thermostats encompassing interruption logic. The complex automated system tracks and manages various CPSE demand resources, provides support tools for optimization decisions, includes Volt and Volt Amperes Reactive Optimization (VVO), facilitates deployment of the resources, and generates reports on outcome. Current DRMS interaction with CPSE's Energy Delivery Services system is limited therefore hindering system integration. System upgrades are vital to sustaining the demand response program. Expansions to electric vehicles with various charger classifications are planned for future fiscal year.

Project Justification

Demand response resources increase continuously. Decisions to deploy the resources are dependent upon an economic analysis of resources available within the Electric Reliability Council of Texas (ERCOT) market and an economic analysis of resources available within CPSE so that resources are protected and minimized during energy peaks. Optimization between both strategies is required in planning resource deployment. Maintaining the deployment of resources within one platform is essential in managing the complexity of continuous resource expansion. Timely communication to internal stakeholders, external large commercial and industrial customers is vital. Measurement and validation of optimization results is crucial to analyzing successful deployments along with identifying areas of opportunity.

Expected Benefits

The DRMS consolidated platform will facilitate the analysis of deployment operations, and demand response asset reporting. Analysis results will promote efficient and effective economic decisions, streamline deployment operations, and enhance reporting of deployment results. Deployment of 771 Megawatt demand achieved from CPSE's Save for Tomorrow Energy Plan (STEP) along with its expanded program FlexSTEP are expected benefits of DRMS.

Project Risk

Operation risk of Energy Controller access to three control systems exist with the use of separate control systems. Current deployment decisions are rendered on broad guidelines versus economic analysis and deployment results are calculated manually resulting in error risk and delayed reporting.

WBS Description: ESMO Business Critical System Unit Enhancements & Upgrades

WBS Element: F-0135-1800006

Business Area: Energy Supply & Market Operations

Executive: Kevin Pollo

Strategic Category: System Growth

Project Cost: ¹ \$6,486,510

FY23: \$1,800,000

FY24: \$1,145,000

FY25: \$1,105,000

FY26: \$1,205,000

FY27: \$1,231,510

Project Description

System enhancements; new units, new workflows, based on Electric Reliability Council of Texas (ERCOT) market changes. Upgrades enable additional functionality, system efficiency and system enhancements to Business Critical System and North American Electric Reliability Corporation (NERC) system used to operate and support ERCOT.

Project Justification

Existing Business Critical System and NERC system require upgrades to meet requirements of ERCOT market changes. Power Cost Inc. (PCI) system enhancements based on Power Bundle initiative for adding more incremental capacity and new generating units. Redesign of PCI Post Analysis based on latest CPS Energy business rules for Stacking algorithm. Outage and Asset Management enhancements to automate Power Generation and Energy Supply and Market Operations workflow. Revamp previous PCI Deal Management to a full Enterprise Trading and Risk Management (ETRM) and Risk Management Capabilities. Revitalize Gas ETRM system for storage optimization and automation. Data extraction and reporting enhancements for various business units.

Expected Benefits

Upgrade of Business Critical System and NERC system to latest ERCOT market changes will create a stable and reliable platform for the Market Operating System, Gas Management System, Coal/Railcar Management System, Process Information Historian System, Data Warehouse System and Generation Management Systems. Includes system enhancement and additional functionality, efficiency to the (PCI) Generation Supply Management System.

Project Risk

Loss of revenue due to noncompliance with ERCOT regulations, interruption of operations and negative impact to participating in the ERCOT Market as a Qualified Scheduling Entity.

Enterprise & Public Safety

Special Projects





WBS Description: Driving Simulator

WBS Element: I-5000-1003105

Business Area: Enterprise & Public Safety

Executive: Bert Hargesheimer

Strategic Category: Special Projects

Project Cost: ¹ \$500,000

FY23: \$500,000

FY24: \$0

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Replacement of current driving simulator.

Project Justification

Fleet purchased the current driving simulator in 2016. This technology will be required to be replaced as the technological advancements continue to evolve.

Expected Benefits

Replacement will allow for up-to-date options to possibly include other operational units and new technology.

Project Risk

Employees will not be taking advantage of technology that would help in the reduction and prevention of motor vehicle accidents.

¹ Dollars exclude AFUDC
Competitive and Confidential Information

Financial Services

Special Projects





WBS Description: Large Commercial Power Green Tariff (LCP-GRN)

WBS Element: I-4001-5000000

Business Area: Financial Services

Executive: Chad Hoopingarner

Strategic Category: Special Projects

Project Cost: ¹ \$325,000

FY23: \$325,000

FY24: \$0

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Large Commercial Power Green Tariff

Project Justification

This project is to put the processes in place to offer and apply the LCP-GRN rate to large commercial customers.

Expected Benefits

Intangible-Increases CPS Energy's reputation with commitments to green energy. Quantifiable-Slight increase in revenue from services related to the rate, such as Qualified Scheduling Entities fees and administrative fees.

Project Risk

This project requires system configuration in Power Costs Inc and SAP (enterprise resource planning software). It also requires detailed calculations on large volumes of data. Errors in configuring the systems or in data collection or processing could lead to potentially significant under-recovery of costs.

This project also requires entering into Power Purchase Agreements (PPAs) on behalf of individual customers. Despite anticipated contractual protections, it could potentially leave CPS Energy solely liable for these PPAs, for example, if a customer goes out of business or moves out of the service area.

¹ Dollars exclude AFUDC
Competitive and Confidential Information



WBS Description: Redwood Financial Close Automation Upgrade

WBS Element: I-4004-5000000

Business Area: Financial Services

Executive: David Ramirez

Strategic Category: Special Projects

Project Cost: ¹ \$408,800

FY23: \$0

FY24: \$0

FY25: \$0

FY26: \$0

FY27: \$408,800

Project Description

Upgrade Redwood Financial Close Automation Application

Project Justification

Application has not been upgraded since inception in 2015. Version is coming to end of support. There is new functionality with an option for cloud services.

Expected Benefits

New functionality including the use of bots for robotic processes.

Project Risk

Month end close will revert to manual processes which will allow for greater chances of error.

Fleet

Infrastructure Modernization



WBS Description: Direct Purchase Vehicles

WBS Element: D-0033-0000072

Business Area: Fleet

Executive: Bert Hargesheimer

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$84,310,000

FY23: \$15,878,000

FY24: \$17,108,000

FY25: \$17,108,000

FY26: \$17,108,000

FY27: \$17,108,000

Project Description

Purchase replacement vehicles and equipment. Replacements will be determined by operational cost, age, mileage and overall utilization of assigned class groups. Each class has a recommended lifecycle which is based on industry standards for each class of asset and its application.

Project Justification

As CPS Energy gets closer to having its Fleet "right-sized", an annual rotation / replacement program becomes even more critical. If the organization fails to replace and decommission older, failure-prone assets, operating & maintenance (O&M) costs will climb. Consistent replacement practices drive higher reliability into fleet units that are needed to respond to customer and system needs.

Expected Benefits

Benefits include:

- Lower O&M costs
- Reduced emissions
- Greater fuel efficiency
- Fewer road calls due to fewer breakdowns
- Warranty coverage - cost recovery mechanism

Project Risk

Replacement deferral will lead to:

- Increased O&M costs - current fleet data shows that assets carried beyond their recommended lifecycle drive O&M costs up by a factor of at least 3.
- Replacement parts become harder to find as units are carried beyond their recommended lifecycle. Older units are down longer because parts are harder to find.
- Reactive work would remain the largest portion of work because failure rates increase as units accumulate more wear.
- Emissions increase as engines accrue additional wear and are less efficient.

Special Projects





WBS Description: Bosch Scanning Tool Replacement

WBS Element: I-5000-1003104

Business Area: Fleet

Executive: Bert Hargesheimer

Strategic Category: Special Projects

Project Cost: ¹ \$40,000

FY23: \$40,000

FY24: \$0

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Replacement of Bosch diagnostic scanning tools.

Project Justification

Fleet Operations Safety (Fleet Ops) purchased the current Bosch Diagnostic Scanning Tools in 2018/2019. This technology will be required to be replaced as technological advancements in fleet vehicles continues to evolve.

Expected Benefits

Replacement will allow for continued use of an effective diagnostic tool to support Fleet Ops in the diagnostics and repair of CPS Energy Fleet Assets.

Project Risk

Fleet Ops would not be able to properly diagnosis fleet vehicles that are in need of repair due to the continued technological advances. This would lead to higher repair costs.



WBS Description: Telematics

WBS Element: I-5011-5000000

Business Area: Fleet

Executive: Bert Hargesheimer

Strategic Category: Special Projects

Project Cost: ¹ \$945,000

FY23: \$400,000

FY24: \$15,000

FY25: \$500,000

FY26: \$15,000

FY27: \$15,000

Project Description

Implement Telematics hardware and software for real-time vehicle tracking and fleet maintenance indicators.

Project Justification

Fleet Operations Safety (Fleet Ops) will be able to locate vehicle for inventory and stolen vehicle recovery if needed. Additionally, Fleet Ops will be able to utilize real-time maintenance indicators for maintenance and repairs, develop trends to improve operational analytics, and contribute driving behavior to safety training programs. Mileage and engine hours gathered will improve the overall efficiency of fleet maintenance.

Expected Benefits

Telematics will allow Fleet Ops to operate more efficiently by automating fleet maintenance indicators in real-time. Real-time vehicle tracking will also enable stolen vehicle recovery if needed.

Project Risk

The software will have the ability to provide detailed information that will be helpful to not only Fleet Ops, but the user areas as well. Plans will need to be developed to establish data governance and assist the user areas in the interpretation of the data provided by Telematics. If not selected, risks include inability to collect sufficient information to determine fleet maintenance and the inability to locate stolen vehicles.

¹ Dollars exclude AFUDC
Competitive and Confidential Information

Gas & Corporate Compliance

Environmental/ Legislative/ Regulatory





WBS Description: Corporate Compliance Tracking System (CMO) Implementation Strategy

WBS Element: I-0747-0000001

Business Area: Gas & Corporate Compliance

Executive: Don Stanton

Strategic Category: Environmental/ Legislative/ Regulatory

Project Cost: ¹ \$20,000

FY23: \$20,000

FY24: \$0

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Enhancements and Implementation of Corporate Compliance Tracking system (CMO) to additional areas of the organization:

- Incorporate additional reporting functionality to CMO
- Build out CMO to include the Gas Compliance Program

Project Justification

These enhancements are meant to complement our existing compliance programs and help ensure compliance throughout various parts of the organization.

Expected Benefits

Reduces the risk on non-compliance events by providing visibility into our compliance programs and overall compliance posture

Project Risk

Non-compliance events, reputational risks

Gas Solutions

Civic Improvements





WBS Description: Civic Improvement - City of San Antonio

WBS Element: G-0272-0000001

Business Area: Gas Solutions

Executive: Richard Lujan

Strategic Category: Civic Improvements

Project Cost: ¹ \$26,610,000

FY23: \$6,000,000

FY24: \$5,500,000

FY25: \$5,000,000

FY26: \$5,000,000

FY27: \$5,110,000

Project Description

Adjust, replace, abandon and/or remove existing gas distribution facilities that lie within the boundaries of the City of San Antonio’s (CoSA) Civic Improvement Project Areas and are in conflict with proposed COSA improvements.

Project Justification

All existing gas facilities that lie within the CoSA’s Right-of-Way (ROW) must be adjusted to accommodate their proposed street and drainage improvements. Adjustments are done to avoid all conflicts between the existing gas distribution facilities and the proposed street cuts and drainage structures, and to alleviate any future maintenance problems associated with CoSA’s “Street Cut Policy”.

Expected Benefits

- Accommodation and coordination of CoSA Civic Improvement Projects to allow them to remain on schedule and not incur additional delays or costs associated with existing gas distribution facilities that may be in conflict with their plans.
- Upgrade of gas distribution facilities that are adjusted or replaced.
- Alleviate future gas maintenance issues and costs by appropriate design with respect to the current CoSA “Street Cut Policy”.

Project Risk

The primary risk is that if the accommodations to the proposed street and drainage improvements are not completed, CPS Energy could incur costly down time charges by CoSA and its contractor as well as placing CPS Energy as an impediment to CoSA’s Civic Improvement plans for the CoSA and its residents. A secondary risk to not designing in improvements to the CPS Energy system in these areas is to mitigate additional future costs for repaving city streets curb to curb/block to block for cutting a street with a Pavement Condition Index (PCI) rating of 90% or higher if any gas maintenance facility work would arise within the timeframe that the street maintains that index.

¹ Dollars exclude AFUDC
Competitive and Confidential Information

WBS Description: Civic Improvement - Bexar County

WBS Element: G-0273-0000001

Business Area: Gas Solutions

Executive: Richard Lujan

Strategic Category: Civic Improvements

Project Cost: ¹ \$13,305,000

FY23: \$3,000,000

FY24: \$2,750,000

FY25: \$2,500,000

FY26: \$2,500,000

FY27: \$2,555,000

Project Description

Adjust, replace, abandon and/or remove existing gas distribution facilities that lie within the boundaries of the Bexar County Public Works (BCPW) Civic Improvement Project Areas and are in conflict with proposed BCPW improvements.

Project Justification

All existing gas facilities that lie within the BCPW’s Right-of-Way (ROW) must be adjusted to accommodate their proposed street and drainage improvements. Adjustments are done to avoid all conflicts between the existing gas distribution facilities and the proposed street cuts and drainage structures and to alleviate any future maintenance problems associated with the County’s “Street Cut Policy”.

Expected Benefits

- Accommodation and coordination of BCPW Civic Improvement Projects allows the County to remain on schedule and not incur additional delays or costs associated with existing gas distribution facilities that may be in conflict with their plans.
- Upgrade of gas distribution facilities that are adjusted or replaced.
- Alleviate future gas maintenance issues and costs by appropriate design with respect to the current BCPW “Street Cut Policy”.

Project Risk

The primary risk is that if the accommodations to the proposed street and drainage improvements are not completed, CPS Energy could incur costly down time charges by BCPW and its contractor as well as placing CPS Energy as an impediment to BCPW’s Civic Improvement plans for Bexar County and its residents. A secondary risk to not designing in improvements to the CPS Energy system in these areas is to mitigate additional future costs for repaving County streets if any gas maintenance facility work would arise in these newly paved streets.



WBS Description: Civic Improvement Texas Department of Transportation (TXDOT) Reimbursable

WBS Element: G-0281-0000001

Business Area: Gas Solutions

Executive: Richard Lujan

Strategic Category: Civic Improvements

Project Cost: ¹ \$425,000

FY23: \$85,000

FY24: \$85,000

FY25: \$85,000

FY26: \$85,000

FY27: \$85,000

Project Description

Adjust, replace, abandon and/or remove existing gas distribution facilities that lie within the boundaries of the Texas Department of Transportation (TXDOT) Civic Improvement Project Areas and are in conflict with proposed TXDOT improvements.

Project Justification

All existing gas facilities that lie within the TXDOT's Right-of-Way (ROW) must be adjusted to accommodate their proposed street and drainage improvements. Adjustments are done to avoid all conflicts between the existing gas distribution facilities and the proposed street cuts and drainage structures and to alleviate any future maintenance problems associated with the TXDOT's "Street Cut Policy".

Expected Benefits

- Accommodation and coordination of TXDOT Civic Improvement Projects to allow them to remain on schedule and not incur additional delays or costs associated with existing gas distribution facilities that may be in conflict with their plans.
- Upgrade of gas distribution facilities that are adjusted or replaced.
- Alleviate future gas maintenance issues and costs by appropriate design with respect to the current TXDOT and other jurisdictional "Street Cut Policy".

Project Risk

The primary risk is that if the accommodations to the proposed street and drainage improvements are not completed, CPS Energy could incur costly down time charges by TXDOT and its contractor as well as placing CPS Energy as an impediment to TXDOT's Civic Improvement plans for the State and its residents. A secondary risk to not designing in improvements to the CPS Energy system in these areas, is to mitigate additional future costs for repaving state roadways if any gas maintenance facility work would arise.

WBS Description: Civic Improvement Texas Department of Transportation (TXDOT) Nonreimbursal

WBS Element: G-0309-0000001

Business Area: Gas Solutions

Executive: Richard Lujan

Strategic Category: Civic Improvements

Project Cost: ¹ \$16,000,000

FY23: \$4,000,000

FY24: \$3,000,000

FY25: \$3,000,000

FY26: \$3,000,000

FY27: \$3,000,000

Project Description

Adjust, replace, abandon and/or remove existing gas distribution facilities that lie within the boundaries of the Texas Department of Transportation (TXDOT) Civic Improvement Project Areas and are in conflict with proposed TXDOT improvements.

Project Justification

All existing gas facilities that lie within the TXDOT's ROW must be adjusted to accommodate their proposed street and drainage improvements. Adjustments are done to avoid all conflicts between the existing gas distribution facilities and the proposed street cuts and drainage structures and to alleviate any future maintenance problems associated with the TXDOT's "Street Cut Policy".

Expected Benefits

- Accommodation and coordination of TXDOT Civic Improvement Projects to allow them to remain on schedule and not incur additional delays or costs associated with existing gas distribution facilities that may be in conflict with their plans.
- Upgrade of gas distribution facilities that are adjusted or replaced.
- Alleviate future gas maintenance issues and costs by appropriate design with respect to the current TXDOT or other jurisdictional agencies' "Street Cut Policy".

Project Risk

If the accommodations to the proposed street and drainage improvements are not completed, CPS Energy could incur costly down-time charges by TXDOT and its contractor as well as placing CPS Energy as an impediment to TXDOT's Civic Improvement plans for the State and its residents. A secondary risk to not completing these improvements is the additional future costs for repaving state roadways if any gas maintenance facility work were to arise.

WBS Description: Civic Improvements - Other

WBS Element: G-0312-0000001

Business Area: Gas Solutions

Executive: Richard Lujan

Strategic Category: Civic Improvements

Project Cost: ¹ \$2,250,000

FY23: \$450,000

FY24: \$450,000

FY25: \$450,000

FY26: \$450,000

FY27: \$450,000

Project Description

Adjust, replace, abandon and/or remove existing gas distribution facilities that lie within the boundaries of Jurisdictional Agencies other than the City of San Antonio's (CoSA) Civic Improvement Project Areas and are in conflict with proposed agencies improvements.

Project Justification

All existing gas facilities that lie within the Jurisdictional Agencies other than CoSA's Right-of-Way (ROW) must be adjusted to accommodate their proposed street and drainage improvements. Adjustments are done to avoid all conflicts between the existing gas distribution facilities and the proposed street cuts and drainage structures and to alleviate any future maintenance problems associated with the Agencies "Street Cut Policy".

Expected Benefits

- Accommodation and coordination of Jurisdictional Agency Civic Improvement Projects to allow them to remain on schedule and not incur additional delays or costs associated with existing gas distribution facilities that may be in conflict with their plans.
- Upgrade of gas distribution facilities that are adjusted or replaced.
- Alleviate future gas maintenance issues and costs by appropriate design with respect to the current Jurisdictional Agency "Street Cut Policy".

Project Risk

If the accommodations to the proposed street and drainage improvements are not completed, CPS Energy could incur costly down-time charges by Jurisdictional Agency and its contractor as well as placing CPS Energy as an impediment to Jurisdictional Agency Civic Improvement plans for the Jurisdictional Agency and its residents. A secondary risk to not completing these improvements is the additional future costs for repaving state roadways if any gas maintenance facility work were to arise.



WBS Description: Civic Improvement Renewal - Other

WBS Element: G-0315-0000001

Business Area: Gas Solutions

Executive: Richard Lujan

Strategic Category: Civic Improvements

Project Cost: ¹ \$10,799,500

FY23: \$2,000,000

FY24: \$2,100,000

FY25: \$2,150,000

FY26: \$2,250,000

FY27: \$2,299,500

Project Description

Adjust, replace, abandon and/or remove existing gas distribution facilities that lie within the boundaries of Jurisdictional Agencies Civic Improvement Project Areas and are not in conflict but are scheduled for replacement in accordance with CPS Energy’s Distribution Integrity Plan.

Project Justification

All existing gas facilities that lie within the Jurisdictional Agencies other than City of San Antonio’s (CoSA) Right-of-Way (ROW) must be adjusted to accommodate facility replacement requirements required by CPS Energy’s Distribution Integrity Plan, in accordance with Federal Regulation 49 CFR Part 192, Subpart P titled, “Gas Distribution Pipeline Integrity Management (IM)” and State of Texas Regulation, Texas Administrative Code, Title 16, Part 1, Chapter 8, Subchapter C, Rule § 8.209, “Distribution Facilities Replacement”. Adjustments are done to replace aging facilities and to alleviate any future maintenance problems associated with the Agencies “Street Cut Policy”.

Expected Benefits

- Accommodation and coordination of Jurisdictional Agency Civic Improvement Projects to allow them to remain on schedule and not incur additional delays or costs associated with existing gas distribution facilities that may be in conflict with their plans.
- Upgrade of gas distribution facilities that are adjusted or replaced.
- Alleviate future gas maintenance issues and costs by appropriate design with respect to the current Jurisdictional Agency “Street Cut Policy”.

Project Risk

If the accommodations to the proposed street and drainage improvements are not completed, CPS Energy could incur costly down-time charges by Jurisdictional Agency and its contractor as well as placing CPS Energy as an impediment to Jurisdictional Agency Civic Improvement plans for the Jurisdictional Agency and its residents. A secondary risk to not completing these improvements is the additional future costs for repaving state roadways if any gas maintenance facility work were to arise.

Customer Growth





WBS Description: Direct Purchase Encoder Receiver Transmitters (ERT) Modules

WBS Element: D-0231-0000001

Business Area: Gas Solutions

Executive: Richard Lujan

Strategic Category: Customer Growth

Project Cost: ¹ \$73,990

FY23: \$14,470

FY24: \$14,615

FY25: \$14,761

FY26: \$14,908

FY27: \$15,236

Project Description

ITRON Inc. 40G - ERT gas modules for all new residential gas meters.

Project Justification

Will provide the ability for the Data Acquisition team to remotely read the quantity of gas consumption used by the customer without having to enter the customers premise.

Expected Benefits

Remotely reading gas meters reduces errors related to manual reads. These modules are typically read through a fixed antenna or a mobile device, which increases the amount of meters that can be read with limited personnel.

Project Risk

Failure to maintain a proper supply of gas ERT modules could result in the inability to acquire gas meter reads remotely out in the field. Additionally, the Data Acquisition team is dependent upon ERT modules being installed and retrofitted on all residential gas meters so they can acquire mass meter reads more efficiently.



WBS Description: Direct Purchase Pre-Cap Gas Meters

WBS Element: D-0900-0000001

Business Area: Gas Solutions

Executive: Richard Lujan

Strategic Category: Customer Growth

Project Cost: ¹ \$13,705,740

FY23: \$2,680,374

FY24: \$2,707,178

FY25: \$2,734,249

FY26: \$2,761,592

FY27: \$2,822,347

Project Description

Gas devices for the measurement of gas consumption. These projects would be for request by customer for new installations as well.

Project Justification

Required to connect customers in order to measure gas consumption.

Expected Benefits

Potential for increased revenues due to customer growth as well as increased customer satisfaction by meeting the customer needs.

Project Risk

Inability to meet customer expectations, support city growth by providing utilities, and potential loss of revenues.



WBS Description: Direct Purchase Pre-Cap Gas Service Regulator

WBS Element: D-0920-0000001

Business Area: Gas Solutions

Executive: Richard Lujan

Strategic Category: Customer Growth

Project Cost: ¹ \$3,024,435

FY23: \$604,887

FY24: \$604,887

FY25: \$604,887

FY26: \$604,887

FY27: \$604,887

Project Description

Gas Service Regulators for Residential and Small Commercial Gas Customers.

Project Justification

Required to connect customers in order to regulate and maintain required gas pressure.

Expected Benefits

To ensure that safe and proper operating pressures are delivered to all CPS Energy gas customers. Constant pressure at the measuring devices is necessary for accurate measurement.

Project Risk

Failure to maintain a proper supply of gas service regulators on hand could result in the inability to serve new customers and provide the proper operating pressures required for gas measurement and potential loss of revenue to CPS Energy. Improper regulation can cause safety issues.



WBS Description: Direct Purchase Pre-Cap Gas Commercial/Industrial Regulator

WBS Element: D-0940-0000001

Business Area: Gas Solutions

Executive: Richard Lujan

Strategic Category: Customer Growth

Project Cost: ¹ \$441,053

FY23: \$83,132

FY24: \$83,641

FY25: \$87,823

FY26: \$92,214

FY27: \$94,243

Project Description

Gas commercial and industrial regulators for commercial and industrial customers. These regulators will be used for new customers added to the gas system and for future replacements out in the field.

Project Justification

Gas regulators are needed in order to lower gas pressure coming from main supply line. These regulators will be used on new services and future replacements within the system.

Expected Benefits

To ensure that safe and proper operating pressures are delivered to all CPS Energy gas customers. Constant pressure at the measuring device is also necessary for accurate measurement.

Project Risk

Failure to maintain a proper supply of gas commercial and industrial regulators could result in the inability to provide the proper operating pressures required for gas measurement and potential loss of revenue to CPS Energy. Improper gas regulation can also result in safety issues.



WBS Description: Direct Purchase Obsolete Gas Meter Replacement

WBS Element: D-2016-0000001

Business Area: Gas Solutions

Executive: Richard Lujan

Strategic Category: Customer Growth

Project Cost: ¹ \$6,479,546

FY23: \$1,267,177

FY24: \$1,279,849

FY25: \$1,292,647

FY26: \$1,305,575

FY27: \$1,334,298

Project Description

Replacement of approximately 50,000 gas meters in Lot S1030/1033 which are becoming less accurate.

Project Justification

Overall gas measurement is becoming less accurate, and for this lot of meters, falling outside of the industry norm for accuracy. Replacement of these meters is required to maintain gas meter accuracy.

Expected Benefits

This project will result in more accurate gas measurement.

Project Risk

Overall gas measurement becoming less accurate and may result in an increase in the lost and unaccounted for gas.



WBS Description: Install Plastic Services

WBS Element: G-0028-0000001

Business Area: Gas Solutions

Executive: Richard Lujan

Strategic Category: Customer Growth

Project Cost: ¹ \$21,232,424

FY23: \$4,121,846

FY24: \$4,180,804

FY25: \$4,389,845

FY26: \$4,223,506

FY27: \$4,316,423

Project Description

Installation of new gas services upon customer request by application for residential customers. These distribution services would help serve new customers requesting gas service.

Project Justification

CPS Energy's obligation as a municipally owned utility to provide new gas service to customers.

Expected Benefits

Increased revenues through customer growth and increased customer satisfaction.

Project Risk

Inability to meet customer expectations, support city growth by providing utilities, and loss of revenues.



WBS Description: Install Gas Mains Residential

WBS Element: G-0111-0000001

Business Area: Gas Solutions

Executive: Richard Lujan

Strategic Category: Customer Growth

Project Cost: ¹ \$166,044

FY23: \$32,414

FY24: \$32,615

FY25: \$34,246

FY26: \$33,022

FY27: \$33,748

Project Description

Installation of new gas mains upon customer request by application for residential customers. These distribution mains would help serve new customers requesting gas service.

Project Justification

A CPS Energy obligation as a municipally owned utility is to provide new gas service to customers.

Expected Benefits

Increased revenues through customer growth and increased customer satisfaction.

Project Risk

Inability to meet customer expectations, support city growth by providing utilities, and loss of revenues.



WBS Description: Install Gas Mains Commercial/Industrial

WBS Element: G-0112-0000001

Business Area: Gas Solutions

Executive: Richard Lujan

Strategic Category: Customer Growth

Project Cost: ¹ \$7,601,387

FY23: \$1,482,205

FY24: \$1,497,066

FY25: \$1,571,919

FY26: \$1,508,505

FY27: \$1,541,692

Project Description

Installation of new gas mains upon customer request by application for commercial and/or industrial customers. These distribution mains would help serve new customers requesting gas service.

Project Justification

A CPS Energy obligation as a municipally owned utility to provide new gas service to customers.

Expected Benefits

Increased revenues through customer growth and increased customer satisfaction.

Project Risk

Inability to meet customer expectations, support city growth by providing utilities, and loss of revenues.

¹ Dollars exclude AFUDC
Competitive and Confidential Information



WBS Description: Remodel, Remove & Reroute Gas Service Restoration

WBS Element: G-0113-0000001

Business Area: Gas Solutions

Executive: Richard Lujan

Strategic Category: Customer Growth

Project Cost: ¹ \$10,534,314

FY23: \$2,058,387

FY24: \$2,071,478

FY25: \$2,175,052

FY26: \$2,091,690

FY27: \$2,137,707

Project Description

Removal, remodel, or reroute of gas services upon customer request for residential customers. These distribution services would help continue to serve new or existing customers requesting modified gas service.

Project Justification

A CPS Energy obligation as a municipally owned utility to provide new gas service to customers.

Expected Benefits

Increased revenues through customer growth and increased customer satisfaction.

Project Risk

Inability to meet customer expectations, support city growth by providing utilities, and loss of revenues.



WBS Description: Install & Remove Gas Service >800CFH (Cubic Feet per Hour)

WBS Element: G-0114-1111111

Business Area: Gas Solutions

Executive: Richard Lujan

Strategic Category: Customer Growth

Project Cost: ¹ \$4,823,630

FY23: \$903,043

FY24: \$976,300

FY25: \$1,025,115

FY26: \$949,145

FY27: \$970,027

Project Description

Installation and associated removal of gas services for residential and small commercial projects upon customer request. These projects would be for request by customer to alter configuration of existing service to their facility.

Project Justification

Ability to adjust new gas service to customers as requested.

Expected Benefits

Potential for increased revenues due to customer growth as well as increased customer satisfaction by meeting customer needs.

Project Risk

Inability to meet customer expectations, support city growth by providing utilities, and loss of revenues.



WBS Description: Install & Remove Gas Service <800CFH (Cubic Feet per Hour)

WBS Element: G-0115-0000001

Business Area: Gas Solutions

Executive: Richard Lujan

Strategic Category: Customer Growth

Project Cost: ¹ \$6,656,269

FY23: \$1,291,060

FY24: \$1,311,743

FY25: \$1,377,330

FY26: \$1,323,510

FY27: \$1,352,627

Project Description

Installation and associated removal of gas services for commercial and industrial projects upon customer request. These projects would be for request by customer to alter configuration of existing service to their facility.

Project Justification

Ability to adjust new gas service to customers as requested.

Expected Benefits

Potential for increased revenues if project due to customer growth as well as increased customer satisfaction by meeting customer needs.

Project Risk

Inability to meet customer expectations, support city growth by providing utilities, and loss of revenues.



WBS Description: Install Gas Mains Apartments

WBS Element: G-0116-0000001

Business Area: Gas Solutions

Executive: Richard Lujan

Strategic Category: Customer Growth

Project Cost: ¹ \$1,874,275

FY23: \$367,036

FY24: \$367,925

FY25: \$386,321

FY26: \$372,400

FY27: \$380,593

Project Description

Installation of new gas mains upon customer request by application for apartment development. These distribution mains would help serve new customers requesting gas service.

Project Justification

A CPS Energy obligation as a municipally owned utility to provide new gas service to customers.

Expected Benefits

Increased revenues through customer growth and increased customer satisfaction.

Project Risk

Inability to meet customer expectations, support city growth by providing utilities, and loss of revenues.



WBS Description: Install Gas Subdivision Infrastructure

WBS Element: G-0118-0000001

Business Area: Gas Solutions

Executive: Richard Lujan

Strategic Category: Customer Growth

Project Cost: ¹ \$43,847,539

FY23: \$8,560,870

FY24: \$8,613,209

FY25: \$9,052,811

FY26: \$8,714,466

FY27: \$8,906,184

Project Description

Installation of new gas mains upon customer request by application for new subdivision development. These distribution mains would help serve new customers requesting gas service.

Project Justification

A CPS Energy obligation as a municipally owned utility to provide new gas service to customers.

Expected Benefits

Increased revenues through customer growth and increased customer satisfaction.

Project Risk

Inability to meet customer expectations, support city growth by providing utilities, and loss of revenues.



WBS Description: Gas Customer Growth

WBS Element: G-0224-0000001

Business Area: Gas Solutions

Executive: Richard Lujan

Strategic Category: Customer Growth

Project Cost: ¹ \$16,340,654

FY23: \$2,593,652

FY24: \$4,298,467

FY25: \$2,803,450

FY26: \$3,286,392

FY27: \$3,358,693

Project Description

Provide gas services to new customers.

Project Justification

Major projects within this budget include distribution expansion associated with subdivision and other development requirements projected for the coming years. Although the larger projects relate to major developments, this project also typically contains numerous smaller unforeseen projects associated with individual customers and business development.

Expected Benefits

- Ability to accommodate CPS Energy gas system growth requirements due to customer requests.
- Ability to accommodate customer requirements and requests relative to their facility and expansion needs in compliance with current CPS Energy Policy for Gas Main Extensions and Service Installations.
- Continued ability to increase customers served and provide additional energy alternatives to customers.

Project Risk

Risks associated with not completing customer driven installations may result in decreased growth of the gas distribution network, increased overall energy costs and delays to customers as well as a general decrease in customer satisfaction with respect to CPS Energy.



WBS Description: Install New Gas Devices >800CFH (Cubic Feet per Hour)

WBS Element: G-0900-0000001

Business Area: Gas Solutions

Executive: Richard Lujan

Strategic Category: Customer Growth

Project Cost: ¹ \$1,775,330

FY23: \$341,183

FY24: \$363,518

FY25: \$360,000

FY26: \$351,448

FY27: \$359,180

Project Description

Installation of new gas devices upon customer request by application for customers. These distribution services would help serve new customers requesting gas service.

Project Justification

A CPS Energy obligation as a municipally owned utility is to provide new gas service to customers.

Expected Benefits

Increased revenues through customer growth and increased customer satisfaction.

Project Risk

Inability to meet customer expectations, support city growth by providing utilities, and loss of revenues.



WBS Description: Gas Growth Strategy

WBS Element: G-0975-0000001

Business Area: Gas Solutions

Executive: Richard Lujan

Strategic Category: Customer Growth

Project Cost: ¹ \$3,747,296

FY23: \$618,429

FY24: \$620,099

FY25: \$1,000,000

FY26: \$746,176

FY27: \$762,592

Project Description

Provide gas services to new customers.

Project Justification

Enables installation of infrastructure to support new customers, especially large customers or those in competitive gas utility areas.

Expected Benefits

- Ability to accommodate CPS Energy gas system growth requirements due to customer requests.
- Ability to accommodate customer requirements and requests relative to their facility and expansion needs in compliance with current CPS Energy Policy for Gas Main Extensions and Service Installations.
- Continued ability to increase customers served and provide additional energy alternatives to customers.

Project Risk

Risks associated with not completing these customer driven installations may result in decreased growth of the gas distribution network, increased overall energy costs and delays to customers as well as a general decrease in customer satisfaction with respect to CPS Energy.

Environmental/ Legislative/ Regulatory





WBS Description: Generation Company (Genco) Construction of Gas Company (Gasco) Assets

WBS Element: G-0500-0000001

Business Area: Gas Solutions

Executive: Richard Lujan

Strategic Category: Environmental/ Legislative/ Regulatory

Project Cost: ¹ \$2,162,955

FY23: \$393,750

FY24: \$413,438

FY25: \$434,109

FY26: \$455,815

FY27: \$465,843

Project Description

Piping modifications and installations to existing Gas Transmission facilities in order to facilitate activities associated with CPS Energy's Transmission Integrity Management Program (TIMP).

Project Justification

Due to Federal Regulation Title 49 Code of Federal Regulations Part 192 Subpart O – Gas Transmission Pipeline Integrity Management and the State of Texas' Administrative Code, Title 16, Part 1, Chapter 8 – Pipeline Safety Regulations, CPS Energy is required to complete integrity assessment of all gas transmission pipelines least every 7 years. This project contains the capital improvements necessary to accommodate In-line Inspection tools and make it possible to perform risk mitigating measures such as maintenance pigging.

Expected Benefits

- Provide facilities required to meet State and Federal Regulations with respect to Pipeline Integrity.
- Improve operational inspection capabilities of facilities to improve transmission system integrity and effectiveness.
- Help ensure safe and efficient operation of transmission facilities.
- Allow type of assessments that will not interrupt gas service to power plants.

Project Risk

CPS Energy would need take pipelines out of service to complete assessments. This would cause a service disruption to power plants. Less information will be available on the integrity of a pipeline.

Infrastructure Modernization



WBS Description: Replace Steel Gas Services with Plastic

WBS Element: G-0014-0000001

Business Area: Gas Solutions

Executive: Richard Lujan

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$39,820,709

FY23: \$7,551,345

FY24: \$7,981,139

FY25: \$8,380,196

FY26: \$7,867,472

FY27: \$8,040,557

Project Description

Replace, abandon and/or remove existing gas distribution facilities that are approaching the end of their design and useful life, and require increased maintenance, repair, and operations costs.

Project Justification

On an annual basis, and in accordance with Federal Regulation Title 49 Code of Federal Regulations Part 192 Subpart L – Operations and the State of Texas Administrative Code, Title 16, Part 1, Chapter 8 – Pipeline Safety Regulations, CPS Energy completes a systematic engineering assessment on all gas distribution facilities in order to evaluate the integrity of the pipelines and prioritizes segments that are near the end of their useful life for replacement. The proposed budget includes distribution main projects that have the highest risks for future failure and for which CPS Energy incurs increasing maintenance and operations costs.

Expected Benefits

- Increased public safety due to lower overall system risk as high risk segments are renewed.
- Upgrade of gas distribution facilities that are replaced with improved material and decrease in incremental overall cost of maintenance and operation of gas facilities.
- Alleviate future gas maintenance issues and costs by appropriate design with respect to the current City of San Antonio (CoSA) "Street Cut Policy".
- Satisfactory audits due to compliance with Federal and State Regulations.

Project Risk

The primary risk is the ever increasing risk of failure of distribution facilities as time passes and subsequent public safety issues that result. Failure to comply with Federal and State rules and regulations puts CPS Energy at risk for fines and legal issues. Additional risks include issues associated with the increased costs of repair, maintenance and operations for these high risk segments, and resulting potential service interruptions/unplanned outages experienced by customers.



WBS Description: Gate Station Upgrades

WBS Element: G-0201-0000001

Business Area: Gas Solutions

Executive: Richard Lujan

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$1,175,991

FY23: \$234,500

FY24: \$234,500

FY25: \$234,500

FY26: \$233,675

FY27: \$238,816

Project Description

Upgrade of existing gas Gate Station facilities that are approaching the end of their design and useful life and require increased maintenance, repair, and operating costs.

Project Justification

In order to maintain the ability to monitor and measure the gas from suppliers in accordance with contractual obligations, upgrades are necessary to ensure appropriate custody transfer measurement standards are maintained.

Expected Benefits

Improved and continued custody transfer measurement and contractual obligations on gas delivery to the system are met.

Project Risk

Primary risk is decreased ability to maintain standard of custody transfer measurement requirements and potential inaccurate measurement and loss of revenue as accuracy of measurement degrades.

WBS Description: Replace Steel & Plastic Mains

WBS Element: G-0209-0000001

Business Area: Gas Solutions

Executive: Richard Lujan

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$2,037,253

FY23: \$389,519

FY24: \$401,852

FY25: \$429,439

FY26: \$403,780

FY27: \$412,663

Project Description

Replace, abandon and/or remove existing gas distribution facilities that are found during normal maintenance activities that are approaching the end of their design and useful life and are requiring increasing maintenance, repair, and operations costs.

Project Justification

In accordance with Federal Regulation Title 49 Code of Federal Regulations Part 192 Subpart L – Operations and the State of Texas’ Administrative Code, Title 16, Part 1, Chapter 8 – Pipeline Safety Regulations, CPS Energy has as part of its Distribution Integrity Management Plan preventative and mitigative measures in place that requires replacement of facilities if found during normal maintenance activities.

Expected Benefits

- Increased public safety due to lower overall system risk as high risk segments are renewed.
- Upgrade of gas distribution facilities that are replaced with improved material and decrease in incremental overall cost of maintenance and operation of gas facilities.
- Alleviate future gas maintenance issues and costs by appropriate design with respect to the current COSA “Street Cut Policy”.
- Satisfactory audits due to compliance with Federal and State Regulations.

Project Risk

The primary risk is the ever increasing risk of failure of distribution facilities as time passes and subsequent public safety issues that result. Failure to comply with Federal and State rules and regulations puts CPS Energy at risk for fines and legal issues. Additional risks include issues associated with the increased costs of repair, maintenance and operations for these high risk segments with potential for service interruptions/unplanned outages experienced by customers during these activities.

WBS Description: Renewal Program - Replace Distribution Pressure (DP) Facilities

WBS Element: G-0210-0000001

Business Area: Gas Solutions

Executive: Richard Lujan

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$17,303,636

FY23: \$3,150,000

FY24: \$3,307,500

FY25: \$3,472,875

FY26: \$3,646,519

FY27: \$3,726,742

Project Description

Replace, abandon and/or remove existing gas distribution facilities (Distribution Pressure) that are approaching the end of their design and useful life and are requiring increasing maintenance, repair and operations costs.

Project Justification

On an annual basis and in accordance with Federal Regulation Title 49 Code of Federal Regulations Part 192 Subpart L – Operations and the State of Texas’ Administrative Code, Title 16, Part 1, Chapter 8 – Pipeline Safety Regulations, CPS Energy completes a systematic engineering assessment on all gas distribution facilities in order to evaluate the integrity of the pipelines and prioritizes segments that are near the end of their useful life for replacement. The proposed budget includes distribution main projects that have the highest risks for future failure and for which CPS Energy incurs increasing maintenance and operation costs.

Expected Benefits

- Increased public safety due to lower overall system risk as high risk segments are renewed.
- Upgrade of gas distribution facilities that are replaced with improved material and decrease in incremental overall cost of maintenance and operation of gas facilities.
- Alleviate future gas maintenance issues and costs by appropriate design with respect to the current City of San Antonio (CoSA) “Street Cut Policy”.
- Satisfactory audits due to compliance with Federal and State Regulations.

Project Risk

The primary risk is the ever increasing risk of failure of distribution facilities as time passes and subsequent public safety issues that result. Failure to comply with Federal and State rules and regulations puts CPS Energy at risk for fines and legal issues. Additional risks include issues associated with the increased costs of repair, maintenance and operations for these high risk segments with potential for service interruptions/unplanned outages experienced by customers during these activities.

WBS Description: Renewal Program - Replace Supply Pressure (SP) Mains

WBS Element: G-0236-0000001

Business Area: Gas Solutions

Executive: Richard Lujan

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$17,303,636

FY23: \$3,150,000

FY24: \$3,307,500

FY25: \$3,472,875

FY26: \$3,646,519

FY27: \$3,726,742

Project Description

Replace, abandon and/or remove existing gas distribution facilities (Supply Pressure Mains) that are approaching the end of their design and useful life and are requiring increasing maintenance, repair and operations costs.

Project Justification

On an annual basis and in accordance with Federal Regulation Title 49 Code of Federal Regulations Part 192 Subpart L – Operations and the State of Texas’ Administrative Code, Title 16, Part 1, Chapter 8 – Pipeline Safety Regulations, CPS Energy completes a systematic engineering assessment on all gas distribution facilities in order to evaluate the integrity of the pipelines and prioritizes segments that are near the end of their useful life for replacement. The proposed budget includes the supply distribution main projects that have the highest risks for future failure and for which CPS Energy incurs increasing maintenance and operation costs.

Expected Benefits

- Increased public safety due to lower overall system risk as high risk segments are renewed.
- Upgrade of gas distribution facilities that are replaced with improved material and decrease in incremental overall cost of maintenance and operation of gas facilities.
- Alleviate future gas maintenance issues and costs by appropriate design with respect to the current COSA “Street Cut Policy”.
- Satisfactory audits due to compliance with Federal and State Regulations.

Project Risk

The primary risk is the ever increasing risk of failure of supply facilities as time passes and subsequent public safety issues that result. Failure to comply with Federal and State rules and regulations puts CPS Energy at risk for fines and legal issues. Additional risks include issues associated with the increased costs of repair, maintenance and operations for these high risk segments with potential for service interruptions/unplanned outages experienced by customers during these activities.

WBS Description: Military Base Conversion Gas - 20 year System Rehabilitation

WBS Element: G-0300-0000001

Business Area: Gas Solutions

Executive: Richard Lujan

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$241,774

FY23: \$47,822

FY24: \$48,486

FY25: \$48,000

FY26: \$48,203

FY27: \$49,263

Project Description

Replace, abandon and/or remove existing gas distribution facilities that are approaching the end of their design and useful life and are requiring increasing maintenance, repair and operations costs within the privatized military bases.

Project Justification

Project to capture costs associated with the improvements as required within the privatized military bases.

Expected Benefits

- Increased public safety due to lower overall system risk as high risk segments are renewed.
- Upgrade of gas distribution facilities that are replaced with improved material and decrease in incremental overall cost of maintenance and operation of gas facilities.
- Alleviate future gas maintenance issues and costs by appropriate design with respect to the current City of San Antonio (CoSA) "Street Cut Policy".
- Satisfactory audits due to compliance with Federal and State Regulations.

Project Risk

The primary risk is the ever increasing risk of failure of supply facilities as time passes and subsequent public safety issues that result. Failure to comply with Federal and State rules and regulations puts CPS Energy at risk for fines and legal issues. Additional risks include issues associated with the increased costs of repair, maintenance and operations for these high risk segments and resulting potential service interruptions/unplanned outages experienced by customers during these activities.



WBS Description: Over Pressure Protection (OPP)

WBS Element: G-0931-0000001

Business Area: Gas Solutions

Executive: Richard Lujan

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$13,137,361

FY23: \$2,551,364

FY24: \$2,832,483

FY25: \$2,500,000

FY26: \$2,598,177

FY27: \$2,655,337

Project Description

Replacement and upgrade of system regulator facilities that are beyond their useful life.

Project Justification

Project will upgrade system regulator stations identified to meet all regulatory requirements and improve the safety and operation of the gas distribution system.

Expected Benefits

Improved reliability and safety in operations of the identified stations.

Project Risk

Decreased reliability, inability to repair, and decreased ability to operate gas distribution system safely.



WBS Description: Damaged Gas Main Replacements

WBS Element: G-1012-0000001

Business Area: Gas Solutions

Executive: Richard Lujan

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$775,758

FY23: \$143,805

FY24: \$157,975

FY25: \$165,874

FY26: \$152,376

FY27: \$155,728

Project Description

Project to capture costs associated with mains damaged by 3rd party.

Project Justification

Necessary to properly capture capital costs associated with mains that are found damaged and require replacement.

Expected Benefits

Improved safety and reliability due to installation of new facilities.

Project Risk

Inability to correct issues associated with gas mains found damaged and decrease in ability to safely operate the gas system.



WBS Description: Gas IMU Battery Replacement and Reprogram Project

WBS Element: NEW_19

Business Area: Gas Solutions

Executive: Richard Lujan

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$2,300,000

FY23: \$2,300,000

FY24: \$0

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Replacement of approximately 42K+ Gas inertial measurement units (IMU) units that were impacted due to the 2021 winter storm event. This project will replace current units with new updated units and bring these impacted sites back into full utilization within the overall CPS Energy Advanced Metering Infrastructure (AMI) system.

Project Justification

In order to correct the issues associated with these impacted Gas IMU units, this project is proposed to replace the damaged units and provide proper connectivity and utilization within the overall CPS Energy AMI infrastructure.

Expected Benefits

Replacement of units will bring the impacted sights back into full service within the CPS Energy AMI system and update these sights with latest technology, ensure accurate meter consumption is being captured and transmitted within the system electronically and mitigate requirements for continued manual interventions required to ensure proper billing on monthly basis.

Project Risk

Risks include inability to obtain over the air reads on the units to ensure proper billing, continued communications issues and increased manual interventions required to correct issues, lack of detailed metering information available to customers with the impacted units and failure to realize full benefits related to over the air metering information.

Special Projects





WBS Description: Direct Purchase Capital Tools-Equipment - Utilities/Gas Company (Gasco)

WBS Element: D-0062-0000052

Business Area: Gas Solutions

Executive: Richard Lujan

Strategic Category: Special Projects

Project Cost: ¹ \$6,133,792

FY23: \$414,061

FY24: \$1,716,495

FY25: \$437,320

FY26: \$1,763,559

FY27: \$1,802,357

Project Description

Capital equipment and tools used for the construction and maintenance of the gas distribution infrastructure and assets.

Project Justification

Required to safely and reliably construct and maintain the gas distribution infrastructure.

Expected Benefits

Serve customers, maintain/improve system reliability, improve efficiency of crews, and provide safe working environment.

Project Risk

Impaired system reliability, increased installation or repair time, and impaired safety.

¹ Dollars exclude AFUDC
Competitive and Confidential Information



WBS Description: Direct Purchase Advanced Metering Infrastructure (AMI) Modules

WBS Element: D-0232-0000001

Business Area: Gas Solutions

Executive: Richard Lujan

Strategic Category: Special Projects

Project Cost: ¹ \$1,100,000

FY23: \$300,000

FY24: \$200,000

FY25: \$200,000

FY26: \$200,000

FY27: \$200,000

Project Description

Gas Advanced Metering Infrastructure (AMI) Modules for growth and maintenance of Advanced Metering Infrastructure.

Project Justification

Materials are required for complete gas meter installations for gas customers.

Expected Benefits

Complete, timely and accurate metering.

Project Risk

Unable to install AMI metering for customers.



WBS Description: Electronic Pressure Recorder (EPR) New Installation

WBS Element: G-9303-0059174

Business Area: Gas Solutions

Executive: Richard Lujan

Strategic Category: Special Projects

Project Cost: ¹ \$230,715

FY23: \$42,000

FY24: \$44,100

FY25: \$46,305

FY26: \$48,620

FY27: \$49,690

Project Description

Installation and maintenance of Electronic Pressure Recorders (EPRs) in gas system. Devices used to monitor critical pressures in the system for modeling and reliability.

Project Justification

Allows CPS Energy to ensure system pressure is adequate and maintain service to customers. Also allows for hydraulic model calibration.

Expected Benefits

- Ability to monitor low pressure areas.
- Identify low pressure areas and then develop capital improvement projects that may be necessary to bring system up to normal operation.
- Take preventative measures during high demand winter season to ensure system pressure is maintained in order to prevent customer outages.

Project Risk

Inability to determine low pressure areas leading to system pressure deficiencies and loss of service to customers. Less accurate system modeling which could lead to potential outages.

WBS Description: Track/Traceability

WBS Element: G-9641-0000001

Business Area: Gas Solutions

Executive: Richard Lujan

Strategic Category: Special Projects

Project Cost: ¹ \$1,834,526

FY23: \$830,967

FY24: \$830,967

FY25: \$172,592

FY26: \$0

FY27: \$0

Project Description

Multi year project proposed for initial implementation of software and hardware necessary for field collection of all component information relative to the federal and ASTM (formerly American Society for Testing and Materials) tracking and traceability standard.

Project Justification

Per Docket 214-0098, Pipeline and Hazardous Materials Safety Administration (PHMSA) proposes to revise §192.63 to require operators to adopt the tracking and traceability requirements in ASTM F2897–11a, “Standard Specification for Tracking and Traceability Encoding System of Natural Gas Distribution Components (Pipe, Tubing, Fittings, Valves, and Appurtenances)”. Initial final rule effective January 2019 for vendors to provide all tracking information in barcode type format. The subsequent rules will require Gas operators to track gas system components installed in the field along with specific component attributes as outlined in the standard. This capability will need to be integrated with the CPS Energy Geographic Information System (GIS)/Designer system, work management systems, mobile data system and operations. The process will need to be a field proven system, capable of multiple forms of data entry, i.e. manual, barcode, GPS positional and equipment historical in order to effectively acquire and update relevant systems by personnel doing maintenance and construction activities by internal and contract personnel.

Expected Benefits

Due to large volume of component information and location information, automated field data collection is required to accurately and effectively collect and manage the volume of data necessary for compliance. In addition, this information will allow for better information relative to location and component information necessary for any high use component that is determined to be replaced through the gas system.

Project Risk

Risks are associated with inability to effectively meet regulatory tracking and traceability standards as well as ability to determine exactly where any high use component that is determined to be replaced through the gas system is located.

System Growth





WBS Description: Direct Purchase Pre-Cap Gas System Regulator

WBS Element: D-0960-0000001

Business Area: Gas Solutions

Executive: Richard Lujan

Strategic Category: System Growth

Project Cost: ¹ \$266,101

FY23: \$52,609

FY24: \$52,984

FY25: \$53,000

FY26: \$53,170

FY27: \$54,339

Project Description

Gas system regulators for system regulator stations. These regulators will be used for new stations added to the gas system and for future replacements out in the field.

Project Justification

Gas regulators are needed in order to lower gas pressure coming from main supply lines. These regulators will be used on new subsystems and future replacements within the system.

Expected Benefits

To ensure that safe and proper operating pressures are delivered to all CPS Energy gas customers. Constant pressure at the measuring device is also necessary for accurate measurement.

Project Risk

Failure to maintain a proper supply of gas system regulators could result in the inability to provide the proper operating pressures required for gas measurement and potential loss of revenue to CPS Energy. Improper gas regulation can also result in safety issues.



WBS Description: City Gate Stations

WBS Element: G-0200-0000001

Business Area: Gas Solutions

Executive: Richard Lujan

Strategic Category: System Growth

Project Cost: ¹ \$425,672

FY23: \$84,016

FY24: \$85,071

FY25: \$85,000

FY26: \$84,859

FY27: \$86,726

Project Description

Installation of new City Gate Stations as growth and supply requirements require.

Project Justification

Required as necessary to fulfill load requirements for serving customers.

Expected Benefits

Improved delivery and reliability of supply to the gas distribution system.

Project Risk

Without appropriate gate stations, system would not be as reliable or as diversified.

WBS Description: Gas Distribution Mains

WBS Element: G-0223-0000001

Business Area: Gas Solutions

Executive: Richard Lujan

Strategic Category: System Growth

Project Cost: ¹ \$16,411,048

FY23: \$3,272,275

FY24: \$3,546,812

FY25: \$3,081,465

FY26: \$3,219,830

FY27: \$3,290,666

Project Description

Installation, rerouting and abandonment or removal of gas facilities associated with the infrastructure of the gas distribution network. These projects are typically reliability and expansion projects as well as some customer driven installations and reroutes.

Project Justification

Major projects within this budget include distribution expansion associated with supply projects (G-0990) such as the 2nd Outer Loop project, projects associated with areas of low pressure found in the system during peak usage or from system modeling processes, as well as customer driven projects that result in reroutes and abandonments or removal of gas distribution facilities in compliance with the current CPS Energy Policy for Gas Main Extensions and Service Installations.

Expected Benefits

- Ability to accommodate CPS Energy gas system growth requirements.
- Ability to maintain levels of reliability and support for the CPS Energy gas distribution system and for customers.
- Ability to accommodate customer requirements and requests relative to their facility and expansion needs in compliance with current CPS Energy policy.

Project Risk

Risks associated with not continuing with distribution infrastructure expansion include limited and decreasing support to areas which are experiencing growth, as well as increased future costs of construction as the areas continue to develop, as additional construction obstacles arise and as other utilities obtain prime easement placement. Risks associated with not completing other unforeseen customer driven installations and reroutes will result in increased costs and delays to customers as well as a general decrease in customer satisfaction with respect to CPS Energy.



WBS Description: District Regulators

WBS Element: G-0932-0000001

Business Area: Gas Solutions

Executive: Richard Lujan

Strategic Category: System Growth

Project Cost: ¹ \$2,785,586

FY23: \$590,740

FY24: \$650,666

FY25: \$550,846

FY26: \$491,263

FY27: \$502,071

Project Description

Installation of new or upgrading existing gas district regulator stations associated with the infrastructure and growth of the gas distribution network. These projects are typically associated with other Projects including Gas Supply Lines (G-0990), Gas Distribution Mains (G-0223) and Gas Customer Growth (G-0224) or are identified as requiring an upgrade due to system expansion and growth from the network modeling engineering software or from operations and maintenance inspection data.

Project Justification

Stations in this project include those associated with the Gas Supply Lines (G-0990), Gas Distribution Mains (G-0223) and Gas Customer Growth (G-0224) as well as stations that have been identified as being undersized and in need of an upgrade due to increased load and growth.

Expected Benefits

- Continued ability to adequately and reliably serve the gas distribution mains from the CPS Energy supply line backbone.
- Increased capacity for serving areas of expansion and growth.

Project Risk

Project risks for stations requiring upgrades for capacity reasons include decreased ability to adequately serve the needs of growth areas impacted by the upgrades as well as the potential for equipment damage when these facilities during periods of maximum capacity operations. Project risks for new stations associated with system growth and expansion include decreased reliability and capacity for the gas distribution system where these stations are projected to be installed which translates to an inability to provide service for new customers.

¹ Dollars exclude AFUDC
Competitive and Confidential Information

WBS Description: Gas Supply Lines

WBS Element: G-0990-0000001

Business Area: Gas Solutions

Executive: Richard Lujan

Strategic Category: System Growth

Project Cost: ¹ \$27,000,534

FY23: \$4,759,413

FY24: \$5,318,811

FY25: \$5,320,884

FY26: \$5,737,599

FY27: \$5,863,826

Project Description

Installation, rerouting and removal of gas facilities associated with the supply backbone infrastructure to the gas distribution network. These projects are typically reliability and expansion projects as well as some customer driven installations and reroutes.

Project Justification

Major projects within this budget can include supply line reroutes originated by customers as well as projects associated with the continuation of the multi-year 2nd Outer Loop supply line and additional supply line interconnections for reliability and system growth. In addition, there are typically smaller projects associated with customer reroute requests.

Expected Benefits

- Continued ability to accommodate the City of San Antonio and other customers with respect to their expansion and gas distribution requirements.
- Continued ability to maintain required levels of state and federally required operations and maintenance activities on installed facilities after reroute.
- Ability to improve reliability and support with Loop 1604 and IH 10 W 2nd Outer Loop connections for this area of expansion and growth.

Project Risk

Risks associated with not accommodating customer required reroutes, will be potential delays to their expansion requirements. Risks associated with not continuing with the Long Range Plan infrastructure expansion include limited and decreasing support to areas supported by this inter-connection, as well as increased future costs of construction as the area continues to develop, additional construction obstacles arise, additional customers add load and as other utilities obtain prime easement placement.

Grid Transformation & Engineering

Civic Improvements





WBS Description: Overhead Electric Civic Improvements

WBS Element: E-0002-0000001

Business Area: Grid Transformation & Engineering

Executive: Brian Bartos

Strategic Category: Civic Improvements

Project Cost: ¹ \$615,998

FY23: \$121,201

FY24: \$121,201

FY25: \$123,625

FY26: \$123,625

FY27: \$126,345

Project Description

This project is for relocating existing overhead electric facilities in order to accommodate capital improvement projects by the suburban cities. Included projects are bond projects, public works projects, and traffic signal projects.

Project Justification

This project is used for relocating overhead electric facilities that are in conflict with infrastructure that the suburban cities plans to install. CPS Energy is required to move facilities to facilitate the completion of these projects.

Expected Benefits

This project allows CPS Energy to move overhead electric distribution facilities that are in the way of the suburban cities civic projects, ensuring that their projects can continue without damaging CPS Energy facilities and/or causing power outages.

Project Risk

Without this project CPS Energy will be unable to comply with the suburban cities' requirements to move facilities that are in conflict with their plans.



WBS Description: Relocate Overhead for City of San Antonio (COSA) Civic Projects

WBS Element: E-0090-0000001

Business Area: Grid Transformation & Engineering

Executive: Brian Bartos

Strategic Category: Civic Improvements

Project Cost: ¹ \$10,628,269

FY23: \$2,125,654

FY24: \$2,125,654

FY25: \$2,125,654

FY26: \$2,125,654

FY27: \$2,125,654

Project Description

This project is for the purpose of relocating existing overhead electric facilities in order to accommodate capital improvement projects by the COSA. The COSA projects can be bond projects, public works projects, and traffic signal projects.

Project Justification

This project is used for relocating our overhead electric facilities that are in conflict with infrastructure that the COSA plans to install. We are required to move our facilities to facilitate the completion of these projects.

Expected Benefits

This project allows CPS Energy to move overhead electric distribution facilities that are in the way of the COSA civic projects, ensuring that their projects can continue without damaging CPS Energy facilities and/or causing power outages.

Project Risk

Without this project we will be unable to comply with the COSA requirements to move our facilities that are in conflict with their plans.



WBS Description: Relocate Overhead for Bexar County Civic Projects

WBS Element: E-0091-0000001

Business Area: Grid Transformation & Engineering

Executive: Brian Bartos

Strategic Category: Civic Improvements

Project Cost: ¹ \$7,623,660

FY23: \$1,500,000

FY24: \$1,500,000

FY25: \$1,530,000

FY26: \$1,530,000

FY27: \$1,563,660

Project Description

This project is for the purpose of relocating existing overhead electric facilities in order to accommodate capital improvement projects by Bexar county.

Project Justification

This project is used for relocating overhead electric facilities that are in conflict with infrastructure that Bexar county plans to install. This will require moving facilities to facilitate the completion of these projects.

Expected Benefits

This project allows CPS Energy to move overhead electric distribution facilities that are in the way of the Bexar county civic projects, ensuring that their projects can continue without damaging CPS Energy facilities and/or causing power outages.

Project Risk

Without this project CPS Energy will be unable to comply with the Bexar county requirements to move facilities that are in conflict with their plans.

¹ Dollars exclude AFUDC
Competitive and Confidential Information



WBS Description: Reimbursable Overhead Relocation - Texas Department of Transportation (TxDOT) Project

WBS Element: E-0096-0000001

Business Area: Grid Transformation & Engineering

Executive: Brian Bartos

Strategic Category: Civic Improvements

Project Cost: ¹ \$10,500,000

FY23: \$2,500,000

FY24: \$2,000,000

FY25: \$2,000,000

FY26: \$2,000,000

FY27: \$2,000,000

Project Description

This project is for the relocation of overhead electric facilities in order to accommodate TxDOT projects.

Project Justification

This project is for relocating overhead electric facilities that are in conflict with infrastructure that TxDOT plans to install. It is required to move our facilities to facilitate the completion of these projects.

Expected Benefits

Minimize infrastructure conflicts with TxDOT projects.

Project Risk

Without this project we will be unable to comply with TxDOT requirements to move our facilities that are in conflict with their plans.



WBS Description: Civic Improvement-State Highway

WBS Element: E-0097-0000001

Business Area: Grid Transformation & Engineering

Executive: Brian Bartos

Strategic Category: Civic Improvements

Project Cost: ¹ \$12,605,000

FY23: \$2,500,000

FY24: \$2,500,000

FY25: \$2,550,000

FY26: \$2,500,000

FY27: \$2,555,000

Project Description

This project is for the relocation of overhead electric facilities in order to accommodate Texas Department of Transportation (TxDOT) projects. These projects are not state-reimbursable.

Project Justification

This project is for the relocation of overhead electric facilities in order to accommodate TxDOT projects.

Expected Benefits

Minimize conflicts with TxDOT projects.

Project Risk

Without this project CPS Energy will be unable to comply with the TxDOT requirements to move facilities that are in conflict with their plans.



WBS Description: Relocate Underground for Civic Improvement Projects

WBS Element: E-0102-0000001

Business Area: Grid Transformation & Engineering

Executive: Brian Bartos

Strategic Category: Civic Improvements

Project Cost: ¹ \$15,280,733

FY23: \$3,882,278

FY24: \$3,843,455

FY25: \$2,500,000

FY26: \$2,500,000

FY27: \$2,555,000

Project Description

This project is for relocating underground electric facilities in order to accommodate City of San Antonio (COSA) and Texas Department of Transportation (TxDOT) civic projects.

Project Justification

This project is used for relocating underground electric facilities that are in conflict with infrastructure that either COSA or TxDOT are planning to install. The project is required to move facilities to facilitate the completion of these projects.

Expected Benefits

Without this project CPS Energy to move underground electric facilities that are in the way of COSA and TxDOT civic projects, and ensuring that their projects can continue without delays.

Project Risk

Without this project CPS Energy will be unable to comply with COSA and TxDOT requirements to move facilities that are in conflict with their plans, thereby delaying COSA and TxDOT projects.



WBS Description: Relocate Network for Civic Improvement Project San Pedro Creek - Nueva

WBS Element: E-0120-0000001

Business Area: Grid Transformation & Engineering

Executive: Brian Bartos

Strategic Category: Civic Improvements

Project Cost: ¹ \$3,803,773

FY23: \$1,303,773

FY24: \$1,250,000

FY25: \$1,250,000

FY26: \$0

FY27: \$0

Project Description

This project is for relocating downtown electric network facilities in order to accommodate City of San Antonio (COSA) civic projects.

Project Justification

This project is used for relocating our downtown electric network facilities that are in conflict with infrastructure that COSA is planning to install. We are required to move our facilities to facilitate the completion of these projects.

Expected Benefits

This project allows us to move our underground electric facilities that are in the way of COSA, ensuring that their projects can continue without delays.

Project Risk

Without this project we will be unable to comply with COSA requirements to move our facilities that are in conflict with their plans.

¹ Dollars exclude AFUDC
Competitive and Confidential Information

WBS Description: High Thermal Event System (HTES) for Downtown Network Reliability

WBS Element: E-0316-0000001

Business Area: Grid Transformation & Engineering

Executive: Brian Bartos

Strategic Category: Civic Improvements

Project Cost: ¹ \$13,970,000

FY23: \$2,794,000

FY24: \$2,794,000

FY25: \$2,794,000

FY26: \$2,794,000

FY27: \$2,794,000

Project Description

Implementation of VaultGard, a system that provides Supervisory Control and Data Acquisition (SCADA) capabilities for the downtown network system to provide monitoring for voltage, current, and temperature at each network protector, as well as vault temperature, water level, access door opening, and remote control capabilities of each network protector and vault in our network system.

Project Justification

Provide network protector load and counter data for asset health and end of life determination. Provide visibility, automation, control, and data acquisition for the downtown network system while improving safety and reliability.

Expected Benefits

This project allows CPS Energy to maintain the integrity and reliability of the downtown electric network system. It helps reduce outages and allow for the remote monitoring and control of vault network protector breakers. It also monitors the network protector voltage and current outputs. The VaultGard is the first step towards monitoring and control of assets by first establishing communication to the vaults, installing a back-up power system to the VaultGard, then monitoring and controlling the network protectors and monitoring two points in the vault.

Project Risk

Visibility and control of the network protector breakers and problems with network protector equipment will go undetected until the next maintenance cycle which could result in a major catastrophic event before the next maintenance cycle. This results in a major risk to the reliability of the downtown network system.

Customer Growth





WBS Description: Pre-Capitalization 3 Phase Padmount Transformer

WBS Element: D-0500-0000001

Business Area: Grid Transformation & Engineering

Executive: Brian Bartos

Strategic Category: Customer Growth

Project Cost: ¹ \$22,468,593

FY23: \$4,369,257

FY24: \$4,500,335

FY25: \$4,500,000

FY26: \$4,500,000

FY27: \$4,599,000

Project Description

This project is for purchasing and installing 3-phase padmount transformers for commercial and industrial customers. The transformers are pre-capitalized.

Project Justification

This project is for the purchase and installation of 3-phase padmount transformers to provide electric service to large commercial and industrial customers. These transformers are pre-capitalized and therefore are budgeted under their own project number. These transformers are used for adding new commercial and industrial customers to the system as well as replacing older units that have failed.

Expected Benefits

- Increased revenues through customer growth
- Increased customer satisfaction

Project Risk

Without this project CPS Energy will be unable to connect new commercial and industrial electric customers. CPS Energy will also be unable to maintain transformer inventory to support existing commercial and industrial electric customers (e.g. replacement of failed transformers).



WBS Description: Pre-Capitalization 1 Phase Padmount Transformer

WBS Element: D-0520-0000001

Business Area: Grid Transformation & Engineering

Executive: Brian Bartos

Strategic Category: Customer Growth

Project Cost: ¹ \$46,463,419

FY23: \$9,292,684

FY24: \$9,292,684

FY25: \$9,292,684

FY26: \$9,292,684

FY27: \$9,292,684

Project Description

This project is for purchasing and installing 1-phase padmount transformers for residential customers. The transformer are pre-capitalized.

Project Justification

This project is for the purchase and installation of 1-phase padmount transformers to provide electric service to residential customers in subdivisions with underground utilities. These transformers are pre-capitalized and therefore are budgeted under their own project number. These transformers are used for adding new residential customers to the system as well as replacing older units that have failed.

Expected Benefits

- Increased revenues through customer growth
- Increased customer satisfaction

Project Risk

Without this project CPS Energy will be unable to connect new residential electric customers. CPS Energy will also be unable to maintain transformer inventory to support existing residential electric customers (e.g. replacement of failed transformers).

WBS Description: Pre-Capitalization Network (2) Transformers

WBS Element: D-0540-0000001

Business Area: Grid Transformation & Engineering

Executive: Brian Bartos

Strategic Category: Customer Growth

Project Cost: ¹ \$11,904,624

FY23: \$3,172,734

FY24: \$3,216,622

FY25: \$5,515,268

FY26: \$0

FY27: \$0

Project Description

This project is for purchasing and installing 3-phase network transformers for customers served by the downtown network system. The transformers are pre-capitalized.

Project Justification

This project is for the purchase and installation of 3-phase network transformers for customers served by the downtown network system. These transformers are pre-capitalized and therefore are budgeted under their own project number. These transformers are used for adding new commercial customers to the downtown network system as well as replacing older units that have failed.

Expected Benefits

- Increased revenues through customer growth
- Increased customer satisfaction

Project Risk

Without this project CPS Energy will be unable to connect new electric customers in the downtown network system. CPS Energy will also be unable to maintain transformer inventory to support existing downtown network customers (e.g. replacement of failed transformers).



WBS Description: Pre-Capitalization Overhead Transformers

WBS Element: D-0560-0000001

Business Area: Grid Transformation & Engineering

Executive: Brian Bartos

Strategic Category: Customer Growth

Project Cost: ¹ \$35,486,138

FY23: \$6,695,000

FY24: \$6,895,850

FY25: \$7,102,726

FY26: \$7,315,807

FY27: \$7,476,755

Project Description

This project is for the purchase and installation of 1-phase pole mounted transformers for residential and small commercial customers served by overhead electric service. The transformers are pre-capitalized.

Project Justification

This project is for the purchase and installation of 1-phase padmount transformers to provide electric service to residential customers in subdivisions with underground utilities. These transformers are pre-capitalized and therefore are budgeted under their own project number. These transformers are used for adding new residential customers to the system as well as replacing older units that have failed.

Expected Benefits

- Increased revenues through customer growth
- Increased customer satisfaction

Project Risk

Without this project CPS Energy will be unable to connect new residential and small commercial electric customers. CPS Energy will also be unable to maintain transformer inventory to support existing residential and small commercial electric customers (e.g. replacement of failed transformers).



WBS Description: Pre-Capitalization Overhead Transformer 3-Phase Only

WBS Element: D-0580-0000001

Business Area: Grid Transformation & Engineering

Executive: Brian Bartos

Strategic Category: Customer Growth

Project Cost: ¹ \$16,378,217

FY23: \$3,090,000

FY24: \$3,182,700

FY25: \$3,278,181

FY26: \$3,376,526

FY27: \$3,450,810

Project Description

This project is for the purchase and installation of 3-phase pole mounted transformers for residential and small commercial customers served by overhead electric service. The transformers are pre-capitalized.

Project Justification

This project is for the purchase and installation of 3-phase pole mounted transformers to provide electric service to residential customers in subdivisions with overhead electric utilities. These transformers are pre-capitalized and therefore are budgeted under their own project number. These transformers are used for adding new residential customers to the system as well as replacing older units that have failed.

Expected Benefits

- Increased revenues through customer growth
- Increased customer satisfaction

Project Risk

Without this project CPS Energy will be unable to connect new residential and small commercial electric customers. CPS Energy will also be unable to maintain transformer inventory to support existing residential and small commercial electric customers (e.g. replacement of failed transformers).



WBS Description: Overhead Streetlights - City of San Antonio (COSA)/Suburban Cities

WBS Element: E-0028-0000001

Business Area: Grid Transformation & Engineering

Executive: Brian Bartos

Strategic Category: Customer Growth

Project Cost: ¹ \$7,043,097

FY23: \$1,385,771

FY24: \$1,385,771

FY25: \$1,413,486

FY26: \$1,413,486

FY27: \$1,444,583

Project Description

This project is for the installation of overhead streetlights for the City of San Antonio (COSA) and suburban cities. These streetlights are requested by municipalities which pay a monthly rate for each street light after they are installed. This project captures the costs of the initial street light installation.

Project Justification

This project is needed to meet streetlight requirements for the COSA and suburban cities. This project is for the installation of overhead streetlights, predominantly within COSA. To a smaller degree, the project is used for streetlights within other municipalities and in Bexar County.

Expected Benefits

This project allows us to help the COSA and other municipalities meet their obligation of providing street lighting for the community.

Project Risk

Without this project CPS Energy will be unable to install new streetlights requested by city council and suburban cities. This will make new and existing roadways hazardous to drive due to inadequate lighting. Customer satisfaction will decrease.

WBS Description: Make-Ready Adjustments for Phone Company

WBS Element: E-0069-0000001

Business Area: Grid Transformation & Engineering

Executive: Brian Bartos

Strategic Category: Customer Growth

Project Cost: ¹ \$296,465

FY23: \$59,293

FY24: \$59,293

FY25: \$59,293

FY26: \$59,293

FY27: \$59,293

Project Description

This project is for the modification, adjustment or replacement of CPS Energy poles or pole mounted facilities in order to accommodate new AT&T attachments in accordance with established minimum safety clearance requirements and in accordance with the Texas Public Utility Regulatory Act.

Project Justification

This project is necessary for ensuring that all AT&T attachments attached to CPS Energy poles meet or exceed the minimum safety clearance requirements established by the National Electrical Safety Code and CPS Energy Pole Attachment Standards. Meeting these standards is accomplished by replacing existing poles with taller poles or by adjusting existing CPS Energy wires or equipment on existing poles to ensure that required clearances are maintained. Without this project, AT&T could attach to CPS Energy poles in violation of established safety standards, resulting in safety risks for the general public as well as CPS Energy and AT&T personnel. CPS Energy is required to accommodate AT&T attachments on its pole by the Texas Public Utility Regulatory Act.

Expected Benefits

The expected benefits include that safe co-location of electric and AT&T telecommunications facilities on one common pole line infrastructure. Additionally, annual pole attachment revenues are received from AT&T for their attachments. Finally, this project ensures compliance with the Texas Public Utility Regulatory Act.

Project Risk

Without this project, there is a significant risk that AT&T telecommunications attachments would be installed in an unsafe manner or at unsafe heights, creating a safety risk for the general public, CPS Energy personnel and AT&T personnel. Additionally, without this project, CPS Energy would be in violation of the Texas Public Utility Regulatory Act.



WBS Description: Make-Ready Adjustments for Telecommunications

WBS Element: E-0070-0000001

Business Area: Grid Transformation & Engineering

Executive: Brian Bartos

Strategic Category: Customer Growth

Project Cost: ¹ \$10,500,000

FY23: \$2,100,000

FY24: \$2,100,000

FY25: \$2,100,000

FY26: \$2,100,000

FY27: \$2,100,000

Project Description

This project is for the modification, adjustment or replacement of CPS Energy poles or pole mounted facilities in order to accommodate new telecommunications attachments in accordance with established minimum safety clearance requirements and in accordance with the Texas Public Utility Regulatory Act.

Project Justification

This project is necessary for ensuring that all telecommunications attachments attached to CPS Energy poles meet or exceed the minimum safety clearance requirements established by the National Electrical Safety Code and CPS Energy Pole Attachment Standards. Meeting these standards is accomplished by replacing existing poles with taller poles or by adjusting existing CPS Energy wires or equipment on existing poles to ensure that required clearances are maintained. Without this project, telecommunications companies could attach to CPS Energy poles in violation of established safety standards, resulting in safety risks for the general public as well as CPS Energy and telecommunications companies' personnel. CPS Energy is required to accommodate telecommunications attachments on its pole by the Texas Public Utility Regulatory Act.

Expected Benefits

The expected benefits include that safe co-location of electric and telecommunications facilities on one common pole line infrastructure. Additionally, annual pole attachment revenues are received from the telecommunications companies for their attachments. Finally, this project ensures compliance with the Texas Public Utility Regulatory Act.

Project Risk

Without this project, there is a significant risk that telecommunications attachments would be installed in an unsafe manner or at unsafe heights, creating a safety risk for the general public, CPS Energy personnel and telecommunications companies' personnel. Additionally, without this project, CPS Energy would be in violation of the Texas Public Utility Regulatory Act.

¹ Dollars exclude AFUDC
Competitive and Confidential Information

Infrastructure Modernization



WBS Description: Pre-Capitalization Capacitor Banks

WBS Element: D-0600-0000001

Business Area: Grid Transformation & Engineering

Executive: Brian Bartos

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$2,000,000

FY23: \$400,000

FY24: \$400,000

FY25: \$400,000

FY26: \$400,000

FY27: \$400,000

Project Description

This project is for the purchase and installation of capacitor banks to facilitate a more efficient operation of the electric distribution system by reducing power losses throughout the electric system. These capacitors are pre-capitalized and therefore budgeted under their own project number.

Project Justification

This project is for the purchase and installation of capacitor banks to facilitate a more efficient operation of the electric distribution system. These capacitors improve efficiency by reducing power losses throughout the electric system. These capacitors are pre-capitalized and therefore are budgeted under their own project number. In addition, capacitor banks are necessary to meet Electric Reliability Council of Texas (ERCOT) power factor requirements.

Expected Benefits

- Increased electric system efficiency by reducing losses and returning capacity
- Reduced power generation cost by reducing reactive demands
- Improved system voltage which contributes to customer satisfaction

Project Risk

- Non-compliance with ERCOT power factor requirements
- Less efficient electric system
- Inadequate electric distribution system voltage levels
- Customer power quality and satisfaction issues

WBS Description: Pre-Capitalization Capacitors (Individual)

WBS Element: D-0620-0000001

Business Area: Grid Transformation & Engineering

Executive: Brian Bartos

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$1,997,562

FY23: \$391,513

FY24: \$394,196

FY25: \$403,052

FY26: \$400,000

FY27: \$408,800

Project Description

This project is for the purchase and installation of capacitor banks to facilitate a more efficient operation of the electric distribution system by reducing power losses throughout the electric system. These capacitors are pre-capitalized and therefore budgeted under their own project number.

Project Justification

This project is for the purchase and installation of capacitor banks to facilitate a more efficient operation of the electric distribution system. These capacitors improve efficiency by reducing power losses throughout the electric system. These capacitors are pre-capitalized and therefore are budgeted under their own project number. In addition, capacitor banks are necessary to meet Electric Reliability Council of Texas (ERCOT) power factor requirements.

Expected Benefits

- Increased electric system efficiency by reducing losses and returning capacity
- Reduced power generation cost by reducing reactive demands
- Improved system voltage which contributes to customer satisfaction

Project Risk

- Non-compliance with ERCOT power factor requirements
- Less efficient electric system
- Inadequate electric distribution system voltage levels
- Customer power quality and satisfaction issues



WBS Description: Overhead Line Customer Assistance

WBS Element: E-0039-0000002

Business Area: Grid Transformation & Engineering

Executive: Brian Bartos

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$121,220

FY23: \$24,244

FY24: \$24,244

FY25: \$24,244

FY26: \$24,244

FY27: \$24,244

Project Description

This project is for the purpose of temporary construction work associated with civic improvement projects such as pole bracing, line sleeving, and/or temporary re-routes.

Project Justification

This project is needed to meet civic improvement contractor requests that require temporary modifications to existing overhead infrastructure.

Expected Benefits

Customer service/satisfaction and utility coordination with City of San Antonio and suburban cities civic timelines.

Project Risk

- CPS Energy will not be able to meet external stakeholder/customer timelines
- Place CPS Energy facilities at risk of damage
- Endanger public safety

¹ Dollars exclude AFUDC
Competitive and Confidential Information



WBS Description: Install Capacitor Banks

WBS Element: E-0086-0000001

Business Area: Grid Transformation & Engineering

Executive: Brian Bartos

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$1,500,000

FY23: \$300,000

FY24: \$300,000

FY25: \$300,000

FY26: \$300,000

FY27: \$300,000

Project Description

This project is associated with Project D-0600 for the installation of capacitor banks. This project captures the installation labor associated with the material costs for the capacitor banks, which are captured in Project D-0600.

Project Justification

This project is for the purchase and installation of capacitor banks to facilitate a more efficient operation of the electric distribution system. These capacitors improve efficiency by reducing power losses throughout the electric system. These capacitors are pre-capitalized and therefore are budgeted under their own project number. In addition, capacitor banks are necessary to meet Electric Reliability Council of Texas (ERCOT) power factor requirements.

Expected Benefits

- Increased electric system efficiency by reducing losses and returning capacity
- Reduced power generation cost by reducing reactive demands
- Improved system voltage which contributes to customer satisfaction

Project Risk

- Non-compliance with ERCOT power factor requirements
- A less efficient electric system that will lead to inadequate electric distribution system voltage levels which in-turn leads to customer power quality and satisfaction issues.



WBS Description: Circuit Upgrades Due to Poor Reliability

WBS Element: E-0095-0000001

Business Area: Grid Transformation & Engineering

Executive: Brian Bartos

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$15,725,710

FY23: \$2,887,000

FY24: \$4,088,500

FY25: \$1,920,905

FY26: \$3,377,500

FY27: \$3,451,805

Project Description

This project covers the engineering and construction for replacement of overhead electric facilities on poor performing 13 kilovolt (kV) and 35kV circuits.

Project Justification

This project serves to fund multiple work requests created throughout the year for the entire system. These work requests are needed to improve reliability of circuits that have been identified as poor performing on the electric distribution system. This project supports the Energy Delivery Services Business Plan's reliability efforts which are measured by the System Average Interruption Duration Index, System Average Interruption Frequency Index, and Customer Average Interruption Duration Index metrics.

Expected Benefits

This project will maintain integrity and reliability of the overhead electric distribution system. Completed projects will reduce frequency and duration of outages, leading to improved customer satisfaction.

Project Risk

Without adding additional capacity to this distribution system, connecting future customers will lead to overloading of the system and unacceptable system performance. Also, in the case of a distribution failure, it will become increasingly difficult to restore partial customer load and might reach a stage where more customers are without power until the failed system is replaced, which may be prolonged.



WBS Description: Reclosers for Circuit Reliability

WBS Element: E-0100-0000001

Business Area: Grid Transformation & Engineering

Executive: Brian Bartos

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$50,000,000

FY23: \$10,000,000

FY24: \$10,000,000

FY25: \$10,000,000

FY26: \$10,000,000

FY27: \$10,000,000

Project Description

This project is for the engineering and construction of electronic reclosers that isolate permanent faults and clear momentary outages on the 13 kilovolt (kV) and 35kV electric distribution system.

Project Justification

This project serves to fund multiple work requests created throughout the year for the entire system. Projects are needed to install electronic reclosers that reduce the amount of customers that are exposed to outages on the electric distribution system. The electronic recloser is a core component for distribution automation. This project supports the Energy Delivery Services business plan's reliability efforts, which are measured by the System Average Interruption Duration Index, System Average Interruption Frequency Index, and Customer Average Interruption Duration Index metrics.

Expected Benefits

Improves the reliability of the electric distribution system by isolating only the part of the distribution circuit that has experienced a problem. While customers in the isolated section are experiencing the outage all other customers will not be interrupted. This leads to improved customer satisfaction.

Project Risk

Poor circuit reliability is directly correlated to low customer satisfaction. Poor reliability can lead to economic decline, and / or shun big business from choosing San Antonio.



WBS Description: Downtown Network System Improvement

WBS Element: E-0105-0000001

Business Area: Grid Transformation & Engineering

Executive: Brian Bartos

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$10,270,532

FY23: \$2,500,914

FY24: \$2,500,914

FY25: \$5,268,704

FY26: \$0

FY27: \$0

Project Description

This project is for replacing aged equipment on the downtown electric network system.

Project Justification

This project is needed to replace network cable and equipment that have exceeded their life expectancy or are in danger of failing. Network systems are extremely reliable and customers on these systems have high expectations for reliability. This project helps us maintain that high level of reliability.

Expected Benefits

This project allows us to maintain integrity and reliability of the Downtown Electric Network System. It helps reduce outages which keeps our network customers satisfied.

Project Risk

Without this project we will have poor downtown electric network system reliability, resulting in dissatisfied downtown network customers.

WBS Description: Underground Facility System Improvements

WBS Element: E-0112-0000001

Business Area: Grid Transformation & Engineering

Executive: Brian Bartos

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$19,841,009

FY23: \$3,819,382

FY24: \$3,933,964

FY25: \$3,973,303

FY26: \$4,013,036

FY27: \$4,101,323

Project Description

This project is for installation of 3-phase underground infrastructure for the electric distribution system maintenance and improvements, which includes projects such as the underground circuit dips, riser relocates, highway crossings, and underground conversion projects.

Project Justification

This project is used for the installation of large 3-phase underground electric systems that are not part of a customer-driven project. This project is used in conjunction with the overhead distribution feeder project as well as various substation projects that are used to expand our capacity to serve an increasing customer load. This project serves to fund multiple overhead work requests created throughout the year for the entire system. These work requests increase circuit tie capacity, which allows for continued customer connections.

Expected Benefits

This project expands our capacity to serve customer load. It also makes it possible to restore power more quickly when there are outages by allowing feeders to pick up additional load when circuits are field-tied. These new tie connections help minimize outages, increase restoration capabilities, and customer satisfaction. It also allows us to repair and replace all older underground systems, such as the Medical Center.

Project Risk

Without adding additional capacity to this distribution system, connecting future customers will lead to overloading of the system and unacceptable system performance. Also, in the case of a distribution failure, it will become increasingly difficult to restore partial customer load when the adjacent feeders cannot handle the additional load. In this case, customers will be without power until the necessary repairs can be made, which may require a prolonged outage.



WBS Description: Cable Rehabilitation

WBS Element: E-0115-0000001

Business Area: Grid Transformation & Engineering

Executive: Brian Bartos

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$76,416,559

FY23: \$15,000,000

FY24: \$15,118,000

FY25: \$15,238,360

FY26: \$15,361,127

FY27: \$15,699,072

Project Description

This project is for rehabilitating or replacing of failing direct-buried underground cable systems in residential subdivisions and apartment complexes for improved reliability and customer satisfaction.

Project Justification

Underground cables that were installed in residential subdivisions and apartment complexes during the 1970's and 1980's were installed direct-buried (not in conduit) and are experiencing high failure rates resulting in excessive and prolonged power outages for customers served by these systems. This cable rehabilitation program is necessary for providing our customers with the service reliability levels that all customers expect and that we as a utility company should provide.

Expected Benefits

The benefits to be gained from this project are improved electric service reliability for our customers that are served by these systems, which will result in improved customer satisfaction. An additional benefit is the reduction of operations and maintenance costs associated with the service restoration effort that occurs when cables fail and cause power outages.

Project Risk

Without this project CPS Energy will have poor Underground Residential Distribution system reliability and poor customer satisfaction in these older subdivisions that still have direct buried cable. The level of reliability in these areas is unacceptable.

¹ Dollars exclude AFUDC
Competitive and Confidential Information



WBS Description: Overhead Distribution System Improvement-Circuit Patrol

WBS Element: E-0163-0000001

Business Area: Grid Transformation & Engineering

Executive: Brian Bartos

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$2,268,900

FY23: \$450,000

FY24: \$450,000

FY25: \$459,000

FY26: \$450,000

FY27: \$459,900

Project Description

Improvements or upgrades of overhead electric distribution infrastructure on all circuits as identified by the System Reliability Inspectors circuit patrols. Systematic patrols of all circuits, on a two year cycle, performed by the System Reliability Inspectors.

Project Justification

To improve reliability of the overhead electric distribution system. The items identified as a result of the circuit patrols are replaced to maintain system reliability. Items replaced by the patrol are typically wood poles, damaged cross arms, damaged insulators, etc. These items are replaced based upon priority in order to prevent customer outages.

Expected Benefits

- Maintains integrity and reliability of the overhead electric distribution system
- Improved reliability metrics including reducing duration and frequency of outages
- Improved customer satisfaction

Project Risk

- Reduced system reliability
- Reduced customer service satisfaction
- Potential increased costs

WBS Description: Overhead Electric Distribution System Improvement-Districts

WBS Element: E-0164-0000001

Business Area: Grid Transformation & Engineering

Executive: Brian Bartos

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$12,706,100

FY23: \$2,500,000

FY24: \$2,500,000

FY25: \$2,550,000

FY26: \$2,550,000

FY27: \$2,606,100

Project Description

Improvements / upgrades of overhead electric distribution infrastructure on all circuits as identified by the District's personnel (Foremen, Construction Managers, etc.).

Project Justification

To improve reliability of the overhead electric distribution system. The items identified as a result of the circuit patrols are replaced to maintain system reliability. Items replaced by the patrol are typically wood poles, damaged cross arms, damaged insulators, etc. These items are replaced based upon priority in order to prevent customer outages.

Expected Benefits

- Maintains integrity and reliability of the overhead electric distribution system
- Improved reliability metrics including reducing duration and frequency of outages
- Improved customer satisfaction

Project Risk

Approximately 33 switchgear breakers per year must be replaced to sustain a 35 year life cycle or an unmanageable number of replacements (asset wall) will develop over time. Current switchgear breaker population is approximately 1,600.



WBS Description: Joint Base San Antonio System (JBSA) Rehabilitation

WBS Element: E-0191-0000001

Business Area: Grid Transformation & Engineering

Executive: Brian Bartos

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$10,000,000

FY23: \$2,000,000

FY24: \$2,000,000

FY25: \$2,000,000

FY26: \$2,000,000

FY27: \$2,000,000

Project Description

This project is for installing of 3-phase underground infrastructure for the electric distribution system and improvements at our military bases.

Project Justification

This project is needed to make improvements to the underground electric distribution system at Lackland, Lackland Training Annex, West Kelly, Port San Antonio, Ft. Sam Houston, Camp Bullis, and Randolph. This system was taken over from the military, and much of it is old and not up to CPS Energy standards. These improvements can range from upgrades/replacements of facilities, buses, or any other infrastructure needing improvement due to aging conditions and/or specification updates.

Expected Benefits

This project allows us to rehab and replace parts of the underground electric distribution system at Lackland, Lackland Training Annex, and Randolph. This project will be necessary in order to meet our contractual obligation for privatizing the electric systems on these bases.

Project Risk

- We will be unable to meet our contractual obligation
- Could lose the contract for the bases.



WBS Description: Downtown Network Facility Rehabilitation

WBS Element: E-0193-0000001

Business Area: Grid Transformation & Engineering

Executive: Brian Bartos

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$3,581,250

FY23: \$1,193,750

FY24: \$1,193,750

FY25: \$1,193,750

FY26: \$0

FY27: \$0

Project Description

This project is for the replacing of aged equipment on the downtown electric network system that is directly related to manhole and vault inspections.

Project Justification

This project is needed to replace network cable and equipment that have exceeded their life expectancy or are in danger of failing. Network systems are extremely reliable and customers on these systems have high expectations for reliability. This project helps us maintain that high level of reliability.

Expected Benefits

This project allows us to maintain integrity and reliability of the downtown electric network system. It helps reduce outages which keeps our network customers satisfied.

Project Risk

Without this project we will have poor downtown electric network system reliability, resulting in dissatisfied downtown network customers.

WBS Description: Underground Feeder Replacement

WBS Element: E-0217-0000001

Business Area: Grid Transformation & Engineering

Executive: Brian Bartos

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$4,967,075

FY23: \$958,165

FY24: \$986,910

FY25: \$1,000,000

FY26: \$1,000,000

FY27: \$1,022,000

Project Description

Replace substation circuit exit cables at various substations within the service territory.

Project Justification

The exit cables under this project have been identified as part of the infrastructure modernization plan based on the age of cable. This will ensure that a 40 year life cycle for exit cables is maintained.

Expected Benefits

The number of customer outages will be reduced with proactive exit cable replacement as they reach the end of their service life.

Project Risk

Poor underground system reliability. A failure on the substation exit cable impacts every customer on that circuit. Load can generally be picked up by performing field switching. However, this operation takes an extended period of time to complete. The intent of this project is to minimize customer impact by proactively replacing cable prior to failure.

WBS Description: Downtown Network - Network Protector VaultGard Supervisory Control and Data Acquisition

WBS Element: E-0266-0000001

Business Area: Grid Transformation & Engineering

Executive: George Tamez

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$12,250,000

FY23: \$2,450,000

FY24: \$2,450,000

FY25: \$2,450,000

FY26: \$2,450,000

FY27: \$2,450,000

Project Description

The project serves to fund ten (10) work requests throughout the year for the installation of 10 complete systems in 10 vaults. The following sensors and components will be installed: medium voltage interrupter (MVI) switches to each transformer, communicating transformer sensors, fire detecting sensors, sudden pressure sensors, secondary voltage switches, transformer monitoring, network protector monitoring and a Supervisory Control and Data Acquisition (SCADA) control system. With the utilization of these components, high thermal events and transformer/equipment faults, outages will be mitigated at the vault level and not impact the entire network level. The VaultGard system will also provide SCADA for the network system.

Project Justification

Provide transformer gauge and network protector load data for end of life asset determination. Provide visibility, automation, control and data acquisition for the downtown network system while improving safety and reliability.

Expected Benefits

- High Thermal Event System (HTES) is the next step, after the VaultGard, towards Downtown network system monitoring and control of network assets in vaults. HTES installs communicating transformer gauges, fire detector sensors, ground fault sensors, kill switch, HMI control enclosure and remote control via VaultGard
- Establish monitoring and control of valuable assets in the downtown vaults such as transformer switches, network protector open/close, and secondary switches
- Minute-to-minute equipment monitoring and immediate automatic problem notification.
- Data acquisition and access via PI historian software

Project Risk

- No visibility into the downtown network vaults until the next maintenance cycle
- Does not include the VaultGard Gateway communication device which connects to our SCADA system via downtown Network Protector 3 protocol or the battery back up system
- Equipment visibility once per year during inspection
- Must be installed concurrently with the VaultGard and battery backup project or installed after the VaultGard in order to achieve the full reporting capability
- Reliability risk due to a high thermal event (fire) or catastrophic equipment failure



WBS Description: Fault Location and Isolation Service Restoration (FLISR)

WBS Element: E-0269-0000001

Business Area: Grid Transformation & Engineering

Executive: Brian Bartos

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$3,750,000

FY23: \$750,000

FY24: \$750,000

FY25: \$750,000

FY26: \$750,000

FY27: \$750,000

Project Description

Implementation of a distribution automation application, FLISR, will offer remote monitoring and control capabilities on strategic field devices and combine power flow models and the Geographic Information System (GIS) to analyze system conditions.

Project Justification

This project permits remote monitoring and control capabilities on strategic field devices, combined power flow models, and GIS to analyze system conditions.

Expected Benefits

FLISR is an automation application that detects a fault on the distribution system, isolates the fault, and quickly restores service to customers connected on unaffected portion of the feeder automatically or with system operator intervention. FLISR will automatically detect faults and restore service to as many customers as possible following detection of a fault. Additionally, FLISR functions will assist in improving System Average Interruption Duration Index and Customer Average Interruption Duration Index reliability indices as well as improve feeder configurations.

Project Risk

Not investing in FLISR will expose CPS Energy to:

- Falling behind industry direction with inability to remotely monitor or control the electric distribution system
- Underutilizing the ability of current devices and systems to respond to conditions of the electric distribution system
- Customers choosing to invest elsewhere due to dissatisfaction with system capabilities and staff abilities.

¹ Dollars exclude AFUDC
Competitive and Confidential Information



WBS Description: LED Streetlight Transition and Billing

WBS Element: E-0270-0000001

Business Area: Grid Transformation & Engineering

Executive: Brian Bartos

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$12,500,000

FY23: \$2,500,000

FY24: \$2,500,000

FY25: \$2,500,000

FY26: \$2,500,000

FY27: \$2,500,000

Project Description

CPS Energy has changed the standard of lighting within its service territory from high pressure sodium-vapor (HPS) to light emitting diodes (LED). CPS Energy's strategy for cost recovery includes changing out the previous HPS light with a new LED light.

Project Justification

The replacement HPS lights with an LED light is a capital expense and no longer an operations and maintenance expense. This project captures the capital cost associated with changing out the lights and processing necessary to update map and billing records. The new LED lights have a different billing rate than the previous HPS due to initial cost of the light fixture and energy cost savings of the higher efficiency LED.

Expected Benefits

Accurate mapping and billing of streetlights to City of San Antonio, suburban cities, county and other customers.

Project Risk

Inaccurate, out of date billing to customers.



WBS Description: Underground Line Strategy

WBS Element: E-0274-0000001

Business Area: Grid Transformation & Engineering

Executive: Brian Bartos

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$76,907,180

FY23: \$10,000,000

FY24: \$10,000,000

FY25: \$16,907,180

FY26: \$20,000,000

FY27: \$20,000,000

Project Description

A reliability based program that targets areas of the service territory that will benefit from undergrounding.

Project Justification

The intensity of storms within our territory over the past year impacted the frequency and duration of outages on the overhead distribution system. The overhead distribution system is more susceptible to weather, vegetation, animals and, vehicles which negatively impacts customer satisfaction and reliability.

Expected Benefits

By undergrounding areas that experience frequent outages due to vegetation or extended outages due to inaccessibility, we will improve reliability and customer satisfaction. In order to achieve the best value, we will select target areas that provide the most reliability improvement to the greatest number of customers at the lowest cost.

Project Risk

If undergrounding is not included as part of a wider resiliency strategy that includes vegetation management, distribution automation, and other initiatives, reliability may not improve to acceptable levels.



WBS Description: Pole Replacement

WBS Element: E-0304-0000001

Business Area: Grid Transformation & Engineering

Executive: Brian Bartos

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$45,461,217

FY23: \$9,092,243

FY24: \$9,092,243

FY25: \$9,092,243

FY26: \$9,092,243

FY27: \$9,092,243

Project Description

Replacement of poles that have been identified as rotted or damaged. These poles are identified by a planned inspection program that includes a ground line inspection contractor which utilizes resistograph technology to identify poles that need to be replaced.

Project Justification

This project is needed to replace wood poles and pole top equipment that have exceeded their life expectancy or are in danger of failing. This project is predominantly used for rehabilitation and replacement of wood poles that are approaching or above the 40 years of age.

Expected Benefits

- Maintains integrity and reliability of the poles that support the overhead electric distribution system and public safety
- The end result of the inspection, treatment and replacement program is the establishment of a continuing maintenance program for extending the service life of all poles in the system.

Project Risk

Wood poles have a vulnerability to decay based on the location and age of the pole. If poles cannot be replaced then there will be no way to ensure that deficient poles will be replaced in a timely manner. If poles are not replaced, public safety and reliability of the electric distribution system is at risk.

Special Projects



WBS Description: Distribution Automation Equipment

WBS Element: E-0154-0000001

Business Area: Grid Transformation & Engineering

Executive: Brian Bartos

Strategic Category: Special Projects

Project Cost: ¹ \$5,000,000

FY23: \$1,000,000

FY24: \$1,000,000

FY25: \$1,000,000

FY26: \$1,000,000

FY27: \$1,000,000

Project Description

This project is for the engineering and installation of devices, radio communications, and software that will automate the distribution system.

Project Justification

This project will install intelligent devices in substations and on distribution feeders that will provide data to system operations and engineering. This will lead to an enhanced system operation that allows for improved system efficiencies and reduced outage durations. Since this data is currently unavailable, intelligent devices and communications infrastructure will be installed so the data can be transmitted to our energy management center for real time and historic use. Increasing the automation efforts will also allow the leveraging of the existing field devices and Supervisory Control and Data Acquisition (SCADA) systems. Distribution automation is a component of the smart grid direction that the electric industry is taking, and will allow for better use of existing assets. This direction will help our customers directly (reliability) and indirectly (environmental impact).

Expected Benefits

- Data will be used to monitor system performance and respond to disturbances quickly
- When there is a disturbance, the intelligence added to the system will lead to quicker isolation and self restoration
- Fuller utilization of investments in SCADA, intelligent field devices, and communications infrastructure
- More efficient system with lower losses that reduce the cost and environmental impact

Project Risk

Not investing in Distribution Automation will expose CPS Energy to:

- falling behind industry direction with inability to remotely monitor or control the electric distribution system
- underutilizing the ability of current devices and systems to respond to conditions of the electric distribution system
- customers choosing to invest elsewhere due to dissatisfaction with system capabilities and staff abilities.



WBS Description: Distributed Generation

WBS Element: E-0176-0000001

Business Area: Grid Transformation & Engineering

Executive: Brian Bartos

Strategic Category: Special Projects

Project Cost: ¹ \$1,718,854

FY23: \$343,771

FY24: \$343,771

FY25: \$343,771

FY26: \$343,771

FY27: \$343,771

Project Description

This project is for the engineering and installation of overhead facility improvements, devices, radio communications, and software that will automate the distribution system as a result from distributed generation additions to the distribution system.

Project Justification

This project will install intelligent devices in substations and on distribution feeders that will provide data to system operations and engineering. This will lead to an enhanced system operation that allows for improved system efficiencies and reduced outage durations. Since this data is currently unavailable, intelligent devices and communications infrastructure will be installed so that data can be transmitted to our energy management center for real-time and historic use. Increasing the automation efforts will also allow the leveraging of the existing field devices and Supervisory Control and Data Acquisition (SCADA) systems. Distribution automation is a component of the smart grid direction that the electric industry is taking and will allow for better use of existing assets. This direction will help our customers directly (reliability) and indirectly (environmental impact).

Expected Benefits

- Data will be used to monitor system performance and respond to disturbances quickly
- When there is a disturbance, the intelligence added to the system will lead to quicker isolation and self-restoration
- Fuller utilization of investments in SCADA, intelligent field devices, and communications infrastructure
- More efficient system with lower losses that reduce the cost and environmental impact

Project Risk

- Falling behind industry standards with inability to remotely monitor or control the electric distribution system
- Under utilizing the ability of current devices and systems to respond to conditions of electric distribution system
- Customers that are dissatisfied with system capabilities and staff abilities might lead them to invest in other locations



WBS Description: Bullet Sleeve Replacement

WBS Element: E-0307-0000001

Business Area: Grid Transformation & Engineering

Executive: Brian Bartos

Strategic Category: Special Projects

Project Cost: ¹ \$14,930,060

FY23: \$5,961,024

FY24: \$5,961,024

FY25: \$3,008,012

FY26: \$0

FY27: \$0

Project Description

Replacement of splices that have been identified over major highways. These splices have been identified by an inspection program that identified specific splice connections that have a known failure rate.

Project Justification

This project is needed to replace major highway crossings that are in danger of failing.

Expected Benefits

Maintains integrity and reliability of the overhead electric distribution system and public safety.

Project Risk

If splices are not replaced, public safety and reliability of the electric distribution system is at risk.



WBS Description: Electric Vehicle (EV) Charging Station Upgrades

WBS Element: U-1005-0000005

Business Area: Grid Transformation & Engineering

Executive: George Tamez

Strategic Category: Special Projects

Project Cost: ¹ \$500,000

FY23: \$0

FY24: \$250,000

FY25: \$250,000

FY26: \$0

FY27: \$0

Project Description

This project will upgrade our utility owned public EV charging network. We will upgrade all Chargepoint CT2000 models to the newer CT4000 model.

Project Justification

This upgrade will provide a working network to all EV drivers and subscribers to our EV flat rate program.

Expected Benefits

This project will provide safe and reliable charging access for the nearly 800 EV drivers in the San Antonio area.

Project Risk

There is a risk to CPS Energy's reputation from not making these upgrades and leaving aging inventory out in the marketplace.

¹ Dollars exclude AFUDC
Competitive and Confidential Information

System Growth



WBS Description: Pre-Capitalization Voltage Regulators

WBS Element: D-0700-0000001

Business Area: Grid Transformation & Engineering

Executive: Brian Bartos

Strategic Category: System Growth

Project Cost: ¹ \$1,500,000

FY23: \$300,000

FY24: \$300,000

FY25: \$300,000

FY26: \$300,000

FY27: \$300,000

Project Description

This project is for the purchase and installation of voltage regulators for consistent voltage on the electric distribution system. These voltage regulators are pre-capitalized and therefore budgeted under their own project number.

Project Justification

This project is for the purchase of voltage regulator banks to facilitate more efficient operation of the electric distribution system. These regulators improve voltage throughout the electric system where they are connected and are necessary to meet the Institute of Electrical and Electronics Engineers (IEEE) / American National Standards Institute (ANSI) voltage range requirements. Voltage regulators are pre-capitalized and therefore budgeted under their own project number.

Expected Benefits

- Increased electric system efficiency by reducing losses and returning capacity
- Reduced power generation cost by reducing reactive demands
- Improved system voltage which contributes to customer satisfaction

Project Risk

Risks associated with not installing voltage regulators include:

- Non-compliance with IEEE / ANSI voltage level requirements that leads to inadequate electric distribution system voltage levels
- Customer power quality and satisfaction issues.

- Inefficient electric system



WBS Description: Pre-Capitalization Network Protectors

WBS Element: D-0720-0000001

Business Area: Grid Transformation & Engineering

Executive: Brian Bartos

Strategic Category: System Growth

Project Cost: ¹ \$3,456,472

FY23: \$1,138,215

FY24: \$1,147,555

FY25: \$1,170,702

FY26: \$0

FY27: \$0

Project Description

Purchase and Installation of 3-phase network protectors for transformers connected to the downtown network system.

Project Justification

This project is for the purchase and Installation of 3-phase network protectors for transformers connected to the downtown network system. These network protectors are pre-capitalized and therefore are budgeted under their own project number. One network protector is attached to each transformer on the downtown network, where they maintain the integrity and reliability of the downtown network system by isolating failed equipment.

Expected Benefits

This project allows us to connect new customers to the downtown electric network system, which increases revenue. It also allows us to replace network protectors that fail, or are about to fail, which increases our reliability and maintains customer satisfaction.

Project Risk

Without this project CPS Energy will be unable to connect new electric customers in the downtown network system. CPS Energy will also be unable to maintain a network protector inventory to support existing downtown network customers (e.g. replacement of failed network protectors).

¹ Dollars exclude AFUDC
Competitive and Confidential Information



WBS Description: Underground Street Light for City of San Antonio (COSA) / Suburban Cities

WBS Element: E-0066-0000001

Business Area: Grid Transformation & Engineering

Executive: Brian Bartos

Strategic Category: System Growth

Project Cost: ¹ \$17,781,305

FY23: \$3,354,714

FY24: \$3,455,355

FY25: \$3,559,016

FY26: \$3,665,786

FY27: \$3,746,434

Project Description

This project is used for installing streetlights for the COSA, suburban cities, and other entities within Bexar County.

Project Justification

This project is for the installation of underground fed streetlights, predominantly within the COSA. In addition, the project is used for streetlights within other municipalities and in Bexar County.

Expected Benefits

This project allows us to help COSA and other municipalities meet their obligation of providing street lighting for the community.

Project Risk

Without this project we will be unable to install new streetlights within the city limits of COSA or surrounding areas. This will make newer roadways hazardous to drive due to inadequate lighting. Customer satisfaction will decrease.



WBS Description: Electric Overhead Improvements

WBS Element: E-0087-0000001

Business Area: Grid Transformation & Engineering

Executive: Brian Bartos

Strategic Category: System Growth

Project Cost: ¹ \$5,000,000

FY23: \$1,000,000

FY24: \$1,000,000

FY25: \$1,000,000

FY26: \$1,000,000

FY27: \$1,000,000

Project Description

Replacement of overhead electric facilities that have been identified via visual field inspections. These projects are prioritized and the necessary work is completed throughout the overhead electric distribution system.

Project Justification

This project serves to fund multiple work requests created throughout the year for upgrading aging infrastructure on the entire overhead distribution system. Projects are needed to replace infrastructure that will lead to an outage during normal and/or storm conditions, or is at the end of life requiring replacement.

Expected Benefits

This project is necessary to maintain the integrity and reliability of the overhead electric distribution system, resulting in reduced outages and customer satisfaction.

Project Risk

Inability to provide acceptable electric service to existing customer base, which leads to dissatisfied customers.



WBS Description: Overhead System Voltage Conversions

WBS Element: E-0092-0000001

Business Area: Grid Transformation & Engineering

Executive: Brian Bartos

Strategic Category: System Growth

Project Cost: ¹ \$20,742,918

FY23: \$8,303,538

FY24: \$6,652,862

FY25: \$1,349,239

FY26: \$2,194,500

FY27: \$2,242,779

Project Description

This project covers the engineering and construction of voltage conversion of overhead 13 kilovolt (kV) distribution circuits to 35kV, which increase circuit capacity.

Project Justification

This project serves to fund multiple work requests created throughout the year for the entire system. These work requests increase circuit capacity which allows for continued customer connection. This new capacity can defer new substation and new transformer additions. Also, voltage conversions enable the system to be interconnected for maintenance and efficient outage restoration by creating circuit ties. These projects also serve as a core component for automation projects that will reduce outage duration and improve customer satisfaction.

Expected Benefits

- Increased circuit capacity from reduced current loads allowing additional customer connections
- Defers need for new substations and new power transformers
- Provides platform for distribution automation

Project Risk

Without adding additional capacity to this distribution system, connecting future customers will lead to an overload of the system and unacceptable system performance. Also, in the case of a distribution failure, it will become increasingly difficult to restore partial customer load and might reach a stage where more customers are without power until the failed system is replaced, which may be prolonged.



WBS Description: New Feeder Circuits for Growth

WBS Element: E-0093-0000001

Business Area: Grid Transformation & Engineering

Executive: Brian Bartos

Strategic Category: System Growth

Project Cost: ¹ \$26,411,462

FY23: \$5,995,082

FY24: \$7,485,530

FY25: \$6,763,750

FY26: \$3,050,000

FY27: \$3,117,100

Project Description

This project covers the engineering and construction of overhead electric distribution feeder circuits for both 13 kilovolt (kV) and 35kV voltage classes. Many of the projects are aligned with new substations, power transformer additions and switchgear additions. Projects are closely aligned with underground project E-0217.

Project Justification

This project serves to fund multiple work requests created throughout the year for the entire system. These projects are needed to provide new circuits for increasing customer base. This project directly supports new substations, new transformer additions, and additional feeders added to existing substations. New circuits are a long-term solution to appropriately provide adequate voltage levels at the end of the line.

Expected Benefits

- Maintains integrity and reliability of the overhead electric distribution system by providing increased capacity for growing customer base
- Leads to increased revenues through customer growth and improved customer satisfaction

Project Risk

Without adding additional capacity to this distribution system, connecting future customers will lead to overloading of the system and unacceptable system performance. Also, in the case of a distribution failure, it will become increasingly difficult to restore partial customer load and might reach a stage where more customers are without power until the failed system is replaced, which may be prolonged.



WBS Description: Upgrade Conductor

WBS Element: E-0098-0000001

Business Area: Grid Transformation & Engineering

Executive: Brian Bartos

Strategic Category: System Growth

Project Cost: ¹ \$43,071,395

FY23: \$7,446,104

FY24: \$4,848,629

FY25: \$9,894,861

FY26: \$10,327,300

FY27: \$10,554,501

Project Description

This project is for the engineering and construction for the installation of larger conductor for existing 13 kilovolt (kV) and 35kV overhead electric distribution feeder circuits.

Project Justification

This project serves to fund multiple work requests created throughout the year for the entire system. These work requests increase circuit capacity which allows for continued customer connection. This new capacity can defer new substation and new transformer additions. Also, reconductoring enables the system to be interconnected for maintenance and efficient outage restoration by creating circuit ties. These projects also serve as a core component for automation projects that will reduce outage duration and improve customer satisfaction.

Expected Benefits

- Increased circuit capacity from reduced current loads allowing additional customer connections
- Defers the need for new substations and new power transformers
- Provides platform for distribution automation

Project Risk

Without adding additional capacity to this distribution system, connecting future customers will lead to overloading of the system and unacceptable system performance. Also, in the case of a distribution failure, it will become increasingly difficult to restore partial customer load and might reach a stage where more customers are without power until the failed system is replaced, which may be prolonged.

WBS Description: Underground New Feeder Circuits/Substation

WBS Element: E-0216-0000001

Business Area: Grid Transformation & Engineering

Executive: Brian Bartos

Strategic Category: System Growth

Project Cost: ¹ \$18,865,641

FY23: \$3,784,956

FY24: \$4,577,600

FY25: \$5,043,685

FY26: \$2,700,000

FY27: \$2,759,400

Project Description

This project covers the engineering and construction of underground electric distribution feeder circuits for both 13 kilovolt (kV) and 35kV voltage classes. Many of the projects are aligned with new substations, power transformer additions and switchgear additions.

Project Justification

This project serves to fund multiple work requests created throughout the year for the entire system. The work done under this project is related to feeder exit circuits coming from our substations and tie circuits within the substation. This project directly supports new substations, new transformer additions, and additional feeders added to existing substations. This project is used in conjunction with the overhead distribution feeder project (E-0093) as well as various substation projects that are used to expand our capacity to serve an increasing customer load.

Expected Benefits

This project serves to fund multiple work requests created throughout the year related to substations feeder exit circuits and tie circuits within the substation. This project directly supports new substations, new transformer additions and additional feeders added to existing substations. This project is used in conjunction with the overhead distribution feeder project (E-0093) as well as various substation projects that are used to expand our capacity to serve an increasing customer load.

Project Risk

This project maintains the integrity and reliability of the electric distribution system by providing increased capacity for a growing customer base. It also leads to increased revenues through customer growth and improved customer satisfaction. Without adding additional capacity to the distribution system, connecting future customers will lead to system overloads and unacceptable system performance. Without system enhancements, customer outage restoration will become increasingly difficult and outages will become more prolonged.



WBS Description: Extend Underground In Downtown San Antonio

WBS Element: E-0306-0000001

Business Area: Grid Transformation & Engineering

Executive: Brian Bartos

Strategic Category: System Growth

Project Cost: ¹ \$12,096,696

FY23: \$2,096,696

FY24: \$2,500,000

FY25: \$2,500,000

FY26: \$2,500,000

FY27: \$2,500,000

Project Description

This project is to serve future development of the Hemisfair area which includes upgrades of overhead lines and to underground facilities along the border of the network system.

Project Justification

This project is needed to provide new circuits for increasing customer base at the Hemisfair Park redevelopment. This project directly supports upgrades and additional feeders adding to existing substations. New circuits are a long-term solution to appropriately provide adequate voltage levels and circuit options.

Expected Benefits

Maintains integrity and reliability of the electric distribution system. Completed projects will reduce frequency and duration of outages, leading to improved customer satisfaction.

Project Risk

Without adding additional capacity to this distribution system, connecting future customers will lead to overloading of the system and unacceptable system performance. In the case of a distribution failure, it will become increasingly difficult to restore partial customer load. It may reach a stage where more customers are without power until the failed system is replaced, which may be an extended outage.

¹ Dollars exclude AFUDC
Competitive and Confidential Information

Integrated Security

Infrastructure Modernization





WBS Description: MyID Replacement

WBS Element: NEW_16

Business Area: Integrated Security

Executive: Brandon Pixley

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$1,600,000

FY23: \$0

FY24: \$0

FY25: \$1,600,000

FY26: \$0

FY27: \$0

Project Description

The FY23 dollars will be used to replace CPS Energy's current Identity Management Solutions and the FY 24-26 dollars will be used for operation and maintenance.

Project Justification

This project is part of the Supervisory Control and Data Acquisition Equipment (SCADA) roadmap program which will include an upgrade to mitigate hardware as part of Phase 1, process improvements for Phase 2 and replacement of Focal Point as part of a minor upgrade. The request for proposal for evaluation of SCADA systems for possible consolidation and improved adherence to CPS Energy IT standards. Upgrade/Replacement needed to remain in National Institute of Standards and Technology (NIST) compliance for security and patch requirements along with new features needed to support FlexPOWERBundle and Operations.

Expected Benefits

A more modern solution allows for companies to Enhance Data Security, Streamline IT Workloads, improve regulatory compliance, reduce human errors, and more effectively management access to resources.

Project Risk

CPS Energy's current Identity management solution is very customized and limits our ability to perform true identity management functions (ex: system integration). We can remain on our current platform until FY24 or FY25 however we will not be able to lower our identity management risks until then.

¹ Dollars exclude AFUDC
Competitive and Confidential Information



WBS Description: IT/OT Interface (dragos)

WBS Element: NEW_17

Business Area: Integrated Security

Executive: Brandon Pixley

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$550,000

FY23: \$550,000

FY24: \$0

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

This project will be used to expand our current Dragos sensors coverage and pay for Reactive/Proactive Support, and maintenance

Project Justification

The dragos platform is an industrial controls systems cybersecurity technology that provide comprehensive visibility of our industrial controls system environment and operational technology assets, and track the threats facings those areas.

Expected Benefits

Improved visibility into Supervisory control and data acquisition (SCADA) networks like Energy Supply & Market Operations (ESMO), Energy Delivery System (EDS), and Power Generation.

Project Risk

CPS Energy currently has limited visibility into our operational technology assets (ie. Field devices and SCADA). This project allows for us to expand our current implementation of our Dragos sensors.



WBS Description: Managed Detection & Response

WBS Element: NEW_18

Business Area: Integrated Security

Executive: Brandon Pixley

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$850,000

FY23: \$850,000

FY24: \$0

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

This company will be used as our first of defense monitoring our Endpoint Detection and Response tool 24/7 and sending any active threats that they cannot mitigate to our 24/7 SOC.

Project Justification

Cybersecurity events can occur in less than a second and CPS Energy needs the ability to make split second decisions and managed detection and response providers provide us the ability to do just that 24x7x365.

Expected Benefits

Mitigate threats 24/7

Project Risk

CPS Energy is a prime target for foreign advisories to attack because of the Department of Defense presence in San Antonio and the fact that we are the largest municipally owned Gas and Electric utility in the U.S.

Special Projects





WBS Description: Security Tools Refresh

WBS Element: I-5000-1002000

Business Area: Integrated Security

Executive: Brandon Pixley

Strategic Category: Special Projects

Project Cost: ¹ \$9,355,000

FY23: \$0

FY24: \$1,800,000

FY25: \$2,500,000

FY26: \$2,500,000

FY27: \$2,555,000

Project Description

Identify, procure and implement new security technology.

Project Justification

Evolving network attack vectors requires refreshing of security technology. Many of the security technology that is deployed within CPS Energy is old and outdated. Also, some of these tools are not best of breed or best in class. CPS Energy needs to identify and implement security tools that can face a diverse and ever changing security threat landscape.

Expected Benefits

Identify and implement security tools that can face a diverse and ever changing security threat landscape.

Project Risk

Potential that CPS Energy will not be able to identify and address new security threats.

¹ Dollars exclude AFUDC
Competitive and Confidential Information



WBS Description: Physical Security Fencing

WBS Element: I-5000-1002101

Business Area: Integrated Security

Executive: Joshua Dean

Strategic Category: Special Projects

Project Cost: ¹ \$3,217,369

FY23: \$655,195

FY24: \$805,195

FY25: \$581,396

FY26: \$581,396

FY27: \$594,187

Project Description

Replace existing fencing with new anti-climb fencing.

Project Justification

Improve the protection of critical substations that will most likely be pulled into North American Electric Reliability Corporation (NERC) audits.

Expected Benefits

With the fiber detection system and this new fencing in place, Integrated Security will be able to provide better security to facilities as well as provide better protection of CPS Energy assets.

Project Risk

Eliminating this initiative significantly increases the opportunity for serious compromise and higher operating costs for a required guard presence. Specific sites for fencing replacement were selected after careful study and determination of valid risk factors.

¹ Dollars exclude AFUDC
Competitive and Confidential Information

WBS Description: Physical Security Cameras

WBS Element: I-5000-1002102

Business Area: Integrated Security

Executive: Joshua Dean

Strategic Category: Special Projects

Project Cost: ¹ \$4,111,239

FY23: \$871,805

FY24: \$1,029,805

FY25: \$731,181

FY26: \$731,181

FY27: \$747,267

Project Description

Replace older analog cameras with more modern internet protocol cameras for better monitoring.

Project Justification

Newer, modern cameras will provide better surveillance equipment for CPS Energy's guards and investigators as well as better security for CPS Energy locations and property. Current analog cameras are at end-of-life and need to be replaced.

Expected Benefits

Better video for investigations as well as better remote monitoring capabilities.

Project Risk

The current camera equipment is aging and is not able to meet CPS Energy's security needs and demands. Couple this with existing threats, maintenance/service and out-of-service costs, the impact significantly outweighs the budget design to not only relieve risks, but meet industry standards. The aim is to deploy an intelligent camera system that reduces the number of deployed cameras and significantly enhance monitoring, validation and response system. Ultimately deployment will reduce costs associated with independent intrusion and response systems. Overall, elimination or reduction of camera replacements would have short- and long-term effects on CPS Energy.



WBS Description: Threat Intelligence Platform

WBS Element: I-5000-1002202

Business Area: Integrated Security

Executive: Brandon Pixley

Strategic Category: Special Projects

Project Cost: ¹ \$295,000

FY23: \$295,000

FY24: \$0

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

A platform to automate threat intelligence data received by CPS Energy.

Project Justification

Currently, CPS Energy Integrated Security staff manually reviews threat intelligence data for any threats facing CPS Energy's infrastructure. Automation from threat intelligence platform will allow for data to be processed and handed over to asset owners in a more timely fashion.

Expected Benefits

Centralized reporting and dissemination of threats facing CPS Energy. This tool will help consolidate threats being pushed out to the organization.

Project Risk

Financial constraints, project constraints (availability), and platform interoperability.

¹ Dollars exclude AFUDC
Competitive and Confidential Information



WBS Description: Cyber Risk Information Sharing Program (CRISP)

WBS Element: I-5000-1002203

Business Area: Integrated Security

Executive: Brandon Pixley

Strategic Category: Special Projects

Project Cost: ¹ \$265,000

FY23: \$0

FY24: \$265,000

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

CRISP is an initiative that delivers real-time relevant and actionable information to the electricity industry.

Project Justification

CRISP is the Electricity-Information Sharing and Analysis Center (E-ISAC) program for gathering intelligence data and detecting threats that are specifically targeting the electric utility sector. This device will be installed in CPS Energy's environment and allow for the E-ISAC to monitor information flowing in and out of the environment, and that data will be correlated with the department of homeland security's threat database and also other CRISP participants.

Expected Benefits

Threat intelligence reporting that can only be analyzed by the department of energy and the department of homeland security.

Project Risk

Financial constraints, project constraints (availability), and platform interoperability.

¹ Dollars exclude AFUDC
Competitive and Confidential Information



WBS Description: Identity Management System

WBS Element: I-5000-1012001

Business Area: Integrated Security

Executive: Brandon Pixley

Strategic Category: Special Projects

Project Cost: ¹ \$1,600,000

FY23: \$1,600,000

FY24: \$0

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Identify, procure and deploy an updated Identity Management System.

Project Justification

CPS Energy's Identity Management System (MyID) has reached its end of use at CPS Energy and is needing to be replaced. Enterprise Information Technology Security is looking to purchase a system to help solve some of current technical gaps that are needing to be addressed.

Expected Benefits

Improved provisioning and deprovisioning of identities to include more direct systems, ability to support Multi-Factor Authentication keys, improved adherence to compliance requirements (a Request For Information will help determine this applicability).

Project Risk

CPS Energy will continue utilizing the current Identity Management Solution AlertEnterprise.



WBS Description: Managed Endpoint Services

WBS Element: I-5000-1012002

Business Area: Integrated Security

Executive: Brandon Pixley

Strategic Category: Special Projects

Project Cost: ¹ \$1,600,000

FY23: \$1,600,000

FY24: \$0

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Identify, procure and deploy a managed endpoint security service.

Project Justification

CPS Energy currently has multiple endpoint protection tools and Enterprise Information Technology Security is looking to consolidate those tools into one service and have that service be managed 24x7 by a third party service provider.

Expected Benefits

24x7 coverage, expanded team support, and greater visibility into endpoints with less impact on processing power.

Project Risk

CPS Energy will continue utilizing its current endpoint solutions without any consolidation of resources and funds.



WBS Description: Dragos Sensor Expansion

WBS Element: I-5000-1012003

Business Area: Integrated Security

Executive: Brandon Pixley

Strategic Category: Special Projects

Project Cost: ¹ \$500,000

FY23: \$500,000

FY24: \$0

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Expansion of Dragos Neighborhood Keeper.

Project Justification

CPS Energy currently utilizes Dragos Neighborhood Keeper in the Gas environment and these funds will help expand Dragos into other parts of the Supervisory control and data acquisition (SCADA) environments.

Expected Benefits

Improved visibility into SCADA networks like Energy Supply & Market Operations (ESMO), Energy Delivery System (EDS), and Power Generation.

Project Risk

CPS Energy will continue to have a security gap when it comes to visibility of SCADA and industrial control system (ICS) Equipment.

Military Strategic Cooperation & Support

Infrastructure Modernization





WBS Description: Joint Base San Antonio (JBSA) Lackland - Transformer Replacements

WBS Element: J-0010-0000001

Business Area: Military Strategic Cooperation & Support

Executive: Jake Bissell

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$419,112

FY23: \$419,112

FY24: \$0

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Four buildings located on Joint Base San Antonio (JBSA) Lackland are served by primary, 15 kilovolt (kV) transformers installed inside of a mechanical room of the buildings. The seven transformers serving these buildings will be removed and replaced with new pad mounted transformers installed outside of the buildings, thus moving the Contract defined Point of Demarcation outside of the Government owned buildings.

Project Justification

CPS Energy does not install or maintain primary electrical equipment inside of customer owned facilities. In order to ensure CPS Energy employees have safe and unimpeded access to the equipment, the location of the transformers serving these buildings will be moved outside of the building envelope.

Expected Benefits

The project will allow CPS Energy to bring this portion of the JBSA electrical distribution system up to CPS Energy standards as outlined in the approved Initial System Deficiency Correction (ISDC) submittal.

Project Risk

If we are not able to complete these improvements, we will not be in compliance with the terms of the 50-year contract we executed with the Defense Logistics Agency.



WBS Description: Joint Base San Antonio (JBSA)-Randolph-50YR-Electric

WBS Element: J-0013-0000001

Business Area: Military Strategic Cooperation & Support

Executive: Jake Bissell

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$420,243

FY23: \$80,600

FY24: \$82,280

FY25: \$83,994

FY26: \$85,741

FY27: \$87,628

Project Description

Estimated capital spend for planned equipment replacement on the electrical system at Joint Base San Antonio Randolph under the Joint Base San Antonio Utilities Privatization Contract based on the Contract Pricing model.

Project Justification

As part of the services provided to JBSA under the JBSA Utilities Privatization Contract, CPS Energy will replace failing/defective equipment with new equipment meeting CPS Energy standards to modernize JBSA utility distribution systems. This work is recovered through the Utility Service Charge which is calculated based on the Contract Pricing Model.

Expected Benefits

Improved system performance and compliance with the Utilities Privatization Contract.

Project Risk

If we are not able to complete these improvements, we will not be in compliance with the terms of the 50-year contract we executed with the Defense Logistics Agency.



WBS Description: Joint Base San Antonio (JBSA)-Lackland-50YR-Electric Renewals & Replacement

WBS Element: J-0014-0000001

Business Area: Military Strategic Cooperation & Support

Executive: Jake Bissell

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$412,208

FY23: \$79,000

FY24: \$80,680

FY25: \$82,394

FY26: \$84,141

FY27: \$85,993

Project Description

Estimated capital spend for planned equipment replacement on the electrical system at Joint Base San Antonio Lackland under the Joint Base San Antonio Utilities Privatization Contract based on the Contract Pricing model.

Project Justification

As part of the services provided to JBSA under the JBSA Utilities Privatization Contract, CPS Energy will replace failing/defective equipment with new equipment meeting CPS Energy standards to modernize JBSA utility distribution systems. This work is recovered through the Utility Service Charge which is calculated based on the Contract Pricing Model.

Expected Benefits

Improved system performance and compliance with the Utilities Privatization Contract.

Project Risk

If we are not able to complete these improvements, we will not be in compliance with the terms of the 50-year contract we executed with the Defense Logistics Agency.



WBS Description: Joint Base San Antonio (JBSA)-Lackland Training Annex 50YR-Elec Renewals & Replacements

WBS Element: J-0015-0000001

Business Area: Military Strategic Cooperation & Support

Executive: Jake Bissell

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$50,923

FY23: \$9,700

FY24: \$9,940

FY25: \$10,185

FY26: \$10,435

FY27: \$10,664

Project Description

Estimated capital spend for planned equipment replacement on the electrical system at Joint Base San Antonio Lackland Training Annex under the Joint Base San Antonio Utilities Privatization Contract based on the Contract Pricing model.

Project Justification

As part of the services provided to JBSA under the JBSA Utilities Privatization Contract, CPS Energy will replace failing/defective equipment with new equipment meeting CPS Energy standards to modernize JBSA utility distribution systems. This work is recovered through the Utility Service Charge which is calculated based on the Contract Pricing Model.

Expected Benefits

Improved system performance and compliance with the Utilities Privatization Contract.

Project Risk

If we are not able to complete these improvements, we will not be in compliance with the terms of the 50-year contract we executed with the Defense Logistics Agency.



WBS Description: Joint Base San Antonio (JBSA)-Randolph-50YR Contract-Renewals & Replacements - Gas

WBS Element: J-0016-0000001

Business Area: Military Strategic Cooperation & Support

Executive: Jake Bissell

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$1,337,355

FY23: \$0

FY24: \$220,054

FY25: \$269,574

FY26: \$419,252

FY27: \$428,475

Project Description

Estimated capital spend for planned equipment replacement on the natural gas system at Joint Base San Antonio Randolph under the Joint Base San Antonio Utilities Privatization Contract based on the Contract Pricing model.

Project Justification

As part of the services provided to JBSA under the JBSA Utilities Privatization Contract, CPS Energy will replace failing/defective equipment with new equipment meeting CPS Energy standards to modernize JBSA utility distribution systems. This work is recovered through the Utility Service Charge which is calculated based on the Contract Pricing Model.

Expected Benefits

Improved system performance and compliance with the Utilities Privatization Contract. Additionally, some work executed under this project will address regulatory compliance issues in a programmatic fashion.

Project Risk

If we are not able to complete these improvements, we will not be in compliance with the terms of the 50-year contract we executed with the Defense Logistics Agency and at risk for regulatory compliance violations



WBS Description: Joint Base San Antonio (JBSA)-Lackland-50YR-Gas

WBS Element: J-0017-0000001

Business Area: Military Strategic Cooperation & Support

Executive: Jake Bissell

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$4,477,642

FY23: \$1,066,281

FY24: \$901,147

FY25: \$830,647

FY26: \$830,647

FY27: \$848,921

Project Description

Estimated capital spend for planned equipment replacement on the natural gas system at Joint Base San Antonio JBSA Lackland under the Joint Base San Antonio Utilities Privatization Contract based on the Contract Pricing model.

Project Justification

As part of the services provided to JBSA under the JBSA Utilities Privatization Contract, CPS Energy will replace failing/defective equipment with new equipment meeting CPS Energy standards to modernize JBSA utility distribution systems. This work is recovered through the Utility Service Charge which is calculated based on the Contract Pricing Model.

Expected Benefits

Improved system performance and compliance with the Utilities Privatization Contract. Additionally, some work executed under this project will address regulatory compliance issues in a programmatic fashion.

Project Risk

If we are not able to complete these improvements, we will not be in compliance with the terms of the 50-year contract we executed with the Defense Logistics Agency and at risk for regulatory compliance violations



WBS Description: Joint Base San Antonio (JBSA)-Lackland Training Annex-50YR-Gas

WBS Element: J-0018-0000001

Business Area: Military Strategic Cooperation & Support

Executive: Jake Bissell

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$377,059

FY23: \$221,028

FY24: \$146,349

FY25: \$9,682

FY26: \$0

FY27: \$0

Project Description

Estimated capital spend for planned equipment replacement on the natural gas system at Joint Base San Antonio Chapman Training Annex under the Joint Base San Antonio Utilities Privatization Contract based on the Contract Pricing model.

Project Justification

As part of the services provided to JBSA under the JBSA Utilities Privatization Contract, CPS Energy will replace failing/defective equipment with new equipment meeting CPS Energy standards to modernize JBSA utility distribution systems. This work is recovered through the Utility Service Charge which is calculated based on the Contract Pricing Model.

Expected Benefits

Improved system performance and compliance with the Utilities Privatization Contract. Additionally, some work executed under this project will address regulatory compliance issues in a programmatic fashion.

Project Risk

If we are not able to complete these improvements, we will not be in compliance with the terms of the 50-year contract we executed with the Defense Logistics Agency and at risk for regulatory compliance violations



WBS Description: Joint Base San Antonio (JBSA)-Lackland-Emergency Replacement-Electric

WBS Element: J-0019-0000001

Business Area: Military Strategic Cooperation & Support

Executive: Jake Bissell

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$150,000

FY23: \$30,000

FY24: \$30,000

FY25: \$30,000

FY26: \$30,000

FY27: \$30,000

Project Description

Estimated capital spend for emergency/reactive equipment replacement on the electrical system at Joint Base San Antonio Lackland under the Joint Base San Antonio Utilities Privatization Contract based on the Contract Pricing model.

Project Justification

As part of the services provided to JBSA under the JBSA Utilities Privatization Contract, CPS Energy will replace failing/defective equipment with new equipment meeting CPS Energy standards to modernize JBSA utility distribution systems. This work is recovered through the Utility Service Charge which is calculated based on the Contract Pricing Model.

Expected Benefits

Improved service/outage restoration, system performance and compliance with the Utilities Privatization Contract.

Project Risk

If we are not able to complete these improvements, we will not be in compliance with the terms of the 50-year contract we executed with the Defense Logistics Agency.



WBS Description: Joint Base San Antonio (JBSA)-Lackland TA Emergency Replacement-Electric

WBS Element: J-0020-0000001

Business Area: Military Strategic Cooperation & Support

Executive: Jake Bissell

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$62,474

FY23: \$12,000

FY24: \$12,240

FY25: \$12,485

FY26: \$12,735

FY27: \$13,015

Project Description

Estimated capital spend for emergency/reactive equipment replacement on the electrical system at Joint Base San Antonio Lackland Training Annex under the Joint Base San Antonio Utilities Privatization Contract based on the Contract Pricing model.

Project Justification

As part of the services provided to JBSA under the JBSA Utilities Privatization Contract, CPS Energy will replace failing/defective equipment with new equipment meeting CPS Energy standards to modernize JBSA utility distribution systems. This work is recovered through the Utility Service Charge which is calculated based on the Contract Pricing Model.

Expected Benefits

Improved service/outage restoration, system performance and compliance with the Utilities Privatization Contract.

Project Risk

If we are not able to complete these improvements, we will not be in compliance with the terms of the 50-year contract we executed with the Defense Logistics Agency.



WBS Description: Joint Base San Antonio (JBSA)-Randolph-Emergency Replacement-Electric

WBS Element: J-0021-0000001

Business Area: Military Strategic Cooperation & Support

Executive: Jake Bissell

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$30,000

FY23: \$6,000

FY24: \$6,000

FY25: \$6,000

FY26: \$6,000

FY27: \$6,000

Project Description

Estimated capital spend for emergency/reactive equipment replacement on the electrical system at Joint Base San Antonio Randolph under the Joint Base San Antonio Utilities Privatization Contract based on the Contract Pricing model.

Project Justification

As part of the services provided to JBSA under the JBSA Utilities Privatization Contract, CPS Energy will replace failing/defective equipment with new equipment meeting CPS Energy standards to modernize JBSA utility distribution systems. This work is recovered through the Utility Service Charge which is calculated based on the Contract Pricing Model.

Expected Benefits

Improved service/outage restoration, system performance and compliance with the Utilities Privatization Contract.

Project Risk

If we are not able to complete these improvements, we will not be in compliance with the terms of the 50-year contract we executed with the Defense Logistics Agency.



WBS Description: Joint Base San Antonio Utilization Prioritization - Electric Critical Switch Replacement

WBS Element: J-0025-0000001

Business Area: Military Strategic Cooperation & Support

Executive: Jake Bissell

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$743,512

FY23: \$743,512

FY24: \$0

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Replace 32 di-electric fluid filled switches deemed critical to system operations due to the fact that the switches function as circuit tie switches or based on the number of customers downstream of a single switch. The ability to operate these switches in an energized state is critical to outage restoration activities

Project Justification

As part of the services provided to Joint Base San Antonio (JBSA) under the JBSA Utilities Privatization Contract, CPS Energy will replace pad mounted switchgear at critical locations in the JBSA electric distribution systems with new equipment meeting CPS Energy standards to modernize JBSA utility distribution systems. This project supports CPS Energy's ability to address utility outages by ensuring operational equipment at critical locations in the JBSA systems.

Expected Benefits

The project will allow us to modernize their system as outlined in the approved Initial System Deficiency Correction (ISDC) submittal.

Project Risk

If we are not able to complete these improvements, we will not be in compliance with the terms of the 50-year contract we executed with the Defense Logistics Agency.



WBS Description: Joint Base San Antonio (JBSA)-Critical Pipe Replacement-Gas-Randolph

WBS Element: J-0030-0000001

Business Area: Military Strategic Cooperation & Support

Executive: Jake Bissell

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$370,263

FY23: \$370,263

FY24: \$0

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

As part of the overall risk reduction and Corrective Action Plan to bring the natural gas distribution systems up to CPS Energy and regulatory standards, CPS Energy has identified a subset of natural gas piping infrastructure as critical pipe that requires replacement. This critical piping includes all steel service lines, all plastic service lines past design life and all service risers and associated valves and service regulators will be replaced at all three Installations over a four-year period.

Project Justification

Natural gas service piping and risers are considered to be critical components of the natural gas distribution systems due to the proximity to buildings and residences plus the increased presence of buried pipe fittings and transitions (compared to main lines) and the buried-to-exposed interface at the risers, which are locations more likely to develop a leak. Through the investigations conducted by CPS Energy during the Transition period, CPS Energy has determined that the cathodic protection of the steel is inadequate. Due to the smaller diameter, and thus smaller pipe wall thickness, of the service lines, steel service lines that are not properly protected by the cathodic protection system are at higher risk of developing leaks. Additionally, a functioning cathodic protection system is for buried steel piping is a regulatory requirement.

Expected Benefits

The project will allow us to modernize their system as outlined in the approved Initial System Deficiency Correction (ISDC) submittal.

Project Risk

If we are not able to complete these improvements, we will not be in compliance with the terms of the 50-year contract we executed with the Defense Logistics Agency and at risk for regulatory compliance violations



WBS Description: Joint Base San Antonio (JBSA) Utilities Privatization Anode Installation -Gas

WBS Element: J-0059-0000001

Business Area: Military Strategic Cooperation & Support

Executive: Jake Bissell

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$100,000

FY23: \$100,000

FY24: \$0

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Installation of anodes to provide adequate cathodic protection of buried steel natural gas distribution pipelines.

Project Justification

Through the investigations conducted by CPS Energy during the transition period and through the first year of ownership, CPS Energy has determined that the cathodic protection of the steel natural gas distribution lines at the JBSA installations is inadequate. Steel pipelines that are not properly protected by the cathodic protection system are at higher risk of developing leaks. Additionally, a functioning cathodic protection system is for buried steel piping is a regulatory requirement.

Expected Benefits

The project will allow us to modernize the JBSA utility distribution system as outlined in the approved Initial System Deficiency Correction (ISDC) submittal and maintain regulatory compliance.

Project Risk

If we are not able to complete these improvements, we will not be in compliance with the terms of the 50-year contract we executed with the Defense Logistics Agency and at risk for regulatory compliance violations



WBS Description: Joint Base San Antonio (JBSA) Utilities Privatization Relay Upgrade - Lackland

WBS Element: J-0066-5000000

Business Area: Military Strategic Cooperation & Support

Executive: Jake Bissell

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$233,454

FY23: \$233,454

FY24: \$0

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Extension of CPS Energy fiber network and upgrades of existing protective relaying equipment on Joint Base San Antonio Lackland, Chapman Training Annex and Randolph for Supervisory control and data acquisition (SCADA) communications with the JBSA Switching Station equipment associated with the Utilities Privatization Contract. Purchase and installation of new relaying equipment that meets CPS Energy standards.

Project Justification

The project capitalizes on the existing investment that the Government has made in the switching stations at each installation by directly connecting the equipment in the stations to CPS Energy’s Supervisory control and data acquisition (SCADA) network. Execution of this project will enable CPS Energy’s System Operator to receive status indication and to have remote control over the feeder breakers in the switching stations. This will be a significant operational benefit versus the current state in which all switching operations must be performed manually and require a CPS Energy substation crew to be dispatched for all such switching operations.

Expected Benefits

The project will allow CPS Energy to modernize their system as outlined in the approved Initial System Deficiency Correction (ISDC) submittal as well as bring visibility and control of the JBSA breakers to the System Operators.

Project Risk

If we are not able to complete these improvements, we will not be in compliance with the terms of the 50-year contract we executed with the Defense Logistics Agency.



WBS Description: Joint Base San Antonio (JBSA) Utilities Privatization Pole Replacements - Lackland

WBS Element: J-0071-0000001

Business Area: Military Strategic Cooperation & Support

Executive: Jake Bissell

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$1,324,752

FY23: \$296,000

FY24: \$296,000

FY25: \$296,000

FY26: \$216,000

FY27: \$220,752

Project Description

Replacement of aged/failing wood utility poles at JBSA Chapman Training Annex.

Project Justification

Under the JBSA Utilities Privatization Contract, CPS Energy took ownership of electrical distribution system with a large number of poles that are beyond the engineering design life. Through a series of inspections, CPS Energy has identified a number of poles to be replaced annually.

Expected Benefits

This project will allow CPS Energy to modernize the JBSA utility distribution system, reduce risk associated with pole failure and increase the reliability of service to JBSA.

Project Risk

Increased emergency responses to outage or other issues related to failing poles. Additionally, this is part of CPS Energy renewals & replacements services as outlined in the JBSA Utilities Privatization Contract.



WBS Description: Joint Base San Antonio (JBSA) Lackland - Transformer Replacements

WBS Element: J-0072-0000001

Business Area: Military Strategic Cooperation & Support

Executive: Jake Bissell

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$277,289

FY23: \$277,289

FY24: \$0

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Four buildings located on JBSA Lackland are served by primary, 15 kilovolt (kV) transformers installed inside of a mechanical room of the buildings. The seven transformers serving these buildings will be removed and replaced with new pad mounted transformers installed outside of the buildings, thus moving the Contract defined Point of Demarcation outside of the government owned buildings.

Project Justification

CPS Energy does not install or maintain primary electrical equipment inside of customer owned facilities. In order to ensure CPS Energy employees have safe and unimpeded access to the equipment, the location of the transformers serving these buildings will be moved outside of the building envelope.

Expected Benefits

The project will allow us to modernize their system as outlined in the approved Initial System Deficiency Correction (ISDC) submittal.

Project Risk

If we are not able to complete these improvements, we will not be in compliance with the terms of the 50-year contract we executed with the Defense Logistics Agency.



WBS Description: Joint Base San Antonio (JBSA) Utilities Privatization- Customer Driven Projects-Elec

WBS Element: J-0073-0000001

Business Area: Military Strategic Cooperation & Support

Executive: Jake Bissell

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$3,336,300

FY23: \$635,000

FY24: \$651,000

FY25: \$667,320

FY26: \$683,966

FY27: \$699,014

Project Description

Estimated spend to support customer requested new electric utility infrastructure design & construction on JBSA Lackland, Chapman Training Annex and Randolph.

Project Justification

Part of CPS Energy's services to JBSA under the Utilities Privatization Contract is to support new construction and new utilities connections at the request of JBSA, the US Army Corps of Engineers and other mission partners.

Expected Benefits

Satisfy customer requests and expectations for utility service at new facilities as well as provide required services under the JBSA Utilities Privatization Contract.

Project Risk

If we are not able to complete these improvements, we will not be in compliance with the terms of the 50-year contract we executed with the Defense Logistics Agency.



WBS Description: Joint Base San Antonio (JBSA) Utilities Privatization -Customer Driven Projects-Gas

WBS Element: J-0074-0000001

Business Area: Military Strategic Cooperation & Support

Executive: Jake Bissell

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$370,282

FY23: \$71,000

FY24: \$72,500

FY25: \$74,000

FY26: \$75,560

FY27: \$77,222

Project Description

Estimated spend to support customer requested new natural gas utility infrastructure design & construction on JBSA Lackland, Chapman Training Annex and Randolph.

Project Justification

Part of CPS Energy's services to JBSA under the Utilities Privatization Contract is to support new construction and new utilities connections at the request of JBSA, the US Army Corps of Engineers and other mission partners.

Expected Benefits

Satisfy customer requests and expectations for utility service at new facilities as well as provide required services under the JBSA Utilities Privatization Contract.

Project Risk

If we are not able to complete these improvements, we will not be in compliance with the terms of the 50-year contract we executed with the Defense Logistics Agency.



WBS Description: Joint Base San Antonio (JBSA) Utilities Priv Pole Replacements - Chapman Training Annex

WBS Element: J-0075-0000001

Business Area: Military Strategic Cooperation & Support

Executive: Jake Bissell

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$1,324,752

FY23: \$296,000

FY24: \$296,000

FY25: \$296,000

FY26: \$216,000

FY27: \$220,752

Project Description

Replacement of aged/failing wood utility poles at JBSA Chapman Training Annex.

Project Justification

Under the JBSA Utilities Privatization Contract, CPS Energy took ownership of electrical distribution system with a large number of poles that are beyond the engineering design life. Through a series of inspections, CPS Energy has identified a number of poles to be replaced annually.

Expected Benefits

This project will allow CPS Energy to modernize the JBSA utility distribution system, reduce risk associated with pole failure and increase the reliability of service to JBSA.

Project Risk

Increased emergency responses to outage or other issues related to failing poles. Additionally, this is part of CPS Energy renewals & replacements services as outlined in the JBSA Utilities Privatization Contract.

People & Culture

Infrastructure Modernization



WBS Description: ERP: Vendor/People System

WBS Element: I-0814-5000000

Business Area: People & Culture

Executive: Sreevidya Ranganathan

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$1,000

FY23: \$0

FY24: \$0

FY25: \$0

FY26: \$0

FY27: \$1,000

Project Description

Align core system functionality to enterprise business capabilities with speed and agility to support evolving requirements. Enhance the user experience through an integrated ecosystem that streamlines processes through automation and insights. Leverage inherent best practices from technology capabilities to optimize processes. This is to account for the engagement of a 3rd party firm with experience in ERP transformations for companies such as CPS Energy.

Project Justification

- Assess current state of ERP enablement based on business capability first approach
- Complete business case & obtain approval from Senior Leadership to support program scope
- Develop Statement of Work (SOW) and release ERP for future state ecosystem
- Align internal teams & development organizational change management programs

Expected Benefits

- Stakeholders are aligned on transformation scope & roles/responsibilities to ensure success
- Identified business capabilities and process optimization opportunities for future state
- Senior leadership is aligned with investment requirements supported by business case
- Current state technologies are identified for future solution consolidation

Project Risk

ERP Platform will be outdated, and CPS Energy will not be able to deliver newer enhancements and additional capabilities faster. Additionally, maintenance costs with SAP will continue to rise, and the technical team will not be able to deliver other valuable projects.

Special Projects





WBS Description: Broadleaf / Managed Services Provider RFP

WBS Element: NEW_21

Business Area: People & Culture

Executive: Debra Wainscott

Strategic Category: Special Projects

Project Cost: ¹ \$25,000

FY23: \$25,000

FY24: \$0

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

The project is to transition to a new vendor management system for tracking staff augmentation contractors for onboarding approval, timekeeping and billing.

Project Justification

We are unable to track approvals, timekeeping or billing without this system unless we utilize a very manual time-consuming process.

Expected Benefits

The benefit is efficiency in tracking approvals, timekeeping and billing through the vendor's system, which also allows for reporting and data analysis

Project Risk

We will have to put staff aug contractor work on hold until the system is implemented.

Power Generation

Environmental/ Legislative/ Regulatory





WBS Description: Power Generation ERCOT PRC/Modeling, Data, and Analysis (MOD) Standards Engineering

WBS Element: F-0022-1800008

Business Area: Power Generation

Executive: Jeremiah D. Wilks

Strategic Category: Environmental/ Legislative/ Regulatory

Project Cost: ¹ \$686,058

FY23: \$134,156

FY24: \$135,387

FY25: \$136,967

FY26: \$138,253

FY27: \$141,295

Project Description

Implement recommendations determined by North American Electric Reliability Corporation (NERC) and/or Electric Reliability Council of Texas (ERCOT) mandatory and enforceable Reliability Standards Modeling, Data, and Analysis (MOD) and Protection and Control (PRC) engineering studies to meet the Implementation Compliance Plan Dates.

Project Justification

Section 215 of the Federal Power Act requires the Electric Reliability Organization to develop mandatory and enforceable Reliability Standards. CPS Energy is required to meet the implementation compliance plan dates for each of these standards.

Expected Benefits

Maintain NERC compliance for Power Generation.

Project Risk

The risk of not performing this project is NERC non-compliance.

¹ Dollars exclude AFUDC
Competitive and Confidential Information

WBS Description: Spruce Power Plant Pump Replacements for Environmental Systems

WBS Element: F-0062-2200011

Business Area: Power Generation

Executive: Joe A. Sepulveda

Strategic Category: Environmental/ Legislative/ Regulatory

Project Cost: ¹ \$522,392

FY23: \$103,800

FY24: \$103,900

FY25: \$104,000

FY26: \$104,200

FY27: \$106,492

Project Description

This is a multi-year project to upgrade pumps at the Spruce power plant. Pumps are reaching the end of life in the Flue Gas Desulfurization (FGD) system, Plant Drainage system, and the Water Treatment system.

Project Justification

The justification is avoiding an Environmental Compliance Recordable Incident (ECRI) that must be reported to Texas Commission on Environmental Quality (TCEQ). In the past two fiscal years, Spruce has consistently replaced one pump every two months. Spruce management expects this trend to continue. Each system consists of components such as valves, pumps, classifiers, agitators, tanks, rubber-lined piping, and instrumentation.

Expected Benefits

The reliability of the FGD, plant drainage, and water treatment systems are improved. Each system impacts environmental emissions and is monitored by the Texas Commission on Environmental Quality (TCEQ).

Project Risk

The risk of not completing the project is a possible unit derate because of environmental emissions.



WBS Description: Deely North & South Bottom Ash (BA) Pond Closure

WBS Element: F-0115-1700088

Business Area: Power Generation

Executive: Jeremiah D. Wilks

Strategic Category: Environmental/ Legislative/ Regulatory

Project Cost: ¹ \$2,729,304

FY23: \$2,729,304

FY24: \$0

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Engineering and construction of Deely north and south bottom ash pond closures required to meet Environmental Protection Agency (EPA) rule.

Project Justification

Required by EPA. Generating units will not be able to legally operate without implementation of this project.

Expected Benefits

Eliminate safety and environmental exposures associated with retired generating units.

Project Risk

Risk of not performing upgrades is non-compliance with EPA rule.



WBS Description: Deely Demolition Project

WBS Element: F-0115-1800032

Business Area: Power Generation

Executive: James E. Richardson

Strategic Category: Environmental/ Legislative/ Regulatory

Project Cost: ¹ \$332,927

FY23: \$332,927

FY24: \$0

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

This project is for the demolition of the Deely Unit 1&2. June 2017 - Estimate dollars only include the initial environmental and asset recovery assessments in year 2023. No demolition estimates are included yet as the scope is highly uncertain.

Project Justification

Deely is scheduled to suspend power production at the end of 2018. By 2023, consideration should be given to the demolition process starting with an initial environmental and asset recovery assessment.

Expected Benefits

Reduced operation and maintenance (O&M) related to maintaining 2 mothballed units.

Project Risk

The initial assessment will better define the project risks, but in general they include: environmental contamination, safety and damage to neighboring units.

¹ Dollars exclude AFUDC
Competitive and Confidential Information

WBS Description: Spruce2 Baghouse Bag Replacement

WBS Element: F-0184-1600061

Business Area: Power Generation

Executive: Jeremiah D. Wilks

Strategic Category: Environmental/ Legislative/ Regulatory

Project Cost: ¹ \$2,958,115

FY23: \$2,958,115

FY24: \$0

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

The bags on the JKS 2 Reverse Gas Fabric Filter (RGFF) house have begun to fail. The bags have been in service since October 2013. CPS Energy anticipated a seven-eight (7-8) year service life for these bags and budgeted for such an event. An upgraded bag with a Teflon membrane will be specified as recommended by various vendors. This bag will provide the environmental solution necessary to stay in compliance with EPA Clean Air.

Project Justification

An upgraded bag with a Teflon membrane has been introduced which gives us added life and resolves several of the issues we may encounter. The differential across the baghouse using a membrane bag is lower and allows for a more effective filter cake to form. The moisture that occurs cycle can be tolerated better with this new bag. We plan to utilize stainless steel rings to prevent oxidizing at the ring covers.

Expected Benefits

The Texas Commission on Environmental Quality (TCEQ) compliance requirements will be met. By purchasing and installing new bags, upsets in the system can be prevented and a good emissions record maintained. The differential across the bags and the baghouses will be lower and thereby reduce fan power consumption. The issues regarding moisture and bags will be minimized because of the capability of the bags to better handle and shed the moisture which may be encountered in the baghouse.

Project Risk

The problem is non-compliance with Texas Commission on Environmental Quality (TCEQ). CPS Energy could reach the point where too many compartments have to be isolated and the pressure differential across the baghouse will be intolerable.

WBS Description: Spruce1 Baghouse Bag Replacement Project

WBS Element: F-0217-0000020

Business Area: Power Generation

Executive: Jeremiah D. Wilks

Strategic Category: Environmental/ Legislative/ Regulatory

Project Cost: ¹ \$2,955,073

FY23: \$0

FY24: \$2,955,073

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

The bags on the Spruce1 (JKS 1) Reverse Gas Fabric Filter (RGFF) house has begun to fail. The bags have been in serve since October 2013. CPS Energy anticipated a seven to eight (7-8) year service life for these bags and budgeted for such an event. An upgraded bag with a Teflon membrane will be specified as recommended by various vendors. This bag will provide the environmental solution necessary to stay in compliance with Environmental Protection Agency (EPA) Clean Air Act.

Project Justification

An upgraded bag with a Teflon membrane has been introduced which gives us added life and resolves several of the issues we may encounter. The differential across the baghouse using a membrane bag is lower and allows for a more effective filter cake to form. The moisture that occurs cycle can be tolerated better with this new bag. We plan to utilize stainless steel rings to prevent oxidizing at the ring covers.

Expected Benefits

The Texas Commission on Environmental Quality (TCEQ) compliance requirements will be met. By purchasing and installing new bags, upsets in the system can be prevented and a good emissions record maintained. The differential across the bags and the baghouses will be lower and thereby reduce fan power consumption. The issues regarding moisture and bags will be minimized because of the capability of the bags to better handle and shed the moisture which may be encountered in the baghouse.

Project Risk

Failure to replace the bags could prevent the unit from being able to achieve emission permit thresholds and would require the unit to suspend operations. Resulting in non-compliance with Texas Commission on Environmental Quality (TCEQ). CPS Energy could reach the point where too many compartments have to be isolated and the pressure differential across the baghouse will be intolerable.



WBS Description: von Rosenberg (AvR) BOP Controls Upgrade Project

WBS Element: F-0222-0000020

Business Area: Power Generation

Executive: Jeremiah D. Wilks

Strategic Category: Environmental/ Legislative/ Regulatory

Project Cost: ¹ \$2,274,856

FY23: \$2,274,856

FY24: \$0

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Upgrade Honeywell Balance of Plant (BOP) Controls system to Emerson Ovation Controls.

Project Justification

This project will bring Plant Controls platforms up to a consistent level which will reduce the amount of training that is required for the workforce. This project will address hardware shelf life issues thereby improving reliability of Plant Controls.

Expected Benefits

Cyber Security Policy and NERC/CIP require that OT systems are maintained on current supportable platforms. This project will satisfy this requirement by upgrading legacy HMIs, Data Servers, Operating Systems, communication networks and Controls platform on a 5 year lifecycle to the current Power Generation standards.

Project Risk

Internal Audit has performed several audits around Cyber Controls. These findings are being reported at the Executive level and discussed with the Board. This project is fundamental to avoiding Internal Audit findings that portray Power Gen in a negative light

¹ Dollars exclude AFUDC
Competitive and Confidential Information



WBS Description: Spruce - Install Catalyst Future Years

WBS Element: F-0234-2100041

Business Area: Power Generation

Executive: Jeremiah D. Wilks

Strategic Category: Environmental/ Legislative/ Regulatory

Project Cost: ¹ \$6,426,500

FY23: \$3,063,500

FY24: \$0

FY25: \$3,363,000

FY26: \$0

FY27: \$0

Project Description

Install Layer 3 Selective Catalytic Reduction (SCR) Catalyst.

Project Justification

Based on unit availability and material testing the catalyst for SCR layer 3 will need to be installed. The remaining catalyst will be approaching the minimum reactivity level and will reach its life expectancy prior to the next scheduled unit overhaul.

Expected Benefits

Spruce 2 will be able to maintain stack emissions.

Project Risk

Minimal project risk is expected. CPS Energy has experience performing a similar project on the other catalyst layers. The greatest risk will be to the outage schedule if the contractor is unable to perform the required work in the time allowed.



WBS Description: Power Generation Env Monitoring Wells

WBS Element: F-0583-0000013

Business Area: Power Generation

Executive: Michael M. Malone

Strategic Category: Environmental/ Legislative/ Regulatory

Project Cost: ¹ \$280,983

FY23: \$55,700

FY24: \$55,900

FY25: \$56,050

FY26: \$56,050

FY27: \$57,283

Project Description

Environmental assessment/monitoring wells.

Project Justification

Installation of Wells are required to properly assess current groundwater environmental conditions and allow for proper reporting to agency.

Expected Benefits

To allow for complete assessment of environmental groundwater conditions. This would be required to conduct assessment, complete reporting and maintain regulatory compliance.

Project Risk

Failure to install wells, when needed to assess groundwater conditions, would result in incomplete environmental assessment.

WBS Description: Calaveras Sanitary Sewer Improvement/Upgrade

WBS Element: F-0583-1800077

Business Area: Power Generation

Executive: Jeremiah D. Wilks

Strategic Category: Environmental/ Legislative/ Regulatory

Project Cost: ¹ \$3,404,160

FY23: \$3,404,160

FY24: \$0

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Improve the Calaveras sanitary sewer system and discard all wastewater treatment tanks on-site. This will be accomplished by eliminating all 3 wastewater treatment tanks, install new lift stations as needed, and routing wastes to the Sommers treatment plant. The treated waste will be routed to an evaporation pond or the lake if needed.

Project Justification

Effluents from the 3 wastewater treatment tanks on-site need to be continuously monitored to ensure compliance with the Texas Commission on Environmental Quality (TCEQ) discharge permit limits. Connecting the sewer lines to San Antonio Water System (SAWS) sewer treatment system will eliminate the need of the treatment tanks, thus eliminating significant operation & maintenance (O&M) costs related to the tanks and eliminate the risk of permit violation due to no more effluent discharged to the lake.

Expected Benefits

Reduction of operation & maintenance (O&M) costs due to:

- No repair and O&M costs associated with the treatment tank due to elimination of the tank
- No more need to take effluent samples form the treatment tanks
- No samples to send to the labs for analysis
- No more bleach needed
- No more chemical injection pumps to replace
- No more need to pump the holding tanks twice a year
- New lift stations with new pumps will be more reliable and will require less maintenance and repairs

Project Risk

Risk associated with the project would be extended temporary sewage collection tank rental time if unforeseen issues arise during construction. This risk potential could be minimized through careful project planning and management. Risks of not executing the project would be costly repairs of the tanks in distant future, continued high O&M costs, and continued risks of discharge permit violations if the wastewater treatment systems malfunction.



WBS Description: Calaveras Evaporation Pond Closure

WBS Element: F-0583-2100005

Business Area: Power Generation

Executive: Jeremiah D. Wilks

Strategic Category: Environmental/ Legislative/ Regulatory

Project Cost: ¹ \$1,266,618

FY23: \$1,266,618

FY24: \$0

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Engineering and construction of Calaveras evaporation pond closure in compliance with the Environmental Protection Agency regulations.

Project Justification

Required by the Environmental Protection Agency. Regulation 40 CFR 257.102 require the preparation, certification, closure of impoundments.

Expected Benefits

Comply with the Environmental Protection Agency regulations for coal combustion residual closure impoundments.

Project Risk

Risk of not performing would result in non-compliance with EPA regulation.



WBS Description: Power Plant Improvement to meet EPA 316B

WBS Element: F-9999-1200101

Business Area: Power Generation

Executive: Jeremiah D. Wilks

Strategic Category: Environmental/ Legislative/ Regulatory

Project Cost: ¹ \$10,605,377

FY23: \$0

FY24: \$1,474,878

FY25: \$181,723

FY26: \$4,425,705

FY27: \$4,523,071

Project Description

Engineering and construction of the cooling water intake screen modifications required at all plants to meet Environmental Protection Agency (EPA) 316b fish protection rule. Currently, all intakes are exempt from the rule due to various waivers. However, the project may be required by the EPA pending endangered species designation which could revoke existing waivers.

Project Justification

Project may be required by Environmental Protection Agency (EPA) pending endangered species designation which could revoke existing waivers. Generating units may not be able to legally operate without implementation of this project.

Expected Benefits

Allow units to continue operation. Avoids lost generation and fines. Protects marine wildlife.

Project Risk

Risks associated with performing compliance upgrades uncertain at this time. Risk of not performing upgrades is non-compliance with EPA rule. The timeline is highly uncertain due to classification of certain species to endangered.

WBS Description: Spruce Wastewater Treatment/Effluent

WBS Element: F-9999-1300001

Business Area: Power Generation

Executive: Jeremiah D. Wilks

Strategic Category: Environmental/ Legislative/ Regulatory

Project Cost: ¹ \$96,594,652

FY23: \$19,638,605

FY24: \$6,715,922

FY25: \$19,728,480

FY26: \$24,981,031

FY27: \$25,530,614

Project Description

Engineering & construction of Spruce 1&2 flue gas desulfurization (FGD) wastewater treatment and evaporation pond(s) required to meet EPA Effluent Limit Guideline (ELG) Rule. Project to include modifications to existing equipment, such as adding a hydro cyclone to Spruce 1, and segregation of waste streams discharging into two Sludge Recycle Holding (SRH) ponds. Project will also include clean-closure and repurposing of SRH ponds for future low volume waste collection.

Project Justification

CPS Energy must comply with the latest requirements of the Federal Environmental Protection Agency (EPA) guidelines as promulgated in Federal Regulation 40 CFR 423; otherwise known as Effluent Limit Guidelines (ELG). CPS Energy must implement a waste water treatment option that is complicit with EPA's ELG limitations by December 31, 2023.

Expected Benefits

Allow Spruce Units 1 & 2 to continue operating past the EPA mandated implementation date of December 31, 2023.

Project Risk

Risks of doing project include increased costs, unit reliability impacts, etc. Risk of not doing project is non compliance with EPA rules, fines, and forced outages. Potentially resulting in unit(s) shutdown if ELG compliance cannot be met by the mandated deadline.



WBS Description: C.E.P.: Freeze Protection (-10F; 30 mphr) \$46M

WBS Element: NEW_2

Business Area: Power Generation

Executive: Jose J. Trevino

Strategic Category: Environmental/ Legislative/ Regulatory

Project Cost: ¹ \$32,200,000

FY23: \$8,400,000

FY24: \$23,800,000

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Anticipated system upgrades as required to meet increased regulatory weatherization requirements for generation facilities.

Project Justification

Public Utility Commission of Texas (PUCT) is developing rules that may require additional weatherization investments to meet more stringent standards. These new standards will not be optional and CPS Energy will need to comply.

Expected Benefits

Increased generation resiliency and compliance with anticipated new regulations.

Project Risk

Without upgrades we may be at risk of non-compliance with new applicable regulations.



WBS Description: Spruce2 Gas Conversion

WBS Element: NEW_6

Business Area: Power Generation

Executive: David L. Kezell

Strategic Category: Environmental/ Legislative/ Regulatory

Project Cost: ¹ \$47,000,000

FY23: \$0

FY24: \$2,000,000

FY25: \$3,000,000

FY26: \$15,000,000

FY27: \$27,000,000

Project Description

This project, and the retirement of Spruce 1, will allow continued Spruce 2 operation beyond 2028 without requiring ~\$60 million in Effluent Limitation Guidelines (ELG) capital investment. The total estimated cost is \$47M and is expected to be complete in FY28 (Mid Schedule).

Project Justification

This is an option on our generation planning strategy. Gas conversion of Spruce 2 may strike the right balance between affordability and environmental responsibility. In addition, the conversion of Spruce 2 to natural gas will allow the full use of plant equipment rather than having to depreciate the assets in an accelerated manner.

Expected Benefits

Reduced carbon emissions, avoided environmental compliance expenditures, and reduced level of accelerated depreciation on Spruce 2.

Project Risk

Continued coal firing at Spruce will result in a ~\$60 million ELG capital investment and continued public pressure to reduce carbon emissions.

¹ Dollars exclude AFUDC
Competitive and Confidential Information



WBS Description: Spruce2 Gas Conversion Pipeline Upgrades

WBS Element: NEW_7

Business Area: Power Generation

Executive: David L. Kezell

Strategic Category: Environmental/ Legislative/ Regulatory

Project Cost: ¹ \$7,300,000

FY23: \$0

FY24: \$0

FY25: \$1,000,000

FY26: \$2,000,000

FY27: \$4,300,000

Project Description

Project provides for the modification and upgrade of existing natural gas pipeline to support Spruce2 full load operation on natural gas. The total estimated cost is \$7.3M internal to CPS Energy and \$5M for Enterprise and is expected to be complete in FY28 (Mid Schedule).

Project Justification

Additional quantities of gas are required at Calaveras to convert Spruce 2 from coal to gas. This project will only be needed if Spruce 2 conversion to natural gas is approved.

Expected Benefits

This project will allow Spruce 2 to be converted from firing coal to firing natural gas resulting in lower carbon emissions and reduce the level of accelerated depreciation on Spruce 2.

Project Risk

Continued coal firing at Spruce will result in a ~\$60 million ELG (Effluent Limit Guideline) capital investment, a potential ~\$150 million Spruce 1 SCR capital investment, and continued public pressure to reduce carbon emissions.

Infrastructure Modernization



WBS Description: Power Plant Large Motor Rewinds

WBS Element: F-0022-1500002

Business Area: Power Generation

Executive: Jose J. Trevino

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$5,305,568

FY23: \$745,455

FY24: \$745,757

FY25: \$1,256,300

FY26: \$1,265,112

FY27: \$1,292,944

Project Description

Large motor rewinds identified by predictive maintenance technologies and inspections performed during an outage or as part of an emergent work scope. Budget item covers cost of several large motor rewinds per year. Exact motors to be rewound are not yet identified. Rewinds are anticipated for future years based on number of rewinds performed in the current years.

Project Justification

Motor rewinds are necessary for motors that have winding insulation at or near end of life. Need for motor rewind is identified by predictive maintenance technologies or shop inspection. Once identified, if motor is not rewound, then it will be operated with known risk of failure that may lead to catastrophic failure and an unplanned derate or forced outage for critical equipment.

Expected Benefits

Motors rewinds provide new winding insulation systems that greatly extend the life of the motor, improve reliability and reduce operation and maintenance (O&M) costs.

Project Risk

For inspections performed during an outage, if the need for a rewind is identified, potential exists for impact to the outage schedule. For forced outages and derates, potential exists for delay in returning the unit to service at full load.



WBS Description: Power Generation Traveling Water Screen Replacement

WBS Element: F-0022-1600037

Business Area: Power Generation

Executive: Jeremiah D. Wilks

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$8,580,141

FY23: \$0

FY24: \$0

FY25: \$0

FY26: \$4,243,393

FY27: \$4,336,748

Project Description

This project is for the removal and replacement of traveling water screens at both the Calaveras and Braunig sites including select screens at von Rosenberg (AvR), Braunig 3, Spruce 1 and Sommers 1&2. The traveling water screens are nearing their estimated end of life. This project plan is intended to prioritize and address replacement needs through FY2023. The project will be coordinated with Federal Environmental Protection Agency (EPA) rule 316b to avoid stranded assets.

Project Justification

New traveling water screen technology reduces required maintenance, eliminates the need for dive inspections and are resistant to bio fouling from aquatic life. Proactively replacing the traveling water screens will reduce the likelihood of a unit derate or outage due to failed or plugged screens.

Expected Benefits

The expected benefits include: reduced operation and maintenance (O&M) expenses due to less required dive inspections and more reliable equipment. Additional resistance to bio fouling is also an expected benefit that can increase unit reliability during heavy loading from aquatic life.

Project Risk

The risk of inaction is that a unit may be derated or completely unavailable due to failed or plugged water screens.



WBS Description: Power Generation System Protection Relay Upgrade Project

WBS Element: F-0022-1700055

Business Area: Power Generation

Executive: Jeremiah D. Wilks

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$959,350

FY23: \$186,193

FY24: \$188,489

FY25: \$191,765

FY26: \$194,314

FY27: \$198,589

Project Description

Power Generation System Protection Replacement project replaces outdated or obsolete electro-mechanical relays.

Project Justification

CPS Energy will replace obsolete or outdated electro-mechanical system protection relays with more reliable digital system protective relays, which provide increased accuracy and faster tripping times.

Expected Benefits

The benefit for the new digital relays will be increased reliability and enhanced protection for the asset(s) on which they are installed.

Project Risk

The equipment will be out of service for at least 2 days to re-wire and commission new system protection relays.



WBS Description: Power Generation Battery Monitoring System

WBS Element: F-0022-1800009

Business Area: Power Generation

Executive: Jose J. Trevino

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$389,401

FY23: \$389,401

FY24: \$0

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Install continuous battery monitoring system on Braunig, Arthur von Rosenberg (AvR), M.B. Lee East, M.B. Lee West Plant station service and Uninterruptable Power Supply (UPS) batteries.

Project Justification

Battery monitoring system will provide continuous monitoring for battery parameters. Instrumentation & electrical (I&E) will no longer be required to manually collect data on battery parameters to meet North American Electric Reliability Corporation (NERC) requirements. System installation will include central processing unit (CPU), wired connections to battery cells, software, cable runs for connections to distributed control system (DCS) and network.

Expected Benefits

Battery parameters that are currently documented by I&E during weekly, monthly, quarterly and annual inspections will be continuously monitored with the new battery monitoring system. The system will provide more accurate and efficient data collection and facilitate the ability to trend data which results in saved costs due to reduced man hours and better oversight of equipment health. System will alert control room with general trouble alarm.

Project Risk

Implementing this project will have no risk to plant operations.



WBS Description: Circuit Emulation (CEM) Spectrum SpectraPak Upgrade

WBS Element: F-0022-2200010

Business Area: Power Generation

Executive: Jeremiah D. Wilks

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$526,776

FY23: \$425,787

FY24: \$100,989

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Upgrade CPS Energy Fleet with Spectrum SpectraPak.

Project Justification

CPS Energy has received notice from Spectrum that the Spectrum SpectraPak-E will no longer be supported effective January 1,2024. These units were first released in 2002 and are going to be coming up on 20 years of in-service

Expected Benefits

A new reliable system without the concern of equipment failure or parts availability.

Project Risk

If the unit fails, minimal spare parts are available on the market. Running the unit in a failed state, would require the use of substitute data, resulting in increased emissions.



WBS Description: Coal Yard Stacker Reclaimer Demolition

WBS Element: F-0024-0000007

Business Area: Power Generation

Executive: Jeremiah D. Wilks

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$3,412,125

FY23: \$0

FY24: \$0

FY25: \$0

FY26: \$1,687,500

FY27: \$1,724,625

Project Description

Demolition of Coal Yard's Stacker Reclaimer, which has been out of service since 2018.

Project Justification

The Stacker Reclaimer has been out of service since February 2018 due to a fire on the Stacker Reclaimer. CPS Energy has successfully operated coal handling for 2 years without it. Demolition removes eyesore and promotes pride and care of workplace.

Expected Benefits

Removal of damaged equipment decreases the safety and fire hazard/risk(s). Allows staff to focus on remaining equipment and operation.

Project Risk

There is no lead paint, asbestos or mercury on Stacker Reclaimer.
Request for proposal will include standard safety information and project experience.

¹ Dollars exclude AFUDC
Competitive and Confidential Information



WBS Description: Coal Yard Freeze Protection Upgrades

WBS Element: F-0024-1600023

Business Area: Power Generation

Executive: Jeremiah D. Wilks

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$2,682,919

FY23: \$2,682,919

FY24: \$0

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Upgrade Coal Yard Freeze Protection Systems based on recommendations from assessments to be done by Black and Veatch and Thermon to include: panel upgrades and additional freeze protection systems in several Coal Yard areas: Dumper Building, Sprinkler pump, Crusher 1, Crusher 2 Transfer 1 and Transfer 3.

Project Justification

Upgrades and repairs are required for reliable and safe operation of the Coal Yard during severe winter weather.

Expected Benefits

Availability of fire system during severe winter weather conditions.

Project Risk

Minimal risk associated with project implementation due to CPS Energy and Contractor experience in this type of projects.



WBS Description: Coal Yard 4160V Power Feed

WBS Element: F-0024-1700051

Business Area: Power Generation

Executive: Jeremiah D. Wilks

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$1,126,372

FY23: \$50,606

FY24: \$263,622

FY25: \$812,144

FY26: \$0

FY27: \$0

Project Description

Replace 4160V Power Feed to Coal Yard.

Project Justification

Replace 4160V power feeds to Coal Yard due to Deely retirements in 2018.

Expected Benefits

Extend power feed and provide redundancy to Coal Yard station service.

Project Risk

Failure to transfer the power feed will prevent decommissioning of the Deely Plant.



WBS Description: PG Secondary Unit Substation (SUS) Transformer Replacement Program

WBS Element: F-0024-1700092

Business Area: Power Generation

Executive: Jeremiah D. Wilks

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$482,268

FY23: \$95,700

FY24: \$95,880

FY25: \$96,030

FY26: \$96,270

FY27: \$98,388

Project Description

Fund allocation for the replacement of aging power transformers. Includes baseline testing, evaluation and ranking study, procurement, installation, and commissioning of 4160|480V secondary utility substation (SUS) Transformers.

Project Justification

Aging fleet of transformers require replacement to ensure continued reliability.

Expected Benefits

Restore reliability of the Power Generator Power transformers.

Project Risk

The risk of not performing this project is loss of station service due to long-lead times for replacement transformer which failed; and no redundancy of station service if transformer fails. Failure of one transformer violates the "N-1" redundancy requirement for these systems. Failure of two transformers causes an LV Bus to become either unavailable or only available for 1/2 capacity. Availability of these critical transformers is part of the basis of the reliability of each unit.

¹ Dollars exclude AFUDC
Competitive and Confidential Information



WBS Description: Coal Yard HVAC Replacement Program

WBS Element: F-0024-1800014

Business Area: Power Generation

Executive: Joe A. Sepulveda

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$134,010

FY23: \$66,840

FY24: \$33,540

FY25: \$33,630

FY26: \$0

FY27: \$0

Project Description

Systematic replacement of aging HVAC (heating, ventilation, & air conditioning) systems reaching end of life.

Project Justification

Unplanned HVAC failure results in emergency repairs (operation & maintenance costs) to return critical systems to full operation. Capital replacement enables planned replacement with upgraded units.

Expected Benefits

Instead of spending operations and maintenance (O&M) funds to emergency repair systems critical to coal yard operation, CPS Energy will replace HVACs prior to failure. We will upgrade to more efficient units.

Project Risk

Lack of funding would result in HVAC system breakdown requiring increased O&M spending for unplanned repairs. HVAC systems are necessary for critical asset operation during peak demand periods (summer peak).

¹ Dollars exclude AFUDC
Competitive and Confidential Information



WBS Description: Coal Yard Gearbox Program

WBS Element: F-0024-1800015

Business Area: Power Generation

Executive: Joe A. Sepulveda

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$844,163

FY23: \$167,100

FY24: \$167,700

FY25: \$168,150

FY26: \$168,750

FY27: \$172,463

Project Description

Program replaces critical asset gearboxes in coal yard.

Project Justification

Previously, CPS Energy has identified specific gearboxes during budget season. This project instead identifies a long term budget item. A program allows flexible priority changes.

Expected Benefits

Critical asset gearboxes have long lead times. Program methodically procures replacements prior to failure. Program reduces risk, increases reliability, and procures gearboxes through our normal Supply Chain process.

Project Risk

Coal yard personnel have purchased replacement gearboxes in the past. We will use consultants if assistance is needed.



WBS Description: Coal Yard Dumper Holding Devices

WBS Element: F-0024-2100006

Business Area: Power Generation

Executive: Jeremiah D. Wilks

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$1,483,449

FY23: \$1,230,679

FY24: \$252,770

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Replace inbound and outbound wheel chocks at dumper building with new devices.

Project Justification

Coal Yard Operations use wheel chocks to reliably unload unit trains. The wheel chocks are approaching end of life. Condition has deteriorated to point that repairs will no longer be possible. In order to maintain safe and reliable operational practices, replacement devices are required.

Expected Benefits

- Maintain current reliable train unloading.
- Maintain current train unloading speed which meets delivery contract.
- Avoid increased operation and maintenance (O&M) costs due to deteriorating wheel chocks.

Project Risk

Replacement is required to prevent chock failure which would slow coal train unloading and result in risk to equipment.

WBS Description: Coal Yard Dust Collector-201 Upgrade

WBS Element: F-0024-2200018

Business Area: Power Generation

Executive: Jeremiah D. Wilks

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$383,226

FY23: \$383,226

FY24: \$0

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Upgrade dust collector DC-201 to current safety standards defined by the National Fire Protection Association (NFPA).

Project Justification

Although existing damper met safety recommendations at time of plant commissioning, and it is therefore grandfathered, it is recommended new damper be installed. An explosion isolation damper should include manual kickback locking mechanism which prevents fluttering during an event.

Expected Benefits

An upgraded valve would meet current National Fire Protection Association (NFPA) recommendation. An upgraded valve would provide better backflow prevention in the event of explosion. Proximity switch provides important information to control room during an event.

Project Risk

Engineering firm CDG (Consultants/Designers/ Guides) recommends replacing valve with upgraded valve which meets current National Fire Protection Association (NFPA) recommendation. Valve provides better backflow prevention in the event of explosion. Proximity switch provides important information to control room during an event.



WBS Description: Coal Yard Chute Upgrades

WBS Element: F-0024-2200037

Business Area: Power Generation

Executive: Jeremiah D. Wilks

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$2,952,350

FY23: \$55,550

FY24: \$2,785,000

FY25: \$111,800

FY26: \$0

FY27: \$0

Project Description

Upgrade chutes at transfer towers 4 and 5.

Project Justification

Chutes are reaching end of life. If capital project rejected, chutes will be patched and replaced piece meal at higher cost.

Expected Benefits

Maintain current levels of reliability and safety.

Project Risk

Should align with coal outage to minimize risk



WBS Description: Coal Yard Magnetic Separators Upgrade

WBS Element: F-0024-2200054

Business Area: Power Generation

Executive: Jeremiah D. Wilks

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$1,785,600

FY23: \$891,200

FY24: \$894,400

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Replace coal yard magnetic separators in kind or fixed magnets.

Project Justification

In October 2019, a fire occurred at transfer tower 1 starting at a magnetic separator. Heightened magnetic separator awareness revealed that the magnetic separators are reaching end of life. Magnetic separator suppliers declined to perform field inspection even for a fee. Based on this lack of support, replacement is the best long term solution for long term reliable magnetic separator operation.

Expected Benefits

Maintain safe and reliable magnetic separator operation. Continue to protect critical plant equipment using magnetic separators.

Project Risk

Magnetic separators are recommended by National Fire Protection Association (NFPA) 850

WBS Description: Braunig Dam Spillway Enclosure Project

WBS Element: F-0055-0000017

Business Area: Power Generation

Executive: Jeremiah D. Wilks

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$1,671,000

FY23: \$1,671,000

FY24: \$0

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

This project will include enclosing the dams critical work areas so that employees are not exposed to severe weather during dam operation. Additionally, the project will install emergency power so that the dam is able to operate using AC power at all times.

Project Justification

Plant operations and maintenance are required to access the Braunig dam to perform critical work during all weather conditions. Currently, the dam gate controls and other equipment are not fully covered and employees are exposed to severe weather conditions such as lightning, high winds, etc. In addition, the dam is a critical asset that should be fully functional at all times. Currently, if the dam loses electrical power, there is no electrical backup power to support continued operation.

Expected Benefits

The new enclosure will provide employees shelter from severe weather and new upgraded electrical motor control center (MCC) controls.

Project Risk

Constructing the structure may limit access traffic through the current road over the dam spillway. During construction of the building may limit access across the dam spillway. Not building the structure would create a safety risk.



WBS Description: Braunig 4160 Motor Rewinds

WBS Element: F-0055-2100002

Business Area: Power Generation

Executive: Joel D. Goode

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$268,240

FY23: \$89,120

FY24: \$89,440

FY25: \$89,680

FY26: \$0

FY27: \$0

Project Description

Rewind critical 4160V electric motors in accordance with Braunig unit's motor maintenance strategy.

Project Justification

Motor service life has met or exceeded industry standards for operating time between major inspections. This scope of work is recommended to maintain unit reliability.

Expected Benefits

Maintain unit reliability.

Project Risk

Failure to rewind motor could result in online failure and cause forced outage events.



WBS Description: Braunig General Service Pump

WBS Element: F-0055-2100003

Business Area: Power Generation

Executive: Joel D. Goode

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$217,945

FY23: \$72,410

FY24: \$72,670

FY25: \$72,865

FY26: \$0

FY27: \$0

Project Description

Replace general services pumps at Braunig plant.

Project Justification

General service pumps are approaching end of life. Replacement is necessary to maintain unit reliability.

Expected Benefits

Maintain unit reliability.

Project Risk

Risk of inaction will result in a catastrophic pump failure, which may result in unit unavailability

¹ Dollars exclude AFUDC
Competitive and Confidential Information



WBS Description: Braunig Plant Power Cable Replacement Program

WBS Element: F-0055-2100004

Business Area: Power Generation

Executive: Joel D. Goode

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$1,045,157

FY23: \$346,801

FY24: \$348,405

FY25: \$349,951

FY26: \$0

FY27: \$0

Project Description

Replacement Program to replace old Power Cables at Braunig Power Station as needed.

Project Justification

The existing power cables are over 40 years old and over the original equipment manufacturer (OEM) life expectancy of the cables; some cable are beginning to fail, and show signs of deterioration. In addition, junction boxes are rusted and in need of replacement.

Expected Benefits

Replacing deteriorating power cable prior to failure ensures no cable failures will occur on new cables, thereby maintaining power plant reliability.

Project Risk

The failure of any of these power cables could result in loss of equipment, which may cause a unit trip and forced outage.

¹ Dollars exclude AFUDC
Competitive and Confidential Information



WBS Description: Braunig S&L Assessments (Sargent & Lundy)

WBS Element: F-0055-2200051

Business Area: Power Generation

Executive: Joel D. Goode

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$2,967,000

FY23: \$547,000

FY24: \$2,420,000

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Perform capital project based on the most recent Reliability Study performed by Sargent & Lundy.

Project Justification

Items are needed to improve Equivalent Forced Outage Rate (EFOR) scores on Braunig 1. Braunig2 and Braunig3 are based on results from Sargent & Lundy study.

Expected Benefits

Performing the proposed projects on all 3 units will help improve EFOR scores, as outlined in the Sargent & Lundy Reliability Study.

Project Risk

The Braunig units will continue to be at risk of declining Equivalent Forced Outage Rate (EFOR) scores if the proposed capital projects are not completed. If scanner/igniter systems are upgraded, a planned maintenance outage will be necessary to install and commission the systems.



WBS Description: Spruce Tripper Wash Down

WBS Element: F-0062-0000012

Business Area: Power Generation

Executive: Jeremiah D. Wilks

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$2,034,069

FY23: \$568,165

FY24: \$1,465,904

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

This project is for a manual hard pipe washdown system at Spruce coal transfer points T-5, T-6 and gallery between. It includes fixed nozzles and manual valves. The system will have multiple zones.

Project Justification

Project improves coal dust cleanliness between hose wash downs. Wash down reduces risk of fire and explosion. Other benefits include faster washdowns, reduced manhours per washdown, spot zone cleaning via zone actuation. Project frees up personnel for other tasks.

Expected Benefits

- Improved coal dust cleanliness between hose wash downs.
- Reduced risk of fire and explosion.
- Frees crews to clean other areas.

Project Risk

Previously completed projects have reduced combustible dust and coal spillage. 2020 study by engineering firm CDG (Consultants/Designers/Guides), reevaluated the manual washdown system benefit vs. cost of system. A fire or explosion in listed enclosed areas would have a severe consequence.

¹ Dollars exclude AFUDC
Competitive and Confidential Information



WBS Description: Spruce2 Forced Draft Fan Spare Motor

WBS Element: F-0062-0000014

Business Area: Power Generation

Executive: Jose J. Trevino

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$850,837

FY23: \$0

FY24: \$488,628

FY25: \$362,209

FY26: \$0

FY27: \$0

Project Description

Acquire a capital spare Forced Draft Fan Motor for the Spruce2 power plant.

Project Justification

Spruce2 requires the use of forced air draft fans for boiler combustion. Two fans are required for full generation output. If one fan motor fails, the result will be a unit outage or derate which will impact our unit availability. The length of the outage or derate will be determined by the extent of fan motor damage. In addition, Tier 1 metric Commercial Availability will be impacted negatively.

Expected Benefits

Increase reliability by decreasing length of a forced unit outage and/or derate condition. In the event that a fan motor fails, the spare motor can be placed in service immediately and reduce the risk of an extended outage or derate.

Project Risk

A critical spare motor would reduce the risk of an extended unit derate associated with a motor failure.



WBS Description: Spruce2 Induced Draft Fan Spare Motor

WBS Element: F-0062-0000016

Business Area: Power Generation

Executive: Jose J. Trevino

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$1,902,911

FY23: \$0

FY24: \$1,082,560

FY25: \$820,351

FY26: \$0

FY27: \$0

Project Description

Acquire a capital spare Induced Draft Fan Motor for the Spruce2 power plant.

Project Justification

Spruce2 requires the use of induced air draft fans for boiler combustion. Three fans are required for full generation output. If one fan motor fails, the result will be a unit outage or derate which will impact our unit availability. The length of the outage or derate will be determined by the extent of fan motor damage. In addition, Tier 1 metric Commercial Availability will be impacted negatively.

Expected Benefits

Increase reliability by decreasing length of a forced unit outage and/or derate condition. In the event that a fan motor fails, the spare motor can be placed in service immediately and reduce the risk of an extended outage or derate.

Project Risk

A critical spare motor would reduce the risk of an extended unit derate associated with a motor failure.



WBS Description: Spruce2 Coal Mill Pulverizer Spare Motor

WBS Element: F-0062-0000017

Business Area: Power Generation

Executive: Jose J. Trevino

Strategic Category: Infrastructure Modernization

Project Cost: 1 \$159,754

FY23: \$159,754

FY24: \$0

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Acquire a capital spare Coal Mill Pulverizer Motor for the Spruce Unit 2 power plant.

Project Justification

Spruce2 requires the use of coal mill pulverizer motors for boiler combustion. Six fans are required for full generation output. If more than one mill motor fails, the result will be a unit outage or derate which will impact our unit availability. Outage length or derate will be determined by the extent of fan motor damage. In addition, Tier 1 metric Commercial Availability will be impacted negatively.

Expected Benefits

Increased reliability by decreasing length of a forced unit outage and/or derate condition. In the event that a mill motor fails, the spare motor can be placed in service immediately and reduce the risk of an extended outage or derate.

Project Risk

A critical spare motor would reduce the risk of an extended unit derate associated with a motor failure.



WBS Description: Spruce1 Primary Air Fan Spare Motor

WBS Element: F-0062-0000018

Business Area: Power Generation

Executive: Jose J. Trevino

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$340,659

FY23: \$0

FY24: \$340,659

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Acquire a capital spare Primary Air Fan Motor for the Spruce1 Power Plant.

Project Justification

Spruce requires the use of primary air fans for boiler combustion. Two fans are required for full generation output. If one fan motor fails, the result will be a unit outage or derate which will impact our unit availability. The length of the outage or derate will be determined by the extent of fan motor damage. In addition, Tier 1 metric Commercial Availability will be impacted negatively.

Expected Benefits

Increased reliability by decreasing length of a forced unit outage and/or derate condition. In the event that a fan motor fails, the spare motor can be placed in service immediately and reduce the risk of an extended outage or derate.

Project Risk

A critical spare motor would reduce the risk of an extended unit derate associated with a motor failure.

¹ Dollars exclude AFUDC
Competitive and Confidential Information



WBS Description: Spruce Outfall Pier Pump Platform

WBS Element: F-0062-1700090

Business Area: Power Generation

Executive: Jeremiah D. Wilks

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$557,000

FY23: \$557,000

FY24: \$0

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Remove existing pier and design a new pier and structure for operations and maintenance. Add additional piping and pumps. Water resource and Structural engineer will design and construction contractor will install new structure.

Project Justification

Existing pier is an unsafe structure to performing operation and maintenance task on the outfall pumps A new structural pier will need to be designed and constructed to maintain the pumps at the outfall. And additional piping and necessary pumps will need to be designed and constructed.

Expected Benefits

The new galvanized structural pier for inspections and maintenance.

Project Risk

Risk associated with this project is safety. A coffer dam will need to be installed to build drill shafts and piers.

WBS Description: Spruce1&2 HVAC Replacements

WBS Element: F-0062-2100050

Business Area: Power Generation

Executive: Joe A. Sepulveda

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$181,800

FY23: \$77,850

FY24: \$51,950

FY25: \$52,000

FY26: \$0

FY27: \$0

Project Description

This project is for replacing HVAC (heating, ventilation, & air conditioning) units that are not reliable. Units on Spruce1&2 are 10+ years old that operate in a hot environment in the plant area. A/C contractors are called in weekly to repair the units. These units are for the control room, input & output rooms, and other critical systems throughout the plant.

Project Justification

Modern HVAC units are energy efficient and cost less to operate. Spruce is requesting capital funds to replace all HVAC units with more efficient units. This will reduce energy consumption, improve reliability and reduce maintenance cost. Expected cost saving is up to 65,000 per year.

Expected Benefits

Benefits are reduction in electrical and maintenance cost. Additionally, will reduce affected equipment failures required to be maintained in cool environment.

Project Risk

The risk of not completing the project is overheating of control room and loss of computer systems during summer time operations, which could impact unit availability.

WBS Description: Spruce 2 Recycle Pump Gearbox Cooling System Upgrade

WBS Element: F-0062-2200017

Business Area: Power Generation

Executive: Jeremiah D. Wilks

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$20,410

FY23: \$20,410

FY24: \$0

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

The project will upgrade the cooling system of Spruce 2 Recycle Pump Gearbox. The gearboxes constantly overheats in the summer months and the existing cooling system cannot keep up. The pumps are critical to the Air Quality Control System (AQCS) which is required to stay in environmental compliance.

Project Justification

Spruce 2 cannot run without the scrubber, and the scrubber cannot operate without the recycle pumps. With gearboxes that constantly overheat, the seals and oil must constantly be replaced. This causes a higher operation and maintenance (O&M) cost than what is necessary. Having proper cooling will keep the gearboxes operating as they should in between scheduled maintenance.

Expected Benefits

The project will realize increased and effective cooling of the recycle pump gear boxes. These gear boxes keep the pumps running in the scrubber tower which is crucial to staying in environmental compliance.

Project Risk

Risk of the executing the project include prolonged unit outage for installation.

WBS Description: Spruce1 - 1A Air Compressor Replacement

WBS Element: F-0062-2200021

Business Area: Power Generation

Executive: Joe A. Sepulveda

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$318,500

FY23: \$318,500

FY24: \$0

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Replace Spruce 1 (JKS1) 1A Air Compressor that supply all air needs for the plant including the pneumatic valve controls.

Project Justification

The high pressure and low pressure (HP/LP) compressor elements are original and at their end of life. Repairing/replacing these components are around 80 percent of the cost of procuring a new compressor. The plan is to replace one compressor per year for the next three years. Atlas Copco (vendor) currently comes on-site several times a month to make repairs to all three compressors.

Expected Benefits

We will have at least one reliable compressor to supply air needs for the plant

Project Risk

Spruce 1 has 3 air compressors (2 required to support plant needs). As stated earlier this compressor is in major need of repair. If this compressor shells out, we will be dependent on 2 end of life compressors to supply all air needs for the JKS1 site. Atlas Copco currently comes on-site several times a month to make repairs to all three compressors. These compressors supply all air needs for the plant including pneumatic valve control.



WBS Description: Rewind of Spruce 1B Motor for Circulating Water Pump (CWP)

WBS Element: F-0062-2200028

Business Area: Power Generation

Executive: Joe A. Sepulveda

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$252,346

FY23: \$252,346

FY24: \$0

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Project to rewind the Spruce1 1B CWP motor (SN1047448).

Project Justification

The Spruce 1B CWP motor (SN1047448) has been in service since 1991 and the motor is nearing end of life. Since the loss of one CWP motor on Spruce1 would cause a unit de-rating across the critical summer season, this motor has been identified as a candidate for motor rewind.

Expected Benefits

A rewind of the 1B CWP motor would extend the useful life and reduce the reliability risk of the motor failing during critical operational periods.

Project Risk

The risk associated with executing this project during an outage would be that Spruce1 would not have a redundant circulating water pump (CWP). In the event that either adjacent (1A or 1C CWP) pump/motor failed in service, Spruce1 would be derated. Project risk is acceptable compared to the risk of not performing the rewind, which would leave the 1B CWP motor vulnerable across the summer season.



WBS Description: Spruce Turbine Floor Ventilation

WBS Element: F-0062-2200032

Business Area: Power Generation

Executive: Jeremiah D. Wilks

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$16,328

FY23: \$16,328

FY24: \$0

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

The project will aim to increase the ventilation to eventually lower the ambient temperature of the Spruce turbine floor. The constant high temperatures on the Spruce turbine floor is detrimental to equipment and is not safe for the Operations staff.

Project Justification

Operator's spend the majority of their on the turbine floor, having a temperature controlled environment is vitally important. The climate controlled space will also help cool equipment that overheats or is not designed to work in elevated temperatures.

Expected Benefits

The benefits of a lower ambient temperature and more air flow on the Spruce turbine floor will be more a hospitable working environment for the operations staff. Also, the equipment that is not designed to operate in the elevated temperature will have a longer life with the lower temperature.

Project Risk

The risk of not performing the project is personnel safety and equipment reliability. There is a risk of project scope increases depending on the technology selected.



WBS Description: Spruce2 Spare Switch Gear Breakers

WBS Element: F-0062-2200035

Business Area: Power Generation

Executive: Joe A. Sepulveda

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$9,147

FY23: \$9,147

FY24: \$0

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Purchase spare breakers for 4160V and 480V switchgear

Project Justification

Repairs require long lead time.

Expected Benefits

Failure of switchgear effect numerous other systems. Having a spare on-site reduces downtime.

Project Risk

Loss of switchgear could cause a long unit outage.

WBS Description: Spruce Turbine Lighting Project

WBS Element: F-0062-2200039

Business Area: Power Generation

Executive: David L. Kezell

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$555,573

FY23: \$184,385

FY24: \$185,184

FY25: \$186,004

FY26: \$0

FY27: \$0

Project Description

Replace Turbine Floor Lighting (including stairwells)

Project Justification

Improve lighting efficiency with LED lighting fixtures that have longer life expectancy (100,000 hours)

. Safety observations consistently rank poor lighting as a concern.

Expected Benefits

- Improved visibility, efficiency, and reliability of LED lighting system.
- Decreased risk of accidents due to poor lighting
- Reduce environmental impact due to the increased lighting replacement frequency of current lighting system.
- Reduce power consumption due to more efficient lighting fixtures.
- Improve employee morale

Project Risk

Temporary lighting in the area during replacement of the existing lighting system. Ample lumination is needed to perform routine/daily tasks safely.

WBS Description: Spruce 1 and 2 Ovation Playback Recorder Stations

WBS Element: F-0062-2200042

Business Area: Power Generation

Executive: Jeremiah D. Wilks

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$184,101

FY23: \$0

FY24: \$184,101

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Addition of Ovation Playback Recorder (OPR) Stations to Spruce Units 1 and 2 Distributed Control Systems (DCS). The Ovation Playback Recorder is a diagnostic tool that allows the replay of the most recent short-term history of the Ovation system. The OPR, allows review of dynamic point data (values and statuses) at a convenient time, replay dynamic process activity to debug a control application anomaly and examine unexpected but witnessed changes in system behavior.

Project Justification

OPR playback will be used to reduce operations and maintenance cost by reducing time required to troubleshoot plant issues and associated down time, reduce Human Performance Events and support decision making through review of operations actions during an event for identification of best mitigation responses and update of operating procedures; and improve plant controls through troubleshooting, tuning and optimization of existing, new or revised control logic and strategies.

Expected Benefits

OPR will be used to enhance training, reduce maintenance and support decision making to include: troubleshooting control strategies during project testing, optimization and tuning of new or revised logic, review of operations actions taken during an event to identify best mitigation responses and update of operating procedures to avoid or better manage similar events in the future, and quickly diagnose problems to reduce down time, extend equipment life and reduce maintenance cost.

Project Risk

Minimal risk is expected. OPR can be installed with the units in service with minimal interruption to plant operations.



WBS Description: Spruce2 Air Pre-Heater (APH) Cold End (CE) Basket Replacement

WBS Element: F-0062-2200056

Business Area: Power Generation

Executive: Jeremiah D. Wilks

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$2,768,000

FY23: \$2,544,400

FY24: \$223,600

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Replace Cold End (CE) Baskets and seals during the October 2022 outage.

Project Justification

Baskets require replacement due to erosion, resulting in element roughness and adhesion of ash deposits which harden and become resistant to cleaning. This results in the inability to fully remove ash deposits with high water pressure. Over time this causes, excessive plugging, high APH differential, and possible unit forced outage.

Expected Benefits

Prevent outage and derating due to air pre-heater malfunction caused by element failure.

Project Risk

Risk associated with doing the project includes possible impacts on outage length, installation safety risk. Risk associated with not doing the project include possible loss of generation, element debris damage to downstream boiler components.



WBS Description: Spruce1 - 1B Air Compressor Replacement

WBS Element: F-0062-2200067

Business Area: Power Generation

Executive: Joe A. Sepulveda

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$326,681

FY23: \$326,681

FY24: \$0

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Replace Spruce1 (JKS1) 1B Air Compressor

Project Justification

Current compressors need repair and controls need to be upgraded. These compressors are original to the construction of the unit and considered end of life. We would like to replace one compressor per year for the next three years.

Expected Benefits

We will have more reliable compressors to supply air needs for the plant

Project Risk

Spruce1 has 3 air compressors (2 required to support plant needs). As stated earlier this compressor is in major need of repair. If this compressor shells out we will be dependent on 2 end of life compressors to supply all air needs for the Spruce1 site. Atlas Copco currently comes on-site several times a month to make repairs to all three compressors. These compressors supply all air needs for the plant including pneumatic valve control.

¹ Dollars exclude AFUDC
Competitive and Confidential Information



WBS Description: Spruce1 1C Air Compressor Replacement

WBS Element: F-0062-2200068

Business Area: Power Generation

Executive: Joe A. Sepulveda

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$327,912

FY23: \$0

FY24: \$327,912

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Replace Spruce1 (JKS1) 1C Air Compressor

Project Justification

Current compressors need repair and controls need to be upgraded. These compressors are original to the construction of the unit and are all at end of life. We would like to replace one compressor per year for the next three years.

Expected Benefits

We will have more reliable compressors to supply air needs for the plant

Project Risk

Spruce1 has 3 air compressors (2 required to support plant needs). As stated earlier this compressor is in major need of repair. If this compressor shells out we will be dependent on 2 end of life compressors to supply all air needs for the Spruce1 site. Atlas Copco currently comes on-site several times a month to make repairs to all three compressors. These compressors supply all air needs for the plant including pneumatic valve control.

¹ Dollars exclude AFUDC
Competitive and Confidential Information



WBS Description: Spruce1 Induced Draft (ID) Fan Motor Spare

WBS Element: F-0062-2512339

Business Area: Power Generation

Executive: Jose J. Trevino

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$903,573

FY23: \$0

FY24: \$903,573

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Acquire a capital spare motor for Spruce 1 Induced Draft (ID) fan.

Project Justification

Spruce requires both motors to be in service to achieve full load. If one of the in service motors experiences a failure, the unit will be derated to approximately 54% until motor repairs can be made. The derate could last for several weeks or months depending on severity of the failure.

Expected Benefits

A spare motor will provide increased reliability for daily operations. In the event that one or both of these two critical motors fails, the spare can be placed in service immediately and reduce the risk of an extended unit derate.

Project Risk

A critical spare motor would reduce the risk of an extended unit derate associated with a motor failure.

¹ Dollars exclude AFUDC
Competitive and Confidential Information



WBS Description: Spruce1 Forced Draft (FD) Fan Motor Spare

WBS Element: F-0062-2512961

Business Area: Power Generation

Executive: Jose J. Trevino

Strategic Category: Infrastructure Modernization

Project Cost: 1 \$611,183

FY23: \$611,183

FY24: \$0

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Acquire a capital spare motor for Spruce 1 Forced Draft (FD) fan.

Project Justification

Spruce requires both motors to be in service to achieve full load. If one of the in service motors experiences a failure, the unit will be derated to approximately 63% until motor repairs can be made. The derate could last for several weeks or months depending on severity of the failure.

Expected Benefits

A spare motor will provide increased reliability for daily operations. In the event that one or both of these two critical motors fails, the spare can be placed in service immediately and reduce the risk of an extended unit derate.

Project Risk

A critical spare motor would reduce the risk of an extended unit derate associated with a motor failure.



WBS Description: Sommers Plant Power Cable Replacement Program

WBS Element: F-0114-0000006

Business Area: Power Generation

Executive: James E. Richardson

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$600,000

FY23: \$200,000

FY24: \$200,000

FY25: \$200,000

FY26: \$0

FY27: \$0

Project Description

Replacement Program to replace old Power Cables at Sommers Plant

Project Justification

The existing power cables are over 40 years old and over the original equipment manufacturer (OEM) life expectancy of the cables; some cable are beginning to fail, and show signs of deterioration. In addition, junction boxes are rusted and in need of replacement.

Expected Benefits

Replacing deteriorating power cable prior to failure ensures no cable failures will occur on new cables, thereby maintaining power plant reliability.

Project Risk

The failure of any of these power cables could result in loss of equipment, which may cause a unit trip, decreased plant reliability, and potential outage.

¹ Dollars exclude AFUDC
Competitive and Confidential Information



WBS Description: Sommers Oil Delivery System

WBS Element: F-0114-1700101

Business Area: Power Generation

Executive: James E. Richardson

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$1,677,000

FY23: \$0

FY24: \$1,677,000

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Sommers Oil Delivery System

Project Justification

Sommers oil delivery system upgrade expected in FY2024

Expected Benefits

Sommers Oil Delivery System Upgrade

Project Risk

No risks defined at this time.



WBS Description: Sommers HVAC Replacement Project

WBS Element: F-0114-2200024

Business Area: Power Generation

Executive: James E. Richardson

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$155,000

FY23: \$75,000

FY24: \$40,000

FY25: \$40,000

FY26: \$0

FY27: \$0

Project Description

Sommers/Deely HVAC (heating, ventilation, & air conditioning) system replacement

Project Justification

To provide more reliable cooling of the plants distributed control system (DCS) equipment and control rooms.

Expected Benefits

Prolonged life of equipment and controls with reliable cooling.

Project Risk

The failure to replace HVAC's could result in loss generation due to plant DCS equipment overheating



WBS Description: Sommers1 & 2 Superheat and Reheat Seal Box Upgrade

WBS Element: F-0114-2200033

Business Area: Power Generation

Executive: Jeremiah D. Wilks

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$212,148

FY23: \$23,405

FY24: \$188,743

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

The project intends to upgrade the structural and sealing components of the Super heat and reheat seal boxes on both Sommers 1 and Sommers 2.

Project Justification

Having seal boxes that contain hot boiler gases that are leaking are both a safety risk and a plant efficiency risk. Upgrading and repairing these seal boxes will eliminate boiler hot spots and improve personnel safety.

Expected Benefits

The units will have better thermal efficiency, fewer hot spots which are a personnel safety issue, and outages will be shorter with not having to repair the seal boxes constantly.

Project Risk

The risk associated with this project will be scope creep. When upgrading and repairing the seal boxes, unseen damage could be exposed which would also need to be repaired.



WBS Description: Sommers1 Heater Drain Pump Variable Frequency Drives (VFD) Upgrade

WBS Element: F-0114-2200043

Business Area: Power Generation

Executive: Jeremiah D. Wilks

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$428,827

FY23: \$231,221

FY24: \$197,606

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Replace Sommers 1 Heater Drain Pump magnetic coupling drive with Variable Frequency Drives (VFD).

Project Justification

The current magnetic drives are end of service and no longer supported

Expected Benefits

Update technology with original equipment manufacturer (OEM) support and advanced speed control of pumps.

Project Risk

Minimal risk exists with this project. CPS Energy has extensive knowledge of Variable Frequency Drives (VFD) operations and maintenance. Inaction could result in a unit derate of 50%.



WBS Description: Sommers2 Condensate Pump Variable Frequency Drives (VFD) Upgrades

WBS Element: F-0114-2200044

Business Area: Power Generation

Executive: Jeremiah D. Wilks

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$830,562

FY23: \$16,560

FY24: \$454,528

FY25: \$359,474

FY26: \$0

FY27: \$0

Project Description

Replace Sommers 2 Condensate Pump magnetic coupling drives with Variable Frequency Drives (VFD).

Project Justification

The current magnetic drives are end of service and are unsupported.

Expected Benefits

Update technology with original equipment manufacturer (OEM) support and advanced speed control of pumps.

Project Risk

Minimal risk exists with this project. CPS Energy has extensive knowledge of Variable Frequency Drives (VFD) operations and maintenance. Inaction could result in a unit derate of 50%.



WBS Description: Sommers 2 Heater Drain Pump Variable Frequency Drives (VFD) Upgrade

WBS Element: F-0114-2200045

Business Area: Power Generation

Executive: Jeremiah D. Wilks

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$512,565

FY23: \$5,450

FY24: \$196,174

FY25: \$310,941

FY26: \$0

FY27: \$0

Project Description

Replace Sommers 2 Heater Drain Pump magnetic coupling drives with Variable Frequency Drives (VFD).

Project Justification

The current magnetic drives are end of service and are unsupported.

Expected Benefits

Update technology with original equipment manufacturer (OEM) support and advanced speed control of pumps.

Project Risk

Minimal risk exists with this project. CPS Energy has extensive knowledge of Variable Frequency Drives (VFD) operations and maintenance. Inaction could result in a unit derate of 50%.

WBS Description: Sommers 1 Boiler circulating Pump Upgrade

WBS Element: F-0114-2200047

Business Area: Power Generation

Executive: Jeremiah D. Wilks

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$911,400

FY23: \$311,400

FY24: \$300,000

FY25: \$300,000

FY26: \$0

FY27: \$0

Project Description

The purpose of this project is to replace the existing boiler circulating pumps at Sommers 1. They have a tendency to have bad seals that need to be rebuilt every year. The pumps will either be replaced with new pumps or pumps retro fitted from Deely.

Project Justification

The current pumps need to be rebuilt yearly at a cost of \$300k per pump to ensure that the seals are in good shape. New pumps or retro-fitting the Deely pumps will eliminate any rebuilds for the remaining life of the unit. All three pumps are necessary for the unit to maintain full load.

Expected Benefits

The expected benefit of having reliable boiler circulating pumps is having the ability to run at full load when the unit is called upon. With having to take a pump out of service to repair it, there is a chance that the unit could be derated when it is needed most.

Project Risk

Project risk would be being able to tune the boiler in a timely manner after the pumps were installed.



WBS Description: Sommers Sargent & Lundy (S&L) Assessments

WBS Element: F-0114-2200050

Business Area: Power Generation

Executive: James E. Richardson

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$2,235,000

FY23: \$1,114,000

FY24: \$1,121,000

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Sommers 1 & Sommers 2. Pump Magnetic Coupling Replacement, Variable Frequency Drives (VFD) Retrofit, and Scanner/Igniter Upgrade

Project Justification

Items are needed to improve Equivalent Forced Outage Rate (EFOR) scores on Sommers 1 and Sommers 2, based on results from Sargent & Lundy study.

Expected Benefits

Performing the proposed projects on both Sommers 1 & 2 will help improve EFOR scores into the 25% Percentile Group, as outlined in the Sargent & Lundy Reliability Study.

Project Risk

Both Sommers 1 and Sommers 2 will continue to be at risk of declining EFOR scores if the proposed capital projects are not completed. If scanner/igniter systems are upgraded, a planned maintenance outage will be necessary to install and commission the systems.

¹ Dollars exclude AFUDC
Competitive and Confidential Information



WBS Description: Sommers1 Condensate Pump Variable Frequency Drives (VFD) Upgrade

WBS Element: F-0114-2200053

Business Area: Power Generation

Executive: Jeremiah D. Wilks

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$359,210

FY23: \$359,210

FY24: \$0

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Replace Sommers 1 Condensate Pump magnetic coupling drives with Variable Frequency Drives (VFD).

Project Justification

The current magnetic drives are end of service and are unsupported.

Expected Benefits

Update technology with original equipment manufacturer (OEM) support and advanced speed control of pumps.

Project Risk

Minimal risk exists with this project. CPS Energy has extensive knowledge of Variable Frequency Drives (VFD) operations and maintenance. Inaction could result in a unit derate of 50%.



WBS Description: Lee West Craft Maintenance Building

WBS Element: F-0126-0000001

Business Area: Power Generation

Executive: Jeremiah D. Wilks

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$2,151,245

FY23: \$308,870

FY24: \$965,774

FY25: \$876,601

FY26: \$0

FY27: \$0

Project Description

Construct Lee West Craft Maintenance Building at Leon Creek Power Station.

Project Justification

Craft maintenance buildings at Leon Creek Power Station will be demolished beginning in FY 2021. Existing craft maintenance buildings contain lead paint and showing sign of deterioration.

Expected Benefits

This will relocate craft from existing craft building that contains lead paint and improve employee morale.

Project Risk

Temporary housing may be required for craft personnel prior to relocation.



WBS Description: Lee West HVAC Replacement Project

WBS Element: F-0126-0000015

Business Area: Power Generation

Executive: Joel D. Goode

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$225,110

FY23: \$44,560

FY24: \$44,720

FY25: \$44,840

FY26: \$45,000

FY27: \$45,990

Project Description

Replace existing HVAC (heating, ventilation, & air conditioning) units for Lee West electrical and control systems.

Project Justification

Required for reliability of the controls and electrical systems. The majority of the buildings do not have fully redundant air conditioning systems.

Expected Benefits

Replacing existing HVAC units will provide for more reliable controlled climate systems, thus having the potential for increased reliability of the units.

Project Risk

Minimal Risk: HVAC systems will be sized accordingly to original design and installation will be coordinated with the plant.



WBS Description: Lee East CT5 & CT7 Area Paving

WBS Element: F-0126-1700089

Business Area: Power Generation

Executive: Jeremiah D. Wilks

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$668,400

FY23: \$668,400

FY24: \$0

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Remove or scarify existing concrete at CT5 and CT 7 areas. Repave area with rigid pavement (concrete).

Project Justification

The CT5 and CT7 structural concrete foundation was modified during construction raised one foot. Due to this modification the removal structure for the turbines were modified and now the top of concrete will need to modify for safety for loading and unloading the turbines.

Expected Benefits

Level top of concrete to allow ease for transporting and removal of turbines.

Project Risk

Risk associated with doing the project includes possible impacts on outage length, installation safety risk.



WBS Description: Lee West Nox Catalyst Replacements CT1-4

WBS Element: F-0126-2100017

Business Area: Power Generation

Executive: Jeremiah D. Wilks

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$1,000,000

FY23: \$1,000,000

FY24: \$0

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Replace the Nox catalysts on M.B.Lee West units 1-4.

Project Justification

The in-service Nox catalysts are experiencing under performance, resulting in additional ammonia usage and risk of not meeting emissions compliance limits.

Expected Benefits

Lower ammonia usage and greater margin in meeting emissions compliance limits.

Project Risk

If the catalysts are not replaced in a timely manner, emissions compliance may not be achievable resulting in long forced outage durations.



WBS Description: Lee West Units 1 and 3 Low Pressure Turbine Overhaul (OH)

WBS Element: F-0126-2100019

Business Area: Power Generation

Executive: Joel D. Goode

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$3,363,000

FY23: \$0

FY24: \$0

FY25: \$3,363,000

FY26: \$0

FY27: \$0

Project Description

Replace the low pressure turbine (LPT) assembly on two LM6000 units at M.B.Lee West.

Project Justification

Scheduled maintenance for LM6000's that addresses loss of performance (output) and efficiency over time.

Expected Benefits

Increased performance and efficiency of the LM6000 engines.

Project Risk

If not executed, performance will continue to decrease over time.



WBS Description: Rio Nogales High Pressure/Intermediate Pressure (HP/IP) Turbine Retrofit

WBS Element: F-0138-1400073

Business Area: Power Generation

Executive: Jeremiah D. Wilks

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$27,994

FY23: \$27,994

FY24: \$0

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Replace the steam turbine high pressure/intermediate pressure (HP/IP) rotor, diaphragms and seals during N021F outage.

Project Justification

Replacing bowed rotor:

- Reduces excessive high vibration
- Reduces risk of high vibration trips
- Reduces abnormally high bearing & gland repairs
- Converts rotor repair from operation and maintenance (O&M) expenses to capital
- Regains turbine degradation efficiency
- Improved turbine efficiency due to diaphragm design improvements

Expected Benefits

Benefits:

- Eliminate high vibration due to bowed rotor
- Reduces risk of unplanned outages
- Eliminates dished diaphragms
- Increases & regains turbine efficiency
- Convert O&M rotor repair costs to capital costs
- Extend turbine life to 2053

Project Risk

Failure to replace the existing HP/IP steam turbine rotor would increase the likelihood of a unit trip and associated forced outage due to turbine vibration. This steam turbine rotor is currently operating with elevated vibration levels.



WBS Description: Rio Nogales Replace 4160 Breaker

WBS Element: F-0138-1600020

Business Area: Power Generation

Executive: Jeremiah D. Wilks

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$1,107,384

FY23: \$1,107,384

FY24: \$0

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Replace critical motor circuit breakers.

Project Justification

Required maintenance due to mechanical wear and electrical breakdown of the internal components.

Expected Benefits

Plant reliability. Current breakers are approaching 20 years in-service.

Project Risk

Failure to replace 4160 volt breakers will increase the probability of a unit derate or trip.

¹ Dollars exclude AFUDC
Competitive and Confidential Information



WBS Description: Rio Nogales Continuous Emission Monitoring System (CEMS) Analyzer Upgrade

WBS Element: F-0138-1600023

Business Area: Power Generation

Executive: Jeffrey J. Kruse

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$155,700

FY23: \$155,700

FY24: \$0

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Upgrade obsolete Continuous Emission Monitoring System (CEMS) equipment.

Project Justification

System has to be upgraded due to hardware parts availability and software support from the original equipment manufacturer (OEM).

Expected Benefits

Support from original equipment manufacturer (OEM) for critical system.

Project Risk

The risk would be that the system would be considered unsupported. Unsupported analyzers through the original equipment manufacturer (OEM) can lead to reporting errors to Texas Commission on Environmental Quality (TCEQ).



WBS Description: Rio Nogales Platforms and Covers

WBS Element: F-0138-1600029

Business Area: Power Generation

Executive: Jeffrey J. Kruse

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$281,388

FY23: \$55,700

FY24: \$55,900

FY25: \$56,050

FY26: \$56,250

FY27: \$57,488

Project Description

This project would be to install platforms and covers in various locations throughout the plant that have been identified as a safety improvement or to provide permanent covers for as part of winter readiness

Project Justification

Installing platforms and permanent covers would improve safety and reliability.

Expected Benefits

The permanent covers are part of our freeze protection efforts to replace temporary covers and heating with permanent installations.

Project Risk

Not proceeding with this project would be the primary risk as it would improve plant safety and winter readiness.



WBS Description: Rio Nogales Aux Transformer

WBS Element: F-0138-1600032

Business Area: Power Generation

Executive: Jeremiah D. Wilks

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$845,600

FY23: \$845,600

FY24: \$0

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Unit Auxiliary Transformer (UAT) Replacement.

Project Justification

Failure of the UAT #1 (Unit Auxiliary Transformer) will result in a loss of redundant station service power. Lead time for a new UAT is approximately 42 weeks. Installation of an on-site spare is approximately 4-6 weeks.

Expected Benefits

Increased reliability and longevity.

Project Risk

In the event that UAT #1 fails, UAT #2 will be the only source of station service power for the Rio Nogales site until a replacement unit is procured and installed. If the UAT is delivered late, there is a possibility that the UAT will not be installed during the outage or may extend the outage.

¹ Dollars exclude AFUDC
Competitive and Confidential Information



WBS Description: Rio Nogales Heat Recovery Steam Generator (HRSG) Leak Detector

WBS Element: F-0138-1600033

Business Area: Power Generation

Executive: Jeffrey J. Kruse

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$529,150

FY23: \$529,150

FY24: \$0

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Install acoustic monitoring system used to detect Heat Recovery Steam Generator (HRSG) tube leaks.

Project Justification

Use real time data to detect tube leaks earlier and prevent collateral damage that will cause additional operation and maintenance (O&M) expenses and an increased equivalent forced outage rate (EFOR). Project directly impacts Summer equivalent availability factor (EAF), EFOR, and Tier 1 and 2 metrics.

Expected Benefits

Lower EFOR and higher EAF by ability to plan for outages using leak detection data.

Project Risk

The HRSGs are approaching 20 years in-service and will operate at risk to forced outages during peak demand time. The system will allow planned shutdowns instead of forced outages.

¹ Dollars exclude AFUDC
Competitive and Confidential Information



WBS Description: Rio Nogales Cooling Tower Louvers/Sides upgrade

WBS Element: F-0138-1700045

Business Area: Power Generation

Executive: Jeffrey J. Kruse

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$335,400

FY23: \$0

FY24: \$335,400

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

This project is to recover the water from the cooling tower that goes onto the ground when the fans are not in use. Scheduled start date in FY2020.

Project Justification

During the winter and shoulder months, the fans are used less often due to ambient conditions. During these times the skirt pumps cannot keep up with the volume of water. During winter times, this condition presents a safety hazard to employees during freezing weather conditions. Ice builds up on the concrete and various equipment and piping adding to the risk of a potential failure. Corrosion of the equipment and piping is also an issue with the water spray out of the cooling tower.

Expected Benefits

This will improve the safety of the area around the cooling tower as well as reduce the amount of corrosion on the surrounding buildings and equipment.

Project Risk

Project is to minimize drift from the cooling tower.



WBS Description: Rio Nogales Advanced Gas Path (AGP) Escalation annual true-up

WBS Element: F-0138-1800038

Business Area: Power Generation

Executive: Jeffrey J. Kruse

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$294,387

FY23: \$56,257

FY24: \$57,577

FY25: \$58,853

FY26: \$60,188

FY27: \$61,512

Project Description

Escalation on Long Term Service Agreement (LTSA) agreement with General Electric (GE) as an annual true-up.

Project Justification

General Electric Long Term Service Agreement (LTSA) contract obligation- 2% increase in costs annually.

Expected Benefits

To reflect proper adjustment on long term service agreement (LTSA) costs.

Project Risk

The existing LTSA is necessary for the reliable operation of the combustion turbines. CPS Energy has a contractual obligation for this cost increase.

WBS Description: Rio Nogales Circulating Water Pump Motor Rewind

WBS Element: F-0138-2100028

Business Area: Power Generation

Executive: Jeffrey J. Kruse

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$1,266,244

FY23: \$250,650

FY24: \$251,550

FY25: \$252,225

FY26: \$253,125

FY27: \$258,694

Project Description

Circulating Water Pump 4160V motor rewind.

Project Justification

Motor rewinds are necessary for motors that have winding insulation at or near end of life. Need for motor rewind is identified by predictive maintenance technologies or shop inspection. Once identified, if the motor is not rewound it will be operated with known risk of failure that may lead to catastrophic failure and an unplanned derate or forced outage for critical equipment.

Expected Benefits

Motors rewinds provide new winding insulation systems that greatly extend the life of the motor, improve reliability, and reduce operation & maintenance (O&M) costs.

Project Risk

For inspections performed during an outage, if the need for a rewind is identified, potential exists for impact to the outage schedule. This potential is small for Rio Nogales, given that 2 of the 3 circulating water pumps are required for full load.



WBS Description: Rio Nogales Condensate Pump motor rewind

WBS Element: F-0138-2100029

Business Area: Power Generation

Executive: Jeffrey J. Kruse

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$844,163

FY23: \$167,100

FY24: \$167,700

FY25: \$168,150

FY26: \$168,750

FY27: \$172,463

Project Description

Condensate Pump 4160V motor rewind.

Project Justification

Motor rewinds are necessary for motors that have winding insulation at or near end of life. Need for motor rewind is identified by predictive maintenance technologies or shop inspection. Once identified, if the motor is not rewound it will be operated with known risk of failure that may lead to catastrophic failure and an unplanned derate or forced outage for critical equipment.

Expected Benefits

Motors rewinds provide new winding insulation systems that greatly extend the life of the motor, improve reliability, and reduce operation & maintenance (O&M) costs.

Project Risk

From inspections performed during an outage, if the need for a rewind is identified, potential exists for impact to the outage schedule. This potential is small for Rio Nogales, given that 1 of 2 condensate pumps are required for full load.



WBS Description: Rio Nogales Cooling Tower Fan Motor Rewind

WBS Element: F-0138-2100031

Business Area: Power Generation

Executive: Jeffrey J. Kruse

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$459,401

FY23: \$81,322

FY24: \$89,440

FY25: \$95,285

FY26: \$95,625

FY27: \$97,729

Project Description

Cooling Tower Fan 4160V motor rewind.

Project Justification

Motor rewinds are necessary for motors that have winding insulation at or near end of life. Need for motor rewind is identified by predictive maintenance technologies or shop inspection. Once identified, if the motor is not rewound it will be operated with known risk of failure that may lead to catastrophic failure and an unplanned derate or forced outage for critical equipment.

Expected Benefits

Motors rewinds provide new winding insulation systems that greatly extend the life of the motor, improve reliability and reduce operation and maintenance (O&M) costs.

Project Risk

From inspections performed during an outage, if the need for a rewind is identified, potential exists for impact to the outage schedule. This potential is small for Rio Nogales, given there is at least 1 redundant fan, depending on ambient conditions and plant load.



WBS Description: Rio Nogales Aux Cooling Water Pump Motor Rewind

WBS Element: F-0138-2100056

Business Area: Power Generation

Executive: Jeffrey J. Kruse

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$446,203

FY23: \$88,007

FY24: \$88,469

FY25: \$88,938

FY26: \$89,411

FY27: \$91,378

Project Description

Rewind auxiliary cooling water pump motor.

Project Justification

Motor rewinds are necessary for motors that have winding insulation at or near end of life. Need for motor rewind is identified by predictive maintenance technologies or shop inspection. Once identified, if the motor is not rewound it will be operated with known risk of failure that may lead to catastrophic failure and an unplanned derate or forced outage for critical equipment.

Expected Benefits

Motors rewinds provide new winding insulation systems that greatly extend the life of the motor, improve reliability, and reduce operation & maintenance (O&M) costs.

Project Risk

For inspections performed during an outage, if the need for a rewind is identified, potential exists for impact to the outage schedule. This potential is small for Rio Nogales, given that 1 of the 2 aux cooling water pumps are required for full load.

¹ Dollars exclude AFUDC
Competitive and Confidential Information

WBS Description: Rio Nogales Condensate LP Drum Control Valves

WBS Element: F-0138-2200012

Business Area: Power Generation

Executive: Jeremiah D. Wilks

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$206,090

FY23: \$206,090

FY24: \$0

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Upgrade condensate system to reduce differential pressure (dP), which limits condensate flow. The most cost effective solution is replacing the low pressure (LP) drum control valves. As an alternative, funds could be used to perform pinch point study.

Project Justification

In order to obtain megawatts (MW) and maintain 100% redundant condensate pumps, condensate system resistance must be reduced. During winter operation, full capacity & duct burners in service, CPS Energy anticipates low pressure (LP) drum level cannot be maintained. Plant MW must then be reduced to maintain LP drum level or redundant pump must be run. Condensate pumps are considered critical assets and were designed as 2x 100% redundant pumps. That is no longer the case in listed conditions.

Expected Benefits

Increase unit capacity during restricted periods (winter/duct burner operation) while maintaining full 100% redundant condensate pumps. Duct burners are typically only run in the winter and during high \$/MW periods.

Project Risk

Valves are part of dual control valve operation and need to be properly specified and tuned. This project is needed to prevent drum level excursions and to prevent unit trips.



WBS Description: Rio Nogales Fuel Gas System Upgrade

WBS Element: F-0138-2200013

Business Area: Power Generation

Executive: Jeremiah D. Wilks

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$167,100

FY23: \$167,100

FY24: \$0

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Upgrade fuel gas system to reduce pressure drops which can restrict MW capacity.

Project Justification

Unit runback during cold winter days. Lost 7 MW of potential generation.

Expected Benefits

Gain MW during winter if limitation is removed

Project Risk

Upgrade is needed to lower pressure drop to supply adequate pressure after Advanced Gas Path (AGP) and minimize unit runbacks due to low pressure. Low gas pressure would cause a unit derate.



WBS Description: Rio Nogales Condensate Cavitation Study

WBS Element: F-0138-2200023

Business Area: Power Generation

Executive: Jeremiah D. Wilks

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$131,923

FY23: \$0

FY24: \$0

FY25: \$0

FY26: \$65,244

FY27: \$66,679

Project Description

Perform study to assess condensate cavitation pump problem.

Project Justification

Plant has observed cavitation damage during last rebuild. During our Flexible Path study the Rio Nogales staff requested a study to determine source of cavitation and determine the remediation plan.

Expected Benefits

Engineering study to determine the source of cavitation and create a remediation plan and budget to repair or replace.

Project Risk

Project is needed to identify cause of pump impeller damage in operation which could lead to derates or unit trips.

WBS Description: Rio Nogales Heat Recovery Steam Generator (HRSG) Life Assessment Implementation

WBS Element: F-0138-2200034

Business Area: Power Generation

Executive: Jeremiah D. Wilks

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$25,793,498

FY23: \$287,214

FY24: \$0

FY25: \$8,440,200

FY26: \$8,440,200

FY27: \$8,625,884

Project Description

The purpose of this project is to replace the High Pressure Superheater and High Pressure Economizer in HRSG 1, 2 & 3 to ensure unit reliability.

Project Justification

In order for Rio Nogales Plant (RNPP) to fully comply with the Flex Path Initiative, the High Pressure Superheat panel sections and the High Pressure Economizer sections need to be replaced. They are original to the HRSGs and pose the highest risk to repeated tube failures according to Sargent & Lundy, who performed a study on RNPP to find the limiting factors in complying with the Flex Path Initiative.

Expected Benefits

This project will help Rio Nogales Plant (RNPP) HRSG 1, 2, & 3 through flex path period imposed on the units. The HRSGs have original tube panel sections and they are a limiting factor in the overall life of the HRSGs. New panels will help the units run worry free from tube leaks that could compromise unit reliability.

Project Risk

This project is needed to maintain HRSG reliability and to address any potential future HRSG failures before they lead to unit outages.

WBS Description: Rio Nogales Auxiliary Cooling Water Pump

WBS Element: F-0138-2200038

Business Area: Power Generation

Executive: Jeremiah D. Wilks

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$1,967,128

FY23: \$0

FY24: \$111,100

FY25: \$612,700

FY26: \$614,900

FY27: \$628,428

Project Description

Provide emergency pump for auxiliary cooling water system.

Project Justification

Current back up to auxiliary cooling water is to use service water for critical systems. Operations reports service water was insufficient for lube oil cooling and damaged bearings during past event. Auxiliary pumps have history of failure, lasting approximately 10 years. June 2020, at time of business case development, plant had one pump out of service and had rental onsite for backup.

Expected Benefits

Maintains reliable unit when the pumps fail and improves black start operational capabilities.

Project Risk

Auxiliary pumps are critical assets and necessary for operation. Without pumps, 800 MW plant is offline.

WBS Description: Rio Nogales Bleach Tank Replacement

WBS Element: F-0138-2200040

Business Area: Power Generation

Executive: Jeffrey J. Kruse

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$134,479

FY23: \$0

FY24: \$134,479

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Replace both sodium hypochlorite (bleach) tanks as identified in the Flexible Path Report to allow for unloading of a complete delivery truck while maintaining adequate residual volume.

Project Justification

The replacement of both Rio Nogales bleach tanks with larger capacities will allow plant operations the flexibility to unload a complete delivery truck and eliminate the need to strategically schedule the time and volume of delivery requests. This reduces operator burden, reduces the potential for human performance errors (Spills), and reduces the exposure to risks associated with limited supplier availability as addressed in business continuity plans for pandemics and significant weather events

Expected Benefits

Larger tank volume will allow the unloading of a complete tanker truck load.

Project Risk

Inaction will result in no change to current operating practices. Plant staff will still be susceptible to HP events associated with potential bleach spills while unloading delivery trucks.



WBS Description: Rio Nogales Diesel Fire Pump

WBS Element: F-0138-2200049

Business Area: Power Generation

Executive: Jeremiah D. Wilks

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$754,525

FY23: \$55,700

FY24: \$670,800

FY25: \$28,025

FY26: \$0

FY27: \$0

Project Description

Replace existing diesel fire pump system with new pump.

Project Justification

System is at the end of its service life cycle and requires replacement.

Expected Benefits

Reliable fire pump.

Project Risk

Pump/engine is approaching 20 years of age and needs upgrades to ensure adequate fire protection.



WBS Description: Rio Nogales Low Set Limit Study (LSL) & Upgrades

WBS Element: F-0138-2200052

Business Area: Power Generation

Executive: Jeremiah D. Wilks

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$2,326,182

FY23: \$69,307

FY24: \$559,000

FY25: \$560,500

FY26: \$562,500

FY27: \$574,875

Project Description

Study and upgrades to reduce LSL from 420 MW to 250 MW.

Project Justification

Lowering the plant LSL reduces loss during low market pricing. Study is recommended to fully explore risks.

Expected Benefits

Reducing the low set limit (LSL) allows a unit to remain online at a lower MW. When market is lower than operating cost, unit loses money to stay on line. Project reduces the loss.

Project Risk

Increase loss during off peak hours due to higher LSL.



WBS Description: Rio Nogales Cooling Tower Building Upgrade

WBS Element: F-0138-2200055

Business Area: Power Generation

Executive: Jeremiah D. Wilks

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$363,721

FY23: \$83,550

FY24: \$280,171

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Upgrade building frames, laggings and roofs to a galvanize and fiberglass material for the cooling tower feed enclosure, chemical building, and electrical building.

Project Justification

The existing buildings are a steel frame and steel lagging and roof. The buildings have corrosion issues due to the harsh and wet environment of the cooling tower overspray. Upgrading and replacing the damaged material will help protect the equipment from any further corrosion damage.

Expected Benefits

The upgrades will help eliminate the equipment from being exposed to the wet environment of the cooling tower.

Project Risk

Risk of not executing the project will result in additional operation and maintenance (O&M) costs for building repairs and equipment repairs.

¹ Dollars exclude AFUDC
Competitive and Confidential Information

WBS Description: Rio Nogales CT101 GSU Transformer Replacement Project

WBS Element: F-0138-2200057

Business Area: Power Generation

Executive: Jeremiah D. Wilks

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$10,851,449

FY23: \$0

FY24: \$0

FY25: \$0

FY26: \$5,366,691

FY27: \$5,484,758

Project Description

Replace Rio Nogales Combustion Turbine (CT) 101 Generator Step Up (GSU) Transformer.

Project Justification

The existing transformer is approaching 20 years of age. In the event of a Combustion Turbine (CT) Generator Step Up Transformer (GSU) failure, the Rio Nogales facility would be unable to generate power from one of the 3 CT Generators. Lead time to replace the transformer is on the order of 18 months to two years, depending on market conditions, causing a significant financial loss. Based on market value of the power from Rio Nogales, it is prudent to replace the GSU transformer as soon as practical.

Expected Benefits

Increase availability and reliability of the power plant and avoid long and costly forced outage in the event of transformer failure. Operational savings due to increased efficiency and reduced losses of the new transformer. These savings are difficult to quantify as they depend on the unit's run hours and capacity factor, actual transformer losses and market energy cost over the transformer's life.

Project Risk

Lead time for a failed transformer replacement is several months and will affect the unit reliability. There is no redundancy for this transformer.



WBS Description: Rio Nogales CT201 GSU Transformer Replacement Project

WBS Element: F-0138-2200058

Business Area: Power Generation

Executive: Jeremiah D. Wilks

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$10,851,449

FY23: \$0

FY24: \$0

FY25: \$0

FY26: \$5,366,691

FY27: \$5,484,758

Project Description

Replace Rio Nogales Combustion Turbine (CT) 201 Generator Step Up (GSU) Transformer.

Project Justification

The existing transformer is approaching 20 years of age. In the event of a Combustion Turbine (CT) Generator Step Up Transformer (GSU) failure, the Rio Nogales facility would be unable to generate power from one of the 3 CT Generators. Lead time to replace the transformer is on the order of 18 months to two years, depending on market conditions, causing a significant financial loss. Based on market value of the power from Rio Nogales, it is prudent to replace the GSU transformer as soon as practical.

Expected Benefits

Increase availability and reliability of the power plant and avoid long and costly forced outage in the event of transformer failure. Operational savings due to increased efficiency and reduced losses of the new transformer. These savings are difficult to quantify as they depend on the unit's run hours and capacity factor, actual transformer losses and market energy cost over the transformer's life.

Project Risk

Lead time for a failed transformer replacement is several months and will affect the unit reliability. There is no redundancy for this transformer.

¹ Dollars exclude AFUDC
Competitive and Confidential Information



WBS Description: Rio Nogales Unit Aux Transformer Replacement Project

WBS Element: F-0138-2200059

Business Area: Power Generation

Executive: Jeremiah D. Wilks

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$1,820,567

FY23: \$0

FY24: \$0

FY25: \$306,954

FY26: \$748,572

FY27: \$765,041

Project Description

Replace Rio Nogales Unit Aux Transformer (UAT)

Project Justification

Failure of the UAT #1 will result in a loss of redundant station service power. Lead time for a new UAT is approximately 42 weeks. Installation of an on-site spare is approximately 4 6 weeks.

Expected Benefits

Increased reliability and extended useful life of the unit.

Project Risk

In the event that UAT #1 fails, UAT #2 will be the only source of station service power for the Rio Nogales site until a replacement unit is procured and installed. If the UAT is delivered late, there is a possibility that the UAT will not be installed during the outage or may extend the outage.

¹ Dollars exclude AFUDC
Competitive and Confidential Information



WBS Description: Rio Nogales UPS Replacement & Spare Battery Chargers

WBS Element: F-0138-2200060

Business Area: Power Generation

Executive: Jose J. Trevino

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$112,100

FY23: \$0

FY24: \$0

FY25: \$112,100

FY26: \$0

FY27: \$0

Project Description

Replace the Uninterruptible Power Supply (UPS) and procure spare battery chargers for Combustion Turbines (CT) 1-3 per Sargent & Lundy study

Project Justification

Uninterruptible Power Supply (UPS) system is approaching end of expected service life (20 years) and component failure is possible if not replaced. Replacement required for continued reliability. Spare charges will add redundancy and improve reliability.

Expected Benefits

Replace equipment that is at end of life and add redundancy to improved reliability

Project Risk

Deferring project could impact plant reliability with extended unavailability of the UPS system if failure of existing equipment occurs and repair is needed.



WBS Description: Rio Nogales Fuel Gas Pig Lancher/Receiver

WBS Element: F-0138-2200061

Business Area: Power Generation

Executive: Jeremiah D. Wilks

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$846,780

FY23: \$807,650

FY24: \$39,130

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Install pig launcher/receiver in fuel gas system.

Project Justification

The underground piping at Rio Nogales has never been inspected. Installation of a pig launcher/receiver to inspect pipe lines was identified in the Flexible Path Report.

Expected Benefits

The pig launcher/receiver will be utilized to perform fuel gas inspections of complete pipe line.

Project Risk

Gas piping failure to the plant.



WBS Description: Rio Nogales Generator Excitation System Replacement Project

WBS Element: F-0138-2200063

Business Area: Power Generation

Executive: Jeremiah D. Wilks

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$2,799,454

FY23: \$0

FY24: \$0

FY25: \$94,904

FY26: \$1,337,562

FY27: \$1,366,988

Project Description

Replace Generator Excitation System on CT 101, CT 201, and CT 301.

Project Justification

Since the Rio Nogales Station has operated almost 20 years, the excitation system should be either refurbished or replaced.

Expected Benefits

Reduced risk of failure

Project Risk

The system is approaching 20 years old and replacement is needed to ensure plant availability.



WBS Description: Rio Nogales CT Filter Replacement

WBS Element: F-0138-2200070

Business Area: Power Generation

Executive: Jeffrey J. Kruse

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$904,500

FY23: \$300,780

FY24: \$603,720

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Replace Combustion Turbine Inlet Filters with an upgraded High Efficiency Particulate Air (HEPA) Filter.

Project Justification

Current Filters have reached their end of life. Upgrading to the new style HEPA filters will reduce the need for offline water washes and the downtime. The High Efficiency Particulate Air (HEPA) filter will reduce the fouling of the compressors and help maintain a steady plant output.

Expected Benefits

Upgrading to the HEPA Filters will reduce downtime for offline water washes to maintain compressor output and efficiency of the gas turbines.

Project Risk

Combustion Turbines could be derated or unavailable if filters are not changed.

¹ Dollars exclude AFUDC
Competitive and Confidential Information



WBS Description: Rio Nogales Water Storage Tank Installation

WBS Element: F-0138-2200071

Business Area: Power Generation

Executive: Jeffrey J. Kruse

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$4,708,200

FY23: \$0

FY24: \$4,708,200

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Install two 1 million gallon water storage tanks with associated pumping stations at Rio Nogales Power Station.

Project Justification

The City of Seguin will no longer provide reuse water to Rio Nogales Power Plant (RNPP) beginning in 2026. Additional potable water storage capacity is needed to mitigate this risk of single point failure associated with the potable water supply & piping once the reuse water supply source is terminated.

Expected Benefits

Reduce the plants exposure to generation risks associated with the loss of the single water supply source.

Project Risk

Plant will be susceptible to a single point failure associated with the loss of the potable water supply source, which will result in a complete plant outage within 24hrs of failure. Risk exposure will begin in 2026, when the reuse water supply source is terminated.

¹ Dollars exclude AFUDC
Competitive and Confidential Information



WBS Description: Rio Nogales Pavement Projects

WBS Element: F-0138-2380220

Business Area: Power Generation

Executive: Jeremiah D. Wilks

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$1,755,766

FY23: \$0

FY24: \$1,235,106

FY25: \$520,660

FY26: \$0

FY27: \$0

Project Description

This project is to install concrete walkways in areas of heavy foot traffic & maintenance pads in strategic locations throughout the plant to improve safety, increase productivity, and reduce costs.

Project Justification

The ground surrounding the Rio Nogales turbines & other machinery is covered with gravel. The surface is not stable, is difficult to walk upon, and cannot support heavy lifting equipment without using crane mats. Installing sidewalks and maintenance pads will improve safety, improve productivity and reduce costs.

Expected Benefits

Concrete sidewalks will reduce the risk of ankle & foot injuries and improve employee productivity. Installing maintenance pads will improve safety by providing level foundations for heavy equipment, improve productivity, and reduce costs by eliminating the use of crane mats. Maintenance pads would also allow equipment to be staged closer to work areas thereby increasing productivity and reducing cost of trailers to move equipment to work areas.

Project Risk

No risk is anticipated.



WBS Description: Rio Nogales CT1 Rotor Replacement

WBS Element: F-0138-2552141

Business Area: Power Generation

Executive: Jeremiah D. Wilks

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$22,508,795

FY23: \$16,004,440

FY24: \$6,504,355

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Replace combustion turbine #1 (CT1) rotor and compressor replacement

Project Justification

The Rio Nogales combustion turbine 1 rotor will reach end of life around spring 2029 which is 7 years before planned unit retirement date. The rotor must be replaced on or before spring 2027. If CPS Energy replaces rotor in 2023 during next schedule major overhaul, we can expect a \$4 million trade-in rebate.

Expected Benefits

Enables continued operation of combustion turbine.

Project Risk

Turbine rotor is approaching end of life. Failure to replace would cause 250MW derate.



WBS Description: Rio Nogales CT2 Rotor Replacement

WBS Element: F-0138-2552142

Business Area: Power Generation

Executive: Jeremiah D. Wilks

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$29,901,567

FY23: \$7,426,640

FY24: \$16,063,255

FY25: \$6,411,672

FY26: \$0

FY27: \$0

Project Description

Replace the combustion turbine #2 (CT2) rotor

Project Justification

The Rio Nogales combustion turbine 2 rotor will reach end of life in Fall 2030 which is 6 years before planned unit retirement date. The rotor must be replaced on or before Fall 2030. If CPS Energy replaces the rotor in 2025 during the next major overhaul, we can expect a \$4 million trade-in rebate.

Expected Benefits

Enables continued operation of combustion turbine

Project Risk

Turbine rotor is approaching end of life. Failure to replace would cause 250MW derate.



WBS Description: Rio Nogales CT3 Rotor Replacement

WBS Element: F-0138-2552143

Business Area: Power Generation

Executive: Jeremiah D. Wilks

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$29,919,893

FY23: \$7,426,640

FY24: \$9,914,255

FY25: \$12,578,998

FY26: \$0

FY27: \$0

Project Description

Replace the combustion turbine #3 (CT3) rotor

Project Justification

The Rio Nogales combustion turbine 3 rotor will reach end of life in spring of 2028 which is 6 years before planned unit retirement date. The rotor must be replaced on or before spring 2028. If CPS Energy replaces the rotor in 2025 during the next major overhaul, we can expect a \$4 million trade-in rebate.

Expected Benefits

Enables continued operation of combustion turbine.

Project Risk

Turbine rotor is approaching end of life. Failure to replace would cause 250MW derate.

¹ Dollars exclude AFUDC
Competitive and Confidential Information



WBS Description: Lee East CT8 - Rotor No. 191-640

WBS Element: F-0143-0000015

Business Area: Power Generation

Executive: Jeremiah D. Wilks

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$2,785,000

FY23: \$2,785,000

FY24: \$0

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

The project is for the replacement of the Engine 191-640 Combustion Turbine Rotor Assembly.

Project Justification

The LM6000 gas turbine engine operating under severe conditions. The LM600 are exposed to extremely high temperature, stress, and high cycling. Due to these operating conditions, the engine must be overhauled in kind to maintain safe operation and unit reliability.

Expected Benefits

Engine overhaul will maintain safe operation and unit reliability.

Project Risk

GE (General Electric) original equipment manufacturer (OEM) changeout of engines during outage window



WBS Description: Lee East CT5 - Rotor No. 191-624

WBS Element: F-0143-0000016

Business Area: Power Generation

Executive: Jeremiah D. Wilks

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$2,785,400

FY23: \$2,673,600

FY24: \$111,800

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

The project is for the replacement of the Engine 191-624 Combustion Turbine (Turbine) Rotor Assembly.

Project Justification

The LM6000 gas turbine engine operating under severe conditions. The LM600 are exposed to extremely high temperature, stress, and high cycling. Due to these operating conditions, the engine must be overhauled in kind to maintain safe operation and unit reliability.

Expected Benefits

Engine overhaul will maintain safe operation and unit reliability.

Project Risk

GE (General Electric) original equipment manufacturer (OEM) changeout of engines during outage window



WBS Description: Lee East CT7 - Rotor No. 191-637

WBS Element: F-0143-0000017

Business Area: Power Generation

Executive: Jeremiah D. Wilks

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$2,795,300

FY23: \$0

FY24: \$2,683,200

FY25: \$112,100

FY26: \$0

FY27: \$0

Project Description

The project is for the replacement of the Engine 191-637 Combustion Turbine Rotor Assembly.

Project Justification

The LM6000 gas turbine engine operating under severe conditions. The LM600 are exposed to extremely high temperature, stress, and high cycling. Due to these operating conditions, the engine must be overhauled in kind to maintain safe operation and unit reliability.

Expected Benefits

Engine overhaul will maintain safe operation and unit reliability.

Project Risk

GE (General Electric) original equipment manufacturer (OEM) changeout of engines during outage window



WBS Description: Lee East CT6 - Rotor No. 191-626

WBS Element: F-0143-0000018

Business Area: Power Generation

Executive: Jeremiah D. Wilks

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$2,795,000

FY23: \$0

FY24: \$2,795,000

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

The project is for the replacement of the Engine 191-626 Combustion Turbine Rotor Assembly.

Project Justification

The LM6000 gas turbine engine operate under severe conditions. The LM600 are exposed to extremely high temperature, stress, and high cycling. Due to these operating conditions, the hot section must be replaced in kind to maintain safe operation and unit reliability.

Expected Benefits

Engine overhaul will maintain safe operation and unit reliability.

Project Risk

GE (General Electric) original equipment manufacturer (OEM) changeout of engines during outage window

¹ Dollars exclude AFUDC
Competitive and Confidential Information



WBS Description: Lee East SCR Catalyst Replacement

WBS Element: F-0143-1800044

Business Area: Power Generation

Executive: Jeremiah D. Wilks

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$1,917,020

FY23: \$1,917,020

FY24: \$0

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Replace existing Lee East Peaking Turbines NOx - CO SCR catalysts. (Selective Catalytic Reduction)

Project Justification

Existing catalysts have reached end of life. Selective Catalytic Reduction (SCR) catalysts indicate replacement is required.

Expected Benefits

Environmental compliance and unit reliability.

Project Risk

Delay/deferment of project could result in increased operation and maintenance (O&M) consumable expenses due to failing reactivity of existing catalyst. Postponement of replacement could result in unplanned forced outage due to inability to comply with environmental air permit limits.

¹ Dollars exclude AFUDC
Competitive and Confidential Information



WBS Description: Lee East Primary Filter Replacements

WBS Element: F-0143-2200048

Business Area: Power Generation

Executive: Joel D. Goode

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$341,213

FY23: \$0

FY24: \$0

FY25: \$0

FY26: \$168,750

FY27: \$172,463

Project Description

Replacement of the primary filters on the four Lee East combustion turbines filter houses.

Project Justification

The primary inlet air filters are essential for combustion turbine operation. If the filters become degraded, buildup could occur on the compressor, reducing efficiency and output. Also prevents foreign object damage (FOD) which could cause significant damage to the combustion turbine.

Expected Benefits

Continued reliable operation of inlet air filtration on the Lee East combustion turbines

Project Risk

If not executed, current filters could become degraded, which would expose additional risks to the combustion turbine.

¹ Dollars exclude AFUDC
Competitive and Confidential Information



WBS Description: Lee East HVAC Upgrade Project

WBS Element: F-0143-2495432

Business Area: Power Generation

Executive: Joel D. Goode

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$225,110

FY23: \$44,560

FY24: \$44,720

FY25: \$44,840

FY26: \$45,000

FY27: \$45,990

Project Description

Replace existing HVAC (heating, ventilation, & air conditioning) units for Lee East electrical and control systems.

Project Justification

Required for reliability of the controls and electrical systems. The majority of the buildings do not have fully redundant air conditioning systems.

Expected Benefits

Replacing existing HVAC units will provide for more reliable controlled climate systems, thus having the potential for increased reliability of the units.

Project Risk

Minimal risk is expected, since the HVAC systems will be sized accordingly to original design and installation will be coordinated with the plant.



WBS Description: Tuttle Well #1 Plugging Project

WBS Element: F-0145-0000012

Business Area: Power Generation

Executive: Jeremiah D. Wilks

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$177,024

FY23: \$177,024

FY24: \$0

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Plug Tuttle well #1 per Edward's Aquifer Authority requirement. In 2017 the Edwards Aquifer Authority granted a one-time five-year extension for this well due to damage observed in the well's casing. It will be necessary to repair and cap, operation and maintenance (O&M) expense, or plug the well (Capital). The Tuttle site currently has 3 capped well and 1 plugged in addition to well #1.

Project Justification

Well #1 is damaged and must be repaired or plugged. The well will be plugged to avoid any future expenditures to maintain the well. None of the wells at the Tuttle site are currently in service.

Expected Benefits

No operation & maintenance (O&M) funds will be required to maintain the well's casing.

Project Risk

If the well is not plugged or repaired, the Edwards Aquifer Authority will issue fines.



WBS Description: Braunig3 Air Preheater Basket and Seal

WBS Element: F-0181-1600014

Business Area: Power Generation

Executive: Jeremiah D. Wilks

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$1,740,800

FY23: \$622,800

FY24: \$1,118,000

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Replace all air preheater baskets on V.H. Braunig Unit 3 air preheaters during the 2021 scheduled overhaul outage(B321). Purchase complete set of new hot-end, intermediate, and cold-end baskets to have on-site prior and contract replacement operation to qualified boiler maintenance contractor.

Project Justification

These baskets and seal were replaced in 2003 and the normal life (typically 10-12 years) and require replacement due to element surface corrosion, resulting in element roughness. This results in the inability to fully remove rust deposits with high pressure water wash, excessive plugging, high APH differentials, and possible forced unit outages for increased wash frequency.

Expected Benefits

Purchase all new baskets and seals, and contract installation during scheduled overhaul outage.

Project Risk

Delayed replacement until next schedule outage and risk unit derating and forced outages and other damage.



WBS Description: Spruce1 Exciter Controls Upgrade

WBS Element: F-0183-1700030

Business Area: Power Generation

Executive: Jeremiah D. Wilks

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$776,664

FY23: \$109,942

FY24: \$666,722

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Spruce1 Exciter Control will be upgraded from the existing ABB Unitrol 5000 to the next generation Unitrol 6000 as part of plan to modernize all our legacy ABB excitation systems to the latest generation available from ABB.

Project Justification

The Unitrol 5000 excitation controls are no longer being manufactured by ABB. Although this system is still in the Classic phase and is still fully supported, recent inspections have identified specific components that are no longer supported. Also, the rest of the ABB Exciter Controls in use on the CPS Energy fleet are Unitrol F is already in the limited phase of support and will need to be upgraded. System was installed in 2001 and is expected to go into the Limited phase in 5 years.

Expected Benefits

- Upgrade to latest generation of ABB Excitation Controls with support for at least 10 to 15 years.
- Installation and activation PSS controls.

Project Risk

There is very limited risk in the execution of this project since upgrade will be performed by the original equipment manufacturer (OEM).

WBS Description: Spruce2 MS Lead Replacement

WBS Element: F-0185-1800052

Business Area: Power Generation

Executive: Jeremiah D. Wilks

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$878,132

FY23: \$878,132

FY24: \$0

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Replace a section of the steam turbine main steam lead piping that has significantly low hardness readings during the planned overhaul in November 2020. Based on the inspection performed in 2016, this section of main steam piping to be replaced has a remaining life of about 50,00 operating hours (about 8.5 years), which will put it to be at the end of its life in 2024.

Project Justification

Continue operating the unit without replacing this section of main steam lead piping in question will present a high risk of catastrophic failure of this section of piping, causing the unit to become unavailable for at least 6 months due to the long lead time of the replacement parts. In addition, a catastrophic failure may cause some collateral damages to the unit, and most importantly, presents a dangerous safety risk.

Expected Benefits

Replacing this section of main steam lead piping will significantly reduce the risk of catastrophic failure of this section of piping, therefore significantly reducing the risk of unit forced shut down for a long period of time, and more importantly, significantly reducing the safety risk.

Project Risk

This section of Main Steam lead piping to be replaced, which is of Grade 91 material, requires strict adherence to fabrication and weld procedures in the shop and on the field. Shop inspections will be performed during the fabrication process to ensure quality of fabricated materials. Field inspections will also be performed during field construction to ensure that all weld and heat treatment procedures are followed.



WBS Description: Spruce 2 Ammonia Vaporizer Upgrade Modification Replacements

WBS Element: F-0185-2100042

Business Area: Power Generation

Executive: Joe A. Sepulveda

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$203,719

FY23: \$203,719

FY24: \$0

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

This project is for replacing the ammonia vaporizers with a modified design. Currently tube failures are occurring in the bends. The new design will consider eliminating tube bends and improved material resistance to chlorides.

Project Justification

Aqueous ammonia is used in Spruce 2 Selective Catalytic Converter for unit Nitrogen Dioxide (NOx) reduction using an ammonia vaporizer. Vaporizer stainless steel material is susceptible to stress corrosion cracking in contact with high chlorides in ammonia. CPS Energy received 3 shipments of ammonia with high chlorides in the past 10 years. Each occurrence requires replacing the vaporizers. New design will eliminate susceptible design and will include new design with upgraded material saving 200K/yr in maintenance.

Expected Benefits

Benefit is avoiding a unit shutdown/derate because of NOx removal.

Project Risk

The risk of not completing the project is derating or shutting down Spruce 2 because of inability to remove Nitrogen Dioxide (Nox).



WBS Description: Braunig3 Blowdown Line Replacement

WBS Element: F-0198-1700004

Business Area: Power Generation

Executive: Jeremiah D. Wilks

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$560,773

FY23: \$504,873

FY24: \$55,900

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

This project intends to replace the underground portion of the boiler blown down line on Unit 3. The line is buried, and ground water has caused the pipe to lose its integrity. If the line completely ruptures, the unit could be forced to come off line. Due to where the line is buried, steam seeps from the ground and into heavily trafficked areas. A new line will keep these areas safe from steam related injuries.

Project Justification

Parts of the blow down line are original to the plant. A new underground blow down line will increase plant reliability. The new line would reduce the risk of a steam related injury due to the fact that the buried line runs underneath a heavily trafficked area, and leaking steam is a common problem now.

Expected Benefits

The new blow down line will increase plant reliability. The line will also fix a safety concern of steam seeping from the ground.

Project Risk

The is a risk of exposing buried asbestos when digging up the lines on the south side of the boilers



WBS Description: Sommers 2 Boiler Blowdown Line Replacement

WBS Element: F-0199-1700016

Business Area: Power Generation

Executive: Jeremiah D. Wilks

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$731,429

FY23: \$731,429

FY24: \$0

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Replace a portion of the blowdown line that was not replaced during Phase 1. The line has been exposed to the elements and has deteriorated greatly. If the line completely ruptures, the unit could be forced to come off line. Due to the location of the line, there is a risk that leaking steam may injure workers. A new line would prevent these injuries from happening.

Project Justification

Part of the blowdown line, currently exposed to the elements, original to the plant has become corroded and the integrity has been compromised. If the line were to completely fail and rupture, the unit could be forced to come off line. Replacing the existing blow down line with a new one will increase the reliability of the unit, avoiding costly forced shutdown.

Expected Benefits

The new blowdown line will increase plant reliability while also decreasing the risk of steam leakage. The increase in reliability decreases the chance of an unplanned outage and the decrease in steam leakage decreases the risk of injury due to steam contact.

Project Risk

This project will be executed during the seasonal readiness outage in the spring of 2020. A delay during the filed construction could extend the outage. Proper planning and coordination will significantly minimize the risk of an outage extension.

¹ Dollars exclude AFUDC
Competitive and Confidential Information



WBS Description: Spruce1&2 Battery Monitoring System

WBS Element: F-0200-2482252

Business Area: Power Generation

Executive: Joe A. Sepulveda

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$285,684

FY23: \$285,684

FY24: \$0

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Install continuous battery monitoring system on Spruce 1&2 (JKS 1&2) plant station service and uninterruptable power supply (UPS) batteries.

Project Justification

Battery monitoring system will provide continuous monitoring for battery parameters. I&E will no longer be required to manually collect data on battery parameters to meet North American Electric Reliability Corporation (NERC) PRC-005 requirements. System installation will include CPU, wired connections to battery cells, software, cable runs for connections to Digital Control System (DCS) and network.

Expected Benefits

Battery parameters that are currently documented by I&E during weekly, monthly, quarterly and annual inspections will be continuously monitored with the new battery monitoring system. The system will provide more accurate and efficient data collection, and facilitate the ability to trend data which results in saved costs due to reduced man hours and better oversight of equipment health. System will alert control room with general trouble alarm.

Project Risk

Increased risk for non-compliance with North American Electric Reliability Corporation (NERC) requirements under PRC-005. Continuous monitoring eliminates the need for the majority of manually-performed battery inspections at specific intervals.



WBS Description: von Rosenberg (AvR) Steam Turbine HP/IP Retrofit

WBS Element: F-0214-1800069

Business Area: Power Generation

Executive: Jeremiah D. Wilks

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$20,620,609

FY23: \$0

FY24: \$0

FY25: \$0

FY26: \$10,198,125

FY27: \$10,422,484

Project Description

Replace high pressure/intermediate pressure (HP/IP) steam turbine rotor, diaphragms and seals. Project cost estimate is based on Rio Nogales steam turbine cost estimate, but shifted to 2028 installation.

Project Justification

Project assumes major inspection during 2022 outage discovers diaphragm degradation. CPS Energy plans rotor, diaphragms and seals replacement in 2028. Steam turbine casing shall remain in place. Cashflow allocates \$250,000 in 2025 to begin project engineering and procurement.

Expected Benefits

Major inspection turbine interval is currently every 6 years. Project resets the required major inspection interval schedule to a 10 year cycle, resulting in operation and maintenance (O&M) savings by increasing the inspection interval from 6 year to 10 years. Project gains 4% turbine efficiency in first year. By year 10, turbine efficiency gain will fall to 2.2%.

Project Risk

Long lead times for procurement of turbine parts present a medium risk to project cost, schedule, and quality. CPS Energy will incorporate lessons learned from Rio Nogales turbine project into this project. In addition to utilizing CPS Energy turbine subject matter expert, CPS Energy will engage outside consultants to mitigate risks.

¹ Dollars exclude AFUDC
Competitive and Confidential Information



WBS Description: von Rosenberg (AvR) Generator Breaker Replacement Project

WBS Element: F-0214-2100001

Business Area: Power Generation

Executive: Jeremiah D. Wilks

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$5,325,845

FY23: \$3,536,668

FY24: \$1,789,177

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Replace Generator Breakers at Arthur von Rosenberg for Steam Turbine and Combustion Turbine 1 &2 (ST, CT1, & CT 2).

Project Justification

The existing breakers have a long lead time for parts replacement between 10 to 12 months. There are no spare parts for the Generator Breakers. If a generator breaker were to fail, the unit would be down for an extended period of time. This will adversely affect commercial availability and the Equivalent Forced Outage Rate (EFOR).

Expected Benefits

Reduce significant downtime by upgrading breakers to latest technology.

Project Risk

If generator breakers were to fail, the respective Unit or the complete unit may be unavailable for several months due to long lead times on the replacement parts. This will be a significant monetary impact to CPS Energy.



WBS Description: Spruce1 Fans Variable Frequency Drives (VFD) Upgrade

WBS Element: F-0217-2100045

Business Area: Power Generation

Executive: Jeremiah D. Wilks

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$14,914,283

FY23: \$0

FY24: \$706,180

FY25: \$11,509,910

FY26: \$1,334,418

FY27: \$1,363,775

Project Description

Upgrade Spruce 1 Induce draft (ID) and forced draft (FD) fan variable frequency drives (VFD).

Project Justification

Current FD VFDs have caused numerous trips and derates. Plant management has requested new units that match common industry design instead of the unique dual winding system. Units are 12 years old.

Expected Benefits

The upgrade will improve reliability.

Project Risk

There are only two vendors with significant experience with VFDs of required size. We will require references to verify reliability and support during the request for proposal (RFP) process.

¹ Dollars exclude AFUDC
Competitive and Confidential Information



WBS Description: Spruce1 Induced Draft (ID) & Forced Draft (FD) Fan Drive Exciter Refresh

WBS Element: F-0218-0000017

Business Area: Power Generation

Executive: Jeremiah D. Wilks

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$481,097

FY23: \$66,508

FY24: \$414,589

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Refresh/replace existing exciters with latest technology.

Project Justification

Refresh/replace existing exciters with latest technology to ensure reliable operation of fan drive system.

Expected Benefits

Improve reliability with latest technology exciters.

Project Risk

Failure to replace the variable frequency drive exciter would increase the probability of unit derates and forced outages.



WBS Description: Rio Nogales Boiler Feed Pump Motor Rewind

WBS Element: F-0219-2100027

Business Area: Power Generation

Executive: Jeffrey J. Kruse

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$827,433

FY23: \$155,960

FY24: \$162,110

FY25: \$168,150

FY26: \$168,750

FY27: \$172,463

Project Description

Boiler Feed Pump 4160V motor rewind.

Project Justification

Motor rewinds are necessary for motors that have winding insulation at or near end of life. Need for motor rewind is identified by predictive maintenance technologies or shop inspection. Once identified, if the motor is not rewound it will be operated with known risk of failure that may lead to catastrophic failure and an unplanned derate or forced outage for critical equipment.

Expected Benefits

Motor rewinds provide new winding insulation systems that greatly extend the life of the motor, improve reliability, and reduce operation and maintenance (O&M) costs.

Project Risk

From inspections performed during an outage, if the need for a rewind is identified, potential exists for impact to the outage schedule. This potential is small for Rio Nogales, given that 1 of 2 boiler feed pumps are required for full load.

¹ Dollars exclude AFUDC
Competitive and Confidential Information



WBS Description: Rio Nogales Cooling Tower/Decking/Shrouds/Siding Upgrades

WBS Element: F-0224-0000024

Business Area: Power Generation

Executive: Jeremiah D. Wilks

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$1,741,715

FY23: \$26,664

FY24: \$1,715,051

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

This project replaces and upgrades the cooling tower siding, deck, ladders, fan shrouds and provides safer fan motor access at the Rio Nogales Power Plant.

Project Justification

The cooling tower siding, fan shrouds and deck requires considerable operation & maintenance (O&M) to maintain due to its age. Replacing these will save O&M repair costs.

Expected Benefits

O&M dollars will be saved due to less frequent repairs. Access/safety will also be improved.

Project Risk

Failure to execute this project would cause the cooling tower siding to degrade to an unmaintainable condition, which would then require complete replacement. Also, the deferral of this project will result in continued O&M repairs.

¹ Dollars exclude AFUDC
Competitive and Confidential Information



WBS Description: Rio Nogales Steamer TWIPS Upgrades

WBS Element: F-0224-0000031

Business Area: Power Generation

Executive: Jeremiah D. Wilks

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$325,000

FY23: \$325,000

FY24: \$0

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Upgrade TWIPS (Turbine Water Induction Prevention System) with automated controls for weekly operational verification.

Project Justification

The current control configuration does not contain control/logic to perform weekly operator checks. This system verification is required to ensure proper function of Turbine Water Induction Prevention System (TWIPS) valves. Instrumentation should be periodically calibrated to ensure proper functionality of TWIPs. The project upgrades enable safer and more frequent calibration.

Expected Benefits

Weekly verification of TWIPS functioning properly.

Project Risk

There is inherent risk of TWIPS failure resulting in water induction to the main turbine.



WBS Description: von Rosenberg (AvR) CT1 Rotor Replacement

WBS Element: F-0226-2100051

Business Area: Power Generation

Executive: Jeremiah D. Wilks

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$36,153,515

FY23: \$9,431,840

FY24: \$21,423,455

FY25: \$5,298,220

FY26: \$0

FY27: \$0

Project Description

Replace the combustion turbine #1 (CT1) rotor and upgrade to flared compressor.

Project Justification

The von Rosenberg (AvR) combustion turbine 1 rotor will reach end of life around spring 2025. In order for the turbine to continue to operate, the rotor must be replaced prior to spring 2024. Rotor replacement requires a major overhaul outage.

Expected Benefits

Reduces risk of rotor failure and unplanned unit outage, 10 MW output increase, and eliminates expensive rotor inspections.

Project Risk

Failure to replace the combustion turbine rotor prior to the rotor's end of life would require the unit to suspend operation and cause a loss of generation.

¹ Dollars exclude AFUDC
Competitive and Confidential Information



WBS Description: von Rosenberg (AvR) CT2 Rotor Replacement

WBS Element: F-0226-2100052

Business Area: Power Generation

Executive: Jeremiah D. Wilks

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$41,560,217

FY23: \$74,240

FY24: \$9,467,055

FY25: \$21,646,062

FY26: \$5,130,000

FY27: \$5,242,860

Project Description

Replace von Rosenberg (AvR) combustion turbine #2 (CT2) rotor and upgrade to flared compressor.

Project Justification

The von Rosenberg combustion turbine 2 rotor will reach end of life Spring 2026 which is 8 years before planned unit retirement date. The rotor must be replaced on or before Spring 2026. Rotor replacement requires a major overhaul outage.

Expected Benefits

Reduces risk of rotor failure and unplanned unit outage. New rotor will have 25 year lifespan. 10 MW output increase. Eliminates expensive rotor inspections.

Project Risk

Failure to replace the combustion turbine rotor prior to the rotor's end of life would require the unit to suspend operation and cause a loss of generation. CPS Energy must replace rotor to avoid 250 MW derate in 2026.



WBS Description: Rio Nogales - Fire Protection Indicating Valve (PIV) Upgrade

WBS Element: F-0236-2100022

Business Area: Power Generation

Executive: Jeffrey J. Kruse

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$289,250

FY23: \$144,430

FY24: \$144,820

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

This project is to upgrade the valve internals and the indicating assembly.

Project Justification

The current valve assembly has allowed foreign material into the valve and is binding up the valves making them hard to operate. The stem extension and parts are of inferior materials and are failing. The upgraded valve internals will not allow foreign material into the valve and the stem extension is a solid bar with all brass gears that will last much longer than the currently used system.

Expected Benefits

The benefits of the upgraded valve internals will improve the functionality of the valves and extend their life as well as the indicating system. The upgrade is necessary to ensure reliable, adequate fire protection.

Project Risk

"The risk of not upgrading the valve internals and indicating systems would be that the valve fail to operate. If we were to need to isolate a section of the plant for work, that section would not be able to be isolated. The plant would need to be taken offline as the fire system is run by service water pumps which feeds other equipment necessary to run. The upgrade is necessary to ensure reliable, adequate fire protection.



WBS Description: Rio Nogales Generator Breaker Replacement Project

WBS Element: F-0237-2100034

Business Area: Power Generation

Executive: Jeremiah D. Wilks

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$7,417,914

FY23: \$0

FY24: \$3,690,839

FY25: \$3,727,075

FY26: \$0

FY27: \$0

Project Description

Replace Generator Breakers at Rio Nogales for ST, CT101, CT201, & CT 301.

Project Justification

The existing breakers have a long 10-12 month lead time for replacement parts. There are no spare parts for the generator breakers. If a generator breaker were to fail, the unit would be down for an extended period of time. This will adversely affect commercial availability and equivalent forced outage rate (EFOR).

Expected Benefits

Reduce significant downtime by upgrading breakers to latest technology.

Project Risk

The failure of any of the generator breakers would result in an extended (several months) unit derate due to long lead times on the replacement parts.

¹ Dollars exclude AFUDC
Competitive and Confidential Information



WBS Description: Power Generation New Build Projects

WBS Element: F-0242-0000001

Business Area: Power Generation

Executive: Jose J. Trevino

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$344,604,132

FY23: \$0

FY24: \$0

FY25: \$0

FY26: \$109,038,853

FY27: \$235,565,279

Project Description

This is a placeholder for the cost of a new generating resource to meet native load demand. The actual technology type may vary.

Project Justification

This is a proven generating resource to meet our growing native load electric demand (plus 13.75 reserve margin), replace older natural gas steam generating units, and firm up the variability of our growing renewable energy portfolio.

Expected Benefits

Unit replaces capacity planned to retire, meets retail load growth, and firms up variable renewable generation.

Project Risk

Delays or an inability to fund new capacity could leave CPS Energy in a capacity-short position (i.e. lower reserve margin), which could limit our ability to protect our native load customers from high electric market prices in an affordable manner.



WBS Description: Community Solar Emerson Upgrades

WBS Element: F-0243-2200073

Business Area: Power Generation

Executive: Wayne Callender

Strategic Category: Infrastructure Modernization

Project Cost: 1 \$107,223

FY23: \$107,223

FY24: \$0

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Upgrading the Community Solar site to Emerson control system.

Project Justification

Standardization with other CPS Energy solar sites and ability of operations staff to transition to operation of the Community Solar site.

Expected Benefits

Standardization of site with other CPS Energy solar sites.

Project Risk

Lack of standardization with other CPS Energy sites.



WBS Description: von Rosenberg (AvR) HVAC Replacement Project

WBS Element: F-0372-1800071

Business Area: Power Generation

Executive: Joel D. Goode

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$844,163

FY23: \$167,100

FY24: \$167,700

FY25: \$168,150

FY26: \$168,750

FY27: \$172,463

Project Description

Replace existing ac units for the von Rosenberg (AvR) Motor Control Center (MCC), Packaged Electrical Equipment Center (PEEC), and Electrical Equipment rooms.

Project Justification

Required for reliability of the equipment in climate controlled cabinets. The majority of the buildings do not have second air conditioning installed for redundancy.

Expected Benefits

Replacing the air conditioning units will provide a more reliable climate control system to prevent overheating and damage to the equipment.

Project Risk

Failure to replace HVAC (heating, ventilation, & air conditioning) units could impact unit reliability due to the loss of equipment in climate controlled cabinets.

¹ Dollars exclude AFUDC
Competitive and Confidential Information



WBS Description: von Rosenberg (AvR) AGP Escalation Annual true-up

WBS Element: F-0372-1800075

Business Area: Power Generation

Executive: Joel D. Goode

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$990,026

FY23: \$287,634

FY24: \$330,020

FY25: \$372,372

FY26: \$0

FY27: \$0

Project Description

Annual escalation true up on Long Term Service Agreement (LTSA) contract.

Project Justification

Annual escalation true up on Long Term Service Agreement (LTSA) per contract.

Expected Benefits

The benefit would be to reflect proper adjustment on LTSA costs.

Project Risk

The existing LTSA is necessary for the reliable operation of the combustion turbines. CPS Energy has a contractual obligation for this cost increase. Failure to fund could result in legal implications.



WBS Description: von Rosenberg (AvR) Inlet Filters

WBS Element: F-0372-2100053

Business Area: Power Generation

Executive: Joel D. Goode

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$504,450

FY23: \$0

FY24: \$0

FY25: \$504,450

FY26: \$0

FY27: \$0

Project Description

Replace inlet air filters on both von Rosenberg (AvR) gas turbines.

Project Justification

Replacement of gas turbine inlet air filters is required every three years to prevent excessive filter differential which will result in unit deratings.

Expected Benefits

Maintain unit reliability.

Project Risk

Risk of inaction will result in elevated inlet filter differentials which will force the unit to be derated until new filters are installed.

¹ Dollars exclude AFUDC
Competitive and Confidential Information



WBS Description: Replace Corroded Fuel Gas Piping

WBS Element: F-0372-2200005

Business Area: Power Generation

Executive: Jeremiah D. Wilks

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$389,162

FY23: \$389,162

FY24: \$0

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Replacement of 4 inch, 10 inch, and 12 inch above grade fuel gas piping and valves between gas compressors and fuel gas heaters.

Project Justification

Existing piping is corroded and may cause some failure (leak) in near future. If this happens, the plant will be forced to shut down. replacing with new piping will increase the reliability of the fuel gas supply to the plant. Identified by Sargent Lundy report at critical item to upgrade.

Expected Benefits

Restore reliability in the fuel gas supply system to von Rosenberg (AvR) units.

Project Risk

If not replaced, corrosion of above fuel gas piping will eventually lead to fuel gas leaking, causing the von Rosenberg (AvR) units to be forced shut down. Possible risk is that installation of new piping exceeds duration of planned outage. The risk can be mitigated and minimized by careful planning and management of the project. Pre-outage activities will definitely help to minimize the risk.



WBS Description: Replace Reheater Desuperheater Spray Control Valve

WBS Element: F-0372-2200009

Business Area: Power Generation

Executive: Jeremiah D. Wilks

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$58,425

FY23: \$58,425

FY24: \$0

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Replace reheater desuperheater spray control valve and associated isolation valve of the heat recovery steam generator (HRSG) 1.

Project Justification

This project was Identified as a critical item to upgrade in the Flex Path Report by Sargent & Lundy.

Expected Benefits

New reheater desuperheater spray control valve will ensure a leak-tight shut-off of the spray flow, eliminating the risk of damage to the reheater header. This will also help control the reheat temperature during operation, resulting in better heat rate. There will also be less maintenance required on the new valves.

Project Risk

Project risk is minimal. Replacement will occur during planned outage.



WBS Description: von Rosenberg (AvR) MT2 GSU Replacement

WBS Element: F-0372-2200019

Business Area: Power Generation

Executive: Jeremiah D. Wilks

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$7,094,072

FY23: \$10,901

FY24: \$541,736

FY25: \$1,690,325

FY26: \$2,399,164

FY27: \$2,451,946

Project Description

Replace GSU Transformer and use original GSUT as an on-site spare.

Project Justification

In the event of a Combustion Turbine (CT) Generator Step Up Transformer (GSU) failure, the von Rosenberg facility would be unable to generate power from the CT2 Generator. Lead time to replace the transformer 18 to 24 months.

Expected Benefits

Increase availability and reliability of the power plant and avoid long and costly forced outage in the event of transformer failure. Operational savings due to increased efficiency and reduced losses of the new transformer. These savings are difficult to quantify as they depend on the unit's run hours and capacity factor, actual transformer losses and market energy cost over the transformer's life.

Project Risk

Possibility of late delivery would push installation to future outage. Loss of MT2 GSU Transformer would result in a complete loss of power from CT2 Generator and 50% loss of power from the Steam Turbine.



WBS Description: von Rosenberg (AvR) UPS Replacement & Spare Battery Charger

WBS Element: F-0372-2200022

Business Area: Power Generation

Executive: Jose J. Trevino

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$215,800

FY23: \$103,700

FY24: \$0

FY25: \$112,100

FY26: \$0

FY27: \$0

Project Description

Replace Uninterruptible Power Supply (UPS) and procure spare battery chargers for CT1 and CT2 (Combustion Turbine) per Sargent & Lundy study

Project Justification

UPS system is approaching end of expected service life (20 years) and component failure is possible if not replaced. Replacement required for continued reliability. Spare charges will add redundancy and improve reliability.

Expected Benefits

Replace equipment that is at end of life and add redundancy to improved reliability

Project Risk

Plant can continue operation with existing equipment. However, deferring project could impact plant reliability with extended unavailability of the UPS system if failure of existing equipment occurs and repair is needed.



WBS Description: Replace Feedwater Control Valves

WBS Element: F-0372-2200027

Business Area: Power Generation

Executive: Jeremiah D. Wilks

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$169,794

FY23: \$123,869

FY24: \$45,925

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Replace two water valves (startup and main) for one (1) heat recovery steam generator (HRSG).

Project Justification

Identified by Sargent Lundy report as a critical item to upgrade.

Expected Benefits

This project will improve the controllability range for the feedwater valves, resulting savings of high-quality demineralized water during startup and providing more reliable control of drum levels, which would prevent or mitigate the potential for liquid carryover.

Project Risk

If project is not executed, it is difficult to control the drum level with existing feedwater control valves, causing excessive blowdown during unit startup. This will result in a potential for overfilling the drum, which could cause liquid water carryover quenching in adjacent tube banks, possibly quenching the drum itself.

¹ Dollars exclude AFUDC
Competitive and Confidential Information

WBS Description: von Rosenberg (AvR) HRSG 1&2 Life Assessment Implementation

WBS Element: F-0372-2200029

Business Area: Power Generation

Executive: Jeremiah D. Wilks

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$17,266,118

FY23: \$67,615

FY24: \$194,313

FY25: \$5,626,800

FY26: \$5,626,800

FY27: \$5,750,590

Project Description

The purpose of this project is to replace the High Pressure Superheater and the High Pressure Economizer in the Heat Recovery Steam Generator (HRSG) 1 & 2 to ensure unit reliability.

Project Justification

In order for von Rosenberg (AvR) to fully comply with the Flex Path Initiative, the High Pressure Superheat panel sections and the High Pressure Economizer sections need to be replaced. They are original to the HRSG and pose the highest risk to repeated tube failures according to Sargent & Lundy, who performed a study on von Rosenberg (AvR) to find the limiting factors in complying with the Flex Path Initiative.

Expected Benefits

This project will help von Rosenberg (AvR) HRSG 1 & 2 through flex path period imposed on the units. The HRSGs have original tube panel sections and they are a limiting factor in the overall life of the HRSGs. New panels will help the units run worry free from tube leaks that could compromise unit reliability.

Project Risk

The 2 main risks for this project are the material lead times and potential installation issues.



WBS Description: von Rosenberg (AvR) Critical Valve Asset Management

WBS Element: F-0372-2200030

Business Area: Power Generation

Executive: Jeremiah D. Wilks

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$686,983

FY23: \$473,313

FY24: \$213,670

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

The purpose of this project is to assess and replace as necessary the valves that are critical to the operation of von Rosenberg. To be compliant with the Flexible Path program, it is pertinent that the valves are in proper working order.

Project Justification

In order to comply with the FlexiblePath Initiative, von Rosenberg (AvR) must have fully functioning valves that manage the critical aspects of plant operation. Sargent and Lundy have found that the valves need to be assessed, repaired, or replaced. Having these valves working properly will ensure trouble free plant operation for the extended life of the plant.

Expected Benefits

Lower operating & maintenance expense on repairing old valves. Assurance that the valves will not fail during crucial summer months.

Project Risk

Risk of not performing the project would be decreased unit reliability during peak summer months.



WBS Description: von Rosenberg (AvR) High Pressure Piping Survey and Inspection

WBS Element: F-0372-2200031

Business Area: Power Generation

Executive: Jeremiah D. Wilks

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$376,534

FY23: \$26,006

FY24: \$350,528

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

The purpose of this project is to regularly inspect the high pressure steam piping at von Rosenberg to ensure that the plant can operate within the Flexible Path initiative.

Project Justification

With the High Pressure Piping at von Rosenberg (AvR) being P91 material, it is critical that the piping be inspected regularly due to the tricky nature of its material composition. Creep damage is caused by operating at elevated temperatures for an extended period of time, which is typical of older power plants. Performing these inspections will allow the plant to know the exact condition of the critical piping that allows the steam turbine to operate.

Expected Benefits

The expected benefit would be that the plant operations staff would know exactly the condition of their high pressure steam line and could plan for any repairs in advance, rather than making a reactive repair after a failure. Knowing the condition of the high pressure steam piping will assure confidence that the plant will be compliant with the Flex Path Initiative.

Project Risk

The risk of not performing these larger scale inspections could ultimately be a catastrophic failure of the main steam line. Although this is highly unlikely, the more likely failure would be a high-pressure steam leak in a highly trafficked area.

¹ Dollars exclude AFUDC
Competitive and Confidential Information

WBS Description: von Rosenberg (AvR) - Spare CT Fan/Blower Assemblies

WBS Element: F-0372-2200036

Business Area: Power Generation

Executive: Joel D. Goode

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$62,220

FY23: \$62,220

FY24: \$0

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

This project will consist of purchasing the following Combustion Turbine (CT) auxiliary equipment:

- CT Lube Oil Area Vent Fan/Motor
- CT Compartment Vent Fan/Motor
- CT Bearing Area Blower/Motor
- CT Load Compartment Vent Fan/Motor
- CT Exhaust Frame Blower/Motor

Project Justification

This equipment is notorious for high rates of failure, causing extensive periods of operation with lost redundancy. Having spare equipment onsite will provide an added layer of protection from operating in an "at-risk" state for extended periods of time.

Expected Benefits

Decreased "at-risk" CT operation is the main benefit of executing this project.

Project Risk

Risk of inaction is increased likelihood of unit operation with lost redundancy of CT support system cooling/venting.



WBS Description: von Rosenberg (AvR) Instrument Air Dryer Upgrade

WBS Element: F-0372-2200041

Business Area: Power Generation

Executive: Jeremiah D. Wilks

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$248,076

FY23: \$248,076

FY24: \$0

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Replace instrument air dryers at von Rosenberg, which have been in service since inception.

Project Justification

The original air dryers have been identified as a critical item to upgrade. Sargent Lundy reports that the Quality of air produced is low with moisture in instrument air.

Expected Benefits

New air dryers will improve air quality & remove moisture, increase reliability for the instrument air system, and decrease maintenance cost.

Project Risk

Installation may temporarily impact plant air supply.



WBS Description: von Rosenberg (AvR) CT1 Station Service Battery Replacement

WBS Element: F-0372-2200062

Business Area: Power Generation

Executive: Jose J. Trevino

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$366,942

FY23: \$0

FY24: \$0

FY25: \$0

FY26: \$181,475

FY27: \$185,467

Project Description

The purpose of this project is to replace the existing von Rosenberg CT1 station service batteries with new batteries. Replacing the existing station service will increased reliability if there is a power loss in the system providing a redundant back up.

Project Justification

The station service batteries are located in a non-climate controlled environment and have not have exceeded service of 15 years before replacement is needed. Replacing the existing station service batteries with new batteries will ensure capacity is sufficient in order for the battery to perform as intended therefore increasing the reliability of the system.

Expected Benefits

Replacing the existing station service batteries will increase reliability to provide essential power in the event there is a power loss in the system.

Project Risk

The project risk for removal and installation of new batteries is minimal since batteries will be replaced during an outage.



WBS Description: von Rosenberg (AvR) Generator Excitation System Replacement Project

WBS Element: F-0372-2200064

Business Area: Power Generation

Executive: Jeremiah D. Wilks

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$1,988,380

FY23: \$0

FY24: \$0

FY25: \$94,904

FY26: \$936,437

FY27: \$957,039

Project Description

Replace Generator Excitation System on CT1 & CT2

Project Justification

von Rosenberg Station has operated almost 20 years. The excitation system should be either refurbished or replaced.

Expected Benefits

Replacing the Excitation System would improve reliability and reduce system failures.

Project Risk

Minimal risks in performing excitation system replacement.



WBS Description: von Rosenberg (AvR) CT2 Station Service Battery Replacement

WBS Element: F-0372-2200065

Business Area: Power Generation

Executive: Jose J. Trevino

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$180,520

FY23: \$0

FY24: \$180,520

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

The purpose of this project is to replace the existing von Rosenberg CT1 station service batteries with new batteries. Replacing the existing station service will increased reliability if there is a power loss in the system providing a redundant back up.

Project Justification

The station service batteries in a non-climate controlled environmental have a not to exceed operation of 15 years before replacement is needed. Replacing the existing station service batteries with new batteries will ensure capacity is sufficient for the battery to perform as intended therefore increasing the reliability of the system. The latest capacity test in 2017 revealed component issues signifying the need for battery replacement.

Expected Benefits

Replacing the existing station service batteries will increase reliability to provide essential power in the event there is a power loss in the system.

Project Risk

The project risk for removal and installation of new batteries is minimal since batteries will be replaced during an outage.



WBS Description: von Rosenberg (AvR) Circulating Water Pump Spare Motor

WBS Element: F-0372-2498332

Business Area: Power Generation

Executive: Jose J. Trevino

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$38,990

FY23: \$38,990

FY24: \$0

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Procure a capital spare motor for von Rosenberg (AvR) Circulating Water Pump.

Project Justification

von Rosenberg requires both motors to be in service to achieve sufficient cooling capacity for full load during the summer months. If one of the in services motors experiences a failure, the unit will be derated until motor environmental Protection Agency (EPA) can be made. The derate could last for several weeks depending on the severity of the failure.

Expected Benefits

A spare motor provides increased reliability for summer operation of AvR. In the event that one of the in service motors fails, the spare can be placed in service immediately to avoid an extended unit derate.

Project Risk

Minimal project risk, motor will be a drop in replacement.



WBS Description: von Rosenberg (AvR) HP Train Valve Replacement

WBS Element: F-0372-2550259

Business Area: Power Generation

Executive: Jeremiah D. Wilks

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$409,277

FY23: \$409,277

FY24: \$0

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

This project will replace the Main Steam Stop Valve (HP Train Valve) on each Heat Recovery Steam Generator (HRSG). The manual valves are original to the plant (20 years old) and have started to leak. Engineering will have to be performed in order to properly support the pipe when each valve is cut out.

Project Justification

These valves are needed to run the plant in multiple configurations. The valves isolate each HRSG from each other and allow the plant to be run in a 1X1 configuration if required. Currently, the leaking valves do not completely isolate on HRSG from the other HRSG.

Expected Benefits

The benefits include being able to properly isolate each HRSG from the other if the plant is ever run in the 1x1 configuration compared to the normal 2x1 configuration.

Project Risk

There is a risk to push the outage if the valves are delivered late or there is a problem when welding the new valves in place.



WBS Description: Coal Yard Conveyor Belt Replacements

WBS Element: F-0518-0000001

Business Area: Power Generation

Executive: Joe A. Sepulveda

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$500,000

FY23: \$100,000

FY24: \$100,000

FY25: \$100,000

FY26: \$100,000

FY27: \$100,000

Project Description

This project includes the purchase and installation of conveyor belt(s). Specific belts and dates of replacement are not available due to the need to replace them at a suitable opportunity and when they have degraded to the point replacement is necessary.

Project Justification

Failure to replace these belts may result in the belt breaking causing a safety concern as well as likely collateral damage to other equipment/components in the area. A broken belt will also reduce the redundancy and reliability of coal delivery to the Spruce coal fired power plants.

Expected Benefits

Maintain reliability of coal delivery to the Spruce power plants.

Project Risk

Project risks include scheduling of belt splicers and the material costs.

¹ Dollars exclude AFUDC
Competitive and Confidential Information



WBS Description: C.E.P.: Plant Performance and Reliability Improvements

WBS Element: NEW_1

Business Area: Power Generation

Executive: Jose J. Trevino

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$18,000,000

FY23: \$8,000,000

FY24: \$10,000,000

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Items identified to improve unit performance and reliability. Includes Burners & ignitors for Braunig plants (\$3M) and Spruce1 Induced Draft/Forced Draft Fan Variable Frequency Drive Upgrades (\$15M).

Project Justification

Project will address known plant deficiencies that affect performance or output. The burner & ignitor systems at the Braunig sites need upgrades to improve performance. Maintenance personnel are brought onto site, on overtime, when units are performing start ups to ensure systems are functioning as needed. The Spruce1 variable frequency drives also need upgrades to improve performance. Maintenance personnel are brought onto site to replace components as needed, mostly on overtime. Spare parts for this system are also obsolete and existing spares are refurbished to continue to have spares on site.

Expected Benefits

Reduced unit derates and reduced overtime.

Project Risk

Unanticipated derates may cause capacity shortfalls or lost market opportunities.



WBS Description: C.E.P.: Braunig Power Station City Water Supply Assessment

WBS Element: NEW_4

Business Area: Power Generation

Executive: Jose J. Trevino

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$1,000

FY23: \$0

FY24: \$0

FY25: \$0

FY26: \$0

FY27: \$1,000

Project Description

Request SAWS (San Antonio Water System) evaluate existing water delivery system & capacity to determine if upgrades are required.

Project Justification

The Braunig SAWS water supply was compromised during Winter Storm Uri. This project would allow us to engage with SAWS to evaluate system conditions and potential improvements.

Expected Benefits

Clarification of the modifications or improvements that may need to be done on SAWS or plant system.

Project Risk

Reduced water availability during times of high electrical demand may affect CPS Energy's capacity to meet that demand.

¹ Dollars exclude AFUDC
Competitive and Confidential Information

Special Projects





WBS Description: Power Generation Computer Equipment

WBS Element: D-0081-0000001

Business Area: Power Generation

Executive: Samantha Ovalle

Strategic Category: Special Projects

Project Cost: ¹ \$125,485

FY23: \$25,023

FY24: \$24,936

FY25: \$24,960

FY26: \$25,008

FY27: \$25,558

Project Description

This project is to cover the procurement of all computers for Power Generation.

Project Justification

CPS Energy is on a refresh cycle that requires the replacement of computers. As new technology develops, some of the older computers need to be replaced.

Expected Benefits

Enables staff to continue to work in an efficient manner with the updates in technology that requires the replacement of servers, central processing unit (CPU), printers, and monitors for the entire Power Generation Fleet.

Project Risk

There are no risks associated with this project.



WBS Description: Power Generation Direct Purchase Tools & Equipment

WBS Element: D-0082-1000001

Business Area: Power Generation

Executive: Samantha Ovalle

Strategic Category: Special Projects

Project Cost: ¹ \$1,351,143

FY23: \$286,488

FY24: \$286,764

FY25: \$251,160

FY26: \$260,500

FY27: \$266,231

Project Description

This project is to cover the procurement of tools that exceed \$3,000 and are considered capital.

Project Justification

Tools are required to perform work at the power plant. Many of the tools at the plant are substantial in dollars due to the size and complexity of the tools.

Expected Benefits

Tools are procured to ensure staff works efficiently and safely.

Project Risk

There are no risks associated with this project.



WBS Description: Power Generation Direct Purchase Office Equipment

WBS Element: D-0450-0000001

Business Area: Power Generation

Executive: Samantha Ovalle

Strategic Category: Special Projects

Project Cost: ¹ \$90,969

FY23: \$16,814

FY24: \$15,850

FY25: \$16,167

FY26: \$20,840

FY27: \$21,298

Project Description

Procurement of office equipment for the Power Generation Fleet.

Project Justification

Copy machines and other office equipment are not replaced often at the plants. Typically, one piece of major equipment will fail during the year requiring replacement.

Expected Benefits

Ensure staff can continue to work efficiently without needing to travel to other units for basic copies or other office equipment needs.

Project Risk

There are no risks associated with this project.



WBS Description: Power Generation Ozone Monitor Replacement

WBS Element: F-0022-0000020

Business Area: Power Generation

Executive: Michael M. Malone

Strategic Category: Special Projects

Project Cost: ¹ \$111,720

FY23: \$22,280

FY24: \$22,360

FY25: \$22,360

FY26: \$22,360

FY27: \$22,360

Project Description

Replacement of Ozone Monitors as needed

Project Justification

CPS Energy has three ozone monitoring stations and is running six others for the Alamo Area Council of Governments (AACOG). Monitors are used to model ozone in our region.

Expected Benefits

The monitoring of the ozone in our region will be continuous and will assure that we are meeting requirements.

Project Risk

There are no risks associated with this project.

WBS Description: Spruce 2 Spare Boiler Feed Pump Element Procurement

WBS Element: F-0062-2200020

Business Area: Power Generation

Executive: Joe A. Sepulveda

Strategic Category: Special Projects

Project Cost: ¹ \$738,636

FY23: \$738,636

FY24: \$0

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Utilize spare Spruce 2 Boiler feed Pump (BFP) rotating element along with KSB procured parts to assemble a complete spare Spruce 2 BFP cartridge assembly.

Project Justification

The Spruce 2 Boiler Feed Pump elements have been in service for nearly 10 years and have never been opened up and inspected. The Pump original equipment manufacturer (OEM) recommends this task be completed every 60,000 running hours. Currently the pumps are approaching the 50,000 hour mark. If we were to lose one of these pumps we would have to derate the unit 135 MW while rounding up all parts and would have to take the unit completely offline when installing the new parts.

Expected Benefits

Establish program where pump cartridges will be rotated out, rebuilt, and put in stock for the next outage on a preventative maintenance basis. This will exponentially increase the reliability of these pumps which in turn will make the unit as a whole much more reliable.

Project Risk

No risk to implement. The risk of not implementing and experiencing a pump failure could cause a Spruce 2 to be derated by 135MW for significant period of time, mainly from the procurement of parts.



WBS Description: Spruce2 Bowl Mill Vane Wheel Upgrade 1

WBS Element: F-0062-2200025

Business Area: Power Generation

Executive: Joe A. Sepulveda

Strategic Category: Special Projects

Project Cost: 1 \$161,026

FY23: \$161,026

FY24: \$0

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Upgrade two Spruce2 (JKS2) bowl mill vane wheels to the Flow Pro Vane wheel style.

Project Justification

Four out of six Spruce2 bowl mill vane wheels are worn out and need to be replaced. Instead of replacing with like kind, we plan to upgrade to an improved design that will last significantly longer.

Expected Benefits

Longer Vane wheel and separator

Project Risk

One bowl mill will be out of service at Spruce2 while implementing. If an issue were to occur with another mill during this timeframe, we would have to derate the unit.



WBS Description: Spruce1 (JKS1) Spare Bowl Mill Roller Procurement

WBS Element: F-0062-2200026

Business Area: Power Generation

Executive: Joe A. Sepulveda

Strategic Category: Special Projects

Project Cost: ¹ \$414,800

FY23: \$0

FY24: \$414,800

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Procure two complete roller assemblies for Spruce1 (JKS1) Bowl Mills

Project Justification

Currently it takes an average of two weeks to press the grinding rolls off of a bowl mill. If we had a set of three roller assemblies ready to go, we could cut that time in half. We currently have one complete roller assembly on-site.

Expected Benefits

Cut mill roller changeout time in half and reduce our vulnerability of having to take a derate.

Project Risk

We have 6 mills on Spruce1 & 5 are required for full load. If we have a roller issue and have to keep the mill out of service for 2 weeks that leaves us vulnerable to a derate if we have any issues with the rest of the mills. Cutting this downtime in half would greatly reduce our exposure to a derate.



WBS Description: Spruce2 Bowl Mill Vane Wheel Upgrade 2

WBS Element: F-0062-2200066

Business Area: Power Generation

Executive: Joe A. Sepulveda

Strategic Category: Special Projects

Project Cost: 1 \$164,243

FY23: \$164,243

FY24: \$0

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Upgrade two Spruce2 (JKS2) bowl mill vane wheels to the Flow Pro Vane wheel style

Project Justification

Four of six Bowl Mills Vane Wheels at Spruce2 are worn out and need to be replaced. Instead of replacing in kind we would like to upgrade to the improved design that last significantly longer.

Expected Benefits

Longer Vane wheel and separator body wear life

Project Risk

One bowl mill will be out of service on Spruce2 during this work which means if an issue were to occur with another mill during this timeframe we would have to derate the unit.



WBS Description: Spruce2 Online Equipment Condition Monitoring

WBS Element: F-0062-2200069

Business Area: Power Generation

Executive: David L. Kezell

Strategic Category: Special Projects

Project Cost: ¹ \$1,414,000

FY23: \$0

FY24: \$1,414,000

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Install online vibration monitoring hardware (sensors, data acquisition systems, wireless networks, plant servers etc.) and analysis software (Insight CM) on JKS2 and Air Quality Control System (AQCS) 2 plant site to allow for continuous plant equipment vibration monitoring

Project Justification

This project will allow equipment condition monitoring data on critical asset health to be evaluated by the monitoring & diagnostics (M&D) center, and maintenance specialists for early detection of equipment anomalies and prevent unforeseen outages.

Expected Benefits

- Improved plant reliability and uptime
- Decreased safety risk for plant personnel
- Closely monitored assets without increasing resources
- Saved time and money by diagnosing problems remotely
- Reduced need to derate units while waiting for analysis

Project Risk

Continue to operate with manual route data.



WBS Description: Leon Creek Power Plant Demolition

WBS Element: F-0113-0000006

Business Area: Power Generation

Executive: Jeremiah D. Wilks

Strategic Category: Special Projects

Project Cost: ¹ \$21,572,014

FY23: \$0

FY24: \$419,986

FY25: \$6,880,669

FY26: \$7,058,041

FY27: \$7,213,318

Project Description

Perform environmental remediation and demolition of the retired Leon Creek Plant steam units 1,2,3 & 4 boiler structures and turbine building (except control room) while recovering asset value. Project is being postponed one year due to Tuttle demolition delays and complications.

Project Justification

Remove safety and environmental hazards while recovering value of retired assets.

Expected Benefits

Remove environmental and safety exposures related to retired generating units in close proximity to CPS Energy personnel and neighboring public. Recover value of retired assets.

Project Risk

Risks associated with doing project now are cost uncertainty of scrap metals pricing and unforeseen environmental contamination. Risk associated with not doing project now involves leaving potential safety and environmental exposures and risk of increased demolition costs and lower scrap metal pricing when project is eventually done.



WBS Description: Lee East 4160 Motor Rewinds

WBS Element: F-0143-2100009

Business Area: Power Generation

Executive: Joel D. Goode

Strategic Category: Special Projects

Project Cost: ¹ \$83,550

FY23: \$83,550

FY24: \$0

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Rewind 4160v Chiller motors at Lee East.

Project Justification

Align with 10-year maintenance plan for 4160V motors.

Expected Benefits

Reliable operation of chiller motors.

Project Risk

If not executed, risk of motor failing, resulting in unplanned equipment downtime and costs.



WBS Description: Spruce1 Online Equipment Condition Monitoring

WBS Element: F-0217-2100047

Business Area: Power Generation

Executive: David L. Kezell

Strategic Category: Special Projects

Project Cost: ¹ \$1,365,737

FY23: \$1,365,737

FY24: \$0

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Install online vibration monitoring hardware (sensors, data acquisition systems, wireless networks, plant servers etc.) and analysis software (Insight CM) on Spruce1 (JKS1) and Air Quality Control System (AQCS1) plant site to allow for continuous plant equipment vibration monitoring.

Project Justification

This project will allow equipment condition monitoring data on critical asset health to be evaluated by the monitoring & diagnostic (M&D) center and maintenance specialists for early detection of equipment anomalies and prevent unforeseen outages.

Expected Benefits

- Improved plant reliability and uptime
- Decreased safety risk for plant personnel
- Closely monitored assets without increasing resources
- Saved time and money by diagnosing problems remotely
- Reduced need to derate units while waiting for analysis

Project Risk

Continue to operate with manual route data.



WBS Description: Calaveras Fuel Oil Tank Demolition

WBS Element: F-0583-1700087

Business Area: Power Generation

Executive: Jeremiah D. Wilks

Strategic Category: Special Projects

Project Cost: ¹ \$1,225,400

FY23: \$1,225,400

FY24: \$0

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Complete environmental remediation and demolition of JTD (Deely) 1&2, Calaveras fuel oil tanks, associated piping, hazardous waste disposal, and contractor oversight.

Project Justification

Required to eliminate safety and environmental exposures associated with retired coal units JTD (Deely) 1&2. Recover value of assets and preparing the site for location of future generation or other use.

Expected Benefits

Eliminate safety and environmental exposures associated with retired generating unit structures.

Project Risk

Contractor safety risks, unforeseen environmental contamination or release. Risk of not completing project includes contract default costs, leaving unaddressed safety and environmental exposures.



WBS Description: C.E.P.: Fuel Oil (Lee West) (Option 1B)

WBS Element: NEW_3

Business Area: Power Generation

Executive: David L. Kezell

Strategic Category: Special Projects

Project Cost: ¹ \$17,200,000

FY23: \$1,000,000

FY24: \$6,200,000

FY25: \$10,000,000

FY26: \$0

FY27: \$0

Project Description

Dual Fuel Conversion and oil purchase for Lee West. Allows units to operate on natural gas or fuel oil. Fuel oil can be stored on site. This accounts for conversion and a 10-day supply of fuel oil.

Project Justification

Board of Trustees requested that CPS Energy evaluate increasing the number of generation units backed up by on-site secondary fuels. This project represents the lowest costs option to improve resiliency of the generation fleet by adding dual fuel capability to 184MW.

Expected Benefits

Increased fleet resiliency by having additional generation units backed up by on-site secondary fuels. This improves our posture if future gas curtailments should occur.

Project Risk

Without this dual fuel conversion, only M.B.Lee West will be backed up by an on-site secondary fuel.



WBS Description: Unit Retirement Driven Workforce Transition (VHB-2024, OWS-2026,2028, JKS-2027/2028)

WBS Element: NEW_5

Business Area: Power Generation

Executive: Jose J. Trevino

Strategic Category: Special Projects

Project Cost: ¹ \$1,000

FY23: \$0

FY24: \$0

FY25: \$0

FY26: \$0

FY27: \$1,000

Project Description

Unit retirements and transition of Power Generation workforce to other roles within CPS Energy.

Project Justification

As we prepare for the future retirements of units, we will need to start transitioning our workforce to accommodate the future of Power Generation. This will include training, certifications, and transition to new roles.

Expected Benefits

A workforce transition plan will help to ensure Power Generation has the appropriate support staff in place as we retire units and transition to Flex Power bundle assets.

Project Risk

Lack of a proper transition plan will slow change management efforts within Power Generations workforce.

Product Development

Special Projects





WBS Description: Resiliency Service - Previously E-Rock

WBS Element: U-0031-1000000

Business Area: Product Development

Executive: Andrew Higgins

Strategic Category: Special Projects

Project Cost: ¹ \$2,500,000

FY23: \$500,000

FY24: \$500,000

FY25: \$500,000

FY26: \$500,000

FY27: \$500,000

Project Description

Project funds infrastructure to support a new resiliency service offering for key commercial customers. This project enables new revenue streams from resiliency service sold to commercial customers, broker fees for providing Qualified Scheduling Entities (QSE) services, and natural gas sales to operator.

Project Justification

Resiliency Service is a new business line for CPS Energy aimed at providing enhanced resiliency to commercial customers. Resiliency Service creates multiple revenue streams including a resiliency fee, a QSE brokerage fee, and new gas sales.

Expected Benefits

Resiliency service provides a valuable new service to our commercial customers who are seeking enhanced reliability. In addition, the business model is such that we recover our costs for providing this value added service.

Project Risk

Risk of not completing this project is lower customer satisfaction among large commercial customers who have identified this need. In addition, this is a new service that is increasingly available in competitive Texas markets

Real Estate & Master Planning

Infrastructure Modernization





WBS Description: Malone Construction

WBS Element: B-2017-1000001

Business Area: Real Estate & Master Planning

Executive: Brian Spruiell

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$7,775,352

FY23: \$0

FY24: \$0

FY25: \$2,054,016

FY26: \$2,829,543

FY27: \$2,891,793

Project Description

Site Master Plan to build a Service Campus for Underground Electrical Business Unit; Site previously owned by Bexar Met/San Antonio Water System. Campus will include warehouse space, fleet garage facilities, welding shop and other craft facilities.

Project Justification

Business Unit consolidating various underground electrical crafts to one central location with warehouse space and garage to support Underground Electrical Business Unit.

Expected Benefits

Co-location and centralization will significantly reduce travel time and costs, improve customer service delivery and workplace productivity.

Project Risk

Higher risk of vehicle incidents due to longer drive times to and from existing facilities and customer sites. No significant improvements in service delivery time will be recognized.

¹ Dollars exclude AFUDC
Competitive and Confidential Information



WBS Description: Facility Recapitalization

WBS Element: B-2022-0000001

Business Area: Real Estate & Master Planning

Executive: Brian Spruiell

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$13,147,780

FY23: \$4,596,703

FY24: \$3,551,077

FY25: \$5,000,000

FY26: \$0

FY27: \$0

Project Description

An integrated, prioritized series of repair and infrastructure projects that will significantly increase the operational efficiency and effectiveness of existing infrastructure.

Projects include:

- Upgrade of road, plumbing and sewer at Nacogdoches Campus,
- Centralization and upgrading of Building Management Systems at Green Mountain, Eastside Service District
- Completion of installing a new roof at Eastside Service District,
- Echo battery replacement and upgrading Energy Management Center with Direct Expansion Cooling (DX) roof top units,
- Upgrade air filtration system to a higher Minimum Efficiency Reporting Values (MERV) rating at McCullough.

The remainder of projects include capital replacement of building infrastructure that fails or exceeds its useful life.

Project Justification

To keep existing facilities modern, safe and relevant in an environment of changing standards, missions and lower life cycle operating costs.

Expected Benefits

Extend the service life of existing infrastructure and building systems.

Project Risk

System and infrastructure failures will negatively impact safety and security of assets, workplace productivity, customer safety and code compliance.

WBS Description: Phase 2 development of Corporate Headquarters

WBS Element: B-2022-0000002

Business Area: Real Estate & Master Planning

Executive: Brian Spruiell

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$5,000,000

FY23: \$5,000,000

FY24: \$0

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Build out and furniture for project floor City 14 and Customer Engineering relocation on River 5, growth seats (to include cubicles and growth furniture) for the new CPS Energy Headquarters plus the build out of the Garage retail space and photovoltaic system to be mounted atop Garage. All of these projects are separate from the \$210M New Headquarters Project.

Project Justification

To increase the efficiency of how the new CPS Energy Headquarters is used by providing a solution for long term project teams that does not require taking down an active conference room. Co-location of Customer Engineering with Energy Delivery Services to increase productivity. Increase the size of our retail space and comply with city requirements.

Expected Benefits

Consolidation of various work groups. Efficient use of work space. Re-purpose of existing river front property and facilities to taxable property. Lower operating cost and higher employee engagement. A new location will enable the current riverfront property to be sold for a higher price resulting from better use.

Project Risk

Timeline to remodel McCullough Buildings may be extended due to weather delays and remediation that may need to take place prior to re-modeling. Timing of the sale of existing headquarters buildings may cause CPS Energy to lease back the Main Office and Navarro buildings until the new Corporate Headquarters is completed.



WBS Description: Furniture Program

WBS Element: B-2022-0000003

Business Area: Real Estate & Master Planning

Executive: Brian Spruiell

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$6,000,000

FY23: \$2,000,000

FY24: \$2,000,000

FY25: \$2,000,000

FY26: \$0

FY27: \$0

Project Description

As we update new satellite locations we will update that locations furniture with the new furniture standards as most of these locations contain furniture that predates year 2000 purchase.

Project Justification

Current furniture at satellite locations has exceeded its useful life and greatly impacts safety, engagement and retention of employees.

Expected Benefits

Improved employee engagement and cost performance

Project Risk

Non-compliance with contract

Special Projects





WBS Description: Fleet Operations Building Design and Construction (Gembler)

WBS Element: B-2019-0400000

Business Area: Real Estate & Master Planning

Executive: Brian Spruiell

Strategic Category: Special Projects

Project Cost: ¹ \$15,358,400

FY23: \$0

FY24: \$0

FY25: \$800,000

FY26: \$7,200,000

FY27: \$7,358,400

Project Description

Design new fleet service center as part of Master Plan.

Project Justification

Modernization of existing facilities is cost prohibitive. New location and design layout will significantly improve efficiency, enhance supply base support and increase accessibility.

Expected Benefits

Reduce operating costs, modernize facility and improve service delivery.

Project Risk

Future cost saving initiatives in regards to employee productivity and engagement. Improvements in customer delivery and operating costs will not be realized.



WBS Description: Westside Service District (Design & New Construction)

WBS Element: B-2019-0500000

Business Area: Real Estate & Master Planning

Executive: Brian Spruiell

Strategic Category: Special Projects

Project Cost: ¹ \$18,201,583

FY23: \$1,802,583

FY24: \$10,500,000

FY25: \$5,899,000

FY26: \$0

FY27: \$0

Project Description

New Westside Service and Construction Center (WSSD) as part of Master Plan.

Project Justification

To align with projected customer growth in region. Existing infrastructure at end of life.

Expected Benefits

Reduce operating costs, modernize facility, increase employee engagement, improve service delivery and workforce productivity.

Project Risk

Future cost saving initiatives in regards to employee productivity, engagement, improvements in customer delivery and operating costs will not be realized.



WBS Description: Gas Operations Center (Design & New construction)

WBS Element: B-2019-0600000

Business Area: Real Estate & Master Planning

Executive: Brian Spruiell

Strategic Category: Special Projects

Project Cost: ¹ \$9,758,945

FY23: \$1,002,345

FY24: \$750,300

FY25: \$8,006,299

FY26: \$0

FY27: \$0

Project Description

New Gas Operations Center as part of Master Plan.

Project Justification

Relocate Gas Business Unit to center of service territory. Infrastructure of current site is at end of life. Existing site highly constrained.

Expected Benefits

Reduce operating costs, modernize facility, increase employee engagement, improve service delivery and workforce productivity.

Project Risk

Future cost saving initiatives in regards to employee productivity, engagement, improvements in customer delivery and operating costs will not be realized.



WBS Description: Southwest Service District (Demo / Repurpose)

WBS Element: B-2019-0900000

Business Area: Real Estate & Master Planning

Executive: Brian Spruiell

Strategic Category: Special Projects

Project Cost: ¹ \$22,504,000

FY23: \$0

FY24: \$0

FY25: \$1,492,191

FY26: \$10,391,597

FY27: \$10,620,212

Project Description

Demo and repurpose of existing aging infrastructure at Southwest Service District (SWSD) for code compliance and operating efficiency as part of Master Plan.

Project Justification

Existing infrastructure at end of life. Replacement infrastructure to maximize service delivery in region.

Expected Benefits

Reduce operating costs, increase employee engagement, improve service delivery and workforce productivity.

Project Risk

Service delivery, system reliability and employee productivity improvements will not be realized.



WBS Description: Northeast Service District (Design & New Construction)

WBS Element: B-2022-0000004

Business Area: Real Estate & Master Planning

Executive: Brian Spruiell

Strategic Category: Special Projects

Project Cost: ¹ \$14,000,000

FY23: \$1,500,000

FY24: \$7,500,000

FY25: \$5,000,000

FY26: \$0

FY27: \$0

Project Description

Site Master Plan to expand campus

Project Justification

Consolidation of business units to one central location.

Expected Benefits

Co-location and centralization will significantly reduce travel time and costs, improve customer service delivery and workplace productivity.

Project Risk

Higher risk of vehicle incidents due to longer drive times to and from existing facilities and customer sites. No significant improvements in service delivery time will be recognized.



WBS Description: Walk-In Pay Center Consolidation

WBS Element: B-2022-0000005

Business Area: Real Estate & Master Planning

Executive: Brian Spruiell

Strategic Category: Special Projects

Project Cost: ¹ \$1,000,000

FY23: \$0

FY24: \$1,000,000

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Design and build out of walk-in center that consolidates Eastside and Southwest Pay Centers

Project Justification

Consolidation of pay centers to one central location.

Expected Benefits

Co-location and centralization will significantly reduce travel time and costs, improve customer service delivery and workplace productivity.

Project Risk

Maintenance and payment of two leases

¹ Dollars exclude AFUDC
Competitive and Confidential Information

STP

Infrastructure Modernization





WBS Description: STP 1&2 Capital Project

WBS Element: N-0001-1000001

Business Area: STP

Executive: Larry Blaylock

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$142,371,753

FY23: \$26,360,000

FY24: \$26,560,000

FY25: \$25,800,000

FY26: \$29,960,000

FY27: \$33,691,753

Project Description

South Texas Nuclear Project

Project Justification

Compliance with both current and future NRC regulations, including Fukushima Response actions, is a condition of continued operation. Continued capital re investment through modifications, upgrades, and initiatives is required to maintain and improve the safety and reliability record of STP 1&2. Major projects include replacement of the Unit 1 and 2 main step up transformers (4) to limit the increased risk of future reliability challenges associated with an aging asset.

Expected Benefits

Capital re investment enables STP 1&2 to maintain safe and reliable operation. Achievements include: 1) produced more energy than any other two unit nuclear plant in U.S. between 2004 2011; 2) in 2013, STP Unit 1 ranked #2 of 100 reactors in U.S. and #7 of 425 reactors worldwide in electricity produced. Unit 2 ranked #68 in U.S. and #152 in world. Investments such as replacement of main transformers should help mitigate future reliability risks and improve overall operational performance.

Project Risk

Two risks associated with anticipated NRC regulatory actions are the following: 1) Projected capital costs to ensure compliance are based on key assumptions, and 2) The NRC may choose to take additional actions that were not factored into the original cost estimates. Cost estimates will become more firm over time as the NRC works through their process and issues formal guidance and/or rules.

Substation & Transmission

Civic Improvements



WBS Description: Texas Department of Transportation IH-410_IH-10E Transmission Upgrade

WBS Element: T-0296-0000001

Business Area: Substation & Transmission

Executive: Ricardo Renteria

Strategic Category: Civic Improvements

Project Cost: ¹ \$3,900,730

FY23: \$2,740,730

FY24: \$1,160,000

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Replace a new 138kV transmission pole in conjunction with TXDOT Expansion IH-410 and IH-35 Project. The replacement of lattice tower to tubular monopole on St Hedwig to Kirby 138kV line at junction of IH-410 and IH-35E.

Project Justification

TXDOT is building a new bridge under the transmission line and is requiring CPS Energy to raise the transmission line to meet proper vertical clearance.

Expected Benefits

The current transmission line does not have any dead-end structures between two crossings. Installing two (2) dead-end steel poles between the interstate will improve the maintenance and future construction of the line. This section of the line will be improve in capacity to single 795 ACSS/TW conductor.

Project Risk

If the project is not completed, TXDOT's start date for their project will be impacted.



WBS Description: IH-35 NEX: Tuttle - Kirby

WBS Element: T-0298-0000001

Business Area: Substation & Transmission

Executive: Ricardo Renteria

Strategic Category: Civic Improvements

Project Cost: ¹ \$42,000

FY23: \$42,000

FY24: \$0

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Replace poles 13, 14, & 15 on the Randolph (11W2) - Tuttle (10A2) & Kirby (17C4) - Tuttle (17A2) 138kV circuits to accommodate TXDOT's new elevated lanes on IH-35.

Project Justification

TXDOT is constructing new elevated lanes underneath the transmission line and is requiring CPS Energy to raise the transmission line to meet proper vertical clearance.

Expected Benefits

Raising the transmission line will allow CPS Energy to remain National Electrical Safety Code (NESC) compliant.

Project Risk

If the project is not completed, TXDOT's start date for their project will be impacted



WBS Description: IH-35 NEX: Skyline - Deely

WBS Element: T-0299-0000001

Business Area: Substation & Transmission

Executive: Ricardo Renteria

Strategic Category: Civic Improvements

Project Cost: ¹ \$1,865,000

FY23: \$1,865,000

FY24: \$0

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Replace poles 144, 145, 146, 147 on the Skyline (31P3) - Walzem (10O3) & Skyline (20P3) - Deely (23N4) 138kV circuits to accommodate TXDOT's new elevated lanes on IH-35.

Project Justification

TXDOT is constructing new elevated lanes underneath the transmission line and is requiring CPS Energy to raise the transmission line to meet proper vertical clearance.

Expected Benefits

Raising the transmission line will allow CPS Energy to remain National Electrical Safety Code (NESC) compliant.

Project Risk

If the project is not completed, TXDOT's start date for their project will be impacted



WBS Description: IH-35 NEX: Skyline - Spruce 345kV

WBS Element: T-0300-0000001

Business Area: Substation & Transmission

Executive: Ricardo Renteria

Strategic Category: Civic Improvements

Project Cost: ¹ \$2,569,000

FY23: \$978,000

FY24: \$1,591,000

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Replace poles 144, 145, 146, 147 on the Skyline (16P4) - Spruce (10N5) & Skyline (9995) - Spruce (12N5) 345kV circuits to accommodate TXDOT's new elevated lanes on IH-35.

Project Justification

TXDOT is constructing new elevated lanes underneath the transmission line and is requiring CPS Energy to raise the transmission line to meet proper vertical clearance.

Expected Benefits

Raising the transmission line will allow CPS Energy to remain National Electrical Safety Code (NESC) compliant.

Project Risk

If the project is not completed, TXDOT's start date for their project will be impacted

Customer Growth





WBS Description: Customer Growth (Lrg Customers)- Mauermann Rd.

WBS Element: NEW_10

Business Area: Substation & Transmission

Executive: Ricardo Renteria

Strategic Category: Customer Growth

Project Cost: ¹ \$1,051,040

FY23: \$1,051,040

FY24: \$0

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

New 138/35kV, 100 MVA Transformer and 4-feeder outdoor switchgear.

Project Justification

The existing infrastructure will not be able to handle the Toyota Plant and its suppliers ramping up load from 500 KW to 7500 KW and 3 suppliers also have moved in.

Expected Benefits

Additional Station capacity will be able to meet customer deadlines, improve circuit reliability and also increase capacity from 25 MVA to 100 MVA.

Project Risk

Not be able to provide power to the existing and new customers ramp up load until 2024 and reliability needs.



WBS Description: Customer Growth (Lrg Customers)- Nabers Bitterblue

WBS Element: NEW_11

Business Area: Substation & Transmission

Executive: Ricardo Renteria

Strategic Category: Customer Growth

Project Cost: ¹ \$5,200,000

FY23: \$2,547,368

FY24: \$2,652,632

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Two (2) new 138/35kV, 50 MVA Transformers and 4-feeder outdoor switchgears.

Project Justification

Large customer requested 46MW of capacity for its data center. Due to limited spare capacity I the area, a substation is needed to accommodate this request.

Expected Benefits

Dual Purpose substation on customer property will benefit Nabers Bitterblue, the community and the surrounding area

Project Risk

Not be able to provide the amount of 46MW that the customer requested.



WBS Description: Customer Growth (Lrg Customers)- SAT 14

WBS Element: NEW_12

Business Area: Substation & Transmission

Executive: Ricardo Renteria

Strategic Category: Customer Growth

Project Cost: ¹ \$4,300,000

FY23: \$3,321,961

FY24: \$978,039

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Two (2) new 138/35kV, 50 MVA Transformers and 1-feeder outdoor switchgears.

Project Justification

Large customer requested dedicated substation that can serve 64MW of capacity for its data center. Due to limited spare capacity in the area, a substation is needed to accommodate this request.

Expected Benefits

New dedicated station to provide load serving capability for large customer and revenue to CPS Energy. However, no benefit to the surrounding area.

Project Risk

Not be able to provide the amount of 64MW that the customer requested.



WBS Description: Customer Growth (Lrg Customers)- SAT 15

WBS Element: NEW_13

Business Area: Substation & Transmission

Executive: Ricardo Renteria

Strategic Category: Customer Growth

Project Cost: ¹ \$8,500,000

FY23: \$3,825,000

FY24: \$3,851,563

FY25: \$823,438

FY26: \$0

FY27: \$0

Project Description

Three (3) new 138/35kV, 100 MVA Transformers and 1-feeder outdoor switchgears.

Project Justification

Large customer requested dedicated substation that can serve 64MW of capacity for its data center. Due to limited spare capacity in the area, a substation is needed to accommodate this request.

Expected Benefits

New dedicated station to provide load serving capability for large customer and revenue to CPS Energy. However, no benefit to the surrounding area

Project Risk

Not be able to provide the amount of 64MW that the customer requested.



WBS Description: Customer Growth (Lrg Customers)- TRP 180 Acres

WBS Element: NEW_14

Business Area: Substation & Transmission

Executive: Ricardo Renteria

Strategic Category: Customer Growth

Project Cost: ¹ \$5,200,000

FY23: \$3,183,030

FY24: \$2,016,970

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Initially two (2) new 138/35kV 100MVA Transformers and 4 - feeder switchgears

Project Justification

Large customer requested over 400 MW for its data center development. Due to limited spare capacity in the area, a substation is needed to accommodate the request

Expected Benefits

Dual Purpose substation on customer property will benefit Texas Research Park (TRP) 180 acres site and the surrounding area.

Project Risk

Not be able to provide the amount of 400MW that the customer requested.



DRAFT: FOR DISCUSSION ONLY

WBS Description: Customer Growth (Lrg Customers)- COPT Potranco

WBS Element: NEW_9

Business Area: Substation & Transmission

Executive: Ricardo Renteria

Strategic Category: Customer Growth

Project Cost: ¹ \$5,200,000

FY23: \$3,202,439

FY24: \$1,997,561

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Two (2) new 138/35kV, 50 MVA Transformers and 4-feeder outdoor switchgears.

Project Justification

Large customer requested 46MW of capacity for its data center. Due to limited spare capacity in the area, a substation is needed to accommodate this request.

Expected Benefits

Dual Purpose substation on customer property will benefit COPT, the community and the surrounding area

Project Risk

Not be able to provide the amount of 46MW that the customer requested.



DRAFT: FOR DISCUSSION ONLY

WBS Description: Customer Growth (Lrg Customers)- Nabers Bitterblue - Transmission

WBS Element: NEW_TRANS_11

Business Area: Substation & Transmission

Executive: Ricardo Renteria

Strategic Category: Customer Growth

Project Cost: ¹ \$7,150,000

FY23: \$3,502,632

FY24: \$3,647,368

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Two (2) new 138/35kV, 50 MVA Transformers and 4-feeder outdoor switchgears.

Project Justification

Large customer requested 46MW of capacity for its data center. Due to limited spare capacity in the area, a substation is needed to accommodate this request.

Expected Benefits

Dual Purpose substation on customer property will benefit Nabers Bitterblue, the community and the surrounding area

Project Risk

Not be able to provide the amount of 46MW that the customer requested.



WBS Description: Customer Growth (Lrg Customers)- SAT 14 - Transmission

WBS Element: NEW_TRANS_12

Business Area: Substation & Transmission

Executive: Ricardo Renteria

Strategic Category: Customer Growth

Project Cost: ¹ \$8,450,000

FY23: \$6,528,039

FY24: \$1,921,961

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Two (2) new 138/35kV, 50 MVA Transformers and 1-feeder outdoor switchgears.

Project Justification

Large customer requested dedicated substation that can serve 64MW of capacity for its data center. Due to limited spare capacity in the area, a substation is needed to accommodate this request.

Expected Benefits

New dedicated station to provide load serving capability for large customer and revenue to CPS Energy. However, no benefit to the surrounding area.

Project Risk

Not be able to provide the amount of 64MW that the customer requested.



WBS Description: Customer Growth (Lrg Customers)- SAT 15 - Transmission

WBS Element: NEW_TRANS_13

Business Area: Substation & Transmission

Executive: Ricardo Renteria

Strategic Category: Customer Growth

Project Cost: ¹ \$23,500,000

FY23: \$10,575,000

FY24: \$10,648,438

FY25: \$2,276,563

FY26: \$0

FY27: \$0

Project Description

Three (3) new 138/35kV, 100 MVA Transformers and 1-feeder outdoor switchgears.

Project Justification

Large customer requested dedicated substation that can serve 64MW of capacity for its data center. Due to limited spare capacity in the area, a substation is needed to accommodate this request.

Expected Benefits

New dedicated station to provide load serving capability for large customer and revenue to CPS Energy. However, no benefit to the surrounding area

Project Risk

Not be able to provide the amount of 64MW that the customer requested.



WBS Description: Customer Growth (Lrg Customers)- TRP 180 Acres - Transmission

WBS Element: NEW_TRANS_14

Business Area: Substation & Transmission

Executive: Ricardo Renteria

Strategic Category: Customer Growth

Project Cost: ¹ \$11,300,000

FY23: \$6,916,970

FY24: \$4,383,030

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Initially two (2) new 138/35kV 100MVA Transformers and 4 - feeder switchgears

Project Justification

Large customer requested over 400 MW for its data center development. Due to limited spare capacity in the area, a substation is needed to accommodate the request

Expected Benefits

Dual Purpose substation on customer property will benefit Texas Research Park (TRP) 180 acres site and the surrounding area.

Project Risk

Not be able to provide the amount of 400MW that the customer requested.



WBS Description: Customer Growth (Lrg Customers)- COPT Potranco - Transmission

WBS Element: NEW_TRANS_9

Business Area: Substation & Transmission

Executive: Ricardo Renteria

Strategic Category: Customer Growth

Project Cost: ¹ \$11,200,000

FY23: \$6,897,561

FY24: \$4,302,439

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Two (2) new 138/35kV, 50 MVA Transformers and 4-feeder outdoor switchgears.

Project Justification

Amazon Web Services requested 46MW of capacity for its data center. Due to limited spare capacity in the area, a substation is needed to accommodate this request.

Expected Benefits

Dual Purpose substation on customer property will benefit COPT, the community and the surrounding area

Project Risk

Not be able to provide the amount of 46MW that the customer requested.

Environmental/ Legislative/ Regulatory



WBS Description: Transmission Station Construction - T4 - 138kV

WBS Element: S-0814-0000001

Business Area: Substation & Transmission

Executive: Ricardo Renteria

Strategic Category: Environmental/ Legislative/ Regulatory

Project Cost: ¹ \$945,000

FY23: \$945,000

FY24: \$0

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

The scope of this project is to install a redundant system protection system on: (345kV Bus) Install an additional current transformer (CT) on 21T4, 17T4 and 23T4. Install backup transformer differential relaying on auto #2, #3, & #4. Upgrade primary transformer differential relaying on auto #2, #3, and #4. Verify all primary and backup relaying is fed from separate battery banks. (138kV Bus 1 and 2) Install an additional CT on all breakers and transformers (10 total breakers/transformers). Install backup bus differential relay and lockout on each bus. Verify all primary and backup relaying is fed from separate battery banks. This project is initiated to maintain compliance with North American Electric Reliability Corporation (NERC) Regulatory Standard TPL-001 and Electric Reliability Council of Texas (ERCOT) requirements.

Project Justification

The Federal Energy Regulatory Commission (FERC) order 754 analysis indicated possible wide-spread system outages due to single point of failure.

Expected Benefits

Replacing substation equipment produces the following benefits:

- Increases system reliability by removing a single point of failure
- Reduces risk of adjacent damages caused by an unexpected failure

Project Risk

Failure to proceed with this project could result in wide-spread generation and transmission outages under adverse conditions, causing possible load curtailment.



WBS Description: Federal Energy Regulatory Commission (FERC) 754 Substation Relay Upgrades - Cagnon

WBS Element: S-0816-0000001

Business Area: Substation & Transmission

Executive: Ricardo Renteria

Strategic Category: Environmental/ Legislative/ Regulatory

Project Cost: ¹ \$74,400

FY23: \$74,400

FY24: \$0

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

The scope of this project is to install a redundant system protection system on: (345kV Bus) Install an additional current transformer (CT) on 48R4. Install backup transformer differential relaying on auto #3 and #4. Upgrade primary transformer differential relaying on auto #3 and #4. Verify all primary and backup relaying is fed from separate battery banks. (138kV All Busses) Install an additional CT on all breakers and transformers (19 total breakers/transformers). Install backup bus differential relay and lockout on each bus. Upgrade 87H1 and 87H2 relays to SEL-487Bs. Verify all primary and backup relaying is fed from separate battery banks.

Project Justification

FERC order 754 analysis indicated possible wide-spread system outages due to single point of failure.

Expected Benefits

Replacing substation equipment produces the following benefits:

- Increases system reliability by removing a single point of failure
- Reduces risk of adjacent damages caused by an unexpected failure

Project Risk

Failure to proceed with this project could result in wide-spread generation and transmission outages under adverse conditions, causing possible load curtailment.



WBS Description: Helotes Switchyard

WBS Element: S-0941-0000001

Business Area: Substation & Transmission

Executive: Ricardo Renteria

Strategic Category: Environmental/ Legislative/ Regulatory

Project Cost: ¹ \$17,154,000

FY23: \$0

FY24: \$0

FY25: \$3,000,000

FY26: \$7,000,000

FY27: \$7,154,000

Project Description

Conversion of Helotes substation to a 345/138kV Switching Station. Helotes 345kV Switching Station should be designed in breaker and half configuration with capacity for 2-600 Megavolt-ampere (MVA) auto transformer and six line terminals.

Project Justification

The Helotes switching station is required as a result of generation retirement.

Expected Benefits

This project supports customer load growth by improving the load serving capability of the transmission system. It also provides increased transmission capacity, which reduces the possibility of overloaded transmission elements under contingent conditions and increases the overall reliability of the transmission system.

Project Risk

Failure to proceed with this project could result in overloaded transmission elements under adverse conditions, causing possible load curtailment.

¹ Dollars exclude AFUDC
Competitive and Confidential Information

Infrastructure Modernization





WBS Description: Tools-Equipment - Transmission

WBS Element: D-0072-0000001

Business Area: Substation & Transmission

Executive: David Lentz

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$658,080

FY23: \$120,000

FY24: \$125,000

FY25: \$130,000

FY26: \$140,000

FY27: \$143,080

Project Description

Equipment and tools used to perform preventive and corrective maintenance and emergency restoration for substation and power plant facilities/assets.

Project Justification

This project required to safely and reliably operate, maintain, and restore substation and power plant facilities.

Expected Benefits

- Maintain/improve system reliability
- Decrease restoration time
- Provide a safe working environment

Project Risk

- Impaired system reliability
- Increased restoration time
- Impaired safety



WBS Description: Howard Switchyard Expansion

WBS Element: NEW_TRANS_22

Business Area: Substation & Transmission

Executive: Ricardo Renteria

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$51,800,000

FY23: \$7,000,000

FY24: \$10,900,000

FY25: \$22,600,000

FY26: \$11,300,000

FY27: \$0

Project Description

The Howard Rd 345/138 kV Switching Station (S2) should be designed in breaker and half configuration, initially 2 600 MVA auto transformer and four initial line terminals and should be designed such that it can be expanded to accommodate 2 to 4 more line terminals. The switching station will intercept the existing Cagnon to AVR and Cagnon to Spruce 345kV lines. This project has not yet received Electric Reliability Council of Texas (ERCOT) RPG approval.

Project Justification

The Howard Rd switching station is required as a result of the potential VH Braunig generation retirements.

Expected Benefits

This project supports customer load growth by improving the load serving capability of the transmission system. It also provides increased transmission capacity, which reduces the possibility of overloaded transmission elements under contingent conditions and increases the overall reliability of the transmission system.

Project Risk

Failure to proceed with this project could result in overloaded transmission elements under adverse conditions, causing possible load curtailment.

WBS Description: Kirby - Replace Transformer/Switchgear #2 (Transmission)

WBS Element: S-0566-0000040

Business Area: Substation & Transmission

Executive: Ricardo Renteria

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$100,000

FY23: \$0

FY24: \$0

FY25: \$100,000

FY26: \$0

FY27: \$0

Project Description

Install a new 138/13kV, 39.2 Megavolt-ampere (MVA) power transformer to replace the 39.2 MVA, 13kV Federal Pacific transformer installed at the Kirby substation in position #2 in 1976. Install a new switchgear to replace the Allis Chalmers switchgear installed in 1975 at the Kirby substation in position #2. Install a new 138/13kV, 40 MVA power transformer to replace the 40 MVA, 13kV McGraw Edison transformer installed in 1985 at the Kirby substation in position #3. Install a new switchgear to replace the ITE switchgear installed in 1972 at the Kirby substation in position #3.

Project Justification

The transformer and switchgear at Kirby substation has been identified as part of the Infrastructure Modernization capital replacement program based on the age of the equipment. This equipment has been in service for 33/42/43/46 years and is at the end of its useful life. Replacing the equipment at this substation will improve the overall reliability of the system and provide for continued service to our customers for many years forward. This project also implements a newer technology of switchgear that allows CPS Energy to reduce the amount of spare parts on hand and reduces the frequency of required periodic maintenance.

Expected Benefits

Replacing the transformer and switchgear produces the following benefits:

- Avoids unexpected failure due to age and condition.
- Reduces the risk of transformer failure well into the future.
- Reduces maintenance expenses.
- Increases system reliability.
- Reduces risk of adjacent damages caused by an unexpected failure.
- Newer style of switchgear is a more robust operating mechanism.
- Standardizes equipment to reduce spare part and training costs.

Project Risk

The primary risk of not replacing the transformer and switchgear is the risk of unexpected failure resulting in unserved customer load, possible property damage and potential environmental contamination. If the equipment is replaced on a reactive basis, significant increases in cost due to unplanned replacement can occur.

This equipment is currently 33/42/43/46 years old. Approximately 4 transformers and 33 switchgear breakers per year must be replaced to sustain a 50 year life cycle for transformers and a 40 year life cycle for switchgear breakers or an unmanageable number of replacements (asset wall) will develop over time. Failure can be catastrophic. The metalclad switchgear requires frequent maintenance to rainproof the switchgear. Replacement is recommended to minimize risk associated with this type of equipment.

¹ Dollars exclude AFUDC
 Competitive and Confidential Information

WBS Description: Highland Hills - Replace Transformer/Switchgear #2, Switchgear #1 (Transmission)

WBS Element: S-0597-0000023

Business Area: Substation & Transmission

Executive: Ricardo Renteria

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$355,000

FY23: \$355,000

FY24: \$0

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Install two new switchgears to replace the Westinghouse common aisle switchgear installed in 1962 and 1971 at the Highland Hills substation in positions #1 and #2. Install a new 138/13kV, 39.2 Megavolt-ampere (MVA) power transformer to replace the 39.2 MVA, 13kV Westinghouse transformer installed in 1971 in position #2. Install a new control house to replace the common aisle control house.

Project Justification

The transformer and switchgear at Highland Hills substation has been identified as part of the Infrastructure Modernization capital replacement program based on the age of the equipment. This equipment has been in service for 56/47 years and is at the end of its useful life. Replacing the equipment at this substation will improve the overall reliability of the system and provide for continued service to our customers for many years forward. This project also implements a newer technology of switchgear that allows CPS Energy to reduce the amount of spare parts on hand and reduces the frequency of required periodic maintenance.

Expected Benefits

Replacing the transformer and switchgear produces the following benefits:

- Avoids unexpected failure due to age and condition.
- Reduces the risk of transformer failure well into the future.
- Reduces maintenance expenses.
- Increases system reliability.
- Reduces risk of adjacent damages caused by an unexpected failure.
- Newer style of switchgear is a more robust operating mechanism.
- Standardizes equipment to reduce spare part and training costs.

Project Risk

The primary risk of not replacing the transformer and switchgear is the risk of unexpected failure resulting in unserved customer load, possible property damage and potential environmental contamination. If the equipment is replaced on a reactive basis, significant increases in cost due to unplanned replacement can occur.

This equipment is currently 56 and 47 years old. Approximately 4 transformers and 33 switchgear breakers per year must be replaced to sustain a 50 year life cycle for transformers and a 40 year life cycle for switchgear breakers or an unmanageable number of replacements (asset wall) will develop over time. Failure can be catastrophic. The metalclad switchgear requires frequent maintenance to rainproof the switchgear. Replacement is recommended to minimize risk associated with this type of equipment.

¹ Dollars exclude AFUDC
Competitive and Confidential Information

WBS Description: Chavaneaux Replace Transformer/Switchgear #2, Distr Feeder Relay Upgrade #3 (Transmission)

WBS Element: S-0621-0000023

Business Area: Substation & Transmission

Executive: Ricardo Renteria

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$95,000

FY23: \$95,000

FY24: \$0

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Install new metalclad switchgear to replace the Allis Chalmers switchgear installed in 1972 at the Chavaneaux substation in position #2. Install a new 138/13kV, 40 Megavolt-ampere (MVA) power transformer to replace the 40 MVA, 13kV Westinghouse transformer installed in 1972 at the Chavaneaux Road substation in position #2.

Project Justification

The transformer and switchgear at Chavaneaux substation has been identified as part of the Infrastructure Modernization capital replacement program based on the age of the equipment. This equipment has been in service for 46 years and is at the end of its useful life. Replacing the equipment at this substation will improve the overall reliability of the system and provide for continued service to our customers for many years forward. This project also implements a newer technology of switchgear that allows CPS Energy to reduce the amount of spare parts on hand and reduces the frequency of required periodic maintenance.

Expected Benefits

Replacing the transformer and switchgear produces the following benefits:

- Avoids unexpected failure due to age and condition.
- Reduces the risk of transformer failure well into the future.
- Reduces maintenance expenses.
- Increases system reliability.
- Reduces risk of adjacent damages caused by an unexpected failure.
- Newer style of switchgear is a more robust operating mechanism.
- Standardizes equipment to reduce spare part and training costs.

Project Risk

The primary risk of not replacing the transformer and switchgear is the risk of unexpected failure resulting in unserved customer load, possible property damage and potential environmental contamination. If the equipment is replaced on a reactive basis, significant increases in cost due to unplanned replacement can occur.

This equipment is currently 46 years old. Approximately 4 transformers and 33 switchgear breakers per year must be replaced to sustain a 50 year life cycle for transformers and a 40 year life cycle for switchgear breakers or an unmanageable number of replacements (asset wall) will develop over time. Failure can be catastrophic. The metalclad switchgear requires frequent maintenance to rainproof the switchgear. Replacement is recommended to minimize risk associated with this type of equipment.

WBS Description: Bandera Road - Replace Transformer/Switchgear #3 (Transmission)

WBS Element: S-0623-0000023

Business Area: Substation & Transmission

Executive: Ricardo Renteria

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$120,000

FY23: \$15,000

FY24: \$105,000

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Install a new switchgear to replace the Allis Chalmers switchgear installed in 1971 at the Bandera Road substation in position #3. Install a new 138/13kV, 39.2 Megavolt-ampere (MVA) power transformer to replace the 39.2 MVA, 13kV Westinghouse transformer installed in 1971 in position #3. Install a new 138/13kV, 40 MVA power transformer to replace the 39.2 MVA, 13kV Westinghouse transformer installed in 1972 in position #2. Install a new switchgear to replace the Instrument Transformer switchgear installed in 1972 in position #2. Replace switches 55 and 03O21 (replace motor operator).

Project Justification

The transformer and switchgear at the Bandera substation has been identified as part of the Infrastructure Modernization capital replacement program based on the age of the equipment. This equipment has been in service for 47 years and is at the end of its useful life. Replacing the equipment at this substation will improve the overall reliability of the system and provide for continued service to our customers for many years forward. This project also implements a newer technology of switchgear that allows CPS Energy to reduce the amount of spare parts on hand and reduces the frequency of required periodic maintenance.

Expected Benefits

Replacing the transformer and switchgear produces the following benefits:

- Avoids unexpected failure due to age and condition.
- Reduces the risk of transformer failure well into the future.
- Reduces maintenance expenses.
- Increases system reliability.
- Reduces risk of adjacent damages caused by an unexpected failure.
- Newer style of switchgear is a more robust operating mechanism.
- Standardizes equipment to reduce spare part and training costs.

Project Risk

The primary risk of not replacing the transformer and switchgear is the risk of unexpected failure resulting in unserved customer load, possible property damage and potential environmental contamination. If the equipment is replaced on a reactive basis, significant increases in cost due to unplanned replacement can occur.

This equipment is currently 47 years old. Approximately 4 transformers and 33 switchgear breakers per year must be replaced to sustain a 50 year life cycle for transformers and a 40 year life cycle for switchgear breakers or an unmanageable number of replacements (asset wall) will develop over time. Failure can be catastrophic. The metalclad switchgear requires frequent maintenance to rainproof the switchgear. Replacement is recommended to minimize risk associated with this type of equipment.

WBS Description: Hill Country - Replace Autotransformer #4

WBS Element: S-0769-0000023

Business Area: Substation & Transmission

Executive: Ricardo Renteria

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$5,500,000

FY23: \$250,000

FY24: \$5,250,000

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Install a new autotransformer to replace the 345/138kV, 600 Megavolt-ampere (MVA) Westinghouse autotransformer installed in 1979 at the Hill Country switching station in position #2.

Project Justification

The autotransformer at the Hill Country substation has been identified as part of the Infrastructure Modernization capital replacement program. This equipment has been in service for 35 years and is currently being monitored for increased dissolved gas levels. These readings indicate the transformer could experience premature failure and loss of this unit would be significant for the transmission system. Replacing the equipment at this substation will improve the overall reliability of the system and provide for continued service to our customers for many years forward.

Expected Benefits

Replacing the transformer produces the following benefits:

- Avoids unexpected failure due to age and condition.
- Reduces the risk of transformer failure well into the future.
- Reduces maintenance expenses.
- Increases system reliability.
- Reduces risk of adjacent damages caused by an unexpected failure.

Project Risk

The primary risk of not replacing the transformer is the risk of unexpected failure resulting in unserved customer load, possible property damage and potential environmental contamination. The lead time for procuring an autotransformer requires advanced planning. That planning, along with the risk assessment, indicate the necessity for this project to be done at this time. If the transformer is replaced on a reactive basis, significant increases in cost due to unplanned replacement can occur.

This unit has a presence of acetylene, ethane and ethylene indicating electrical discharge activity that increases the risk for unit failure, safety hazards and loss of service. This unit is being monitored frequently for increases in these key gasses. This increases our operational expenses and decreases our ability to proactively manage our fleet of transformers. Failure can be catastrophic.

WBS Description: Braunig-Upgrade Bus #1

WBS Element: S-0804-0000001

Business Area: Substation & Transmission

Executive: Ricardo Renteria

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$3,000,000

FY23: \$0

FY24: \$0

FY25: \$3,000,000

FY26: \$0

FY27: \$0

Project Description

Bus #1 includes replacement of switches 1529, 1531, 1549, 1551, 1546, 1649, 1651 and 1589 along with upgrading Bus #1 buswork.

Project Justification

The switches at Braunig substation have been identified as part of the Infrastructure Modernization capital replacement program based on the age of the equipment. This equipment has been in service for over 45 years and is at the end of its useful life. Replacing the equipment at this substation will improve the overall reliability of the system and provide for continued service to our customers for many years forward.

Expected Benefits

Replacing the switches produces the following benefits:

- Avoids unexpected failure due to age and condition.
- Reduces the risk of failure well into the future.
- Reduces maintenance expenses.
- Reduces switch maintenance costs.
- Newer style of switch is a more robust operating mechanism.
- Standardizes equipment to reduce spare parts and training costs.

Project Risk

The primary risk of not replacing the switches is the risk of interrupted service to distribution circuits due to a failure. If the switch is replaced on a reactive basis, significant increases in cost due to unplanned replacement can occur.

Replacement is recommended to minimize risk associated with this type of equipment.

WBS Description: Braunig-Upgrade Bus #2

WBS Element: S-0805-0000001

Business Area: Substation & Transmission

Executive: Ricardo Renteria

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$3,000,000

FY23: \$0

FY24: \$0

FY25: \$3,000,000

FY26: \$0

FY27: \$0

Project Description

Bus #2 includes replacement of switches 1509, 1511, 1512, 1519, 1521, 1539, 1541, 1639, 1641, 1559, 1561, 1562, 1592, 1579, 1581 and 1582 along with upgrading Bus #2 buswork.

Project Justification

The switches at Braunig substation have been identified as part of the Infrastructure Modernization capital replacement program based on the age of the equipment. This equipment has been in service for over 45 years and is at the end of its useful life. Replacing the equipment at this substation will improve the overall reliability of the system and provide for continued service to our customers for many years forward.

Expected Benefits

Replacing the switches produces the following benefits:

- Avoids unexpected failure due to age and condition.
- Reduces the risk of failure well into the future.
- Reduces maintenance expenses.
- Reduces switch maintenance costs.
- Newer style of switch is a more robust operating mechanism.
- Standardizes equipment to reduce spare parts and training costs.

Project Risk

The primary risk of not replacing the switches is the risk of interrupted service to distribution circuits due to a failure. If the switch is replaced on a reactive basis, significant increases in cost due to unplanned replacement can occur.

Replacement is recommended to minimize risk associated with this type of equipment.

WBS Description: Braunig-Upgrade Bus #3

WBS Element: S-0806-0000001

Business Area: Substation & Transmission

Executive: Ricardo Renteria

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$4,685,114

FY23: \$0

FY24: \$0

FY25: \$1,351,160

FY26: \$1,648,840

FY27: \$1,685,114

Project Description

Bus #3 includes replacement of switches 19U22, 1869, 1889, 1909 and 1522 along with upgrading Bus #3 buswork.

Project Justification

The switches at Braunig substation have been identified as part of the Infrastructure Modernization capital replacement program based on the age of the equipment. This equipment has been in service for over 45 years and is at the end of its useful life. Replacing the equipment at this substation will improve the overall reliability of the system and provide for continued service to our customers for many years forward.

Expected Benefits

Replacing the switches produces the following benefits:

- Avoids unexpected failure due to age and condition.
- Reduces the risk of failure well into the future.
- Reduces maintenance expenses.
- Reduces switch maintenance costs.
- Newer style of switch is a more robust operating mechanism.
- Standardizes equipment to reduce spare parts and training costs.

Project Risk

The primary risk of not replacing the switches is the risk of interrupted service to distribution circuits due to a failure. If the switch is replaced on a reactive basis, significant increases in cost due to unplanned replacement can occur.

Replacement is recommended to minimize risk associated with this type of equipment.

WBS Description: Braunig-Upgrade Bus #4

WBS Element: S-0807-0000001

Business Area: Substation & Transmission

Executive: Ricardo Renteria

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$4,685,114

FY23: \$0

FY24: \$0

FY25: \$1,351,160

FY26: \$1,648,840

FY27: \$1,685,114

Project Description

Bus #4 includes replacement of switches 1599, 1601, 1602, 19U21, 1871, 1872, 1879, 1881, 1899 and 1901 along with upgrading Bus #4 buswork.

Project Justification

The switches at Braunig substation have been identified as part of the Infrastructure Modernization capital replacement program based on the age of the equipment. This equipment has been in service for over 45 years and is at the end of its useful life. Replacing the equipment at this substation will improve the overall reliability of the system and provide for continued service to our customers for many years forward.

Expected Benefits

Replacing the switches produces the following benefits:

- Avoids unexpected failure due to age and condition.
- Reduces the risk of failure well into the future.
- Reduces maintenance expenses.
- Reduces switch maintenance costs.
- Newer style of switch is a more robust operating mechanism.
- Standardizes equipment to reduce spare parts and training costs.

Project Risk

The primary risk of not replacing the switches is the risk of interrupted service to distribution circuits due to a failure. If the switch is replaced on a reactive basis, significant increases in cost due to unplanned replacement can occur.

Replacement is recommended to minimize risk associated with this type of equipment.



WBS Description: Substation Fence Program

WBS Element: S-0824-0000001

Business Area: Substation & Transmission

Executive: Ricardo Renteria

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$2,300,000

FY23: \$500,000

FY24: \$500,000

FY25: \$1,300,000

FY26: \$0

FY27: \$0

Project Description

The replacement of the chain link substation fence with a nonconductive alternative that is not bonded to the substation grounding system where deficiencies in the substation perimeter grounding systems are found. This could include fiberglass-based fencing or masonry fencing options.

Project Justification

Substation perimeter grounding standards have changed over time and since the installation of many CPS Energy substations. The standards of today often present deficiencies of past standards. Once a deficiency in the perimeter grounding system is identified, it's important to remedy it in order to provide the safest conditions possible for employees and for the public.

Expected Benefits

Updating substation perimeter grounding to current standards will help to provide the safest conditions possible for employees and for the public.

Project Risk

Risks of not remedying identified deficiencies in the substation perimeter grounding systems are injury, or possible death to persons around substation equipment.

¹ Dollars exclude AFUDC
Competitive and Confidential Information



WBS Description: Substation Paving/Drainage Improvements

WBS Element: S-0825-0000001

Business Area: Substation & Transmission

Executive: Ricardo Renteria

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$2,229,537

FY23: \$729,537

FY24: \$750,000

FY25: \$750,000

FY26: \$0

FY27: \$0

Project Description

Repair or install asphalt paving in substations required to improve drainage and prevent soil and sediment runoff water, to be in compliance with Environmental requirements.

Project Justification

Older substations may not have adequate drainage and could be non-compliant with federal, state, and/or local regulations. Improvements are required to ensure compliance.

Expected Benefits

Compliance with federal, state, and/or local regulations associated with drainage requirements.

Project Risk

Failure to improve drainage risks non-compliance with federal, state, and/or local regulations.



WBS Description: Grounding Grid Upgrades

WBS Element: S-0826-0000001

Business Area: Substation & Transmission

Executive: Ricardo Renteria

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$447,037

FY23: \$177,037

FY24: \$75,000

FY25: \$195,000

FY26: \$0

FY27: \$0

Project Description

Fortification of deficient substation grounding systems to ensure step potentials and touch potentials are within safe limits for personnel. This will include the installation of additional grounding conductor, grounding rods, grounding wells, and the like.

Project Justification

Substation grounding standards have changed over time and since the installation of many CPS Energy substations. The standards of today often present deficiencies of past standards. Once a deficiency in the grounding system is identified, it's important to remedy it in order to provide the safest working conditions possible.

Expected Benefits

Updating substation grounding to current standards will help to provide the safest working conditions possible.

Project Risk

Risks of not remedying identified deficiencies in the substation grounding systems are injury or possible death to persons around substation equipment.



WBS Description: Transmission - Construction - Quintana Breaker Replace

WBS Element: S-0846-0000001

Business Area: Substation & Transmission

Executive: Ricardo Renteria

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$391,000

FY23: \$391,000

FY24: \$0

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Replacing of 138kV breakers that have external capacitors with new 138kV breakers that are currently not available at various substations.

Project Justification

The SF6 circuit breakers have been identified as part of the Infrastructure Modernization capital program based on the age of the equipment and the technology type. Due to greenhouse gas potential legislation, aging or leaking SF6 breakers are being targeted for replacement. Replacing the equipment will improve overall reliability of the system and will address growing environmental concerns related to greenhouse gas emissions. Replacing these breakers will reduce the scope of our greenhouse gas emissions monitored by the Environmental Protection Agency’s memorandum of understanding with CPS Energy.

Expected Benefits

Replacing older SF6 circuit breakers modernizes our fleet by eliminating equipment that is leaking SF6 into the atmosphere. Circuit breaker replacement results in reduced maintenance trips to recharge the leaking circuit breaker. This will reduce overall maintenance costs for the circuit breaker and free up the electrician to work on other tasks that are more value added.

Project Risk

The primary risk of not replacing the leaking SF6 circuit breakers is the loss of SF6 gas. SF6 is very high on the list of greenhouse gasses. One unit of SF6 gas is equivalent to 23,900 units of Carbon. This gas is not yet regulated, but it is highly likely that it will be in the very near future. Replacing leaking SF6 circuit breakers demonstrates our commitment to environmental stewardship. Risks can be mitigated by implementing epoxy patches on existing breakers. Additional cost is associated with these measures and effectiveness is not 100%.

¹ Dollars exclude AFUDC
Competitive and Confidential Information

WBS Description: AVR - Replace six (6) 345kV Breakers

WBS Element: S-0852-0000001

Business Area: Substation & Transmission

Executive: Ricardo Renteria

Strategic Category: Infrastructure Modernization

Project Cost:¹ \$1,638,000

FY23: \$565,000

FY24: \$1,073,000

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Install new SF6 circuit breakers to replace SF6 circuit breakers 13U3, 15U3 and 17U3.

Project Justification

The SF6 circuit breakers have been identified as part of the Infrastructure Modernization capital program based on the age of the equipment and the technology type. Due to greenhouse gas potential legislation, aging or leaking SF6 breakers are being targeted for replacement. Replacing the equipment will improve overall reliability of the system and will address growing environmental concerns related to greenhouse gas emissions. Replacing these breakers will reduce the scope of our greenhouse gas emissions monitored by the Environmental Protection Agency's memorandum of understanding with CPS Energy.

Expected Benefits

Replacing older SF6 circuit breakers modernizes our fleet by eliminating equipment that is leaking SF6 into the atmosphere. Circuit breaker replacement results in reduced maintenance trips to recharge the leaking circuit breaker. This will reduce overall maintenance costs for the circuit breaker and free up the electrician to work on other tasks that are more value added.

Project Risk

The primary risk of not replacing the leaking SF6 circuit breakers is the loss of SF6 gas. SF6 is very high on the list of greenhouse gasses. One unit of SF6 gas is equivalent to 23,900 units of Carbon. This gas is not yet regulated, but it is highly likely that it will be in the very near future. Replacing leaking SF6 circuit breakers demonstrates our commitment to environmental stewardship. Risks can be mitigated by implementing epoxy patches, as possible, on existing breakers. Additional cost is associated with these measures and effectiveness is not 100%.



WBS Description: Rio Nogales - Replace 345kV Breakers

WBS Element: S-0860-0000001

Business Area: Substation & Transmission

Executive: Ricardo Renteria

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$2,955,000

FY23: \$0

FY24: \$1,035,000

FY25: \$1,920,000

FY26: \$0

FY27: \$0

Project Description

Install new SF6 circuit breakers to replace SF6 circuit breakers 18J5, 20J5, 10J5, 16J5 12J5 and 14J5.

Project Justification

The SF6 circuit breakers have been identified as part of the Infrastructure Modernization capital program based on the age of the equipment and the technology type. Due to greenhouse gas potential legislation, aging or leaking SF6 breakers are being targeted for replacement. Replacing the equipment will improve overall reliability of the system and will address growing environmental concerns related to greenhouse gas emissions. Replacing these breakers will reduce the scope of our greenhouse gas emissions monitored by the Environmental Protection Agency’s memorandum of understanding with CPS Energy.

Expected Benefits

Replacing older SF6 circuit breakers modernizes our fleet by eliminating equipment that is leaking SF6 into the atmosphere. Circuit breaker replacement results in reduced maintenance trips to recharge the leaking circuit breaker. This will reduce overall maintenance costs for the circuit breaker, and free up the electrician to work on other tasks that are more value added.

Project Risk

The primary risk of not replacing the leaking SF6 circuit breakers is the loss of SF6 gas. SF6 is very high on the list of greenhouse gasses. One unit of SF6 gas is equivalent to 23,900 units of Carbon. This gas is not yet regulated, but it is highly likely that it will be in the very near future. Replacing leaking SF6 circuit breakers demonstrates our commitment to environmental stewardship. Risks can be mitigated by implementing epoxy patches, as possible, on existing breakers. Additional cost is associated with these measures and effectiveness is not 100%.

¹ Dollars exclude AFUDC
Competitive and Confidential Information

WBS Description: Medina Base - Replace Transformer/Switchgear #3 (Transmission)

WBS Element: S-0866-0000001

Business Area: Substation & Transmission

Executive: Ricardo Renteria

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$100,000

FY23: \$100,000

FY24: \$0

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Install a new 138/13kV, 40 Megavolt-ampere (MVA) power transformer to replace the 40 MVA, 13kV Westinghouse transformer installed in 1976 at the Medina Base substation in position #3. Install new switchgear to replace the Federal Pacific switchgear installed in 1968 at the Medina Base substation in position #3.

Project Justification

The transformer and switchgear at the Medina Base substation have been identified as part of the Infrastructure Modernization capital replacement program based on the age of the equipment. This equipment has been in service for 40/48 years and is at the end of its useful life. Replacing the equipment at this substation will improve the overall reliability of the system and provide for continued service to our customers for many years forward. This project also implements a newer technology of switchgear that allows CPS Energy to reduce the amount of spare parts on hand and reduces the frequency of required periodic maintenance.

Expected Benefits

Replacing the transformer and switchgear produces the following benefits:

- Avoids unexpected failure due to age and condition.
- Reduces the risk of transformer failure well into the future.
- Reduces maintenance expenses.
- Increases system reliability.
- Reduces risk of adjacent damages caused by an unexpected failure.
- Standardizes equipment to reduce spare part and training costs.

Project Risk

The primary risk of not replacing the transformer and switchgear is the risk of unexpected failure resulting in unserved customer load, possible property damage and potential environmental contamination. If the equipment is replaced on a reactive basis, significant increases in cost due to unplanned replacement can occur. This equipment is currently 40/48 years old. Approximately 4 transformers and 33 switchgear breakers per year must be replaced to sustain a 50 year life cycle for transformers and a 35 year life cycle for switchgear breakers or an unmanageable number of replacements (asset wall) will develop over time. Failure can be catastrophic. The metal clad switchgear requires frequent maintenance to rainproof the switchgear. Replacement is recommended to minimize risk associated with this type of equipment.

WBS Description: Pinn Rd - Replace Transformer/Switchgear #3

WBS Element: S-0868-0000001

Business Area: Substation & Transmission

Executive: Ricardo Renteria

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$100,000

FY23: \$0

FY24: \$100,000

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Install a new 138/13kV, 40 Megavolt-ampere (MVA) power transformer to replace the 40 MVA, 13kV Allis Chalmers transformer installed in 1970 at the Pinn Road substation in position #3. Install new switchgear in position #3 to replace the Allis Chalmers switchgear installed in 1971.

Project Justification

The transformer and switchgear at the Pinn Road substation have been identified as part of the Infrastructure Modernization capital replacement program based on the age of the equipment. This equipment has been in service for 46/45 years and is at the end of its useful life. Replacing the equipment at this substation will improve the overall reliability of the system and provide for continued service to our customers for many years forward. This project also implements a newer technology of switchgear that allows CPS Energy to reduce the amount of spare parts on hand and reduces the frequency of required periodic maintenance.

Expected Benefits

Replacing the transformer and switchgear produces the following benefits:

- Avoids unexpected failure due to age and condition.
- Reduces the risk of transformer failure well into the future.
- Reduces maintenance expenses.
- Increases system reliability.
- Reduces risk of adjacent damages caused by an unexpected failure.
- Newer style of switchgear is a more robust operating mechanism.
- Standardizes equipment to reduce spare part and training costs.

Project Risk

The primary risk of not replacing the transformer and switchgear is the risk of unexpected failure resulting in unserved customer load, possible property damage and potential environmental contamination. If the equipment is replaced on a reactive basis, significant increases in cost due to unplanned replacement can occur. This equipment is currently 46/45 years old. Approximately 4 transformers and 33 switchgear breakers per year must be replaced to sustain a 50 year life cycle for transformers and a 35 year life cycle for switchgear breakers or an unmanageable number of replacements (asset wall) will develop over time. Failure can be catastrophic. The metal clad switchgear requires frequent maintenance to rainproof the switchgear. Replacement is recommended to minimize risk associated with this type of equipment.

WBS Description: South San Antonio - Replace Transformer/Switchgear #4 (Transmission)

WBS Element: S-0869-0000001

Business Area: Substation & Transmission

Executive: Ricardo Renteria

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$100,000

FY23: \$20,000

FY24: \$80,000

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Install a new 138/13kV, 40 Megavolt-ampere (MVA) power transformer to replace the 40 MVA, 13kV Maloney transformer installed in 1973 at the South San substation in position #4. Install new switchgear to replace the Allis Chalmers switchgear installed in 1973 at the South San Antonio substation in position #4.

Project Justification

The transformer and switchgear at the South San substation have been identified as part of the Infrastructure Modernization capital replacement program based on the age of the equipment. This equipment has been in service for 43 years and is at the end of its useful life. Replacing the equipment at this substation will improve the overall reliability of the system and provide for continued service to our customers for many years forward. This project also implements a newer technology of switchgear that allows CPS Energy to reduce the amount of spare parts on hand and reduces the frequency of required periodic maintenance.

Expected Benefits

Replacing the transformer and switchgear produces the following benefits:

- Avoids unexpected failure due to age and condition.
- Reduces the risk of transformer failure well into the future.
- Reduces maintenance expenses.
- Increases system reliability.
- Reduces risk of adjacent damages caused by an unexpected failure.
- Newer style of switchgear is a more robust operating mechanism.
- Standardizes equipment to reduce spare part and training costs.

Project Risk

The primary risk of not replacing the transformer and switchgear is the risk of unexpected failure resulting in unserved customer load, possible property damage and potential environmental contamination. If the equipment is replaced on a reactive basis, significant increases in cost due to unplanned replacement can occur. This equipment is currently 43 years old. Approximately 4 transformers and 33 switchgear breakers per year must be replaced to sustain a 50 year life cycle for transformers and a 35 year life cycle for switchgear breakers or an unmanageable number of replacements (asset wall) will develop over time. Failure can be catastrophic. The metal clad switchgear requires frequent maintenance to rainproof the switchgear. Replacement is recommended to minimize risk associated with this type of equipment.

WBS Description: Transmission - Construction - Arrester Program - D5

WBS Element: S-0881-0000001

Business Area: Substation & Transmission

Executive: Ricardo Renteria

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$230,000

FY23: \$230,000

FY24: \$0

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Install station-class surge arresters at necessary 138kV transmission line connections to each 138kV switchyard. The project will involve Leon Creek, Sommers, Deely and Howard Rd.

Project Justification

- The ideal location for surge arresters for a switchyard application, from the standpoint of protection, minimizing the scope of interruption for arrester failures and accessibility for maintenance, is at all 138kV transmission line entrances. Currently, Leon Creek, Sommers, Deely and Howard Rd. do not have any surge arresters located on the incoming transmission lines. The switchyard electrical equipment relies entirely on the surge arrester located on power generation's Generator Step-up Units (GSU), or on the 138kV buses (Deely only).
- A basic principle of surge arrester application is the provision of overhead ground wires and/or lightning masts to shield switchyard electrical equipment against direct lightning strikes. Since CPS Energy switchyards follow this practice, the majority of surges seen will be the result of transmission line flashovers or back flashes, with back flashes occurring more frequently on effectively shielded transmission lines.
- When dealing with an incoming transmission line lightning surge, large distances between switchyard electrical equipment located near the line and a surge arrester located some distance away from the line will result in higher voltage levels at the switchyard electrical equipment than seen at the surge arrester terminals.

Expected Benefits

Installation of station-class surge arresters on incoming switchyard transmission lines will provide the following benefits:

- Increased protection levels for switchyard electrical equipment.
- Reduced level of equipment outages due to surge arrester failure.
- Surge arrester protective margin designed according to Energy Delivery Systems (EDS) standards.
- Each 138kV bus capable of being sectionalized will remain protected.

Project Risk

Failure to carry out the project will result in risk of having switchyard equipment unprotected or minimizing the level of protection against incoming lightning surges. Lack of protection can result in an overvoltage above equipment basic insulation level (BIL), causing permanent damage. Additional cost for replacement of failed equipment and reduced switchyard reliability during the restoration process.

WBS Description: Tenth Street Rebuild

WBS Element: S-0891-0000001

Business Area: Substation & Transmission

Executive: Ricardo Renteria

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$10,066,000

FY23: \$0

FY24: \$300,000

FY25: \$3,700,000

FY26: \$3,000,000

FY27: \$3,066,000

Project Description

Rebuild Tenth Street Substation that has been in-service since 1956. The high side of Tenth Street Substation consists of a 'lattice box structure' system. The project will be phased and involve removing the 'lattice box structure' one bay per phase, and replacing it with modern substation equipment.

Project Justification

The 'lattice box structure' at Tenth Street Substation has been identified as an Infrastructure Modernization project based on the age of the structures. The Tenth Street Substation has been in service since 1956 and feeds 4 of the downtown networks. Portions of this 'lattice box structure' have been in service for over 60 years, which places it out of its service life. Replacing the 'lattice box structure' at Tenth Street Substation will improve the reliability of the system and provide for continued service to our customers by removing a known risk with newer, more modern substation equipment.

Expected Benefits

Rebuilding the Tenth Street Substation will provide the following benefits:

- Resolve the issue of in-service equipment that has surpassed its useful life
- Provide a safer work environment
- Increase reliability expectations

Project Risk

Risks of not rebuilding the Tenth Street Substation include:

- Mechanical failure of the 138kV bus system
- Increased danger to personnel working around the aging infrastructure
- Decreased reliability to customers including the downtown network distribution system

WBS Description: Austin Rd Rebuild

WBS Element: S-0892-0000001

Business Area: Substation & Transmission

Executive: Ricardo Renteria

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$2,000,000

FY23: \$0

FY24: \$0

FY25: \$2,000,000

FY26: \$0

FY27: \$0

Project Description

Rebuild 138kV side of Austin Rd substation. The high side of Austin Rd. consist of a 'lattice box structure' system. The project would be phased and involve removing the 'lattice box structure' one bay per phase, and replacing it with substation tubular structures.

Project Justification

The 'lattice box structure' at Austin Rd has been identified as an Infrastructure Modernization opportunity based on the age of the structure. Austin Rd substation has been in service since 1955. Portions of this 'lattice box structure' have been in service for over 60 years, which places it out of its service life. Replacing the 'lattice box structure' at Austin Rd. will improve the reliability of the system and provide for continued service to our customers by removing a known risk with newer, more modern substation tubular structures.

Expected Benefits

Replacing the 'lattice box structure' produces the following benefits:

- Avoids unexpected structural failure due to age and condition.
- Avoids design/maintenance time to determine replacement or repair of failed structural members.
- Newer tubular structures are standardized and modular to accommodate newer breaker, transformers, switch designs.
- Avoids the need to have external engineering service providers perform a structural analysis to determine the expected loss of structural integrity.
- Adds another 40 years of serviceable life to the 138kV high side of Austin Rd. Substation.

Project Risk

The primary risk of not replacing the 'lattice box structure' is the risk of an unexpected structural failure resulting in the loss of Austin Rd. substation, unserved customer load, and subsequent substation equipment damage.

WBS Description: Transmission -USAA #1 - Replace Switchgear #1 and #3

WBS Element: S-0896-0000001

Business Area: Substation & Transmission

Executive: Ricardo Renteria

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$2,453,000

FY23: \$2,214,000

FY24: \$239,000

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Install new Out-Door, Walk-In Metalclad Medium Voltage Switchgear to replace the two Westinghouse switchgears installed in 1975 at the United Services Automobile Association (USAA) #1 substation in positions #1 and #3.

Project Justification

The switchgear units at the USAA #1 substation have been identified as part of the Infrastructure Modernization capital replacement program based on the age of the equipment. This equipment has been in service for 43 years and are at the end of its useful life. Replacing the equipment at this substation will improve the overall reliability of the system and provide for continued service to our customers for many years forward. This project also implements a newer technology of switchgear that allows CPS Energy to reduce the amount of spare parts on hand, and reduces the frequency of required periodic maintenance.

Expected Benefits

Replacing the switchgear produces the following benefits:

- Avoids unexpected failure due to age and condition.
- Reduces the risk of failure well into the future.
- Reduces maintenance expenses.
- Reduces switchgear maintenance costs.
- Newer style of switchgear is a more robust operating mechanism.
- Standardizes equipment to reduce spare part and training costs.

Project Risk

The primary risk of not replacing the transformer and switchgear is the risk of unexpected failure resulting in unserved customer load, possible property damage and potential environmental contamination. If the equipment is replaced on a reactive basis, significant increases in cost due to unplanned replacement can occur.

Approximately 4 transformers and 33 switchgear breakers per year must be replaced to sustain a 50 year life cycle for transformers and a 40 year life cycle for switchgear breakers or an unmanageable number of replacements (asset wall) will develop over time. Failure can be catastrophic. The metalclad switchgear requires frequent maintenance to rainproof the switchgear. Replacement is recommended to minimize risk associated with this type of equipment.

¹ Dollars exclude AFUDC
Competitive and Confidential Information

WBS Description: Westside - Replace Transformer & Switchgear (Transmission)

WBS Element: S-0897-0000001

Business Area: Substation & Transmission

Executive: Ricardo Renteria

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$40,440

FY23: \$0

FY24: \$0

FY25: \$0

FY26: \$20,000

FY27: \$20,440

Project Description

Install a new 138/13.8kV, 40 Megavolt-ampere (MVA) power transformer to replace the 39.2 MVA, 13kV US Transformer installed in 1999 at the Westside substation in position #3.

Install new Out-Door, Walk-In Metalclad Medium Voltage Switchgear to replace the Allis Chalmers switchgear installed in 1972 at the Westside substation in position #3.

Project Justification

The transformer and switchgear at the Westside substation has been identified as part of the Infrastructure Modernization capital replacement program based on the age of the equipment. This equipment has been in service for 46 years and is at the end of its useful life. Replacing the equipment at this substation will improve the overall reliability of the system and provide for continued service to our customers for many years forward. This project also implements a newer technology of switchgear that allows CPS Energy to reduce the amount of spare parts on hand and reduces the frequency of required periodic maintenance.

Expected Benefits

Replacing the transformer and switchgear produces the following benefits:

- Avoids unexpected failure due to age and condition.
- Reduces the risk of transformer failure well into the future.
- Reduces maintenance expenses.
- Increases system reliability.
- Reduces risk of adjacent damages caused by an unexpected failure.
- Newer style of switchgear is a more robust operating mechanism.
- Standardizes equipment to reduce spare part and training costs.

Project Risk

The primary risk of not replacing the transformer and switchgear is the risk of unexpected failure resulting in unserved customer load, possible property damage and potential environmental contamination. If the equipment is replaced on a reactive basis, significant increases in cost due to unplanned replacement can occur.

This equipment is currently 46 years old. Approximately 4 transformers and 33 switchgear breakers per year must be replaced to sustain a 50 year life cycle for transformers and a 40 year life cycle for switchgear breakers or an unmanageable number of replacements (asset wall) will develop over time. Failure can be catastrophic. The metalclad switchgear requires frequent maintenance to rainproof the switchgear. Replacement is recommended to minimize risk associated with this type of equipment.

WBS Description: Harlandale - Replace Transformer/Switchgear #1 & Split 138kV Bus

WBS Element: S-0901-0000001

Business Area: Substation & Transmission

Executive: Ricardo Renteria

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$70,770

FY23: \$0

FY24: \$0

FY25: \$0

FY26: \$35,000

FY27: \$35,770

Project Description

Install a new 138/13.8kV, 39.2 Megavolt-ampere (MVA) power transformer to replace the 39.2 MVA, 13kV Westinghouse installed in 1976 at the Harlandale substation in position #1. Install new Out-Door, Walk-In Metalclad Medium Voltage Switchgear to replace the existing switchgear at Harlandale substation in position #1.

Project Justification

The transformer and switchgear at the Harlandale substation has been identified as part of the Infrastructure Modernization capital replacement program based on the age of the equipment. This equipment has been in service for 44/43 years and is at the end of its useful life. Replacing the equipment at this substation will improve the overall reliability of the system and provide for continued service to our customers for many years forward. This project also implements a newer technology of switchgear that allows CPS Energy to reduce the amount of spare parts on hand and reduces the frequency of required periodic maintenance.

Expected Benefits

Replacing the transformer and switchgear produces the following benefits:

- Avoids unexpected failure due to age and condition.
- Reduces the risk of transformer failure well into the future.
- Reduces maintenance expenses.
- Increases system reliability.
- Reduces risk of adjacent damages caused by an unexpected failure.
- Newer style of switchgear is a more robust operating mechanism.
- Standardizes equipment to reduce spare part and training costs.

Project Risk

The primary risk of not replacing the transformer and switchgear is the risk of unexpected failure resulting in unserved customer load, possible property damage and potential environmental contamination. If the equipment is replaced on a reactive basis, significant increases in cost due to unplanned replacement can occur.

This equipment is currently 44/43 years old. Approximately 4 transformers and 33 switchgear breakers per year must be replaced to sustain a 50 year life cycle for trans-formers and a 40 year life cycle for switchgear breakers or an unmanageable number of replacements (asset wall) will develop over time. Failure can be catastrophic. The metalclad switchgear requires frequent maintenance to rainproof the switchgear. Replacement is recommended to minimize risk associated with this type of equipment.

WBS Description: Fratt - Replace Transformer & Switchgear (Transmission)

WBS Element: S-0903-0000001

Business Area: Substation & Transmission

Executive: Ricardo Renteria

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$80,880

FY23: \$0

FY24: \$0

FY25: \$0

FY26: \$40,000

FY27: \$40,880

Project Description

Install a new 138/13.8kV, 39.2 Megavolt-ampere (MVA) power transformer to replace the 39.2 MVA, 13kV Westinghouse installed in 1976 at the Fratt substation in position #3. Install new Out-Door, Walk-In Metalclad Medium Voltage Switchgear to replace the existing switchgear at Harlandale substation in position #3.

Project Justification

The transformer and switchgear at the Harlandale substation has been identified as part of the Infrastructure Modernization capital replacement program based on the age of the equipment. This equipment has been in service for 42/46 years and is at the end of its useful life. Replacing the equipment at this substation will improve the overall reliability of the system and provide for continued service to our customers for many years forward. This project also implements a newer technology of switchgear that allows CPS Energy to reduce the amount of spare parts on hand and reduces the frequency of required periodic maintenance.

Expected Benefits

Replacing the transformer and switchgear produces the following benefits:

- Avoids unexpected failure due to age and condition.
- Reduces the risk of transformer failure well into the future.
- Reduces maintenance expenses.
- Increases system reliability.
- Reduces risk of adjacent damages caused by an unexpected failure.
- Newer style of switchgear is a more robust operating mechanism.
- Standardizes equipment to reduce spare part and training costs.

Project Risk

The primary risk of not replacing the transformer and switchgear is the risk of unexpected failure resulting in unserved customer load, possible property damage and potential environmental contamination. If the equipment is replaced on a reactive basis, significant increases in cost due to unplanned replacement can occur.

This equipment is currently 42/46 years old. Approximately 4 transformers and 33 switchgear breakers per year must be replaced to sustain a 50 year life cycle for trans-formers and a 40 year life cycle for switchgear breakers or an unmanageable number of replacements (asset wall) will develop over time. Failure can be catastrophic. The metalclad switchgear requires frequent maintenance to rainproof the switchgear. Re-placement is recommended to minimize risk associated with this type of equipment.

¹ Dollars exclude AFUDC
Competitive and Confidential Information

WBS Description: Transmission - Capacitor Bank Replacement/Upgrade Program

WBS Element: S-0904-0000001

Business Area: Substation & Transmission

Executive: Ricardo Renteria

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$3,320,000

FY23: \$1,660,000

FY24: \$830,000

FY25: \$830,000

FY26: \$0

FY27: \$0

Project Description

Replace existing [C1C4] Joslyn (VBV) Circuit Breaker and Three Single Phase GE (36F3936G1) Capacitor Banks (installed in 1997 - highest incident rate) with a new system comprehensive of: A switching transients mitigating main disconnect means, such as an independent pole operated circuit breaker or a set of custom designed current-limiting reactors in series with a ganged three pole circuit breaker (Note: Inrush current approximately 4.8kA) and a 72 mega volt amps (reactive) (MVAR) fuseless capacitor bank in conformance with Standards 429-12 (CPSE) and 18-2012 (IEEE) that the operating nominal voltage is 141kV.

Project Justification

The capacitor bank as a system, have been identified as part of the Infrastructure Modernization capital program based on the age of the equipment and the technology type. Replacing the equipment will improve overall reliability of the system and will address growing environmental concerns related to system voltage regulation. Replacing the equipment will improve associate capacitor bank performance and life expectancy. Capacitor Bank life expectancy is 20 years while under low inrush current conditions, reduced transients, and standard environmental conditions. The existing capacitor bank is 21 years of age.

Expected Benefits

Replacing the circuit breaker and capacitor bank, with a switching transients mitigating main disconnect means, such as an independent pole operated circuit breaker, or a set of custom designed current-limiting reactors in series with a ganged three pole circuit breaker, will minimize inrush currents degradation effect and extend the overall capacitor bank life span.

The capacitor bank system replacement results in improved performance and reduced maintenance trips to recharge the leaking circuit breaker. This will reduce overall maintenance costs for the system, and free up the electrician to work on other tasks that have more value added.

Project Risk

Purpose is to mitigate main disconnect. Failure to replace the circuit breaker and capacitor bank with switching transients will reduce the overall capacitor bank life span. Additionally, this could lead to irreversible damage to the capacitors.

As capacitor units fail it places additional stress on the remaining units as they are subject to greater overvoltage conditions as our system is now run at a 141kV nominal voltage.

Capacitor banks help mitigate slight regional voltage sags on transmission line power delivery, losing this capacity would affect system reliability.



WBS Description: Transmission- Non-Microprocessor Protective Relay Upgrade

WBS Element: S-0913-0000001

Business Area: Substation & Transmission

Executive: Ricardo Renteria

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$729,536

FY23: \$229,536

FY24: \$500,000

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Upgrade all non-microprocessor protective relays to CPS Energy standard Schweitzer Engineering Laboratories (SEL) microprocessor-based relays in every substation. This will include all Electromechanical and Solid State relays.

Project Justification

Statistically, electromechanical relays suffer from the effect of age more than other types of relays. As time passes, the mechanical parts start to deteriorate and drift apart which requires periodic maintenance, calibration, and testing. These factors increase the rate of failure and miss-operation which impacts the availability of the protective equipment and reliability of our system. In addition, traditional electromechanical and static protection relays offer a single function which requires installation of multiple relays (i.e. one for each phase), auxiliary relays, and communication equipment. More components results in more interconnections and increased component failures.

Expected Benefits

Microprocessor-based protective relays deliver more information and superior reliability with lower maintenance costs. They are multi-function devices that can be programmed to perform a variety of protection functions. They are faster, more sensitive, and more reliable. They provide remote communication access for settings, monitoring, and control. They are capable of recording fault and disturbance data.

Project Risk

Delaying the upgrade of outdated existing protective relaying equipment will have negative impacts on the reliability of our power system in addition to increasing the maintenance cost.

WBS Description: Transmission- Chulie Substation Rebuild

WBS Element: S-0914-0000001

Business Area: Substation & Transmission

Executive: Ricardo Renteria

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$151,650

FY23: \$0

FY24: \$0

FY25: \$0

FY26: \$75,000

FY27: \$76,650

Project Description

Rebuild Chulie Substation that has been in-service since 1958. The high side of Chulie Substation consists of a 'lattice box structure' system. The project will either be phased and involve removing the 'lattice box structure' one bay per phase and replacing it with modern substation equipment, or rebuilt in a new location if one can be found/obtained.

Project Justification

The 'lattice box structure' at Chulie Substation has been identified as an Infrastructure Modernization project based on the age of the structures. The Chulie Substation has been in service since 1958 and feeds the San Antonio (SA) International Airport among other things. Portions of this 'lattice box structure' have been in service for over 60 years, which places it out of its service life. The box structure has also shown to be prone to contamination on the insulators resulting in unforeseen 138kV bus outages, and thus, outages to the customers Chulie Substation serves. Replacing the 'lattice box structure' at Chulie Substation will improve the reliability of the system and provide for continued service to our customers by removing a known risk with newer, more modern substation equipment.

Expected Benefits

Rebuilding the Chulie Substation will provide the following benefits:

- Resolve the issue of in-service equipment that has surpassed its useful life
- Provide a safer work environment
- Increase reliability expectations

Project Risk

Risks of not rebuilding the Chulie Substation include:

- Mechanical failure of the 138kV bus system
- Increased danger to personnel working around the aging infrastructure
- Decreased reliability to customers including the SA International Airport

WBS Description: Five Points - Replace Transformer/Switchgear #6 & Add CS

WBS Element: S-0916-0000001

Business Area: Substation & Transmission

Executive: Ricardo Renteria

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$252,750

FY23: \$0

FY24: \$0

FY25: \$0

FY26: \$125,000

FY27: \$127,750

Project Description

Install a new 138/13kV, 40 Megavolt-ampere (MVA) power transformer to replace the 35 MVA, 13kV Westinghouse transformer installed in 1973 at the Five Points substation in position #6. Install a new switchgear to replace the Allis Chalmers switchgear installed in 1973 at the Five Points substation in position #6. Install new Out-Door, Walk-In Metalclad Medium Voltage Switchgear to replace the existing switchgear in positions #6.

Project Justification

The transformer and switchgear at the Five Points substation has been identified as part of the Infrastructure Modernization capital replacement program based on the age of the equipment. This equipment has been in service since 1973 and is at the end of its useful life. Replacing the equipment at this substation will improve the overall reliability of the system and provide for continued service to our customers for many years forward. This project also implements a newer technology of switchgear that allows CPS Energy to reduce the amount of spare parts on hand and reduces the frequency of required periodic maintenance.

Expected Benefits

Replacing the transformer and switchgear produces the following benefits:

- Avoids unexpected failure due to age and condition.
- Reduces the risk of transformer failure well into the future.
- Reduces maintenance expenses.
- Increases system reliability.
- Reduces risk of adjacent damages caused by an unexpected failure.
- Newer style of switchgear is a more robust operating mechanism.
- Standardizes equipment to reduce spare part and training costs.

Project Risk

The primary risk of not replacing the transformer and switchgear is the risk of unexpected failure resulting in unserved customer load, possible property damage and potential environmental contamination. If the equipment is replaced on a reactive basis, significant increases in cost due to unplanned replacement can occur.

This equipment has been in service since 1973. Approximately 4 transformers and 33 switchgear breakers per year must be replaced to sustain a 50 year life cycle for transformers and a 40 year life cycle for switchgear breakers or an unmanageable number of replacements (asset wall) will develop over time. Failure can be catastrophic. The metalclad switchgear requires frequent maintenance to rainproof the switchgear. Replacement is recommended to minimize risk associated with this type of equipment.



WBS Description: Substation Physical Barriers

WBS Element: S-0929-0000001

Business Area: Substation & Transmission

Executive: Ricardo Renteria

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$548,000

FY23: \$548,000

FY24: \$0

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

As part of a partnership with Joint Base San Antonio (JBSA) under a Defense Economic Adjustment Assistance Grant (DEAAG), CPS Energy has been requested to provide increased security measures in an effort to harden by improving the physical security of the Distribution Substations that serve all JBSA bases. The project will include replacing approximately 16,662 linear feet of chain link fencing with concrete perimeter fencing or no-climb fencing and the installation of approximately 120 linear feet of Ballistic Walls as an added protective measure along with other security measures at the substations supporting JBSA bases.

Project Justification

Supports mission assurance and resiliency efforts at all JBSA installations.

Expected Benefits

Supports mission assurance and resiliency efforts at all JBSA installations.

Project Risk

The risk of not undertaking this project will result in this project being at risk of not being awarded grant funding, meaning that the work would not be executed as planned.



WBS Description: Capital Replacement-Transmission

WBS Element: S-1402-0000034

Business Area: Substation & Transmission

Executive: David Lentz

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$7,634,100

FY23: \$1,500,000

FY24: \$1,500,000

FY25: \$1,500,000

FY26: \$1,550,000

FY27: \$1,584,100

Project Description

Purchase and install replacement transmission equipment for unexpected, failed capital substation transmission equipment.

Project Justification

Although our diagnostic testing and on-line monitoring systems better predict impending failures, there are unexpected failures that must be addressed.

Expected Benefits

- Improved customer support
- Reliability of the substation associated with failed equipment

Project Risk

Not undertaking this project will result in failure to purchase and install replacement equipment for failed equipment. In turn, the ability to reliably serve CPS Energy's customers during emergency conditions will be negatively impacted .



WBS Description: Hunt Lane to Pinn Rd Rebuild

WBS Element: T-0190-0000001

Business Area: Substation & Transmission

Executive: Ricardo Renteria

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$3,400,000

FY23: \$3,400,000

FY24: \$0

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Rebuild approximately ten circuit miles of 138kV transmission from Hunt Lane to Pinn Road to meet current CPS Energy and industry standards. The Hunt to Medina Base and Cagnon to Pinn circuits should be upgraded to 570 Megavolt-ampere (MVA), minimum. The 36th Street to Medina Base circuit should maintain the current conductor rating of 215 MVA, minimum.

Project Justification

This transmission rebuild is in support of the Infrastructure Modernization Project and is part of a new Asset Management initiative to establish a life cycle analysis and replacement program for the transmission system. The lines currently are in excess of 50 years in age, have been fully depreciated, and may have design issues including conflicts with under-build distribution circuits running parallel to the transmission lines. Reconstruction will improve reliability, upgrade line capacity, and mitigate risk for unplanned maintenance events such as insulator or hardware repairs.

Expected Benefits

The existing CPS Energy electric system must be maintained to serve customers' need for reliable electric power. This project will improve the quality and safety of an aging transmission line and help ensure electrical reliability.

Project Risk

Failure to proceed with this project could result in overloaded transmission elements under adverse conditions, causing possible load curtailment.

¹ Dollars exclude AFUDC
Competitive and Confidential Information



WBS Description: Braunig - Highland Hills/Brooks

WBS Element: T-0194-0000001

Business Area: Substation & Transmission

Executive: Ricardo Renteria

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$8,690,000

FY23: \$0

FY24: \$4,199,479

FY25: \$4,490,521

FY26: \$0

FY27: \$0

Project Description

Rebuild approximately six circuit miles of 138kV transmission from Braunig to Highland Hills/Brooks to meet current CPS Energy and industry standards. Each of the three circuits should be upgraded to 478 Megavolt-ampere (MVA), minimum. This project is segment 1-Highland Hills to Schillers Tap.

Project Justification

This transmission rebuild is in support of the Infrastructure Modernization Project and is part of a new Asset Management initiative to establish a life cycle analysis and replacement program for the transmission system. The lines currently are in excess of 50 years in age, have been fully depreciated and may have design issues including conflicts with under-build distribution circuits running parallel to the transmission lines. Reconstruction will improve reliability and mitigate risk for unplanned maintenance events such as insulator or hardware repairs.

Expected Benefits

The existing CPS Energy electric system must be maintained to serve customers' need for reliable electric power. This project will improve the quality and safety of an aging transmission line and help ensure electrical reliability.

Project Risk

Failure to proceed with this project could result in overloaded transmission elements under adverse conditions, causing possible load curtailment.

¹ Dollars exclude AFUDC
Competitive and Confidential Information



WBS Description: 36th Street to Merida 138kV Rebuilt

WBS Element: T-0196-0000001

Business Area: Substation & Transmission

Executive: Ricardo Renteria

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$7,670,000

FY23: \$0

FY24: \$4,830,000

FY25: \$2,840,000

FY26: \$0

FY27: \$0

Project Description

Rebuild approximately three circuit miles of 138kV transmission from 36th Street to Merida to meet current CPS Energy and industry standards. The 36th Street to Merida circuit should be upgraded to 349 Megavolt-ampere (MVA), minimum.

Project Justification

This transmission rebuild is in support of the Infrastructure Modernization Project and is part of a new Asset Management initiative to establish a life cycle analysis and replacement program for the transmission system. The lines currently are in excess of 50 years in age, have been fully depreciated and may have design issues including conflicts with under-build distribution circuits running parallel to the transmission lines. Reconstruction will improve reliability and mitigate risk for unplanned maintenance events such as insulator or hardware repairs.

Expected Benefits

The existing CPS Energy electric system must be maintained to serve customers' need for reliable electric power. This project will improve the quality and safety of an aging transmission line and help ensure electrical reliability.

Project Risk

Failure to proceed with this project could result in overloaded transmission elements under adverse conditions, causing possible load curtailment.



WBS Description: Merida to Harlandale (Single Ckt)

WBS Element: T-0233-0000001

Business Area: Substation & Transmission

Executive: Ricardo Renteria

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$1,071,660

FY23: \$0

FY24: \$0

FY25: \$0

FY26: \$530,000

FY27: \$541,660

Project Description

Merida to Sommers (Merida to Harlandale Tap)

South San Antonio to Harlandale (Southsan to Harlandale Tap)

Project Justification

This transmission rebuild is in support of the Infrastructure Modernization Project and is part of a new Asset Management initiative to establish a life cycle analysis and replacement program for the transmission system. The lines currently are in excess of 50 years in age, have been fully depreciated and may have design issues including conflicts with under-build distribution circuits running parallel to the transmission lines. Reconstruction will improve reliability and mitigate risk for unplanned maintenance events such as insulator or hardware repairs.

Expected Benefits

The existing CPS Energy electric system must be maintained to serve customers' need for reliable electric power. This project will improve the quality and safety of an aging transmission line and help ensure electrical reliability.

Project Risk

Failure to proceed with this project could result in overloaded transmission elements under adverse conditions, causing possible load curtailment.

¹ Dollars exclude AFUDC
Competitive and Confidential Information



WBS Description: Harlandale to Sommers Rebuild Segment 3

WBS Element: T-0237-0000001

Business Area: Substation & Transmission

Executive: Ricardo Renteria

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$22,946,740

FY23: \$0

FY24: \$0

FY25: \$320,000

FY26: \$11,190,277

FY27: \$11,436,463

Project Description

Rebuild approximately twenty seven circuit miles of 138kV transmission from Harlandale to Sommers to meet current CPS Energy and industry standards. The Harlandale to Sommers, Harlandale to South San and Merida to Sommers transmission circuits shall maintain the current conductor rating of 570 Megavolt-ampere (MVA), minimum. The Brooks to Chavaneaux and Braunig to Brooks circuits should be upgraded to 478 MVA, minimum. This project is a combination of two segments: Segment 3 described as: Braunig to Brooks circuit (from Schiller’s Tap to Brooks Tap), Harlandale to Sommers circuit (from Schiller’s Tap to Brooks Tap) and Merida to Sommers circuit (from Schiller’s Tap to Brooks Tap), and Segment 4 described as: Harlandale to Sommers circuit (from Sommers to Schiller’s Tap) and Merida to Sommers circuit (from Sommers to Schiller’s Tap).

Project Justification

This transmission rebuild is in support of the Infrastructure Modernization Project and is part of a new Asset Management initiative to establish a life cycle analysis and replacement program for the transmission system. The lines currently are in excess of 50 years in age, have been fully depreciated and may have design issues including conflicts with under-build distribution circuits running parallel to the transmission lines. Reconstruction will improve reliability and mitigate risk for unplanned maintenance events such as insulator or hardware repairs.

Expected Benefits

The existing CPS Energy electric system must be maintained to serve customers’ need for reliable electric power. This project will improve the quality and safety of an aging transmission line and help ensure electrical reliability.

Project Risk

Failure to proceed with this project could result in overloaded transmission elements under adverse conditions, causing possible load curtailment.



WBS Description: Braunig to Highland Hills/Brooks Rebuild

WBS Element: T-0238-0000001

Business Area: Substation & Transmission

Executive: Ricardo Renteria

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$16,158,840

FY23: \$10,213,840

FY24: \$5,945,000

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Rebuild approximately sixteen circuit miles of 138kV transmission from Braunig to Highland Hills/Brooks to meet current CPS Energy and industry standards. Each of the three circuits should be upgraded to 478 Megavolt-ampere (MVA), minimum. This project is segment 2-Schillers Tap to Braunig.

Project Justification

This transmission rebuild is in support of the Infrastructure Modernization Project and is part of a new Asset Management initiative to establish a life cycle analysis and replacement program for the transmission system. The lines currently are in excess of 50 years in age, have been fully depreciated and may have design issues including conflicts with under-build distribution circuits running parallel to the transmission lines. Reconstruction will improve reliability and mitigate risk for unplanned maintenance events such as insulator or hardware repairs.

Expected Benefits

The existing CPS Energy electric system must be maintained to serve customers' need for reliable electric power. This project will improve the quality and safety of an aging transmission line and help ensure electrical reliability.

Project Risk

Failure to proceed with this project could result in overloaded transmission elements under adverse conditions, causing possible load curtailment.

WBS Description: Randolph Tap to Randolph Rebuild

WBS Element: T-0250-0000001

Business Area: Substation & Transmission

Executive: Ricardo Renteria

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$6,702,140

FY23: \$0

FY24: \$380,000

FY25: \$1,530,000

FY26: \$2,370,000

FY27: \$2,422,140

Project Description

Rebuild approximately 5 circuit miles of double circuit 138kV transmission line from Randolph Tap to Randolph Substation to meet current CPS Energy and industry standards. The Randolph Tap to Randolph Substation should be upgraded to 478 Megavolt-ampere (MVA), minimum.

Project Justification

The two existing circuits feeding Randolph Substation have been identified as needing to be rebuilt. They are located in a single 40 foot corridor on common structures. There is not sufficient room to rebuild the line without de-energizing both circuits, which would completely de-energize the substation. A new Randolph to Tuttle line will need to be built in a separate corridor. Once it is energized, the existing line will be rebuilt as a single circuit (Randolph to Weiderstein).

Expected Benefits

The existing CPS Energy electric system must be maintained to serve customers' need for reliable electric power. This project will improve the quality and safety of an aging transmission line and help ensure electrical reliability.

Project Risk

Failure to proceed with this project could result in overloaded transmission elements under adverse conditions, causing possible load curtailment.



WBS Description: Harlandale to Sommers Rebuild Segment 5

WBS Element: T-0251-0000001

Business Area: Substation & Transmission

Executive: Ricardo Renteria

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$4,153,340

FY23: \$0

FY24: \$0

FY25: \$170,000

FY26: \$1,970,000

FY27: \$2,013,340

Project Description

Rebuild approximately seven circuit miles of 138kV transmission from Harlandale to Sommers to meet current CPS Energy and industry standards. The Harlandale to Sommers, Harlandale to South San and Merida to Sommers circuits should maintain the current conductor rating of 570 Megavolt-ampere (MVA), minimum. The Brooks to Chavaneaux and Braunig to Brooks circuits should be upgraded to 478 MVA, minimum. This project is segment 5-Harlandale to South San (Harlandale and Harlandale Tap) and Harlandale to Sommers (Harlandale to Harlandale Tap).

Project Justification

This transmission rebuild is in support of the Infrastructure Modernization Project and is part of a new Asset Management initiative to establish a life cycle analysis and replacement program for the transmission system. The lines currently are in excess of 50 years in age, have been fully depreciated and may have design issues including conflicts with under-build distribution circuits running parallel to the transmission lines. Reconstruction will improve reliability and mitigate risk for unplanned maintenance events such as insulator or hardware repairs.

Expected Benefits

The existing CPS Energy electric system must be maintained to serve customers' need for reliable electric power. This project will improve the quality and safety of an aging transmission line and help ensure electrical reliability.

Project Risk

Failure to proceed with this project could result in overloaded transmission elements under adverse conditions, causing possible load curtailment.



WBS Description: Brooks to Chavaneaux Rebuild (Tap West)

WBS Element: T-0256-0000001

Business Area: Substation & Transmission

Executive: Ricardo Renteria

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$4,150,000

FY23: \$2,980,000

FY24: \$1,170,000

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Rebuild approximately four circuit miles of 138kV transmission from Brooks to Chavaneaux to meet current CPS Energy and industry standards. Each of the four circuits should be upgraded to 478 Megavolt-ampere (MVA), minimum.

Project Justification

This transmission rebuild is in support of the Infrastructure Modernization Project and is part of a new Asset Management initiative to establish a life cycle analysis and replacement program for the transmission system. The lines currently are in excess of 50 years in age, have been fully depreciated and may have design issues including conflicts with under-build distribution circuits running parallel to the transmission lines. Reconstruction will improve reliability and mitigate risk for unplanned maintenance events such as insulator or hardware repairs.

Expected Benefits

The existing CPS Energy electric system must be maintained to serve customers' need for reliable electric power. This project will improve the quality and safety of an aging transmission line and help ensure electrical reliability.

Project Risk

Failure to proceed with this project could result in overloaded transmission elements under adverse conditions, causing possible load curtailment.



WBS Description: Brooks to Chavaneaux Rebuild (Tap East)

WBS Element: T-0260-0000001

Business Area: Substation & Transmission

Executive: Ricardo Renteria

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$6,769,080

FY23: \$0

FY24: \$0

FY25: \$420,000

FY26: \$3,140,000

FY27: \$3,209,080

Project Description

Rebuild approximately four circuit miles of 138kV transmission from Brooks to Chavaneaux to meet current CPS Energy and industry standards. Each circuits should be upgraded to 478 Megavolt-ampere (MVA), minimum. Chavaneaux Tap to Chavaneaux (East and West), Brooks to Chavaneaux (Chavaneaux to Chavaneaux Tap), and Chavaneaux to Palo Alto (Chavaneaux to Chavaneaux Tap)

Project Justification

This transmission rebuild is in support of the Infrastructure Modernization Project and is part of a new Asset Management initiative to establish a life cycle analysis and replacement program for the transmission system. The lines currently are in excess of 50 years in age, have been fully depreciated and may have design issues including conflicts with under-build distribution circuits running parallel to the transmission lines. Reconstruction will improve reliability, upgrade line capacity and mitigate risk for unplanned maintenance events such as insulator or hardware repairs.

Expected Benefits

The existing CPS Energy electric system must be maintained to serve customers' need for reliable electric power. This project will improve the quality and safety of an aging transmission line and help ensure electrical reliability.

Project Risk

Failure to proceed with this project could result in overloaded transmission elements under adverse conditions, causing possible load curtailment.

¹ Dollars exclude AFUDC
Competitive and Confidential Information



WBS Description: Quintana to South San Rebuild

WBS Element: T-0271-0000001

Business Area: Substation & Transmission

Executive: Ricardo Renteria

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$6,260,314

FY23: \$0

FY24: \$0

FY25: \$3,648,108

FY26: \$1,291,892

FY27: \$1,320,314

Project Description

Rebuild approximately one circuit mile of 138 kV transmission from Quintana to South San Substation, to a minimum rating of 478 Megavolt-ampere (MVA), to meet current CPS Energy and industry standards.

Project Justification

This transmission rebuild is in support of the Infrastructure Modernization Project and is part of a new Asset Management initiative to establish a life cycle analysis and replacement program for the transmission system. The lines currently are in excess of 50 years in age, have been fully depreciated and may have design issues including conflicts with under-build distribution circuits running parallel to the transmission lines. Reconstruction will improve reliability, upgrade line capacity and mitigate risk for unplanned maintenance events such as insulator or hardware repairs.

Expected Benefits

The existing CPS Energy electric system must be maintained to serve customers' need for reliable electric power. This project will improve the quality and safety of an aging transmission line and help ensure electrical reliability.

Project Risk

Failure to proceed with this project could result in overloaded transmission elements under adverse conditions, causing possible load curtailment.

¹ Dollars exclude AFUDC
Competitive and Confidential Information



WBS Description: Grandview to Highland Tap Rebuild

WBS Element: T-0273-0000001

Business Area: Substation & Transmission

Executive: Ricardo Renteria

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$25,568,360

FY23: \$0

FY24: \$590,000

FY25: \$14,100,000

FY26: \$5,380,000

FY27: \$5,498,360

Project Description

Rebuild approximately twelve circuit miles of 138kV transmission from Grandview to Highland Tap Substation, to a minimum rating of 478 Megavolt-ampere (MVA), to meet current CPS Energy and industry standards.

Project Justification

This transmission rebuild is in support of the Infrastructure Modernization Project and is part of a new Asset Management initiative to establish a life cycle analysis and replacement program for the transmission system. The lines currently are in excess of 50 years in age, have been fully depreciated and may have design issues including conflicts with under-build distribution circuits running parallel to the transmission lines. Reconstruction will improve reliability, upgrade line capacity and mitigate risk for unplanned maintenance events such as insulator or hardware repairs.

Expected Benefits

The existing CPS Energy electric system must be maintained to serve customers' need for reliable electric power. This project will improve the quality and safety of an aging transmission line and help ensure electrical reliability.

Project Risk

Failure to proceed with this project could result in overloaded transmission elements under adverse conditions, causing possible load curtailment.

¹ Dollars exclude AFUDC
Competitive and Confidential Information

WBS Description: Braunig to Valley Rd. rebuild

WBS Element: T-0279-0000001

Business Area: Substation & Transmission

Executive: Ricardo Renteria

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$424,620

FY23: \$0

FY24: \$0

FY25: \$0

FY26: \$210,000

FY27: \$214,620

Project Description

Rebuild an approximate four circuit miles of 138kV Transmission line from Valley Tap to Valley Rd substation to meet current CPS Energy and industry standards. Each of the two circuits should be upgraded to 570 Megavolt-ampere (MVA), minimum.

Project Justification

This transmission rebuild is in support of the Infrastructure Modernization Project and is part of a new Asset Management initiative to establish a life cycle analysis and re-placement program for the transmission system. The lines currently are in excess of 50 years in age, have been fully depreciated and may have design issues including conflicts with under-build distribution circuits running parallel to the transmission lines. Re-construction will improve reliability, upgrade line capacity and mitigate risk for unplanned maintenance events such as insulator or hardware repairs.

Expected Benefits

The existing CPS Energy electric system must be maintained to serve customers' need for reliable electric power. This project will improve the quality and safety of an aging transmission line and help ensure electrical reliability.

Project Risk

Failure to proceed with this project could result in overloaded transmission elements under adverse conditions, causing possible load curtailment.



WBS Description: Cagnon to Valley rebuild (Phase A)

WBS Element: T-0280-0000280

Business Area: Substation & Transmission

Executive: Ricardo Renteria

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$11,880,000

FY23: \$8,170,000

FY24: \$3,710,000

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Rebuild an approximate eight circuit miles 138kV transmission line from Cagnon to Howard Structure 165 to meet current CPS Energy and industry standards. The Cagnon to Valley Road and Cagnon to Howard Road transmission circuit shall maintain the current conductor rating of 570 Megavolt-ampere (MVA), minimum.

Project Justification

This transmission rebuild is in support of the Infrastructure Modernization Project and is part of a new Asset Management initiative to establish a life cycle analysis and replacement program for the transmission system. The lines currently are in excess of 50 years in age, have been fully depreciated and may have design issues including conflicts with under-build distribution circuits running parallel to the transmission lines. Reconstruction will improve reliability, upgrade line capacity and mitigate risk for unplanned maintenance events such as insulator or hardware repairs.

Expected Benefits

The existing CPS Energy electric system must be maintained to serve customers' need for reliable electric power. This project will improve the quality and safety of an aging transmission line and help ensure electrical reliability.

Project Risk

Failure to proceed with this project could result in overloaded transmission elements under adverse conditions, causing possible load curtailment.

¹ Dollars exclude AFUDC
Competitive and Confidential Information



WBS Description: Cagnon to Valley rebuild (Phase B)

WBS Element: T-0281-0000001

Business Area: Substation & Transmission

Executive: Ricardo Renteria

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$19,420,000

FY23: \$906,976

FY24: \$12,943,024

FY25: \$5,570,000

FY26: \$0

FY27: \$0

Project Description

Rebuild an existing 138kV transmission line between CPS Energy Structure #165 and Howard Substations to meet current CPS Energy and industry standards. The transmission line corridor is approximately 5 miles long. The overall conductor length is approximately 10 miles per phase. The transmission line segment(s) are proposed to be built of the following circuit segments:

Segment 1: From the circuit Cagnon - 36R4 to Howard - 10S1, the rebuild segment shall start at CPS Energy Structure #165, ending at CPS Energy Structure #129. This segment length is approximately 5.16 miles long. The original circuit in service year is 1993. The conductor rating for this segment shall be no less than 570 Megavolt-ampere (MVA)

Segment 2: From the circuit Cagnon - 46R4 to Valley - 10Q1, the rebuild segment shall start at CPS Energy Structure #165, ending at CPS Energy Structure #129. This segment length is approximately 5.16 miles long. The original circuit in service year is 1967. The conductor rating for this segment shall be no less than 570 MVA.

Project Justification

This transmission rebuild is in support of the Infrastructure Modernization Project and is part of a new Asset Management initiative to establish a life cycle analysis and replacement program for the transmission system. The prioritization of transmission lines rebuild projects is based on a combination of assets condition and circuit criticality. Additionally, the line and structures may have design issues including conflicts with under-build distribution circuits running parallel to the transmission lines. Reconstruction will improve reliability, upgrade line capacity and mitigate risk for unplanned maintenance events such as insulator or hardware repairs.

Expected Benefits

The existing CPS Energy electric system must be maintained to serve customers' need for reliable electric power. This project will improve the quality and safety of an aging transmission line and help ensure electrical reliability.

Project Risk

Failure to proceed with this project could result in overloaded transmission elements under adverse conditions, causing possible load curtailment.

¹ Dollars exclude AFUDC
Competitive and Confidential Information



WBS Description: Cagnon to Valley rebuild (Phase C)

WBS Element: T-0282-0000001

Business Area: Substation & Transmission

Executive: Ricardo Renteria

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$13,199,040

FY23: \$0

FY24: \$0

FY25: \$420,000

FY26: \$6,320,000

FY27: \$6,459,040

Project Description

Rebuild an approximate 5 circuit miles 138kV transmission line from Howard Rd to Toyota Substation to meet current CPS Energy and industry standards. The Howard Road to Toyota and Cagnon to Valley transmission circuit shall maintain the current conductor rating of 570 Megavolt-ampere (MVA), minimum.

Project Justification

This transmission rebuild is in support of the Infrastructure Modernization Project and is part of a new Asset Management initiative to establish a life cycle analysis and replacement program for the transmission system. The lines currently are in excess of 50 years in age, have been fully depreciated and may have design issues including conflicts with under-build distribution circuits running parallel to the transmission lines. Reconstruction will improve reliability, upgrade line capacity and mitigate risk for unplanned maintenance events such as insulator or hardware repairs.

Expected Benefits

The existing CPS Energy electric system must be maintained to serve customers' need for reliable electric power. This project will improve the quality and safety of an aging transmission line and help ensure electrical reliability.

Project Risk

Failure to proceed with this project could result in overloaded transmission elements under adverse conditions, causing possible load curtailment.

¹ Dollars exclude AFUDC
Competitive and Confidential Information



WBS Description: United Services Automobile Association #1 Transmission Loop

WBS Element: T-0285-0000001

Business Area: Substation & Transmission

Executive: Ricardo Renteria

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$1,325,000

FY23: \$1,325,000

FY24: \$0

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Install 138kV loop, to current CPS Energy and industry standards, for United Services Automobile Association (USAA) #1 Substation rebuild.

Project Justification

This 138kV loop project is in support of Project S-0896.

Expected Benefits

The existing CPS Energy electric system must be maintained to serve customers' need for reliable electric power. This project will improve the quality and safety of an aging transmission line and help ensure electrical reliability.

Project Risk

If the project is not completed, then the rebuilt substation cannot be connected to the system. The existing customers will experience unacceptable levels for reliability.



WBS Description: Chulie Transmission Rebuild

WBS Element: T-0286-0000001

Business Area: Substation & Transmission

Executive: Ricardo Renteria

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$323,520

FY23: \$0

FY24: \$0

FY25: \$0

FY26: \$160,000

FY27: \$163,520

Project Description

Install 138kV loop, to current CPS Energy and industry standards, for Chulie Substation rebuild.

Project Justification

The Chulie station will either be rebuilt in place or in a new location. This 138kV loop project is in support of Project S-0914.

Expected Benefits

The existing CPS Energy electric system must be maintained to serve customers' need for reliable electric power. This project will improve the quality and safety of an aging transmission line and help ensure electrical reliability.

Project Risk

If the project is not completed, then the rebuilt substation cannot be connected to the system. The existing customers will experience unacceptable levels for reliability.

WBS Description: Cagnon to Valley rebuild (Phase C) (Transmission Line Project)

WBS Element: T-0291-0000001

Business Area: Substation & Transmission

Executive: Ricardo Renteria

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$28,096,000

FY23: \$0

FY24: \$0

FY25: \$1,810,000

FY26: \$13,000,000

FY27: \$13,286,000

Project Description

Rebuild an existing 138kV transmission line between CPS Structure #165 and Howard Substations to meet current CPS Energy and industry standards. The transmission line corridor is approximately 11 miles long. The overall conductor length is approximately 11 miles per phase. The transmission line segment(s) are proposed to be built of the following circuit segments:

Segment 1: From the circuit Cagnon - 36R4 to Howard - 10S1, the rebuild segment shall start at CPS Energy Structure #129, ending at CPS CB 10S1. This segment length is approximately 5.52 miles long. The original circuit in service year is 1993. The conductor rating for this segment shall be no less than 570 Megavolt-ampere (MVA).

Segment 2: From the circuit Cagnon - 46R4 to Valley - 10Q1, the rebuild segment shall start at CPS Energy Structure #165, ending at CPS Energy CB 10Q1. This segment length is approximately 5.51 miles long. The original circuit in service year is 1967. The conductor rating for this segment shall be no less than 570 MVA.

Project Justification

This transmission rebuild is in support of the Infrastructure Modernization Project and is part of a new Asset Management initiative to establish a life cycle analysis and replacement program for the transmission system. The prioritization of transmission lines rebuild projects is based on a combination of assets condition and circuit criticality. Additionally, the line and structures may have design issues including conflicts with under-build distribution circuits running parallel to the transmission lines. Reconstruction will improve reliability, upgrade line capacity and mitigate risk for unplanned maintenance events such as insulator or hardware repairs.

Expected Benefits

The existing CPS Energy electric system must be maintained to serve customers' need for reliable electric power. This project will improve the quality and safety of an aging transmission line and help ensure electrical reliability.

Project Risk

Failure to proceed with this project could result in overloaded transmission elements under adverse conditions, causing possible load curtailment.

WBS Description: Tenth Street Substation Rebuild

WBS Element: T-0297-0000001

Business Area: Substation & Transmission

Executive: Ricardo Renteria

Strategic Category: Infrastructure Modernization

Project Cost: ¹ \$2,242,240

FY23: \$0

FY24: \$40,000

FY25: \$1,353,000

FY26: \$420,000

FY27: \$429,240

Project Description

Reconfiguration of the transmission line to accommodate the substation rebuild.

Project Justification

The 'lattice box structure' at Tenth Street Substation has been identified as an Infrastructure Modernization project based on the age of the structure. The Tenth Street Substation has been in service since 1956 and feeds 4 of the downtown networks. Portions of this 'lattice box structure' have been in service for over 60 years, which places it out of its service life. Replacing the 'lattice box structure' at Tenth Street Substation will improve the reliability of the system and provide for continued service to our customers by removing a known risk with newer, more modern substation equipment.

Expected Benefits

Rebuilding the Tenth Street Substation will provide the following benefits:

- Resolve the issue of in-service equipment that has surpassed its useful life
- Provide a safer work environment
- Increase reliability expectations

Project Risk

Unable to support the transmission needs of Tenth Street substation rebuild project.

Special Projects





WBS Description: Capital Addition

WBS Element: S-0915-0000023

Business Area: Substation & Transmission

Executive: David Lentz

Strategic Category: Special Projects

Project Cost: ¹ \$1,900,000

FY23: \$1,000,000

FY24: \$900,000

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Awning at Skyline substation to cover all of our mobile transformers; Awning at Substation Maintenance to cover our bucket trucks.

Project Justification

Mobile units and bucket trucks are an extremely high value asset that need to be ready to perform at any time. Natural elements like sun and rain jeopardize this necessity, and could mean customers being without service for longer periods of time.

Expected Benefits

- Reliability of Mobile Equipment
- Equipment will require less maintenance and less frequent replacement, same with bucket trucks

Project Risk

Mobile transformers are critical to substation operations. If this equipment is not working properly and ready for use, it can postpone critical construction and maintenance work that is needed for customer growth and infrastructure modernization. The care of our bucket trucks also applies to reliability, customer growth and infrastructure modernization.

System Growth





WBS Description: Transmission Interconnect- BRP Batura BESS

WBS Element: NEW_TRANS_23

Business Area: Substation & Transmission

Executive: Ricardo Renteria

Strategic Category: System Growth

Project Cost: ¹ \$4,000,000

FY23: \$900,000

FY24: \$3,100,000

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Install a new 138KV terminal in existing Leon Creek switchyard to connect new Batura Battery Energy Storage Generation.

Project Justification

The new 138KV terminal is needed to connect new Batura Battery Energy Storage to existing Leon Creek switchyard. Per Public Utility Commission of Texas (PUCT) and Electric Reliability Council of Texas (ERCOT) rules, as a registered Transmission Service Provider in ERCOT, we are obligated to connect new generation facilities that seek to interconnect to CPS Energy-owned transmission facilities.

Expected Benefits

The project will provide a new source of renewable generation to the CPS Energy transmission system and provides a local source of energy close to CPS Energy customer load.

Project Risk

Risk of non-compliance with ERCOT and PUCT rules as well as potential customer recourse if we are not making reasonable efforts to meet their desired commercial operation date.

WBS Description: Transmission Interconnect- BRP Denali BESS

WBS Element: NEW_TRANS_24

Business Area: Substation & Transmission

Executive: Ricardo Renteria

Strategic Category: System Growth

Project Cost: ¹ \$6,656,655

FY23: \$4,458,268

FY24: \$2,198,387

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Install a new 138KV terminal in existing Sommers switchyard to connect new Denali Battery Energy Storage Generation.

Project Justification

The new 138KV terminal is needed to connect new Denali Battery Energy Storage to existing Sommers switchyard. Per Public Utility Commission of Texas (PUCT) and Electric Reliability Council of Texas (ERCOT) rules, as a registered Transmission Service Provider in ERCOT, we are obligated to connect new generation facilities that seek to interconnect to CPS Energy-owned transmission facilities.

Expected Benefits

The project will provide a new source of renewable generation to the CPS Energy transmission system and provides a local source of energy close to CPS Energy customer load.

Project Risk

Risk of non-compliance with ERCOT and PUCT rules as well as potential customer recourse if we are not making reasonable efforts to meet their desired commercial operation date.



WBS Description: Transmission Interconnect- BRP Galan BESS

WBS Element: NEW_TRANS_25

Business Area: Substation & Transmission

Executive: Ricardo Renteria

Strategic Category: System Growth

Project Cost: ¹ \$5,250,000

FY23: \$5,250,000

FY24: \$0

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Install a new 138KV terminal in existing Alamo One switchyard to connect new Galan Battery Energy Storage Generation.

Project Justification

The new 138KV terminal is needed to connect new Galan Battery Energy Storage to existing Alamo One switchyard. Per Public Utility Commission of Texas (PUCT) and Electric Reliability Council of Texas (ERCOT) rules, as a registered Transmission Service Provider in ERCOT, we are obligated to connect new generation facilities that seek to interconnect to CPS Energy-owned transmission facilities.

Expected Benefits

The project will provide a new source of renewable generation to the CPS Energy transmission system and provides a local source of energy close to CPS Energy customer load.

Project Risk

Risk of non-compliance with ERCOT and PUCT rules as well as potential customer recourse if we are not making reasonable efforts to meet their desired commercial operation date.



WBS Description: Transmission Interconnect- BRP Libra BESS

WBS Element: NEW_TRANS_26

Business Area: Substation & Transmission

Executive: Ricardo Renteria

Strategic Category: System Growth

Project Cost: ¹ \$4,407,751

FY23: \$4,407,751

FY24: \$0

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Install a new 345kV terminal in existing Elm Creek switchyard to connect new Libra Battery Energy Storage Generation.

Project Justification

The new 345KV terminal is needed to connect new Libra Battery Energy Storage to existing Elm Creek switchyard. Per Public Utility Commission of Texas (PUC) and Electric Reliability Council of Texas (ERCOT) rules, as a registered Transmission Service Provider in ERCOT, we are obligated to connect new generation facilities that seek to interconnect to CPS Energy-owned transmission facilities.

Expected Benefits

The project will provide a new source of renewable generation to the CPS Energy transmission system and provides a local source of energy close to CPS Energy customer load.

Project Risk

Risk of non-compliance with ERCOT and PUC rules as well as potential customer recourse if we are not making reasonable efforts to meet their desired commercial operation date.



WBS Description: Transmission Interconnect- BRP Quela BESS

WBS Element: NEW_TRANS_27

Business Area: Substation & Transmission

Executive: Ricardo Renteria

Strategic Category: System Growth

Project Cost: ¹ \$6,656,655

FY23: \$4,458,268

FY24: \$2,198,387

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Install a new 138KV terminal in existing J. T. Deely switchyard to connect new Quela Battery Energy Storage Generation.

Project Justification

The new 138KV terminal is needed to connect new Quela Battery Energy Storage to existing J. T. Deely switchyard. Per Public Utility Commission of Texas (PUCT) and Electric Reliability Council of Texas (ERCOT) rules, as a registered Transmission Service Provider in ERCOT, we are obligated to connect new generation facilities that seek to interconnect to CPS Energy-owned transmission facilities.

Expected Benefits

The project will provide a new source of renewable generation to the CPS Energy transmission system and provides a local source of energy close to CPS Energy customer load.

Project Risk

Risk of non-compliance with ERCOT and PUCT rules as well as potential customer recourse if we are not making reasonable efforts to meet their desired commercial operation date.



WBS Description: Transmission Interconnect- Cachena Solar

WBS Element: NEW_TRANS_28

Business Area: Substation & Transmission

Executive: Ricardo Renteria

Strategic Category: System Growth

Project Cost: ¹ \$13,656,866

FY23: \$2,664,932

FY24: \$10,991,934

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Install a new 345kV transmission loop and switchyard to connect new Cachena Solar PV Generation. The switchyard will be looped into the existing 345 kV Elm Creek to STP ckt 1 transmission line. This loop should be rated to match or exceed the existing line rating.

Project Justification

The new 345kV Cachena switchyard is needed to connect new Cachena solar and BESS Generation projects. Per Public Utility Commission of Texas (PUCT) and Electric Reliability Council of Texas (ERCOT) rules, as a registered Transmission Service Provider in ERCOT, we are obligated to connect new generation facilities that seek to interconnect to CPS Energy-owned transmission facilities.

Expected Benefits

The project will provide a new source of renewable generation to the CPS Energy transmission system and provides a local source of energy close to CPS Energy customer load.

Project Risk

Risk of non-compliance with ERCOT and PUCT rules as well as potential customer recourse if we are not making reasonable efforts to meet their desired commercial operation date.



WBS Description: Transmission Interconnect- Cachena Storage

WBS Element: NEW_TRANS_29

Business Area: Substation & Transmission

Executive: Ricardo Renteria

Strategic Category: System Growth

Project Cost: ¹ \$1,359,000

FY23: \$755,000

FY24: \$604,000

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Install a new 345kV terminal in new Cachena switchyard to connect new Cachena Battery Energy Storage Generation.

Project Justification

The new 345KV terminal is needed to connect new Cachena Battery Energy Storage to new Cachena switchyard. Per Public Utility Commission of Texas (PUC) and Electric Reliability Council of Texas (ERCOT) rules, as a registered Transmission Service Provider in ERCOT, we are obligated to connect new generation facilities that seek to interconnect to CPS Energy-owned transmission facilities.

Expected Benefits

The project will provide a new source of renewable generation to the CPS Energy transmission system and provides a local source of energy close to CPS Energy customer load.

Project Risk

Risk of non-compliance with ERCOT and PUC rules as well as potential customer recourse if we are not making reasonable efforts to meet their desired commercial operation date.



WBS Description: Transmission Interconnect- Old Hickory Solar

WBS Element: NEW_TRANS_30

Business Area: Substation & Transmission

Executive: Ricardo Renteria

Strategic Category: System Growth

Project Cost: ¹ \$10,361,357

FY23: \$10,361,357

FY24: \$0

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Install a new 345kV transmission loop and switchyard to connect new Old Hickory Solar PV Generation. The switchyard will be looped into the existing 345 kV Elm Creek to STP ckt 2 transmission line. This loop should be rated to match or exceed the existing line rating.

Project Justification

The new 345kV Old Hickory switchyard is needed to connect new Old Hickory solar Generation projects. Per Public Utility Commission of Texas (PUCT) and Electric Reliability Council of Texas (ERCOT) rules, as a registered Transmission Service Provider in ERCOT, we are obligated to connect new generation facilities that seek to interconnect to CPS Energy-owned transmission facilities.

Expected Benefits

The project will provide a new source of renewable generation to the CPS Energy transmission system and provides a local source of energy close to CPS Energy customer load.

Project Risk

Risk of non-compliance with ERCOT and PUCT rules as well as potential customer recourse if we are not making reasonable efforts to meet their desired commercial operation date.



WBS Description: Transmission Interconnect- Padua Grid BESS

WBS Element: NEW_TRANS_31

Business Area: Substation & Transmission

Executive: Ricardo Renteria

Strategic Category: System Growth

Project Cost: ¹ \$3,951,938

FY23: \$3,951,938

FY24: \$0

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Install a new 138KV terminal in existing O. W. Sommers switchyard to connect new Padua Battery Energy Storage Generation.

Project Justification

The new 138KV terminal is needed to connect new Padua Battery Energy Storage to existing O. W. Sommers switchyard. Per Public Utility Commission of Texas (PUCT) and Electric Reliability Council of Texas (ERCOT) rules, as a registered Transmission Service Provider in ERCOT, we are obligated to connect new generation facilities that seek to interconnect to CPS Energy-owned transmission facilities.

Expected Benefits

The project will provide a new source of renewable generation to the CPS Energy transmission system and provides a local source of energy close to CPS Energy customer load.

Project Risk

Risk of non-compliance with ERCOT and PUCT rules as well as potential customer recourse if we are not making reasonable efforts to meet their desired commercial operation date.



WBS Description: Transmission Interconnect- Shaula 1

WBS Element: NEW_TRANS_32

Business Area: Substation & Transmission

Executive: Ricardo Renteria

Strategic Category: System Growth

Project Cost: ¹ \$4,122,200

FY23: \$3,379,760

FY24: \$742,440

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Install a new 345kV transmission loop and switchyard to connect new Shaula 1 Solar PV Generation. The switchyard will be looped into the existing 345 kV Elm Creek to STP ckt 2 transmission line. This loop should be rated to match or exceed the existing line rating.

Project Justification

The new 345kV Shaula switchyard is needed to connect new Shaula solar 1, 2, and 3 Generation projects. Per Public Utility Commission of Texas (PUCT) and Electric Reliability Council of Texas (ERCOT) rules, as a registered Transmission Service Provider in ERCOT, we are obligated to connect new generation facilities that seek to interconnect to CPS Energy-owned transmission facilities.

Expected Benefits

The project will provide a new source of renewable generation to the CPS Energy transmission system and provides a local source of energy close to CPS Energy customer load.

Project Risk

Risk of non-compliance with ERCOT and PUCT rules as well as potential customer recourse if we are not making reasonable efforts to meet their desired commercial operation date.



WBS Description: Transmission Interconnect- Shaula 2

WBS Element: NEW_TRANS_33

Business Area: Substation & Transmission

Executive: Ricardo Renteria

Strategic Category: System Growth

Project Cost: 1 \$12,932,929

FY23: \$10,925,946

FY24: \$2,006,983

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Install a new 345kV terminal into Shaula switchyard to connect new Shaula 2 Solar PV Generation.

Project Justification

The new 138KV terminal is needed to connect new Shaula 2 Solar Generation to new Shaula switchyard. Per Public Utility Commission of Texas (PUCT) and Electric Reliability Council of Texas (ERCOT) rules, as a registered Transmission Service Provider in ERCOT, we are obligated to connect new generation facilities that seek to interconnect to CPS Energy-owned transmission facilities.

Expected Benefits

The project will provide a new source of renewable generation to the CPS Energy transmission system and provides a local source of energy close to CPS Energy customer load.

Project Risk

Risk of non-compliance with ERCOT and PUCT rules as well as potential customer recourse if we are not making reasonable efforts to meet their desired commercial operation date.



WBS Description: Transmission Interconnect- Lunar Solar

WBS Element: NEW_TRANS_34

Business Area: Substation & Transmission

Executive: Ricardo Renteria

Strategic Category: System Growth

Project Cost: ¹ \$13,656,866

FY23: \$2,664,932

FY24: \$10,991,934

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Install a new 345kV transmission loop and switchyard to connect new Solar PV Generation. The switchyard will be looped into the existing 345 kV Elm Creek to STP ckt 1 transmission line. This loop should be rated to match or exceed the existing line rating.

Project Justification

The new 345kV Lunar switchyard is needed to connect new Lunar solar Generation projects. Per Public Utility Commission of Texas (PUCT) and Electric Reliability Council of Texas (ERCOT) rules, as a registered Transmission Service Provider in ERCOT, we are obligated to connect new generation facilities that seek to interconnect to CPS Energy-owned transmission facilities.

Expected Benefits

The project will provide a new source of renewable generation to the CPS Energy transmission system and provides a local source of energy close to CPS Energy customer load.

Project Risk

Risk of non-compliance with ERCOT and PUCT rules as well as potential customer recourse if we are not making reasonable efforts to meet their desired commercial operation date.

WBS Description: Transmission Interconnect- Nockenut Springs 3

WBS Element: NEW_TRANS_35

Business Area: Substation & Transmission

Executive: Ricardo Renteria

Strategic Category: System Growth

Project Cost: ¹ \$5,000,000

FY23: \$0

FY24: \$500,000

FY25: \$2,500,000

FY26: \$2,000,000

FY27: \$0

Project Description

Install a new 345kV terminal into Nockenut switchyard to connect new Nockenut 3 Solar PV Generation.

Project Justification

The new 345KV terminal is needed to connect new Nockenut 3 Solar Generation to new Nockenut switchyard. Per Public Utility Commission of Texas (PUC) and Electric Reliability Council of Texas (ERCOT) rules, as a registered Transmission Service Provider in ERCOT, we are obligated to connect new generation facilities that seek to interconnect to CPS Energy-owned transmission facilities.

Expected Benefits

The project will provide a new source of renewable generation to the CPS Energy transmission system and provides a local source of energy close to CPS Energy customer load.

Project Risk

Risk of non-compliance with ERCOT and PUC rules as well as potential customer recourse if we are not making reasonable efforts to meet their desired commercial operation date.



WBS Description: Transmission Interconnect- Shaula 3

WBS Element: NEW_TRANS_36

Business Area: Substation & Transmission

Executive: Ricardo Renteria

Strategic Category: System Growth

Project Cost: ¹ \$7,000,000

FY23: \$700,000

FY24: \$4,200,000

FY25: \$2,100,000

FY26: \$0

FY27: \$0

Project Description

Install a new 345kV terminal into Shaula switchyard to connect new Shaula 3 Solar PV Generation.

Project Justification

The new 138KV terminal is needed to connect new Shaula 3 Solar Generation to new Shaula switchyard. Per Public Utility Commission of Texas (PUCT) and Electric Reliability Council of Texas (ERCOT) rules, as a registered Transmission Service Provider in ERCOT, we are obligated to connect new generation facilities that seek to interconnect to CPS Energy-owned transmission facilities.

Expected Benefits

The project will provide a new source of renewable generation to the CPS Energy transmission system and provides a local source of energy close to CPS Energy customer load.

Project Risk

Risk of non-compliance with ERCOT and PUCT rules as well as potential customer recourse if we are not making reasonable efforts to meet their desired commercial operation date.



WBS Description: Transmission Interconnect- Bayside Solar

WBS Element: NEW_TRANS_37

Business Area: Substation & Transmission

Executive: Ricardo Renteria

Strategic Category: System Growth

Project Cost: ¹ \$13,656,866

FY23: \$2,664,932

FY24: \$10,991,934

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Install a new 345kV transmission loop and switchyard to connect new Bayside Solar PV Generation. The switchyard will be looped into the existing 345 kV Elm Creek to STP ckt 1 transmission line. This loop should be rated to match or exceed the existing line rating.

Project Justification

The new 345kV Bayside switchyard is needed to connect new Bayside Solar 1, and 2 Generation projects. Per Public Utility Commission of Texas (PUCT) and Electric Reliability Council of Texas (ERCOT) rules, as a registered Transmission Service Provider in ERCOT, we are obligated to connect new generation facilities that seek to interconnect to CPS Energy-owned transmission facilities.

Expected Benefits

The project will provide a new source of renewable generation to the CPS Energy transmission system and provides a local source of energy close to CPS Energy customer load.

Project Risk

Risk of non-compliance with ERCOT and PUCT rules as well as potential customer recourse if we are not making reasonable efforts to meet their desired commercial operation date.



WBS Description: Transmission Interconnect- Ebony Energy Storage

WBS Element: NEW_TRANS_38

Business Area: Substation & Transmission

Executive: Ricardo Renteria

Strategic Category: System Growth

Project Cost: ¹ \$4,091,082

FY23: \$3,160,852

FY24: \$930,230

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Install a new 138KV terminal in existing Green Mountain Substation to connect new Ebony Battery Energy Storage Generation.

Project Justification

The new 138KV terminal is needed to connect new Ebony Battery Energy Storage to existing Green Mountain Substation. Per Public Utility Commission of Texas (PUCT) and Electric Reliability Council of Texas (ERCOT) rules, as a registered Transmission Service Provider in ERCOT, we are obligated to connect new generation facilities that seek to interconnect to CPS Energy-owned transmission facilities.

Expected Benefits

The project will provide a new source of renewable generation to the CPS Energy transmission system and provides a local source of energy close to CPS Energy customer load.

Project Risk

Risk of non-compliance with ERCOT and PUCT rules as well as potential customer recourse if we are not making reasonable efforts to meet their desired commercial operation date.



WBS Description: Transmission Interconnect- Ferdinand Grid BESS

WBS Element: NEW_TRANS_39

Business Area: Substation & Transmission

Executive: Ricardo Renteria

Strategic Category: System Growth

Project Cost: ¹ \$3,734,082

FY23: \$3,032,852

FY24: \$701,230

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Install a new 138KV terminal in existing Leon Creek switchyard to connect new Ferdinand Battery Energy Storage Generation.

Project Justification

The new 138KV terminal is needed to connect new Ferdinand Battery Energy Storage to existing Leon Creek switchyard. Per Public Utility Commission of Texas (PUCT) and Electric Reliability Council of Texas (ERCOT) rules, as a registered Transmission Service Provider in ERCOT, we are obligated to connect new generation facilities that seek to interconnect to CPS Energy-owned transmission facilities.

Expected Benefits

The project will provide a new source of renewable generation to the CPS Energy transmission system and provides a local source of energy close to CPS Energy customer load.

Project Risk

Risk of non-compliance with ERCOT and PUCT rules as well as potential customer recourse if we are not making reasonable efforts to meet their desired commercial operation date.



WBS Description: Transmission Interconnect- Madrone Energy Storage

WBS Element: NEW_TRANS_40

Business Area: Substation & Transmission

Executive: Ricardo Renteria

Strategic Category: System Growth

Project Cost: ¹ \$3,943,067

FY23: \$3,127,324

FY24: \$815,743

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Install a new 138KV terminal in existing Bulverde Substation to connect new Madrone Battery Energy Storage Generation.

Project Justification

The new 138KV terminal is needed to connect new Madrone Battery Energy Storage to existing Bulverde Substation. Per Public Utility Commission of Texas (PUC) and Electric Reliability Council of Texas (ERCOT) rules, as a registered Transmission Service Provider in ERCOT, we are obligated to connect new generation facilities that seek to interconnect to CPS Energy-owned transmission facilities.

Expected Benefits

The project will provide a new source of renewable generation to the CPS Energy transmission system and provides a local source of energy close to CPS Energy customer load.

Project Risk

Risk of non-compliance with ERCOT and PUC rules as well as potential customer recourse if we are not making reasonable efforts to meet their desired commercial operation date.



WBS Description: Transmission Interconnect- Nockenut Springs 1

WBS Element: NEW_TRANS_41

Business Area: Substation & Transmission

Executive: Ricardo Renteria

Strategic Category: System Growth

Project Cost: ¹ \$13,656,866

FY23: \$2,664,932

FY24: \$10,991,934

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Install a new 345kV transmission loop and switchyard to connect new Nockenut Solar PV Generation. The switchyard will be looped into the existing 345 kV Elm Creek to STP ckt 1 transmission line. This loop should be rated to match or exceed the existing line rating.

Project Justification

The new 345kV Nockenut switchyard is needed to connect new Nockenut solar 1, 2, and 3 and BESS Generation projects. Per Public Utility Commission of Texas (PUCT) and Electric Reliability Council of Texas (ERCOT) rules, as a registered Transmission Service Provider in ERCOT, we are obligated to connect new generation facilities that seek to interconnect to CPS Energy-owned transmission facilities.

Expected Benefits

The project will provide a new source of renewable generation to the CPS Energy transmission system and provides a local source of energy close to CPS Energy customer load.

Project Risk

Risk of non-compliance with ERCOT and PUCT rules as well as potential customer recourse if we are not making reasonable efforts to meet their desired commercial operation date.

WBS Description: Transmission Interconnect- Nockenut Springs 2

WBS Element: NEW_TRANS_42

Business Area: Substation & Transmission

Executive: Ricardo Renteria

Strategic Category: System Growth

Project Cost: ¹ \$5,000,000

FY23: \$500,000

FY24: \$2,500,000

FY25: \$2,000,000

FY26: \$0

FY27: \$0

Project Description

Install a new 345kV terminal into Nockenut switchyard to connect new Nockenut 2 Solar PV Generation.

Project Justification

The new 138KV terminal is needed to connect new Nockenut 2 Solar Generation to new Nockenut switchyard. Per Public Utility Commission of Texas (PUC) and Electric Reliability Council of Texas (ERCOT) rules, as a registered Transmission Service Provider in ERCOT, we are obligated to connect new generation facilities that seek to interconnect to CPS Energy-owned transmission facilities.

Expected Benefits

The project will provide a new source of renewable generation to the CPS Energy transmission system and provides a local source of energy close to CPS Energy customer load.

Project Risk

Risk of non-compliance with ERCOT and PUC rules as well as potential customer recourse if we are not making reasonable efforts to meet their desired commercial operation date.



WBS Description: Transmission Interconnect- Painted Horse Solar

WBS Element: NEW_TRANS_43

Business Area: Substation & Transmission

Executive: Ricardo Renteria

Strategic Category: System Growth

Project Cost: ¹ \$13,656,866

FY23: \$2,664,932

FY24: \$10,991,934

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Install a new 345kV transmission loop and switchyard to connect new Solar PV Generation. The switchyard will be looped into the existing 345 kV Elm Creek to STP ckt 1 transmission line. This loop should be rated to match or exceed the existing line rating.

Project Justification

The new 345kV Painted Horse switchyard is needed to connect new Painted Horse solar and BESS Generation projects. Per Public Utility Commission of Texas (PUCT) and Electric Reliability Council of Texas (ERCOT) rules, as a registered Transmission Service Provider in ERCOT, we are obligated to connect new generation facilities that seek to interconnect to CPS Energy-owned transmission facilities.

Expected Benefits

The project will provide a new source of renewable generation to the CPS Energy transmission system and provides a local source of energy close to CPS Energy customer load.

Project Risk

Risk of non-compliance with ERCOT and PUCT rules as well as potential customer recourse if we are not making reasonable efforts to meet their desired commercial operation date.



WBS Description: Transmission Interconnect- Painted Horse Storage

WBS Element: NEW_TRANS_44

Business Area: Substation & Transmission

Executive: Ricardo Renteria

Strategic Category: System Growth

Project Cost: ¹ \$1,359,000

FY23: \$755,000

FY24: \$604,000

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Install a new 345kV terminal in existing Painted Horse switchyard to connect new Painted Horse Battery Energy Storage Generation.

Project Justification

The new 138KV terminal is needed to connect new Painted Horse Battery Energy Storage to new Painted Horse switchyard. Per Public Utility Commission of Texas (PUCT) and Electric Reliability Council of Texas (ERCOT) rules, as a registered Transmission Service Provider in ERCOT, we are obligated to connect new generation facilities that seek to interconnect to CPS Energy-owned transmission facilities.

Expected Benefits

The project will provide a new source of renewable generation to the CPS Energy transmission system and provides a local source of energy close to CPS Energy customer load.

Project Risk

Risk of non-compliance with ERCOT and PUCT rules as well as potential customer recourse if we are not making reasonable efforts to meet their desired commercial operation date.



WBS Description: Transmission Interconnect- Pandora Solar

WBS Element: NEW_TRANS_45

Business Area: Substation & Transmission

Executive: Ricardo Renteria

Strategic Category: System Growth

Project Cost: ¹ \$13,656,866

FY23: \$2,664,932

FY24: \$10,991,934

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Install a new 345kV transmission loop and switchyard to connect new Pandora Solar PV Generation. The switchyard will be looped into the existing 345 kV Elm Creek to STP ckt 1 transmission line. This loop should be rated to match or exceed the existing line rating.

Project Justification

The new 345kV Pandora switchyard is needed to connect new Pandora solar Generation project. Per Public Utility Commission of Texas (PUCT) and Electric Reliability Council of Texas (ERCOT) rules, as a registered Transmission Service Provider in ERCOT, we are obligated to connect new generation facilities that seek to interconnect to CPS Energy-owned transmission facilities.

Expected Benefits

The project will provide a new source of renewable generation to the CPS Energy transmission system and provides a local source of energy close to CPS Energy customer load.

Project Risk

Risk of non-compliance with ERCOT and PUCT rules as well as potential customer recourse if we are not making reasonable efforts to meet their desired commercial operation date.



WBS Description: Transmission Interconnect- Stockdale Solar

WBS Element: NEW_TRANS_46

Business Area: Substation & Transmission

Executive: Ricardo Renteria

Strategic Category: System Growth

Project Cost: ¹ \$13,656,866

FY23: \$2,664,932

FY24: \$10,991,934

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Install a new 345kV transmission loop and switchyard to connect new Stockdale Solar PV Generation. The switchyard will be looped into the existing 345 kV Elm Creek to STP ckt 2 transmission line. This loop should be rated to match or exceed the existing line rating.

Project Justification

The new 345kV Stockdale solar switchyard is needed to connect new Stockdale solar Generation project. Per Public Utility Commission of Texas (PUCT) and Electric Reliability Council of Texas (ERCOT) rules, as a registered Transmission Service Provider in ERCOT, we are obligated to connect new generation facilities that seek to interconnect to CPS Energy-owned transmission facilities.

Expected Benefits

The project will provide a new source of renewable generation to the CPS Energy transmission system and provides a local source of energy close to CPS Energy customer load.

Project Risk

Risk of non-compliance with ERCOT and PUCT rules as well as potential customer recourse if we are not making reasonable efforts to meet their desired commercial operation date.

WBS Description: Converse - New Substation

WBS Element: S-0601-0000001

Business Area: Substation & Transmission

Executive: Ricardo Renteria

Strategic Category: System Growth

Project Cost: ¹ \$1,112,100

FY23: \$0

FY24: \$0

FY25: \$0

FY26: \$550,000

FY27: \$562,100

Project Description

Converse (V1) will be a new 35kV substation located near FM 78, north of Coers St. and in close proximity to the existing 138 kV transmission lines. This substation will serve a fast growing area that is served by long circuits from Walzem (O3) and Fratt (S4) substations.

Project Justification

The addition of this substation will fill the critical need for electric capacity in this area. The Walzem and Fratt substations are at design limit and no additional power transformers can be added at these two substations. Approximately 28 MW from Walzem and Fratt substations will be shifted to Converse initially.

The new substation will also improve reliability for this area with shorter circuits that reduce exposure to outages. The new circuits also create strong backbones and sufficient field ties to adjacent substation circuits that will prevent major loss of customer load in faulted conditions.

If this project is not completed, the 35kV power transformers at Walzem and Fratt will be at risk of overloading. Also, some contingency conditions may develop that lead to customer load at risk of lengthy outages due to exceeding emergency capacity limits.

Expected Benefits

The addition of this substation, in the northeast portion of the system, will increase system capacity and improve reliability. The area has long distribution circuits with limited switching opportunities. Once the substation is complete, new distribution circuits will shorten feeder lengths and increase interconnections. This will improve reliability and is expected to reduce outage durations when permanent faults occur. It will also lower the loading on the adjacent substation transformers providing for additional growth for these substations.

Project Risk

As electric demands increase, it will become difficult to provide adequate capacity and sufficient voltage. If the substation is not added, the system will reach a point at which connection of new customers will lead to unacceptable levels for reliability. Delay of this project will not allow for transformer loading reductions, improvements for system reliability nor support of customer load growth in this area.

WBS Description: Pinn Road- New 40 Megavolt-Ampere (MVA) Transformer/Switchgear (Transmission)

WBS Element: S-0722-0000023

Business Area: Substation & Transmission

Executive: Ricardo Renteria

Strategic Category: System Growth

Project Cost: ¹ \$950,340

FY23: \$0

FY24: \$0

FY25: \$0

FY26: \$470,000

FY27: \$480,340

Project Description

Install one 138/13kV, 40 MVA transformer, four-feeder switchgear and one 138kV circuit switcher.

Project Justification

The Pinn Road substation (D4) has two 13kV transformers. The demand loading forecast reached 85% of the substation capacity in 2017 and requires an additional 13kV transformer. The area served by Pinn Road experiences steady growth that requires more capacity to meet customer demand for electricity. Distribution projects are in place to transfer approximately 5 MW load to the Southwest Research substation which delays the transformer addition.

Expected Benefits

The addition of a transformer to this substation in this portion of the service territory will increase system capacity and improve reliability. The area has long distribution circuits with limited switching capacities. Once the transformer is added, new distribution circuits will shorten feeder lengths and increase interconnections. This will improve reliability and is expected to reduce outage durations. It will also lower the transformer loading of adjacent Westside (E1) and Medina (X1) substations providing for additional growth for these substations.

Project Risk

As the area grows and electric demands increase, it will become more difficult to provide adequate capacity and sufficient voltage to serve customers efficiently. If the transformer and switchgear are not added, the system will reach a point where connection of new customers will lead to unacceptable levels for reliability.



WBS Description: Ft. Sam to Tenth - Most Limiting Series Element (Transmission)

WBS Element: S-0744-0000023

Business Area: Substation & Transmission

Executive: Ricardo Renteria

Strategic Category: System Growth

Project Cost: ¹ \$4,600,000

FY23: \$0

FY24: \$2,100,000

FY25: \$2,500,000

FY26: \$0

FY27: \$0

Project Description

Upgrade terminal at Fort Sam and ensure a rating of 2000 A at both Fort Sam and Tenth Street terminals. This includes replacement of switches 10T21, 10T22, 12T21, 12T22, CT settings, and all buswork at Fort Sam, as well as, changing CT settings at Tenth St and Kirby.

Project Justification

This project is in support of project T-0164, Coliseum to Kirby Rebuild.

Expected Benefits

This project supports customer load growth by improving the load serving capability of the transmission system. It also provides increased transmission capacity, which reduces the possibility of overloaded transmission elements under contingent conditions and increases the overall reliability of the transmission system.

Project Risk

Failure to proceed with this project could result in;

- Overloaded transmission elements under adverse conditions, causing possible load curtailment in the long-term horizon
- Possible transmission congestion, causing increased costs to customers.

WBS Description: Tezel Rd-New Substation - Transmission

WBS Element: S-0821-0000023

Business Area: Substation & Transmission

Executive: Ricardo Renteria

Strategic Category: System Growth

Project Cost: ¹ \$5,450,000

FY23: \$2,580,000

FY24: \$2,625,000

FY25: \$245,000

FY26: \$0

FY27: \$0

Project Description

The Tezel Road substation (H5) will be designed as a 35kV, three unit site with the initial buildout including one 100 Megavolt-ampere (MVA) transformer unit and one four-feeder switchgear. The substation will be looped into the existing Bandera to Helotes transmission lines, requiring two 138kV line terminals. It will include one 138kV circuit switcher and a 2000 A main bus design. Substation property needs to be acquired for this project.

Project Justification

Tezel Road (H5) will be a new 35kV substation located in the area north of Mainland surrounded by Guilbeau and Tezel Road to the east of the 138kV transmission line. This substation is needed to serve a growing area that is currently served by Bandera (O2), Grissom (Y2) and Helotes (H3) substations. The new substation will improve reliability for the area with shorter circuits, strong back bone routes and sufficient field ties for these substations. Approximately 25 MW of load will be shifted from Bandera, Grissom and Helotes substations. If this project is not completed, the power transformers at those substations will be at risk of overloading. Also, some contingency conditions may lead to customer load at risk of lengthy outages due to exceeding emergency capacity limits.

Expected Benefits

Addition of this substation, in the midwest portion of the system, will increase system capacity and improve reliability. The area has long distribution circuits with limited switching capacities. Once the substation is completed new distribution circuits will shorten feeder lengths and increase interconnections. This will improve reliability and is expected to reduce outage durations when permanent faults occur. It will also lower the loading on the adjacent substation transformers providing for additional growth for these substations.

Project Risk

As electric demands increase, it will become difficult to provide adequate capacity and sufficient voltage. If the substation is not added, the system will reach a point at which connection of new customers will lead to unacceptable levels for reliability. Delay of this project will not allow for transformer loading reductions, improvements for system reliability, nor support of customer load growth in this area.

WBS Description: Northwest #6 New Substation (Transmission)

WBS Element: S-0885-0000001

Business Area: Substation & Transmission

Executive: Ricardo Renteria

Strategic Category: System Growth

Project Cost: ¹ \$4,580,000

FY23: \$1,965,000

FY24: \$2,615,000

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

The Scenic Loop (NW6) substation will be designed as a three unit site with one 100 Megavolt-ampere (MVA) unit and one four-feeder switchgear lineup. The substation will be located south west of the existing Fair Oaks Ranch and north east of the existing Ranchtown substation and tap into the existing Ranchtown to LCRA (Menger Creek) 138kV transmission line. It will include two 138kV line terminals, one 138kV circuit switcher with a 2000 A bus design. The substation property will be acquired for this project.

Project Justification

In efforts to meet the forecasted load in a large area in the North West part of Bexar County that currently is served by long circuits from the La Sierra (U1) and Fair Oaks Ranch (R0) substations, the Scenic Loop (NW6) substation is proposed to be a 35kV substation. The new substation will improve reliability for the area with shorter circuits, strong backbones, and sufficient field ties that will prevent major loss of customer load in faulted conditions. Initially an estimated load of 20 MW will be shifted to the new substation from the La Sierra and Fair Oaks Ranch substations.

Expected Benefits

The addition of this substation to this North West portion of the service territory will increase system capacity and improve reliability. The area has long distribution circuits with limited switching capacities. Once the substation is completed, new distribution circuits will shorten feeder lengths and increase interconnections. This will improve reliability and is expected to reduce outage durations when permanent faults occur.

Project Risk

As the area grows and the electric demands increase, it will become more difficult to provide adequate capacity and sufficient voltage to serve customers efficiently. If the substation is not added, the system will reach a point whereas connection of new customers will lead to unacceptable levels for reliability. Delay of this project will not allow for transformer loading reductions, improvements for system reliability, nor support of customer load growth in this area.



WBS Description: Elm Creek Reactor Bank

WBS Element: S-0893-0000001

Business Area: Substation & Transmission

Executive: Ricardo Renteria

Strategic Category: System Growth

Project Cost: ¹ \$2,650,000

FY23: \$174,371

FY24: \$2,475,629

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Installation of two 60 mega volt amps (reactive) (MVA_r) reactor bank at Elm Creek substation. Phase 2 includes another 60 MVA_r reactor bank.

Project Justification

During the low system load and under P1 contingency, Elm Creek station experienced high voltage exceeding 1.05% voltage limit.

Expected Benefits

This project will mitigate the high voltage under P1 contingency, and provide System Operators more flexibility to control voltage.

Project Risk

Failure to proceed with this project could result in high voltage violation, and causing possible premature equipment failure.



WBS Description: Transmission - 36th St - New 40 Megavolt-ampere (MVA) Transmission/Switchgear #4

WBS Element: S-0908-0000001

Business Area: Substation & Transmission

Executive: Ricardo Renteria

Strategic Category: System Growth

Project Cost: ¹ \$125,000

FY23: \$0

FY24: \$5,000

FY25: \$120,000

FY26: \$0

FY27: \$0

Project Description

Install one 138/13kV, 40 MVA transformer, four-feeder switchgear and one 138kV circuit switcher.

Project Justification

The 36th Street substation (U4) has two 13kV transformers. Port San Antonio has been identified as one of the areas for growth in the SA Tomorrow Plan. In order to retain enough capacity for the expected growth, a 40MVA 13kV transformer will need to be installed for the potential demand.

Expected Benefits

The addition of a transformer to this substation in this portion of the service territory will increase system capacity as part of the SA Tomorrow plan, while maintaining a higher level of reliability.

Project Risk

As the area grows and electric demands increase, it will become more difficult to provide adequate capacity and sufficient voltage to serve customers efficiently. If the transformer and switchgear are not added, the system will reach a point where connection of new customers will lead to unacceptable levels for reliability.



WBS Description: Transmission - Anderson - New 100 Megavolt-ampere (MVA) Transmission/Switchgear #1

WBS Element: S-0909-0000001

Business Area: Substation & Transmission

Executive: Ricardo Renteria

Strategic Category: System Growth

Project Cost: ¹ \$125,000

FY23: \$125,000

FY24: \$0

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Install one 138/35kV, 100 MVA transformer, four-feeder switchgear and one 138kV circuit switcher.

Project Justification

The Anderson substation (L0) has two 35kV transformers. The Alamo Ranch area has been identified as one of the areas for growth in the SA Tomorrow Plan. In order to retain enough capacity for the expected growth, a 100MVA 35kV transformer will need to be installed for the potential demand.

Expected Benefits

The addition of a transformer to this substation, in this portion of the service territory, will increase system capacity as part of the SA Tomorrow plan while maintaining a higher level of reliability.

Project Risk

As the area grows and electric demands increase, it will become more difficult to provide adequate capacity and sufficient voltage to serve customers efficiently. If the transformer and switchgear are not added, the system will reach a point where connection of new customers will lead to unacceptable levels for reliability.

WBS Description: Transmission- Midtown - New Substation

WBS Element: S-0910-0000001

Business Area: Substation & Transmission

Executive: Ricardo Renteria

Strategic Category: System Growth

Project Cost: ¹ \$5,224,537

FY23: \$5,224,537

FY24: \$0

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

The Midtown substation will be designed as a three unit site with one 100 Megavolt-ampere (MVA) unit and one four-feeder switchgear lineup. The substation will be located near Fredricksburg Rd and Blanco Rd and tap into the existing Five Points and Olmos 138kV transmission line. It will include two 138kV line terminals, one 138kV circuit switcher with a 2000 Amp bus design. Four 35kV circuits will be constructed with two step down transformers in the substation to 13kV. The substation property will be acquired for this project.

Project Justification

Midtown (A1) is a new 35kV substation to be located in the quadrant within IH-10, 281, IH-35, and Hildebrand. It will serve infield development from major commercial and multifamily complexes that require capacity that adjacent substations such as Tenth Street (D0) and Five Points (M1) cannot adequately and reliably serve. Secondarily, it will be a 35kV leg to bolster infield reliability stretching outwardly north and northeasterly. Initially an estimated 15-20 MW of load will be served by this new substation. If this project is not completed, the power transformers at Tenth Street substation will be at risk of overloading. Also, some contingency conditions may lead to customer load at risk of lengthy outages due to exceeding emergency capacity limits.

Expected Benefits

The addition of this substation, in this part of the service area, will increase system capacity and improve reliability. Midtown is presently a major economic development center for tourism and Work-Live-Play for the local community, and requires abundant and reliable electric supply. This project will improve reliability and is expected to reduce outage durations. It will also reduce transformer loading at adjacent substations providing for additional growth.

Project Risk

As electric demands increase, it will become difficult to provide adequate capacity and sufficient voltage. If the substation is not added, the system will reach a point at which connection of new customers will lead to unacceptable levels for reliability. Delay of this project will not allow for transformer loading reductions, improvements for system reliability, nor support of customer load growth in this area.



WBS Description: Texas Research - New Transformer/Switchgear #4 (Transmission)

WBS Element: S-0917-0000001

Business Area: Substation & Transmission

Executive: Ricardo Renteria

Strategic Category: System Growth

Project Cost: ¹ \$186,980

FY23: \$0

FY24: \$0

FY25: \$5,000

FY26: \$90,000

FY27: \$91,980

Project Description

Install one 138/35kV, 100 Megavolt-ampere (MVA) transformer, 4-feeder switchgear and one 138kV circuit switcher.

Project Justification

The Texas Research Foundation has only one 35kV transformer. The demand loading forecast reached 80% of the substation capacity in 2019 and requires an additional 35kV transformer. The area served experiences rapid growth that requires more capacity to meet customer demand for electricity.

Expected Benefits

The addition of a transformer to this substation in this portion of the service territory will increase system capacity and improve reliability. The substation serves many large industrial and commercial customers that require redundancy for utmost reliability, and it also serves an area with rapid growth rate that is served by long circuits. Once the transformer is added, new distribution circuits will shorten feeder lengths and increase interconnections. This will improve reliability and is expected to reduce outage durations when permanent faults occur.

Project Risk

As the area grows and the electric demands increase, it will become more difficult to provide adequate capacity and sufficient voltage to serve customers efficiently. If the transformer is not added, the system will reach a point whereas connection of new customers will lead to unacceptable levels for reliability.



WBS Description: Trumbo - New Transformer/Switchgear #2 & Tie Breaker 12E4 (Distribution)

WBS Element: S-0918-0000001

Business Area: Substation & Transmission

Executive: Ricardo Renteria

Strategic Category: System Growth

Project Cost: ¹ \$496,000

FY23: \$0

FY24: \$0

FY25: \$496,000

FY26: \$0

FY27: \$0

Project Description

Install one 138/35kV, 100 Megavolt-ampere (MVA) transformer, four-feeder switchgear and one 138kV circuit switcher.

Project Justification

The Trumbo substation (E4) has only one 35kV transformer. The demand loading forecast will reach 80% of the substation capacity in 2019 and requires an additional 35kV transformer. The area served experiences rapid growth that requires more capacity to meet customer demand for electricity.

Expected Benefits

The addition of a transformer to this substation in this portion of the service territory will increase system capacity and improve reliability. The substation serves many large industrial and commercial customers that require redundancy for utmost reliability, and it also serves an area with rapid growth rate that is served by long circuits. Once the transformer is added, new distribution circuits will shorten feeder lengths and increase interconnections. This will improve reliability and is expected to reduce outage durations when permanent faults occur.

Project Risk

As the area grows and the electric demands increase, it will become more difficult to provide adequate capacity and sufficient voltage to serve customers efficiently. If the transformer is not added, the system will reach a point whereas connection of new customers will lead to unacceptable levels for reliability.



WBS Description: SW6 New Substation (Transmission)

WBS Element: S-0920-0000001

Business Area: Substation & Transmission

Executive: Ricardo Renteria

Strategic Category: System Growth

Project Cost: ¹ \$5,934,020

FY23: \$0

FY24: \$0

FY25: \$50,000

FY26: \$2,910,000

FY27: \$2,974,020

Project Description

SW6 substation will be designed as a three unit site with the initial buildout including one 100 Megavolt-ampere (MVA) unit and one four-feeder switchgear lineup.

Project Justification

SW6 will be a new 35kV substation located near FM 78, north of Coers street and in close proximity to the existing 138kV transmission lines. This substation will serve a fast growing area that is served by long circuits from Walzem (O3) and Fratt (S4) substations. The addition of this substation will fill the critical need for electric capacity in this area. The Walzem and Fratt substations are at design limit, and no additional power transformers can be added at these two substations. Approximately 28 MW from Walzem and Fratt substations will be shifted to Converse initially.

The new substation will also improve reliability for this area with shorter circuits that reduce exposure to outages. The new circuits also create strong backbones and sufficient field ties to adjacent substation circuits that will prevent major loss of customer load in faulted conditions.

If this project is not completed, the 35kV power transformers at Walzem and Fratt will be at risk of overloading. Also, some contingency conditions may develop that lead to customer load at risk of lengthy outages due to exceeding emergency capacity limits.

Expected Benefits

The addition of this substation, will increase system capacity and improve reliability. The area has long distribution circuits with limited switching opportunities. Once the substation is complete, new distribution circuits will shorten feeder lengths and increase interconnections. This will improve reliability and is expected to reduce outage durations when permanent faults occur. It will also lower the loading on the adjacent substation transformers providing for additional growth for these substations.

Project Risk

As electric demands increase, it will become difficult to provide adequate capacity and sufficient voltage. If the substation is not added, the system will reach a point at which connection of new customers will lead to unacceptable levels for reliability. Delay of this project will not allow for transformer loading reductions, improvements for system reliability, nor support of customer load growth in this area.



WBS Description: Rafter 138kV Capacitor Bank Addition

WBS Element: S-0922-0000001

Business Area: Substation & Transmission

Executive: Ricardo Renteria

Strategic Category: System Growth

Project Cost: ¹ \$830,000

FY23: \$35,000

FY24: \$795,000

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Install a capacitor bank at Rafter substation.

Project Justification

During summer peak conditions, the bus voltage at Rafter violates CPS Energy Voltage Criteria during North American Electric Reliability Corporation (NERC) P7, and Electric Reliability Council of Texas (ERCOT)¹ Contingencies. The addition of a Capacitor Bank will mitigate undervoltage condition.

Expected Benefits

This project supports customer load growth by improving the load serving capability of the transmission system. It also provides increased transmission capacity which reduces the possibility of low bus voltage under contingent conditions, and increases the overall reliability of the transmission system.

Project Risk

Failure to proceed with this project could result in low bus voltage under adverse conditions, causing possible load curtailment.

¹ Dollars exclude AFUDC
Competitive and Confidential Information



WBS Description: Howard Rd. Switchyard

WBS Element: S-0931-0000001

Business Area: Substation & Transmission

Executive: Ricardo Renteria

Strategic Category: System Growth

Project Cost: ¹ \$46,274,044

FY23: \$6,681,506

FY24: \$10,495,986

FY25: \$13,371,772

FY26: \$7,776,845

FY27: \$7,947,936

Project Description

The Howard Rd 345/138kV Switching Station (S2) will be designed in breaker and half configuration, initially two 600 mega volt amps (reactive) (MVA_r) auto transformer and four initial line terminals, and will be designed such that it can be expanded to accommodate 2 to 4 more line terminals. The switching station will intercept the existing Cagnon to Arthur Von Rosenberg and Cagnon to Spruce 345kV lines. This project needs a regional planning group approval and has not been approved yet.

Project Justification

The Howard Rd switching station is required as a result of the Braunig generation retirement.

Expected Benefits

This project supports customer load growth by improving the load serving capability of the transmission system. It also provides increased transmission capacity, which reduces the possibility of overloaded transmission elements under contingent conditions and increases the overall reliability of the transmission system.

Project Risk

Failure to proceed with this project could result in overloaded transmission elements under adverse conditions, causing possible load curtailment.

¹ Dollars exclude AFUDC
Competitive and Confidential Information



WBS Description: Shepherd - Install (1) - Relocated from Talley Rd 138/36kV, 50 MVA XFMR#2

WBS Element: S-0934-0000001

Business Area: Substation & Transmission

Executive: Ricardo Renteria

Strategic Category: System Growth

Project Cost: ¹ \$992,802

FY23: \$0

FY24: \$0

FY25: \$0

FY26: \$491,000

FY27: \$501,802

Project Description

Relocate one 138/35kV, 50 Megavolt-ampere (MVA) transformer from Talley Rd while replacing Talley with 100 MVA Transformers. No circuits will be taken out initially. Directly tie secondary of this new 50 MVA transformer to the existing 100 MVA transformer. Transformer connected directly to Switchgear#3, circuit switcher and add 138kV tie-breaker.

Project Justification

The new transformer is needed to serve the load growth in this area.

Expected Benefits

The additional transformers will support potential load growth.

Project Risk

If the transformers are not added, the current system will not be able to supply the load at the required time.

WBS Description: Martinez-New 100MVA Transformer/Switchgear #1, Add Circuit Switcher, Add 138kV Tie Breaker

WBS Element: S-0935-0000001

Business Area: Substation & Transmission

Executive: Ricardo Renteria

Strategic Category: System Growth

Project Cost: ¹ \$477,000

FY23: \$477,000

FY24: \$0

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Build one 35kV circuit to support Martinez & Walzem & St. Hedwig growth

Project Justification

The rapid growth at Martinez-Randolph-St. Hedwig areas (FM 1518 & IH-10 & Loop 1604 & Foster road) and the subdivision projects have taken most of the capacity at Martinez substation, and a new substation transformer is needed at Martinez to keep up with the growth. Circuit C531 supports Walzem growth, C532 will reach its capacity limit because it supports Walzem as well as W211 and W231 voltage conversion, C533 (10 MVA step down) is used to support L215 and W211, and C534 attracts distribution centers and manufacturing plants. In addition, Martinez substation has one transformer only, and it needs a second transformer for backup.

Expected Benefits

The new transformer will provide power to all the new big subdivisions along FM 1518 and IH-10. It will also pick up some of C532 load, and it will provide capacity on Foster road for big commercial customer projects, and that will help St. Hedwig circuit L243 and Martinez C534. The new transformer will improve the power reliability and outage restoration by providing more circuit ties.

Project Risk

Martinez transformer #3 will reach its capacity limit soon and it will be overloaded, especially circuit capacity, and there will be no more capacity to support the customers if a new transformer is not added at the substation. St. Hedwig circuit L243 will also reach its limit, and it needs support. L243 Electric Reliability Council of Texas (ERCOT) Polled Settlement (EPS) getting more customers, and there won't be any capacity left. In addition, there are big lands along Foster road, and the area attracts manufacturing plants and distribution centers (10 MW and above per customer). Moreover, there are voltage conversion projects that are adding load on Martinez, and there won't be any capacity left to support these projects.



WBS Description: Southton - New 40MVA XFMR/SWGR #1, add circuit switcher, add 138kV Tie Breaker

WBS Element: S-0936-0000001

Business Area: Substation & Transmission

Executive: Ricardo Renteria

Strategic Category: System Growth

Project Cost: ¹ \$502,000

FY23: \$502,000

FY24: \$0

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

This project will consist of creation of two 13kV circuits to support Brooks substation and Brooks City Base development.

Project Justification

In efforts to meet the growing the demand of many material commercial customers in Brooks City Base, a new transformer position is required at Brooks Field substation . Additionally, the Southton new transformer will support Brooks City developments and industrial customers that are interested in locations near Southton substation. New Southton circuits will support Brooks circuits to meet the demands of the growth. The new transformer will help Brook City attract more important manufacturing plants, such as Cuisine Solutions, and subdivisions. The transformer will also support Highland Hills (especially circuit F666) and Elmendorf substation. Currently, Southton only has one transformer and the second transformer will serve as a backup.

Expected Benefits

To support Brooks City Base and to improve reliability by providing more circuit ties to pick up big loads in case of an outage. The new transformer will increase the capacity in the area to help new customers.

Project Risk

Brooks City Base does not have capacity now to support new customers. A new customer (Cuisine Solutions) is a 10 MW customer and is connected to two Brooks circuits. These two circuits don't have any more capacity. More capacity is needed at Brooks City especially that the area is attracting industrial customers. Moreover, Southton substation area needs more circuits to support the surrounding areas. Some data centers need 10 MW (one 13kV circuit) to start until they build their own substation, and Southton does not have that capacity to support data centers. Southton and Brooks substations will be overloaded if a new transformer is not added at Southton.



WBS Description: Navistar-New 100MVA Transformer/Switchgear #1, Add Circuit Switcher, Add 138kV Tie Breaker

WBS Element: S-0937-0000001

Business Area: Substation & Transmission

Executive: Ricardo Renteria

Strategic Category: System Growth

Project Cost: ¹ \$964,494

FY23: \$0

FY24: \$0

FY25: \$0

FY26: \$477,000

FY27: \$487,494

Project Description

Build two 35kV circuits for load growth and reliability with circuit ties to Trumbo and other 35kV stations in southern territory.

Project Justification

The new transformer is needed to serve the load growth in this area. This is also a part of 35kV conversion plan and supports Trumbo.

Expected Benefits

The additional transformers will support potential load growth.

Project Risk

If the transformers are not added, the current system will not be able to supply the load at the required time.



WBS Description: Howard Road Switching Station

WBS Element: T-0240-0000001

Business Area: Substation & Transmission

Executive: Ricardo Renteria

Strategic Category: System Growth

Project Cost: ¹ \$14,734,780

FY23: \$0

FY24: \$440,000

FY25: \$9,260,000

FY26: \$2,490,000

FY27: \$2,544,780

Project Description

The Howard Rd 345/138kV Switching Station (S2) will be designed in breaker and half configuration, initially two 600 mega volt amps (reactive) (MVA_r) auto transformer and four initial line terminals, and will be designed such that it can be expanded to accommodate 2 to 4 more line terminals. The switching station will intercept the existing Cagnon to Arthur Von Rosenberg and Cagnon to Spruce 345kV lines. This project needs a regional planning group approval and has not been approved yet.

Project Justification

The Howard Rd switching station is required as a result of the Braunig generation retirement.

Expected Benefits

This project supports customer load growth by improving the load serving capability of the transmission system. It also provides increased transmission capacity, which reduces the possibility of overloaded transmission elements under contingent conditions and increases the overall reliability of the transmission system.

Project Risk

Failure to proceed with this project could result in overloaded transmission elements under adverse conditions, causing possible load curtailment.



WBS Description: Capitol Cement Second Circuit

WBS Element: T-0246-0000001

Business Area: Substation & Transmission

Executive: Ricardo Renteria

Strategic Category: System Growth

Project Cost: ¹ \$537,693

FY23: \$537,693

FY24: \$0

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Loop Skyline to Dresden line into existing Capitol Cement substation and remove the existing T-line from Tuttle to Capitol. This loop should be rated to match or exceed the existing line rating of 570 Megavolt-ampere (MVA), minimum.

Project Justification

This transmission line will improve the overall reliability of the system and provide for continued service to our customers for many years forward.

Expected Benefits

This project supports customer load growth by improving the load serving capability of the transmission system. It provides increased transmission capacity and increases the overall reliability of the transmission system. It also reduces the possibility of low voltages under contingent conditions.

Project Risk

The primary risk of not adding the second circuit is interrupted service to the customer due to a failure of transmission line.



WBS Description: Tezel Rd Substation Loop

WBS Element: T-0252-0000001

Business Area: Substation & Transmission

Executive: Ricardo Renteria

Strategic Category: System Growth

Project Cost: ¹ \$2,350,000

FY23: \$150,000

FY24: \$1,670,000

FY25: \$530,000

FY26: \$0

FY27: \$0

Project Description

Install new 138kV transmission loop in conjunction with S-0821, Tezel Road Substation Project. The substation will be looped into the existing Bandera to Helotes 138kV transmission lines and connected to two 138kV line terminals. This loop should be rated to match or exceed the existing line rating.

Project Justification

This transmission addition is in support of Project S-0821, Tezel Road - New Substation.

Expected Benefits

The new substation served by this transmission line will increase system capacity and improve reliability in this area, helping to improve customer satisfaction.

Project Risk

If the project is not completed, then the new substation cannot be connected to the system. The distribution system will reach a point at which connection of new customers cannot occur and the existing customers will experience unacceptable levels for reliability.



WBS Description: NW6 Transmission Loop

WBS Element: T-0275-0000001

Business Area: Substation & Transmission

Executive: Ricardo Renteria

Strategic Category: System Growth

Project Cost: ¹ \$18,030,000

FY23: \$11,995,000

FY24: \$6,035,000

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Install new 138kV transmission loop in conjunction with S-0885, Scenic Loop Substation Project. The substation will be looped into the existing Ranchtown to Lower Colorado River Authority Menger Creek 138kV transmission line and connected to two 138kV line terminals. This loop should be rated to match or exceed the existing line rating.

Project Justification

This transmission addition is in support of Project S-0885, Scenic Loop - New Substation.

Expected Benefits

The new substation served by this transmission line will increase system capacity and improve reliability in this area, helping to improve customer satisfaction.

Project Risk

If the project is not completed, then the new substation cannot be connected to the system. The distribution system will reach a point at which connection of new customers cannot occur and the existing customers will experience unacceptable levels for reliability.



WBS Description: Midtown Transmission Loop

WBS Element: T-0283-0000001

Business Area: Substation & Transmission

Executive: Ricardo Renteria

Strategic Category: System Growth

Project Cost: ¹ \$1,870,000

FY23: \$1,870,000

FY24: \$0

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Install new 138kV transmission loop in conjunction with S-0910, Midtown Substation Project. The substation will be looped into the existing Comal St. to Olmos 138kV transmission line, and connected to two 138kV line terminals. This loop should be rated to match or exceed the existing line rating.

Project Justification

This transmission addition is in support of Project S-0385, Sulphur Springs - New Substation.

Expected Benefits

The new substation served by this transmission line will increase system capacity and improve reliability in this area, helping to improve customer satisfaction.

Project Risk

If the project is not completed, then the new substation cannot be connected to the system. The distribution system will reach a point at which connection of new customers cannot occur and the existing customers will experience unacceptable levels for reliability.



WBS Description: SW6 Transmission Loop

WBS Element: T-0292-0000001

Business Area: Substation & Transmission

Executive: Ricardo Renteria

Strategic Category: System Growth

Project Cost: ¹ \$586,380

FY23: \$0

FY24: \$0

FY25: \$0

FY26: \$290,000

FY27: \$296,380

Project Description

Install new 138kV transmission loop in conjunction with S-0920, SW6 Substation Project. The substation will be looped into the existing 138kV transmission line and connected to two 138kV line terminals. The circuits will be later determined after routing and sighting process. This loop should be rated to match or exceed the existing line rating.

Project Justification

This transmission addition is in support of Project S-0920, SW6 - New Substation.

Expected Benefits

The new substation served by this transmission line will increase system capacity and improve reliability in this area, helping to improve customer satisfaction.

Project Risk

If the project is not completed, then the new substation cannot be connected to the system. The distribution system will reach a point at which connection of new customers cannot occur and the existing customers will experience unacceptable levels for reliability.

Supply Chain

Special Projects





WBS Description: Supply Chain -Fuel Islands

WBS Element: P-0012-0000001

Business Area: Supply Chain

Executive: Richard Urrutia

Strategic Category: Special Projects

Project Cost: ¹ \$6,712,000

FY23: \$950,000

FY24: \$500,000

FY25: \$1,150,000

FY26: \$1,400,000

FY27: \$2,712,000

Project Description

Upgrade of end of life Fuel Islands at various location to include underground tanks, pumps, fuel lines, dispensers and associated software monitoring equipment to include 1st time Fuel. For various locations include Northside, Salado, Mission Road Construction Center (MRCC), Eastside, Braunig, and Calaveras. Additional money was included for possible soil and groundwater contamination remediation.

Project Justification

Upgrades needed for preventative fines/violations from Texas Commission on Environmental Quality (TCEQ), which could result in Notice of Enforcements.

Expected Benefits

Less maintenance on current equipment. Reduced potential leaks. More accurate inventories. TCEQ compliance.

Project Risk

Potential fuel leaks, potential TCEQ Violations, inability to fuel fleet equipment and inaccurate inventory.



WBS Description: Supply Chain - Climate Control

WBS Element: P-2022-0000001

Business Area: Supply Chain

Executive: Richard Urrutia

Strategic Category: Special Projects

Project Cost: ¹ \$1,295,000

FY23: \$700,000

FY24: \$595,000

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Upgrade to Supply Chain storerooms at various locations to include climate controlled. For various locations including Northside, Southwest, Eastside, Salado, and Nacogdoches.

Project Justification

Upgrade to climate control needed to ensure that inventory is protected from climate fluctuations to remain in good, usable condition for the safety of our employees from severe heat conditions typical of our region.

Expected Benefits

Climate control in warehouse will maintain appropriate temperature and humidity that will provide a safer work environment and prolong the life of stock materials.

Project Risk

Increased risk of heat related illnesses and shorter life of stock materials.



WBS Description: Supply Chain - Electric Fleet

WBS Element: P-2022-0000002

Business Area: Supply Chain

Executive: Richard Urrutia

Strategic Category: Special Projects

Project Cost: ¹ \$50,000

FY23: \$50,000

FY24: \$0

FY25: \$0

FY26: \$0

FY27: \$0

Project Description

Electric forklift solution for indoor/outdoor warehouse applications and is capable of moving any standard load while maintaining ability to fully operate in small spaces.

Project Justification

Upgrade to electric forklift as there are zero tailpipe emissions resulting in a better and more safe work environment

Expected Benefits

Improved maneuverability due to smaller in size compared to diesel forklifts; zero Emissions of smoke; eco-friendly operations, low engine noise; lower cost vs. diesel forklift in maintenance

Project Risk

Increased emissions; inability to contribute to ozone action mitigation