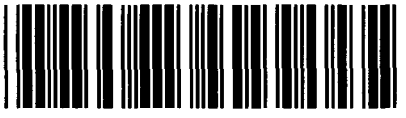
Control Number: 50277



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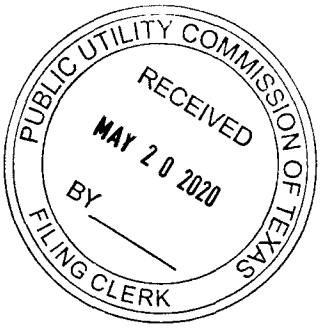

SOAH DOCKET NO. 473-20-2278

DOCKET NO. 50277

APPLICATION OF EL PASO ELECTRIC COMPANY TO AMEND ITS CERTIFICATE OF CONVENIENCE AND NECESSITY FOR AN ADDITIONAL GENERATING UNIT AT THE NEWMAN GENERATING STATION IN EL PASO COUNTY AND THE CITY OF EL PASO	§	**BEFORE THE STATE OFFICE OF ADMINISTRATIVE HEARINGS**

WORKPAPERS

OF

DAVID C. HAWKINS

FOR

EL PASO ELECTRIC COMPANY

MAY 2020

82

El Paso Electric, Inc
Rio Grande Unit 6
Burns & McDonnell Project No. 101965
Condition Assessment & Life Extension Assessment - 2027

Capital Expenditures and Maintenance Forecasts
All costs are presented in 2018$; no inflation is included

CONFIDENTIAL / DRAFT

CAPITAL EXPENDITURES (presented in $000)

DESCRIPTION		CATEGORY	LAST	FREQUENCY	NEXT	TOTAL	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
4. BOILER																
Inspect boiler safety valves regularly	Exp	Safety	Unknown	3	ASAP	$300	$100			$100			$100			
Inspect penthouse boiler supports	Exp	Industry Practice	Never	Once	ASAP	$200	$200									
Install new burners with FSSS standards	Cap	Safety	Never	Once	ASAP	$480	$480									
Overhaul superheater attemperators	Cap	Required	Never	Once	Within 5 years*	$600		$600								
Perform boiler chemical cleaning	Cap	Industry Practice	2011	6	ASAP	$1,200	$600						$600			
Perform regular drum inspections	Exp	Industry Practice	Unknown	3	ASAP	$300	$100			$100			$100			
Replace boiler tubing on an as needed basis	Cap	Required	N/A	3	Within 5 years*	$3,000		$1,000			$1,000			$1,000		
5 BOILER AUXILIARY SYSTEMS																
Replace air heater cold end baskets	Cap	Industry Practice	2002	10	2022	$400					$400					
Replace air heater lube oil pumps	Cap	Required	Never	Once	Within 5 years*	$80			$80							
Replace continuous blowdown tank	Cap	Required	Never	Once	Within 5 years*	$500				$500						
Inspect and overhaul FD fan	Cap	Industry Practice	Unknown	Once	Within 5 years*	$150		$150								
Replace entire sections of boiler casing in problematic locations	Cap	Safety	Never	Once	ASAP	$800	$800									
Inspect stack	Exp	Industry Practice	Unknown	10	ASAP	$100	$100									
6 STEAM TURBINE																
Overhaul steam turbine	Cap	Industry Practice	2006	6	ASAP	$6,400		$3,200						$3,200		
Perform steam path audit & borescope inspection including LP shell	Exp	Required	Unknown	Once	ASAP	$300	$300									
Replace rotor and blade ring seals at next overhaul	Cap	Required	Unknown	Once	Within 5 years*	$1,000		$1,000								
Overhaul steam valves	Exp	Industry Practice	2007	4	ASAP	$2,400		$1,200				$1,200				
7 HIGH ENERGY PIPING SYSTEMS																
Inspect main steam pipe support system	Exp	Industry Practice	Unknown	1	ASAP	$180	$20	$20	$20	$20	$20	$20	$20	$20	$20	
Make modifications to comply with highest value ASME TDP-1 guidelines	Cap	Industry Practice	Unknown	Once	Within 5 years*	$300			$300							
Perform NDE condition assessment of energy piping	Exp	Industry Practice	2011	3	ASAP	$330	$110			$110			$110			
Test extrados of feedwater piping sweeping elbows	Exp	Industry Practice	2011	3	ASAP	$150	$50			$50			$50			
8 BALANCE OF PLANT																
Refurbish BFP A	Cap	Required	2004	15	2019	$250		$250								
Refurbish BFP B	Cap	Required	2004	15	2019	$250		$250								
Replace BFP recirculation valves	Cap	Required	Never	Once	Within 5 years*	$60			$60							
Refurbish circulating water pumps	Cap	Required	2011	Once	Within 5 years*	$300				$300						
Re-line circulating water pipes	Exp	Required	Never	Once	Within 5 years	$1,000					$1,000					
Replace bearing and re-commission lube oil system	Cap	Required	Never	Once	Within 5 years*	$250					$250					
Replace the cooling tower	Cap	Safety	Never	Once	ASAP	$3,000		$3,000								
Inspect the condenser and test it hydrostatically	Exp	Industry Practice	Unknown	Once	Within 5 years*	$200		$200								
Replace hogger and vacuum pump	Cap	Required	Never	Once	Within 5 years*	$250			$250							
Replace gas interrupting valves and regulators	Cap	Safety	Never	Once	ASAP	$250	$250									
Investigate tube life and possibility of extraction inlet erosion	Exp	Industry Practice	Unknown	Once	ASAP	$150	$150									
Replace one FWH tube bundles	Cap	Required	Never	Once	Within 10 years*	$1,500						$1,500				
Investigate if voids around drain may cause problems	Exp	Required	Never	Once	ASAP	$30	$30									
Overhaul crane and replace all motors and controls	Cap	Required	Never	Once	Within 5 years*	$500					$500					
9. ELECTRICAL AND CONTROLS																
Replace medium voltage switchgear protection relays	Cap	Industry Practice	Never	Once	Within 5 years*	$400		$400								
Replace station batteries	Cap	Industry Practice	2005	20	2025	$200								$200		
Replace switchgear	Cap	Industry Practice	Never	Once	Within 5 years*	$2,000					$2,000					
Replace original exciter with static exciter	Cap	Industry Practice	Never	Once	Within 5 years*	$500					$500					
Refurbish BFP motors	Cap	Industry Practice	Unknown	Once	Within 5 years*	$200		$200								
Refurbish circulating water pump motors	Cap	Industry Practice	Unknown	Once	Within 5 years*	$200			$200							
Refurbish condensate pump motors	Cap	Industry Practice	Unknown	Once	Within 5 years*	$200				$200						
Refurnish FD fan motor	Cap	Industry Practice	Unknown	Once	Within 5 years*	$100					$100					
Upgrade CEMS	Cap	Industry Practice	Unknown	Once	Within 10 years*	$500						$500				
Upgrade substation breaker	Cap	Required	Unknown	Once	Within 5 years*	$500						$500				
TOTAL																
TOTAL - Capital					$000	$26,320	$2,130	$10,050	$890	$1,000	$4,750	$2,500	$600	$4,400	$0	$0
TOTAL - Non Recurring O&M					$000	$5,640	$1,160	$1,420	$20	$380	$1,020	$1,220	$380	$20	$20	$0
TOTAL					$000	$31,960	$3,290	$11,470	$910	$1,380	$5,770	$3,720	$980	$4,420	$20	$0

El Paso Electric, Inc.
Rio Grande Unit 7
Burns & McDonnell Project No. 101955
Condition Assessment & Life Extension Assessment - 2027

Capital Expenditures and Maintenance Forecasts
All costs are presented in 2018$, no inflation is included

CAPITAL EXPENDITURES (presented in $000)

DESCRIPTION		TYPE	LAST	FREQUENCY	NEXT	TOTAL	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
BOILER & HIGH ENERGY PIPING																
	Regular boiler piping replacements	Cap	N/A	3 yrs	When due	$3,000		$1,000			$1,000			$1,000		
	Main steam piping replacement	Cap	N/A	Once	Within 5 yrs*	$2,000		$2,000								
	NDE of selected areas	Cap	N/A	3yrs	ASAP	$330	$110			$110			$110			
	Replace air heater cold end baskets	Cap	2011 (insp.)	10 yrs	Within 5 yrs*	$400	$400									
TURBINE GENERATOR																
	STG Major Inspection	Cap	2005	6 yrs	ASAP	$3,200	$1,600						$1,600			
	STG Major Inspection	Exp	2005	6 yrs	ASAP	$3,200	$1,600						$1,600			
	ST blades/valve repl./repairs	Cap	N/A	Once	Next major	$2,000	$2,000									
	Valve Inspection	Exp	2016	4 yrs	When due	$2,400			$1,200				$1,200			
	Generator rewind	Cap	N/A	Once	ASAP	$3,500				$3,500						
	Comply with TDP-1	Cap	N/A	Once	ASAP	$300	$300									
BALANCE OF PLANT																
	Reburbish cooling tower	Exp	N/A	Once	Within 5 yrs*	$1,500		$1,500								
	Add liner to UG circulating water pipe	Exp	N/A	Once	Within 5 yrs*	$1,000		$1,000								
	Replace FW heater tube bundles	Cap	N/A	Once	Within 5 yrs*	$1,500			$1,500							
	Condenser retubing	Cap	Unknown	Once	Within 5 yrs*	$1,500			$1,500							
	Allowance for major pump/fan work	Exp	N/A	Once	Within 5 yrs*	$1,000					$1,000					
ELECTRICAL & CONTROLS																
	Switchgear upgrade	Cap	N/A	Once	Within 5 yrs*	$2,000		$2,000								
	Replace station batteries	Cap	2005	20 yrs	When due	$200								$200		
	Replace unit aux. transformers	Cap	N/A	Once	Within 5 yrs*	$500				$500						
TOTAL																
	TOTAL - Capital				$000	$20,430	$4,410	$5,000	$3,000	$4,110	$1,000	$0	$1,710	$1,200	$0	$0
	TOTAL - Non Recurring O&M				$000	$9,100	$1,600	$2,500	$1,200	$0	$1,000	$0	$2,800	$0	$0	$0
	TOTAL				$000	$29,530	$6,010	$7,500	$4,200	$4,110	$2,000	$0	$4,510	$1,200	$0	$0
	*Distrubuted over years to spread out expense															

FIXED OPERATIONS & MAINTENANCE EXPENDITURES - HISTORICAL BASIS

DESCRIPTION						TOTAL	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
	Unit Capacity (Net Summer)	48														
	Fixed O&M ($/kW-yr)	$26.60			$000	$12,768	$1,277	$1,277	$1,277	$1,277	$1,277	$1,277	$1,277	$1,277	$1,277	$1,277
					Total ($000)	Total ($/kW)										
			Capital expenditures		20,430	615.21										
			Maintenance		$12,768	266										
			Total		$33,198	881										

FIXED OPERATIONS & MAINTENANCE EXPENDITURES - ADJUSTED FOR AGE BASED DEGRADATION

DESCRIPTION						TOTAL	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
	Unit Capacity (Net Summer)	48														
	Year in Service	1958														
	O&M Aging Rate/year	1.25%					$26.60	$26.93	$27.27	$27.61	$27.96	$28.30	$28.66	$29.02	$29.38	$29.75
	Maintenance ($/kW-yr)	$26.60			$000	$13,511	$1,277	$1,293	$1,309	$1,325	$1,342	$1,359	$1,376	$1,393	$1,410	$1,428
					Total ($000)	Total ($/kW)										
			Capital expenditures		20,430	426										
			Maintenance		$13,511	281										
			Total		$33,941	707										

VARIABLE OPERATION & MAINTENANCE EXPENDITURES

DESCRIPTION		UNITS	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
	Unit Capacity (Net Summer)	48										
	Annual Capacity Factor	24.2%										
	Variable O&M Costs ($/MWh)	$4.68	$4.68	$4.68	$4.68	$4.68	$4.68	$4.68	$4.68	$4.68	$4.68	$4.68
	Annual Variable O&M Costs ($)		$476,219	$476,219	$476,219	$476,219	$476,219	$476,219	$476,219	$476,219	$476,219	$476,219

SUMMARY		UNITS					2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
	TOTAL - Capital					$000	$4,410	$5,000	$3,000	$4,110	$1,000	$0	$1,710	$1,200	$0	$0
	TOTAL - Non Recurring O&M					$000	$1,600	$2,500	$1,200	$0	$1,000	$0	$2,800	$0	$0	$0
	Fixed O&M (adjusted for age)					$000	$1,277	$1,293	$1,309	$1,325	$1,342	$1,359	$1,376	$1,393	$1,410	$1,428
	Variable O&M						$476,219	$476,219	$476,219	$476,219	$476,219	$476,219	$476,219	$476,219	$476,219	$476,219
						$16,065					FOM ($)	$1,659	$4,176	$1,393	$1,410	$1,428
							FOM Costs - consumables left out since extensions will not be operable until 2023									
							Non-Reculrring O&M Costs - Omar said to add them all into year 2023 with that year's FO&M Costs									

El Paso Electric, Inc.
Newman Unit 1
Burns & McDonnell Project No. 101955
Condition Assessment & Life Extension Assessment - 2027

Capital Expenditures and Maintenance Forecasts
All costs are presented in 2018$, no inflation is included

CAPITAL EXPENDITURES (Presented in $000)

DESCRIPTION		Type	LAST	FREQUENCY	NEXT	TOTAL	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	CATEGORY
BOILER & HIGH ENERGY PIPING																	
	Boiler clean	Cap	2012	10 yrs	When due	$600					$600						Industry practice
	Regular boiler piping replacements	Cap	2017	3 yrs	When due	$3,000			$1,000			$1,000			$1,000		Required
	Main steam piping replacement	Cap	N/A	Once	Within 5 yrs*	$2,000		$2,000									Safety
	NDE of selected areas	Cap	N/A	3yrs	ASAP	$330	$110			$110			$110				Industry practice
	Replace air heater cold end baskets	Cap	2006	10 yrs	Within 5 yrs*	$400	$400										Industry practice
TURBINE GENERATOR																	
	STG Major Inspection	Cap	2017	6 yrs	When due	$1,600						$1,600					Industry practice
	STG Major Inspection	Exp	2017	6 yrs	When due	$1,600						$1,600					Industry practice
	ST blades/valve repl./repairs	Cap	N/A	Once	Next major	$2,000						$2,000					Required
	Valve Inspection	Exp	2017	4 yrs	When due	$2,400				$1,200				$1,200			Industry practice
	Replace exciter	Cap	N/A	Once	Within 5 yrs*	$350	$350										Required
BALANCE OF PLANT																	
	Refurbish cooling tower	Exp	1992	30 yrs	Within 5 yrs*	$2,000			$2,000								Required
	Add liner to UG circulating water pipe	Exp	N/A	Once	Within 5 yrs*	$1,000		$1,000									Required
	Replace FW heater tube bundles	Cap	N/A	Once	Within 5 yrs*	$1,500			$1,500								Industry practice
	Condenser retubing	Cap	N/A	Once	Within 5 yrs*	$1,500			$1,500								Industry practice
	Allowance for major pump/fan work	Exp	N/A	Once	Within 5 yrs*	$1,000		$1,000									Required
ELECTRICAL & CONTROLS																	
	Switchgear upgrade	Cap	N/A	Once	Within 5 yrs*	$2,000		$2,000									Industry practice
	Replace station batteries	Cap	2000	20 yrs	When due	$200			$200								Required
	Replace unit aux. transformers	Cap	N/A	Once	Within 5 yrs*	$500		$500									Required
TOTAL																	
	TOTAL - Capital				$000	$15,980	$860	$4,500	$4,200	$110	$600	$4,600	$110	$0	$1,000	$0	
	TOTAL - Non Recurring O&M				$000	$8,000	$0	$2,000	$2,000	$1,200	$0	$1,600	$0	$1,200	$0	$0	
	TOTAL				$000	$23,980	$860	$6,500	$6,200	$1,310	$600	$6,200	$110	$1,200	$1,000	$0	
	*Distrubuted over years to spread out expense																

FIXED OPERATIONS & MAINTENANCE EXPENDITURES - HISTORICAL BASIS

DESCRIPTION			TOTAL	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
	Unit Capacity (Net Summer)	74											
	FOM ($/kW-yr)	$20.74	$000	$15,348	$1,535	$1,535	$1,535	$1,535	$1,535	$1,535	$1,535	$1,535	$1,535	$1,535

	Total ($000)	Total ($/kW)
Capital Expenditures	$15,980	$324
Maintenance	$15,348	$207
Total	$31,328	$531

FIXED OPERATIONS & MAINTENANCE EXPENDITURES - ADJUSTED FOR AGE BASED DEGRADATION

DESCRIPTION			TOTAL	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
	Unit Capacity (Net Summer)	74											
	Year in Service	1960											
	Maintenance Aging Rate per Year	1.25%		$20.74	$21.00	$21.26	$21.53	$21.80	$22.07	$22.34	$22.62	$22.91	$23.19
	FOM ($/kW-yr)	$20.74	$000	$16,240	$1,535	$1,554	$1,573	$1,593	$1,613	$1,633	$1,654	$1,674	$1,695	$1,716

	Total ($000)	Total ($/kW)
Capital Expenditures	$15,980	$216
Fixed O&M	$16,240	$219
Total	$32,220	$435

VARIABLE OPERATION & MAINTENANCE EXPENDITURES

DESCRIPTION		UNITS	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
	Unit Capacity (Net Summer)	74										
	Annual Capacity Factor	34.2%										
	Variable O&M Costs ($/MWh)	$2.54	$2.54	$2.54	$2.54	$2.54	$2.54	$2.54	$2.54	$2.54	$2.54	$2.54
	Annual Variable O&M Costs ($)		$563,607	$563,607	$563,607	$563,607	$563,607	$563,607	$563,607	$563,607	$563,607	$563,607

SUMMARY		UNITS		2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
	TOTAL - Capital		$000	$860	$4,500	$4,200	$110	$600	$4,600	$110	$0	$1,000	$0
	TOTAL - Non Recurring O&M		$000	$0	$2,000	$2,000	$1,200	$0	$1,600	$0	$1,200	$0	$0
	Fixed O&M (adjusted for age)		$000	$1,535	$1,554	$1,573	$1,593	$1,613	$1,633	$1,654	$1,674	$1,695	$1,716
	Variable O&M			$563,607	$563,607	$563,607	$563,607	$563,607	$563,607	$563,607	$563,607	$563,607	$563,607

El Paso Electric, Inc.
Newman Unit 2
Burns & McDonnell Project No. 101955
Condition Assessment & Life Extension Assessment - 2027

Capital Expenditures and Maintenance Forecasts
All costs are presented in 2018$, no inflation is included

CAPITAL EXPENDITURES (Presented in $000)

DESCRIPTION		Type	LAST	FREQUENCY	NEXT	TOTAL	2018	2019	2020	2021	2022	2023	2024	2025	2026
BOILER & HIGH ENERGY PIPING															
	Boiler clean	Cap	2011	10 yrs	When due	$600				$600					
	Regular boiler piping replacements	Cap	2016	3 yrs	When due	$3,000		$1,000			$1,000			$1,000	
	Main steam piping replacement	Cap	N/A	Once	ASAP	$2,000	$2,000								
	NDE of selected areas	Cap	N/A	3yrs	ASAP	$330	$110			$110			$110		
	Replace air heater cold end baskets	Cap	N/A	10 yrs	Within 5 yrs*	$400	$400								
TURBINE GENERATOR															
	STG Major Inspection	Cap	2013	6 yrs	When due	$3,200		$1,600						$1,600	
	STG Major Inspection	Exp	2013	6 yrs	When due	$3,200		$1,600						$1,600	
	ST blades/valve repl./repairs	Cap	N/A	Once	Next major	$2,000		$2,000							
	Valve Inspection	Exp	N/A	4 yrs	Next major	$2,400		$1,200				$1,200			
	Generator rewind	Cap	N/A	Once	Within 5 yrs*	$3,500			$3,500						
BALANCE OF PLANT															
	Refurbish cooling tower	Exp	N/A	Once	Within 5 yrs*	$2,000				$2,000					
	Add liner to UG circulating water pipe	Exp	N/A	Once	Within 5 yrs*	$1,000				$1,000					
	Replace FW heater tube bundles	Cap	N/A	Once	Within 5 yrs*	$1,500			$1,500						
	Condenser retubing	Cap	N/A	Once	Within 5 yrs*	$1,500			$1,500						
	Allowance for major pump/fan work	Exp	N/A	Once	Within 5 yrs*	$1,000					$1,000				
ELECTRICAL & CONTROLS						$0									
	Switchgear upgrade	Cap	N/A	Once	Within 5 yrs*	$2,000			$2,000						
	Replace station batteries	Cap	2000	20 yrs	When due	$200			$200						
	Replace GSU	Cap	N/A	Once	Within 5 yrs*	$1,000		$1,000							
	Replace unit aux. transformer	Cap	N/A	Once	Within 5 yrs*	$500			$500						
TOTAL															
	TOTAL - Capital				$000	$21,730	$2,510	$5,600	$9,200	$710	$1,000	$0	$110	$2,600	$0
	TOTAL - Non Recurring O&M				$000	$9,600	$0	$2,800	$0	$3,000	$1,000	$1,200	$0	$1,600	$0
	TOTAL				$000	$31,330	$2,510	$8,400	$9,200	$3,710	$2,000	$1,200	$110	$4,200	$0
	*Distrubuted over years to spread out expense														