

Integrated Resource Plan Public Advisory Group

Meeting 16 – August 17, 2018

Presentation of
Final IRP Report



El Paso Electric

Meeting Agenda

- Welcome and Introduction
- Public Advisory Process and Meeting Schedule
- Presentation and Discussion of EPE's Final 2018 IRP Report

Welcome and Introduction

Presenters for this Meeting

- Curtis Hutcheson: NM IRP Case Manager
- Omar Gallegos: Director of Resource Planning and Management

Safe Harbor Statement

Certain matters discussed in this Integrated Resource Plan ("IRP") public advisory group presentation other than statements of historical information are "forward-looking statements" made pursuant to the safe harbor provisions of the Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended. Such statements are subject to a variety of risks, uncertainties and other factors, most of which are beyond El Paso Electric Company's ("EPE" or the "Company") control, and many of which could have a significant impact on the Company's operations, results of operations, and financial condition, and could cause actual results to differ materially from those anticipated. Additional information concerning factors that could cause actual results to differ materially from those expressed in forward-looking statements is contained in EPE's most recently filed periodic reports. Any such forward-looking statement is qualified by reference to these risks and factors. EPE cautions that these risks and factors are not exclusive.

Management cautions against putting undue reliance on forward-looking statements or projecting any future assumptions based on such statements. Forward-looking statements speak only as of the date of this IRP public advisory group presentation, and EPE does not undertake to update any forward-looking statement contained herein, except to the extent the events or circumstances constitute material changes in this IRP that are required to be reported to the New Mexico Public Regulation Commission ("NMPRC" or "Commission") pursuant to its IRP Rule, 17.7.3 New Mexico Administrative Code.

Ground Rules

Meeting Rules and Guidelines

- Discussion
 - Meeting format will open discussion of the report and responses to questions
 - Skype attendees may type in a question or comments in instant message box
 - Facilitator will assist during discussion
 - **All public input and requests submitted in writing will be responded to in writing***
- Keep communications respectful and to the point, please do not interrupt during response

2018 PAG Meeting Schedule

2018 Integrated Resource Plan - Revised Timeline

Meeting	Date	Description	Location
(16)	8/17/2018	PAG Meeting - Final IRP Presentation	Dona Ana County Conference Room 117
(17)	8/29/2018	PAG Meeting - Receive and Respond to Public Feedback	Dona Ana County Conference Room 117
	9/17/2018	IRP Filing Date	

Final 2018 Integrated Resource Plan Report

Discussion of Report

Omar Gallegos

Director of Resource Planning and Management

Loads & Resources 2018-2037 Initial 2018 IRP

	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037
1.0 GENERATION RESOURCES																				
1.1 RIO GRANDE	321	278	276	276	276	230	230	230	230	230	230	230	230	230	230	230	88	88	88	88
1.2 NEW MAN	752	752	752	752	752	602	602	602	602	278	278	278	278	278	278	278	278	278	278	278
1.3 COPPER	64	64	64	64	64	64	64	64	64	64	64	64	64	-	-	-	-	-	-	-
1.4 MONTANA	354	354	354	354	354	354	354	354	354	354	354	354	354	354	354	354	354	354	354	354
1.5 PALO VERDE	633	633	633	633	633	633	633	633	633	633	633	633	633	633	633	633	633	633	633	633
1.6 RENEWABLES	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
1.7 STORAGE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.8 POSSIBLE EMERGING TECH EXPANSION ⁽¹⁾	-	-	-	-	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40
1.9 NEW BUILD (local)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1.0 TOTAL GENERATION RESOURCES⁽²⁾	2,130	2,085	2,085	2,085	2,125	1,929	1,929	1,929	1,929	1,605	1,605	1,605	1,605	1,541	1,541	1,541	1,399	1,399	1,399	1,399
2.0 RESOURCE PURCHASES																				
2.1 RENEWABLE PURCHASE (SunEdison & NRG)	29	29	29	29	28	28	28	28	27	27	27	27	27	26	26	26	26	26	25	25
2.2 RENEWABLE PURCHASE (Hatch)	4	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
2.3 RENEWABLE PURCHASE (Macho Springs)	35	35	34	34	34	34	34	34	33	33	33	33	33	33	32	32	32	32	32	32
2.4 RENEWABLE PURCHASE (Juwi)	7	7	7	7	7	7	7	7	7	7	7	7	7	7	6	6	6	6	6	6
2.5 RESOURCE PURCHASE	-	-	-	-	10	-	-	30	65	105	45	90	130	-	-	-	-	-	-	20
2.0 TOTAL RESOURCE PURCHASES⁽⁴⁾	75	74	73	73	82	72	71	101	136	175	114	159	199	68	68	72	67	67	66	86
3.0 TOTAL NET RESOURCES (1.0 + 2.0)	2,205	2,169	2,168	2,168	2,207	2,001	2,000	2,030	2,065	1,780	1,719	1,764	1,804	1,609	1,609	1,613	1,466	1,466	1,465	1,485
4.0 SYSTEM DEMAND																				
4.1 NATIVE SYSTEM DEMAND	1,972	2,004	2,028	2,065	2,100	2,136	2,166	2,207	2,245	2,283	2,316	2,362	2,406	2,448	2,485	2,538	2,586	2,635	2,678	2,738
4.2 DISTRIBUTED GENERATION	(3)	(6)	(9)	(12)	(15)	(18)	(21)	(24)	(27)	(30)	(33)	(36)	(39)	(42)	(45)	(48)	(50)	(53)	(56)	(59)
4.3 ENERGY EFFICIENCY	(5)	(9)	(14)	(19)	(23)	(28)	(33)	(38)	(42)	(47)	(52)	(56)	(61)	(66)	(70)	(75)	(80)	(84)	(89)	(94)
4.4 LINE LOSSES	(6)	(6)	(6)	(6)	(6)	(6)	(6)	(6)	(6)	(6)	(6)	(6)	(6)	(6)	(6)	(6)	(6)	(6)	(6)	(6)
4.5 INTERRUPTIBLE SALES	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)
5.0 TOTAL SYSTEM DEMAND (4.1-4.2+4.3+4.4+4.5)	1,904	1,928	1,945	1,973	2,001	2,028	2,050	2,084	2,114	2,145	2,169	2,209	2,244	2,279	2,308	2,354	2,395	2,436	2,472	2,524
6.0 MARGIN OVER TOTAL DEMAND (3.0 - 5.0)	301	231	213	184	207	(27)	(49)	(54)	(49)	(365)	(450)	(444)	(440)	(669)	(700)	(742)	(929)	(970)	(1,007)	(1,039)
7.0 PLANNING RESERVE 15%	286	289	292	296	300	304	307	313	317	322	325	331	337	342	346	353	359	365	371	379
8.0 MARGIN OVER RESERVE (6.0 - 7.0)	16	(58)	(78)	(112)	(94)	(332)	(357)	(367)	(367)	(686)	(779)	(775)	(777)	(1,011)	(1,046)	(1,095)	(1,288)	(1,336)	(1,378)	(1,419)

Most Cost Effective Portfolio

Year	Resource	Capacity	Contribution to Peak
2018			
2019			
2020			
2021			
2022	Solar PV	25	6.25
	Solar PV	75	18.75
	Solar PV	75	18.75
	Solar PV	75	18.75
	Solar PV	100	25
	Battery Storage	15	15
2023	Combined-Cycle	320	320
2024			
2025			
2026			

2026			
2027	Solar PV	100	25
	Combustion Turbine	100	100
	Reciprocating Engine	100	100
	Battery Storage	50	50
2028	Combustion Turbine	100	100
2029			
2030			
2031	Combined-Cycle	320	320
2032			
2033			
2034	Combustion Turbine	100	100
	Reciprocating Engine	100	100
2035	Battery Storage	50	50
2036	Solar PV & Battery	100	0
		30	30
2037	Biofuel	20	20

Table 13
Loads & Resources 2018-2037
2018 IRP Portfolio

	SOLAR										BATTERY			SOLAR											
	SOLAR					BATTERY					CT/RECIP			CT/RECIP											
	BATTERY					CC 320					CT			CC 320			BATTERY			BATTERY			BIO		
	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037					
1.0 GENERATION RESOURCES																									
1.1 RIO GRANDE	321	276	276	276	276	230	230	230	230	230	230	230	230	230	230	230	88	88	88	88					
1.2 NEWMAN	752	752	752	752	752	602	602	602	602	278	278	278	278	278	278	278	278	278	278	278					
1.3 COPPER	64	64	64	64	64	64	64	64	64	64	64	64	64	-	-	-	-	-	-	-					
1.4 MONTANA	354	354	354	354	354	354	354	354	354	354	354	354	354	354	354	354	354	354	354	354					
1.5 PALO VERDE	633	633	633	633	633	633	633	633	633	633	633	633	633	633	633	633	633	633	633	633					
1.6 RENEWABLES	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6					
1.7 Storage	-	-	-	-	15	15	15	15	15	65	65	65	65	65	65	65	65	115	115	115					
1.8 POSSIBLE EMERGING TECHNOLOGY EXPANSION	-	-	-	-	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40					
1.9 NEW BUILD (local)	-	-	-	-	-	320	320	320	320	520	620	620	620	940	940	940	1,140	1,140	1,140	1,160					
1.0 TOTAL GENERATION RESOURCES ⁽²⁾	2,130	2,085	2,085	2,085	2,140	2,264	2,264	2,264	2,264	2,190	2,290	2,290	2,290	2,546	2,546	2,546	2,604	2,654	2,654	2,674					
2.0 RESOURCE PURCHASES																									
2.1 RENEWABLE PURCHASE (SunEdison & NRG)	29	29	29	29	28	28	28	28	27	27	27	27	27	26	26	26	26	26	25	25					
2.2 RENEWABLE PURCHASE (Hatch)	4	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3					
2.3 RENEWABLE PURCHASE (Macho Springs)	35	35	34	34	34	34	34	34	33	33	33	33	33	32	32	32	32	32	32	32					
2.4 RENEWABLE PURCHASE (Juwi)	7	7	7	7	7	7	7	7	7	7	7	7	7	6	6	6	6	6	6	6					
2.5 NEW RENEWABLE PURCHASE	-	-	-	-	88	88	88	88	88	113	113	113	113	113	113	113	113	113	143	143					
2.6 RESOURCE PURCHASE	-	60	80	115	5	-	-	-	10	95	25	90	130	-	-	5	-	-	-	25					
2.0 TOTAL RESOURCE PURCHASES ⁽⁴⁾	75	134	153	188	165	159	159	159	168	278	207	272	312	181	180	184	179	179	208	233					
3.0 TOTAL NET RESOURCES (1.0 + 2.0)	2,205	2,219	2,238	2,273	2,305	2,423	2,423	2,423	2,432	2,468	2,497	2,562	2,602	2,727	2,726	2,730	2,783	2,833	2,862	2,907					
4.0 SYSTEM DEMAND																									
4.1 NATIVE SYSTEM DEMAND	1,972	2,004	2,028	2,065	2,100	2,136	2,166	2,207	2,245	2,283	2,316	2,362	2,406	2,448	2,485	2,538	2,586	2,635	2,678	2,738					
4.2 DISTRIBUTED GENERATION	(3)	(6)	(9)	(12)	(15)	(18)	(21)	(24)	(27)	(30)	(33)	(36)	(39)	(42)	(45)	(48)	(50)	(53)	(56)	(59)					
4.3 ENERGY EFFICIENCY	(5)	(9)	(14)	(19)	(23)	(28)	(33)	(38)	(42)	(47)	(52)	(56)	(61)	(66)	(70)	(75)	(80)	(84)	(89)	(94)					
4.4 LINE LOSSES	(6)	(6)	(6)	(6)	(6)	(6)	(6)	(6)	(6)	(6)	(6)	(6)	(6)	(6)	(6)	(6)	(6)	(6)	(6)	(6)					
4.5 INTERRUPTIBLE SALES	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)	(54)					
5.0 TOTAL SYSTEM DEMAND (4.1-(4.2+4.3+4.4+4.5)) ⁽⁵⁾	1,904	1,928	1,945	1,973	2,001	2,028	2,050	2,084	2,114	2,145	2,169	2,209	2,244	2,279	2,308	2,354	2,395	2,436	2,472	2,524					
6.0 MARGIN OVER TOTAL DEMAND (3.0 - 5.0)	301	291	293	299	304	395	373	338	318	323	328	353	358	448	418	376	388	397	390	383					
7.0 PLANNING RESERVE 15% OF TOTAL SYSTEM DEM	286	289	292	296	300	304	307	313	317	322	325	331	337	342	346	353	359	365	371	379					
8.0 MARGIN OVER RESERVE (6.0 - 7.0)	16	2	2	3	4	91	66	26	1	1	2	22	21	107	72	23	29	32	20	4					

Low Load Sensitivity

Year	Resource	Capacity	Contribution to Peak
2018			
2019			
2020			
2021			
2022			
2023	Solar PV	75	18.75
	Solar PV	75	18.75
	Solar PV	100	25
	Combustion Turbine	100	100
	Battery Storage	50	50
2024	Battery Storage	50	50
2025			
2026			
2027	Combined-Cycle	320	320
2028	Solar PV & Battery	100	25
		30	30
2029			
2030			
2031	Combined-Cycle	320	320
2032			
2033			
2034	Combustion Turbine	100	100
	Reciprocating Engine	50	50
	Solar PV & Battery	100	0
		30	30
2035	Reciprocating Engine	50	50
2036	Reciprocating Engine	50	50
2037	Biofuel	20	20

High Load Sensitivity

Year	Resource	Capacity	Contribution to Peak
2018			
2019			
2020			
2021			
2022	Solar PV	75	18.75
	Solar PV	100	25
	Combustion Turbine	100	100
	Battery Storage	50	50
	Solar PV & Battery	100	25
		30	30
2023	Combined-Cycle	320	320
2024			
2025			
2026			
2027	Combined-Cycle	320	320
2028	Combustion Turbine	100	100
2029			
2030			
2031	Combustion Turbine	100	100
	Reciprocating Engine	50	50
	Battery Storage	50	50
2032	Biofuel	20	20
2033	Solar PV & Battery	100	0
		30	30
2034	Combined-Cycle	320	320
2035			
2036			
2037	Geothermal	20	20

Low Fuel Cost Sensitivity

Year	Resource	Capacity	Contribution to Peak
2018			
2019			
2020			
2021			
2022	Solar PV	75	18.75
	Solar PV	75	18.75
	Solar PV	75	18.75
	Solar PV & Battery	100	25
30		30	
2023	Combined-Cycle	320	320
2024			
2025			
2026			
2027	Combined-Cycle	320	320
2028	Combustion Turbine	100	100
2029			
2030			
2031	Combustion Turbine	100	100
	Battery Storage	50	50
	Battery Storage	50	50
2032			
2033	Reciprocating Engine	100	100
	Combustion Turbine		
2034	Reciprocating Engine	100	100
	Combustion Turbine		
2035			
2036	Solar PV & Battery	100	0
		30	30
2037	Biofuel	20	20
	Geothermal	20	20

High Fuel Cost Sensitivity

Year	Resource	Capacity	Contribution to Peak
2018			
2019			
2020			
2021			
2022	Solar PV	25	6.25
	Solar PV	75	18.75
	Solar PV	75	18.75
	Solar PV	75	18.75
	Solar PV	100	25
	Battery Storage	15	15
2023	Combined Cycle	320	320
2024			
2025			
2026			
2027	Solar PV	100	25
	Combustion Turbine	100	100
	Reciprocating Engine	50	50
	Reciprocating Engine	50	50
	Battery Storage	50	50
2028	Combustion Turbine	100	100
2029			
2030			
2031	Combined Cycle	320	320
2032			
2033			
2034	Combustion Turbine	100	100
	Reciprocating Engine	100	100
2035	Battery Storage	50	50
2036	Solar PV & Battery	100	0
		30	30
2037	Biofuel	20	20

\$20 Carbon Tax Sensitivity

Year	Resource	Capacity	Contribution to Peak
2018			
2019			
2020			
2021			
2022	Solar PV	25	6.25
	Solar PV	75	18.75
	Solar PV	75	18.75
	Solar PV	75	18.75
	Solar PV	100	25
	Battery Storage	15	15
2023	Combined Cycle	320	320
2024			
2025			
2026			
2027	Solar PV	100	25
	Combustion Turbine	100	100
	Reciprocating Engine	50	50
	Battery Storage	50	50
2028	Combustion Turbine	100	100
2029			
2030			
2031	Combined Cycle	320	320
2032			
2033			
2034	Combustion Turbine	100	100
	Reciprocating Engine	100	100
2035	Solar PV & Battery	100	0
		30	30
2036	Battery Storage	50	50
2037	Biofuel	20	20

\$40 Carbon Tax Sensitivity

Year	Resource	Capacity	Contribution to Peak
2018			
2019			
2020			
2021			
2022	Solar PV	25	6.25
	Solar PV	75	18.75
	Solar PV	75	18.75
	Solar PV	75	18.75
	Solar PV	100	25
	Battery Storage	15	15
2023	Combined Cycle	320	320
2024			
2025			
2026			
2027	Solar PV	100	25
	Combustion Turbine	100	100
	Reciprocating Engine	50	50
	Reciprocating Engine	50	50
	Battery Storage	50	50
2028	Combustion Turbine	100	100
2029			
2030			
2031	Combined Cycle	320	320
2032			
2033			
2034	Combustion Turbine	100	100
	Reciprocating Engine	100	100
2035	Solar PV & Battery	100	0
		30	30
2036	Battery Storage	50	50
2037	Biofuel	20	20

No Combined Cycle Sensitivity

Year	Resource	Capacity	Contribution to Peak
2018			
2019			
2020			
2021			
2022	Solar PV	25	6.25
	Solar PV	75	18.75
	Solar PV	75	18.75
	Solar PV	75	18.75
	Solar PV	100	25
	Battery Storage	15	15
2023	Newman 1 Extension	74	74
	Rio Grande 7 Extension	46	46
	Combustion Turbine	100	100
	Battery Storage	50	50
2024			
2025			
2026			
2027	Combined Cycle	320	320
2028	Combustion Turbine	100	100
	Reciprocating Engine	100	100
	Battery Storage	15	15
2029			
2030			
2031	Combined Cycle	320	320
2032			
2033			
2034	Combustion Turbine	100	100
	Reciprocating Engine	100	100
	Battery Storage	50	50
2035		100	0
		30	30
2036	Solar PV & Battery	20	20
		20	20
2037	Biofuel	20	20
	Geothermal	20	20

EPE Proprietary Material



El Paso Electric

PROVIEW LEAST COST OPTIMIZATION SYSTEM
 PLANNING PERIOD PLAN COMPARISON

PLAN RANK	1	2	3	4	5	6	7	8
2018								
2019								
2020								
2021								
2022	25S (1) 75S (3) 100S(1) STOR(1) CC_M(1)	25S (1) 75S (3) 100S(1) STOR(1) CC_M(1)	25S (1) 75S (3) 100S(1) STOR(1) CC_M(1)	25S (1) 75S (3) 100S(1) STOR(1) CC_M(1)	25S (1) 75S (3) 100S(1) STOR(1) CC_M(1)	25S (1) 75S (3) 100S(1) STOR(1) CC_M(1)	75S (3) PVBS(1) CC_M(1)	25S (1) 75S (3) 100S(1) STOR(1) CC_M(1)
2023								
2024								
2025								
2026								
2027	27PV(1) CT_L(1) RCP1(1) BS1G(1) CT_L(1)	27PV(1) CT_L(1) RCP2(2) BS1G(1) CT_L(1)	27PV(1) CT_L(1) RCP1(1) BS1G(1) CT_L(1)	27PV(1) CT_L(1) RCP2(2) BS1G(1) CT_L(1)	27PV(1) CT_L(1) RCP2(2) BS1G(1) CT_L(1)	27PV(1) CT_L(1) RCP1(1) BS1G(1) CT_L(1)	CC_M(1) CT_L(1)	27PV(1) CT_L(1) RCP2(2) BS1G(1) CT_L(1)
2028								
2029								
2030								
2031	CC_M(1)	CC_M(1)	CC_M(1)	CC_M(1)	CC_M(1)	CC_M(1)	CT_L(1) BS1G(2)	CC_M(1)
2032							RCP1(1)	
2033							CT_L(1)	CT_L(1)
2034	CT_L(1) RCP1(1)	CT_L(1) RCP1(1)	CT_L(1) RCP1(1)	CT_L(1) RCP1(1)	CT_L(1) RCP1(1)	CT_L(1) RCP1(1)	RCP1(1)	CT_L(1) RCP1(1)
2035	BS1G(1)	BS1G(1)	BS1G(1)	BS1G(1)	PVS (1)	PVS (1)		PVS (1)
2036	PVS (1)	PVS (1)	PVS (1)	PVS (1)	BS1G(1)	BS1G(1)	PVS (1)	BS1G(1)
2037	BIO1(1)	BIO1(1)	GEO1(1)	GEO1(1)	BIO1(1)	BIO1(1)	BIO1(1) GEO1(1)	GEO1(1)
P.V. UTILITY COST:								
PLANNING PERIOD	3244995.0	3244995.2	3245240.2	3245240.5	3245249.5	3245249.8	3245369.5	3245494.8
% DIFFERENCE	0.00%	0.00%	0.01%	0.01%	0.01%	0.01%	0.01%	0.02%
STUDY PERIOD RANK	1	2	3	4	5	6	7	8

For More Information

- EPE's IRP website
<https://www.epelectric.com/community/2017-18-public-advisory-group-meetings>
- E-mail NMIRP@epelectric.com to be added to the Public Advisory Group e-mail distribution list. You will receive updates on available presentation material and future meetings. Questions can also be submitted to this e-mail.