

# Integrated Resource Plan Public Advisory Group

Meeting 9 – October 26, 2017

Retirements and Cost Modeling Assumptions



El Paso Electric

# Meeting Agenda

- **Welcome and Introduction**
- **Public Advisory Process and Meeting Schedule**
- **PAG Written Input and Requests**
- **Follow-up Items:**
  - Updated L&R Table
- **Retirements and Cost Modeling Assumptions**
- **Discussion**

# Welcome and Introduction

## Presenters for this Meeting

- Maritza Perez: NM IRP Case Manager
- Omar Gallegos: Director of Resource Planning and Management
- Myra Segal: Facilitator

# Safety and Basics

- Fire Escape Routes
- Please sign in. You will be added to our PAG distribution list
  - Skype participants can email [NMIRP@epelectric.com](mailto:NMIRP@epelectric.com)
- Facilities
- Recording of Meetings
- Acronyms on last slide

# 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

- **Meetings will follow the agenda**
- **Presentations and Discussion**
  - If you have questions or comments, please raise your hand and wait for the microphone.
  - Skype attendees may type in questions in the instant message box
- **Discussion time at end of meeting can relate to any presentation**
  - All public input and requests submitted in writing will be responded to in writing\*
- **Keep communications respectful and to the point**

\*Joint Stipulation Case No. 15-00241-UT

# IRP Public Advisory Group Meeting Schedule

2017-2018 New Mexico IRP Public Advisory Group Schedule

| Meeting | Date                               | Subject   | Location   |
|---------|------------------------------------|---|--|
| (1)     | 5/25/2017<br>2:00 PM •<br>4:00 PM  | Kick-off and Introduction<br>Explanation of IRP Process and Goals<br>Resource Planning Process and Overview<br>Preliminary Listing of Resource Options to Consider  | EPE Office<br>955 S. Compress Rd.<br>Las Cruces, NM  |
| (2)     | 6/8/2017<br>2:00 PM •<br>3:30 PM   | Summary of IRP process and introduction to system   | NMPPRC Offices<br>4th Floor Hearing Room<br>P.E.R.A. Building<br>1120 Paseo de Peralta<br>Santa Fe, NM |
| (3)     | 7/6/2017<br>2:00 PM •<br>4:30 PM   | Operational Considerations/Requirements for Future Resources<br>Assessment of need for additional resources<br>System Operations - Reliability, Import Limits and Balancing<br>Existing Conventional Resources<br>System generation retirement plan and process<br>Transmission & Distribution Systems Overview and Projects  | Dona Ana County<br>Conference Room 113<br>845 N. Motel Blvd.<br>Las Cruces, NM                         |
| (4)     | 8/8/2017<br>2:00 PM •<br>4:30 PM   | Existing Renewable Resources and Distributed Generation (DG)<br>Demand Response (DR) Programs and Options<br>Energy Efficiency (EE)<br>Load Forecast  | Dona Ana County<br>Conference Room 113<br>845 N. Motel Blvd.<br>Las Cruces, NM                         |
| (5)     | 9/7/2017<br>2:00 PM •<br>4:30 PM   | Conventional Capacity and Generation Option Considerations<br>Demand Side Resource Options<br>Renewable Energy Options (Solar, Wind, Geothermal, Storage, DG)<br>Operational Considerations for Intermittent Resources and Balancing<br>Renewable Portfolio Standard Impacts<br>L&R Table<br>Strategist Introduction<br>Resource Input Template<br>Renewable & Conventional Power Plant Siting and Environmental Considerations | Dona Ana County<br>Conference Room 113<br>845 N. Motel Blvd.<br>Las Cruces, NM                         |
| (6)     | 9/22/2017                          | Presentation by PAG members Merrie Lee Soules and Don Kurtz: "Public Advisory Group Special Session on Analysis for 2018 IRP"   | Dona Ana County<br>Conference Room 113<br>845 N. Motel Blvd., Las Cruces, NM                           |
| (7)     | 10/5/2017<br>2:00 PM •<br>4:30 PM  | Initial Resource Options Submittal from PAG Due for November Run<br>Rate Considerations and Potential Impacts on Resource Planning Decisions<br>Resource Planning Base Case Assumptions<br>Initial Cost Estimates for Resource Planning Options<br>Modeling and risk assumptions and the cost & general attributes of potential additional resources  | Dona Ana County<br>Conference Room 113<br>845 N. Motel Blvd.<br>Las Cruces, NM                         |
| (8)     | 10/20/2017                         | Presentation by PAG Members: Resource Modeling Proposals  | Dona Ana County<br>Conference Room 113<br>845 N. Motel Blvd.<br>Las Cruces, NM                         |
| (9)     | 10/26/2017<br>2:00 PM •<br>4:30 PM | Retirements, Cost Modeling Assumptions, and other topics of interest to PAG   | Dona Ana County<br>Conference Room 113<br>845 N. Motel Blvd.<br>Las Cruces, NM                         |
| (10)    | 11/2/2017                          | SANTA FE - Resource Planning Overview and Modeling for Cost of Potential Additional Resources   | Santa Fe   |
| (11)    | 11/16/2017<br>2:00 PM •<br>4:30 PM | Preliminary Results with 2017 Load Forecast<br>Presentation of Resulting 20-year Expansion Plan<br>Development of the most cost-effective portfolio of resources for utility's IRP  | Dona Ana County<br>Conference Room 113<br>845 N. Motel Blvd.<br>Las Cruces, NM                         |
| (12)    | 1/19/2018                          | PAG Presentations and Discussions as Requested  | LC/Santa Fe  |
| (13)    | 2/2/2018                           | Last Resource Input Submittals from PAG Due   | LC/Santa Fe  |
| (14)    | 2/16/2018                          | PAG Presentations and Discussions as Requested  | LC/Santa Fe  |
| (15)    | 4/30/2018                          | IRP Preliminary Material  | Las Cruces   |
| (16)    | 5/16/2018                          | Follow-up meeting to receive and respond to public feedback   | Las Cruces   |
| (17)    | 6/8/2018                           | Final IRP presentation showing new load forecast  | Las Cruces   |
| (18)    | 6/29/2018                          | Follow-up meeting to receive and respond to public feedback   | Las Cruces   |
| (19)    | 7/15/2018                          | IRP Filing Date   | Las Cruces   |

# Integrated Resource Plan

## Public Advisory Process

- The purpose of the public advisory process is to receive public input and solicit public commentary concerning resource planning and related resource acquisition issues
  - [- NM Rule 17.7.3.9 \(H\)](#)
- Meeting Schedules and Agendas
  - Participants may add their own presentations to the agendas for the **January and February** meetings



# PAG Written Input and Requests

Follow up Discussion

# Integrated Resource Plan Updated Loads and Resources Table

Omar Gallegos  
Director of Resource Planning and Management

# Loads and Resources (L&R) Table

- Updated to incorporate DG contribution to peak load at 45%
- The 45% contribution at peak hour is based on DG sample meter data
- There is no impact to row 5.0 of the L&R

# 20-Year Loads and Resources Table (updated)

## El Paso Electric Company Loads & Resources 2018-2036 20-Yr Scenario --- No Expansion Plan

|   | 2018         | 2019         | 2020         | 2021         | 2022         | 2023         | 2024         | 2025         | 2026         | 2027         | 2028         | 2029         | 2030         | 2031         | 2032           | 2033           | 2034           | 2035           | 2036           |
|---|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|----------------|----------------|----------------|----------------|----------------|
| <b>1.0 GENERATION RESOURCES</b>                                     |              |              |              |              |              |              |              |              |              |              |              |              |              |              |                |                |                |                |                |
| 1.1 RIO GRANDE  | 276          | 276          | 276          | 276          | 276          | 230          | 230          | 230          | 230          | 230          | 230          | 230          | 230          | 230          | 230            | 230            | 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            |
| 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            |
| 1.5 PALO VERDE  | 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              |
| 1.7 NEW BUILD (local)   | -            | -            | -            | -            | -            | -            | -            | -            | -            | -            | -            | -            | -            | -            | -              | -              | -              | -              | -              |
| <b>1.0 TOTAL GENERATION RESOURCES <sup>(1)</sup></b>                | <b>2,085</b> | <b>2,085</b> | <b>2,085</b> | <b>2,085</b> | <b>2,085</b> | <b>1,889</b> | <b>1,889</b> | <b>1,889</b> | <b>1,889</b> | <b>1,565</b> | <b>1,565</b> | <b>1,565</b> | <b>1,565</b> | <b>1,501</b> | <b>1,501</b>   | <b>1,501</b>   | <b>1,359</b>   | <b>1,359</b>   | <b>1,359</b>   |
| <b>2.0 RESOURCE PURCHASES</b>                                       |              |              |              |              |              |              |              |              |              |              |              |              |              |              |                |                |                |                |                |
| 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             |
| 2.2 RENEWABLE PURCHASE (Hatch)                                      | 4            | 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             |
| 2.4 RENEWABLE PURCHASE (Juwil)                                      | 7            | 7            | 7            | 7            | 7            | 7            | 7            | 7            | 7            | 7            | 7            | 7            | 7            | 7            | 6              | 6              | 6              | 6              | 6              |
| 2.5 RESOURCE PURCHASE   | -            | -            | -            | -            | -            | -            | -            | -            | -            | -            | -            | -            | -            | -            | -              | -              | -              | -              | -              |
| <b>2.0 TOTAL RESOURCE PURCHASES <sup>(2)</sup></b>                  | <b>75</b>    | <b>74</b>    | <b>73</b>    | <b>73</b>    | <b>72</b>    | <b>72</b>    | <b>71</b>    | <b>71</b>    | <b>71</b>    | <b>70</b>    | <b>69</b>    | <b>69</b>    | <b>69</b>    | <b>68</b>    | <b>68</b>      | <b>67</b>      | <b>67</b>      | <b>67</b>      | <b>66</b>      |
| <b>3.0 TOTAL NET RESOURCES (1.0 + 2.0)</b>                          | <b>2,160</b> | <b>2,159</b> | <b>2,158</b> | <b>2,158</b> | <b>2,157</b> | <b>1,961</b> | <b>1,960</b> | <b>1,960</b> | <b>1,960</b> | <b>1,635</b> | <b>1,634</b> | <b>1,634</b> | <b>1,634</b> | <b>1,569</b> | <b>1,569</b>   | <b>1,568</b>   | <b>1,426</b>   | <b>1,426</b>   | <b>1,425</b>   |
| <b>4.0 SYSTEM DEMAND</b>  |              |              |              |              |              |              |              |              |              |              |              |              |              |              |                |                |                |                |                |
| 4.1 NATIVE SYSTEM DEMAND  | 1,973        | 1,997        | 2,020        | 2,051        | 2,080        | 2,111        | 2,138        | 2,176        | 2,208        | 2,242        | 2,274        | 2,318        | 2,358        | 2,397        | 2,432          | 2,481          | 2,525          | 2,569          | 2,608          |
| 4.2 DISTRIBUTED GENERATION  | (17)         | (20)         | (22)         | (25)         | (27)         | (29)         | (32)         | (35)         | (37)         | (39)         | (42)         | (44)         | (46)         | (48)         | (51)           | (52)           | (56)           | (57)           | (60)           |
| 4.3 ENERGY EFFICIENCY   | (10)         | (14)         | (19)         | (24)         | (29)         | (34)         | (39)         | (43)         | (48)         | (53)         | (57)         | (63)         | (67)         | (72)         | (77)           | (82)           | (87)           | (92)           | (96)           |
| 4.4 LINE LOSSES   | (4)          | (4)          | (4)          | (4)          | (4)          | (4)          | (4)          | (4)          | (4)          | (4)          | (4)          | (4)          | (4)          | (4)          | (4)            | (4)            | (4)            | (4)            | (4)            |
| 4.5 INTERRUPTIBLE SALES   | (53)         | (53)         | (53)         | (53)         | (53)         | (53)         | (53)         | (53)         | (52)         | (53)         | (53)         | (53)         | (53)         | (53)         | (53)           | (53)           | (53)           | (53)           | (53)           |
| <b>5.0 TOTAL SYSTEM DEMAND (4.1-4.2+4.3+4.4+4.5) <sup>(3)</sup></b> | <b>1,889</b> | <b>1,906</b> | <b>1,922</b> | <b>1,945</b> | <b>1,968</b> | <b>1,991</b> | <b>2,010</b> | <b>2,041</b> | <b>2,066</b> | <b>2,093</b> | <b>2,118</b> | <b>2,154</b> | <b>2,187</b> | <b>2,220</b> | <b>2,247</b>   | <b>2,289</b>   | <b>2,325</b>   | <b>2,363</b>   | <b>2,394</b>   |
| <b>6.0 MARGIN OVER TOTAL DEMAND (3.0 - 5.0)</b>                     | <b>271</b>   | <b>252</b>   | <b>236</b>   | <b>213</b>   | <b>190</b>   | <b>(30)</b>  | <b>(49)</b>  | <b>(81)</b>  | <b>(106)</b> | <b>(457)</b> | <b>(483)</b> | <b>(519)</b> | <b>(552)</b> | <b>(650)</b> | <b>(678)</b>   | <b>(721)</b>   | <b>(899)</b>   | <b>(937)</b>   | <b>(969)</b>   |
| <b>7.0 PLANNING RESERVE 15% OF TOTAL SYSTEM DEMAND</b>              | <b>283</b>   | <b>286</b>   | <b>288</b>   | <b>292</b>   | <b>295</b>   | <b>299</b>   | <b>301</b>   | <b>306</b>   | <b>310</b>   | <b>314</b>   | <b>318</b>   | <b>323</b>   | <b>328</b>   | <b>333</b>   | <b>337</b>     | <b>343</b>     | <b>349</b>     | <b>354</b>     | <b>359</b>     |
| <b>8.0 MARGIN OVER RESERVE (6.0 - 7.0)</b>                          | <b>(13)</b>  | <b>(34)</b>  | <b>(52)</b>  | <b>(79)</b>  | <b>(106)</b> | <b>(328)</b> | <b>(350)</b> | <b>(387)</b> | <b>(416)</b> | <b>(771)</b> | <b>(801)</b> | <b>(842)</b> | <b>(880)</b> | <b>(983)</b> | <b>(1,015)</b> | <b>(1,064)</b> | <b>(1,248)</b> | <b>(1,291)</b> | <b>(1,328)</b> |

1. System Demand based on Long-term and Budget Year Forecast issued April 6, 2017.  
Includes state-required targets for Energy Efficiency.  
Interruptible load reflects current contracts.

### Unit Retirements

Rio Grande 7 (46MW) - December 2022  
Newman 1 (74MW) - December 2022  
Newman 2 (76MW) - December 2022  
Newman 3 (97MW) - December 2026  
Newman 4 CC (227MW) - December 2026  
Copper (64MW) - December 2030  
Rio Grande 8 (142MW) - December 2033

### Renewable Purchases

SunEdison, NRG, Macho, Newman and Hatch solar purchases reflect 70% availability at Peak.

### Distributed Generation

Distributed Generation (DG)  
resources reflect 45% availability at Peak.

### Company Owned Renewables

Renewable Resources shown in line item 1.6 consists of EPE Community Solar, Holloman Solar, EPCC, Stanton, Wrangler, Rio Grande & Newman Carports, and Van Horn

The Resource Purchase is supported by firm transmission through (i) simultaneous buy/sell with Fresport McMoran (formerly Phelps Dodge), (ii) Four Corners switchyard after Four Corners retires, and (iii) SPS via the Eddy Tie.

Updated 10-24-2017

# Integrated Resource Plan Retirements and Cost Modeling Assumptions

Omar Gallegos  
Director of Resource Planning and Management

# Retirement Analysis

- Per the 2015 IRP settlement stipulation, EPE agreed to analyze retirement decisions in Strategist (or comparable program) for any unit scheduled for retirement within five years
- EPE has three units scheduled for retirement within the five year window
  - Rio Grande 7
  - Newman 1
  - Newman 2

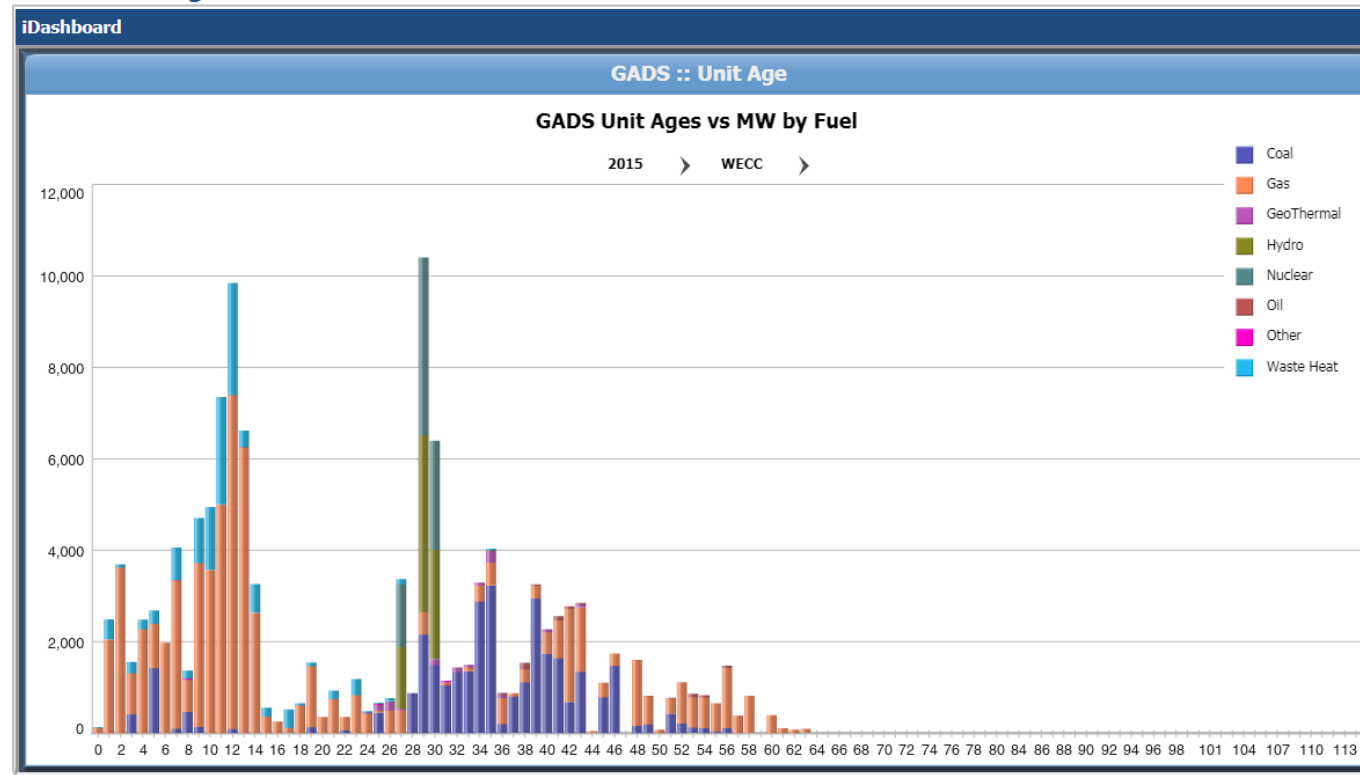
# Retirement Analysis

- **Contracted external engineering firm to determine:**
  - Assess units' condition
  - Assess if the units can safely and reliably be extended
  - Estimate any retrofit costs required in order to provide safe and reliable operation through the extension
  - Identify required O&M activities through life extension

# Retirement Analysis

- EPE will first run the Strategist base case with retirements as currently planned for all three units in 2022
- EPE will run a second Strategist run introducing the units as resource options available to select from
  - Extended asset life, life extension investment and O&M costs
- Strategist will then consider selection of retirement extensions versus new resource options
- If any retirement extension is selected, it will be included for evaluation in the sensitivity runs
- Additional system reliability will be considered for the portfolio (e.g. regulating reserve capability considering amount intermittent generation selected)





## About This Metric

**NOTICE:** The data sets and aggregations reported on this page are in a sample format. They are currently being reviewed and verified. The data and aggregations may be modified pending further review and analysis. As such, this data should not be utilized for policy making or planning purposes.

# Assumptions for Resource Options (updated)

| Technology               | Capital Costs (\$/kw) | Heat Rate (Btu/kWh) | Fixed O&M (\$/kW-yr.) | Variable O&M (\$/MWh) |
|--------------------------|-----------------------|---------------------|-----------------------|-----------------------|
| Solar*                   | \$1,450               | -                   | \$12.00               | -                     |
| Wind*                    | \$1,700               | -                   | \$40.00               | -                     |
| Biomass*                 | \$4,000               | 14,500              | \$95.00               | \$15.00               |
| Geothermal*              | \$6,400               | -                   | -                     | \$40.00               |
| Gas Fired CC             | \$1,000               | 6,600               | \$5.85                | \$2.75                |
| Gas Fired CT             | \$1,000               | 9,000               | \$25.00               | \$7.50                |
| Gas Reciprocating Engine | \$1,100               | 9,000               | \$20.00               | \$15.00               |
| Demand Response          | \$369                 | -                   | -                     | -                     |

\*Renewables to be considered are in addition to and above Renewable Portfolio Standard requirements, as per Joint Stipulation Case No. 15-00241-UT.

EPE Proprietary Material



# Acronyms

|              |  |
|--------------|--|
| EE           | - Energy Efficiency  |
| EPCC         | - El Paso Community College                                |
| EPE          | - El Paso Electric Company, or the "Company"               |
| Gas Fired CC | - Combined Cycle   |
| Gas Fired CT | - Combustion Turbine                                       |
| IRP          | - Integrated Resource Plan                                 |
| LM           | - Load Management  |
| MPS          | - Montana Power Station                                    |
| MW           | - MegaWatts (1,000 kW)                                     |
| NERC         | - North American Electric Reliability Council              |
| NMAC         | - New Mexico Administrative Code                           |
| NMPRC        | - New Mexico Public Regulation Commission, or "Commission" |
| O&M          | - Operation & Maintenance                                  |

# Discussion