2021 Integrated Resource Plan

July 1, 2021

Welcome

2021 El Paso Electric Company Integrated Resource Plan
Public Participation July 2021 Meeting

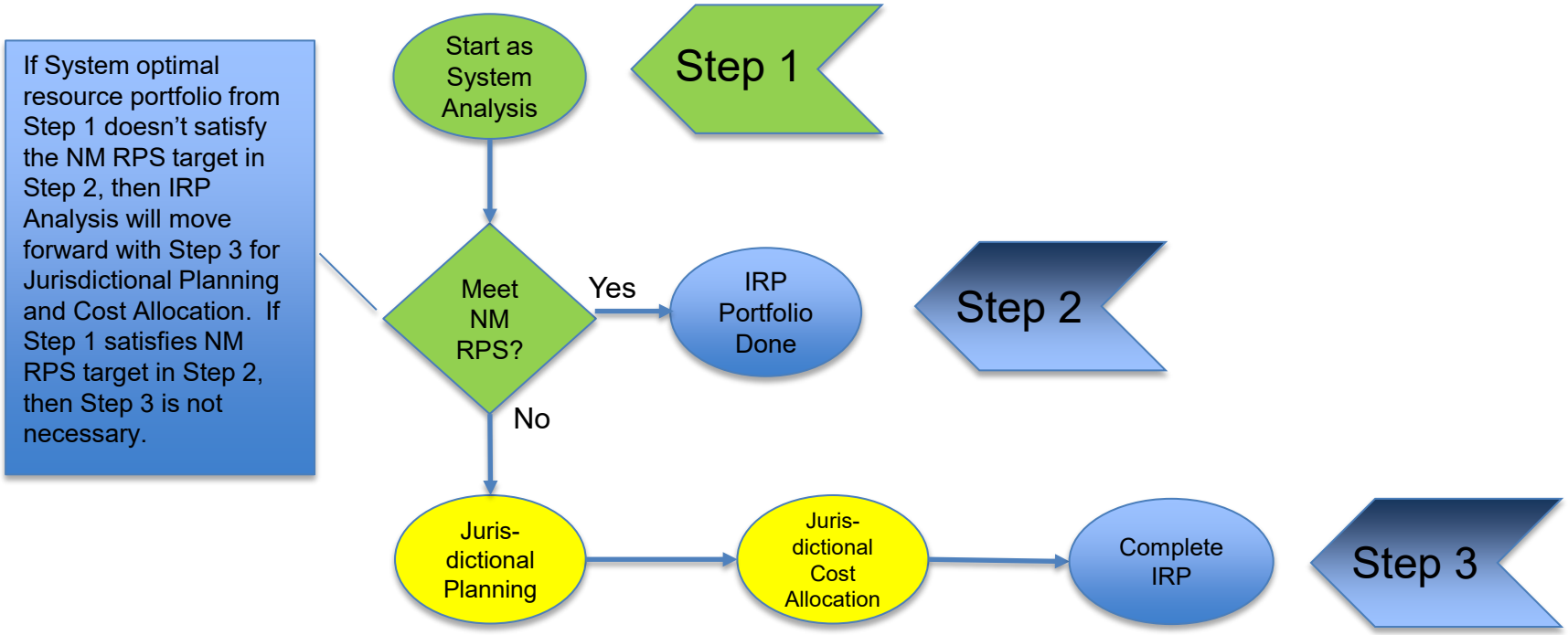
Agenda

1) Introduction summary of presentation material
2) Review of jurisdictional analyses
3) Participant input and thoughts

Meeting Format and Guidelines

- **Presentations will be by EPE staff and invited speakers.**
  - Presenters will complete presentation prior to answering questions.
- **Participants may submit questions through the Zoom Chat box.**
- **Please use the Chat box for technical issues/questions.**
- **Communications should be respectful, to the point and on topic.**
- **Written questions submitted after the meeting will be responded to in writing within 10 days.**

Process Map for IRP Analysis



- Completed initial system analysis and additional carbon reduction sensitivities for system
- Completed jurisdictional allocation scenarios and New Mexico portfolios associated with those scenarios – sharing results for input

IRP Modeling Efforts

Jurisdictional Analysis

- Identified various options for specifically addressing New Mexico Renewable Energy Act requirements
- Various jurisdictional planning approaches modeled and evaluated
- EPE has not finalized its recommendation on which approach to utilize for the final recommended New Mexico portfolio
- Soliciting feedback and input on the scenarios presented

Review of Jurisdictional Analyses

- **Some additional review of jurisdictional scenarios presented at the last meeting**

- **Additional points for context of analyses**
  - Scenarios are discussed in terms of 2040 timeframe
  - Presume carbon free constraint in effect due to Palo Verde 1 and 2 exceeding 20% of NM retail sales
  - Therefore, portfolio scenarios target carbon free requirement for 2040

Review of Jurisdictional Analyses

- **Capacity Pooling**
  - Each jurisdiction (NM and TX) must acquire their fair share of resources to ensure capacity needs are met for normal operation
  - However, capacity is pooled to meet the LOLE reliability target
  - Therefore, on peak load days, reliability is ensured in the aggregate of capacity resources from both jurisdictions
  - There may be times that TX gas resources support NM
  - Similarly, during peak days, NM capacity resources may support daytime loads with solar and storage

Review of Jurisdictional Analyses

- **Annual REA Compliance**
  - The 2040 requirement for 100% carbon free is measured at annual timeframe
  - Annual carbon free output, from NM allocated resources, equal to or greater to annual NM retail sales
  - Allows for benefits of capacity pooling and system wide dispatch

- **Hourly REA Compliance**
  - The 2040 requirement for 100% carbon free is measured at the hourly interval
  - NM must have sufficient NM capacity/resources to support hourly energy needs with carbon free resources
  - No capacity pooling, NM system resources dispatched separately

Least Cost Portfolio

- **Performed at system level**
  - Includes new gas resources allocated to both NM and TX
  - If allocated ~80/20, there are insufficient renewables allocated to NM for REA compliance
  - Presumes capacity pooling as it is at the system level

Least Cost plus REA Portfolio

- **May have both system allocated resources and jurisdictionally dedicated resources**
  - The economic benefits of the LC + REA are due to the benefits of capacity pooling and annual REA compliance adherence
  - The resources in the portfolio may be system sourced or sourced as dedicated resources
  - The importance is being able to leverage resources between jurisdictions via capacity pooling and joint dispatch throughout the year

Separate System Planning Portfolios

- **Analysis is performed for NM and TX separately**
  - Key to this portfolio is no capacity pooling; therefore, each jurisdiction needs to meet LOLE requirements with their respective resources
    - Results in NM requiring additional renewables and storage to meet reliability
  - Additionally, this scenario imposes an hourly balancing requirement for carbon free resources; therefore, does not allow the use of gas resources (hydrogen fueled resources may be used in the H2 scenario)
  - The cost impacts from this scenario are due to the “no capacity pooling” and “hourly REA balancing”

Energy+Environmental Economics

New Mexico REA Requirements

New Mexico Renewable Energy Act

+ There are key requirements in the statutory language setting renewable energy and zero carbon requirements in New Mexico (emphasis added):

"A public utility shall meet the renewable portfolio standard requirements, as provided in this section, to include renewable energy in its electric energy supply portfolio *as demonstrated by its retirement of renewable energy certificates*; *provided that the associated* ***renewable energy is delivered*** *to the public utility and assigned to the public utility's New Mexico customers*…

(5) no later than January 1, 2040, renewable energy resources shall supply no less than eighty percent of all retail sales of electricity in New Mexico; *provided that compliance with this standard until December 31, 2047 shall not require the public utility to displace zero carbon resources* in the utility's generation portfolio on the effective date of this 2019 act; and

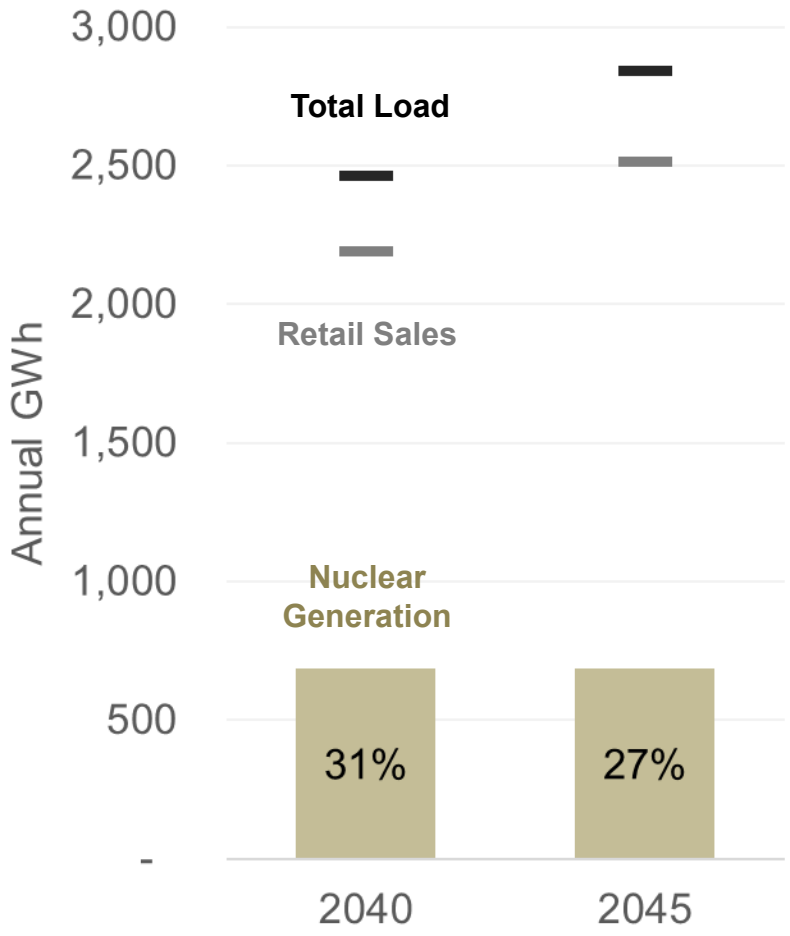
(6) no later than January 1, 2045, *zero carbon resources shall supply one hundred percent of* ***all retail sales of electricity in New Mexico***. Reasonable and consistent progress shall be made over time toward this requirement."

+ The scenarios analyzed consider multiple approaches for REA implementation

- Share of NM load served with renewable energy, given that El Paso Electric serves NM load with greater than 20% non-renewable zero-carbon resources (i.e. Palo Verde)
- Annual vs. hourly balancing periods for 100% zero-carbon generation
- Whether combustion resources may be utilized to ensure reliability for NM customers

New Mexico REA Requirements in 2040+

New Mexico Nuclear Generation & Load

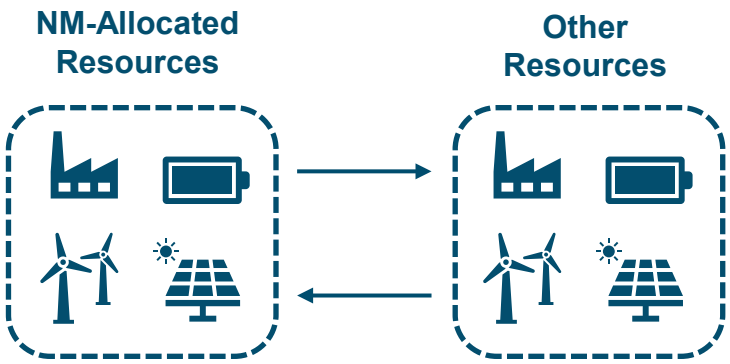


- The REA requires 80% RPS by 2040, unless doing so would require displacing existing zero-carbon generation
- New Mexico's share of Palo Verde 1 and 2 supplies 31% of New Mexico's retail sales in 2040 and 27% in 2045
- For purposes of IRP modeling, El Paso Electric has directed E3 to require New Mexico zero-carbon generation (renewables + nuclear) to equal or exceed 100% of New Mexico retail sales or load starting in 2040

Two Approaches for Modeling Zero-Carbon Generation Balancing

Annual Balancing

- New Mexico-allocated zero-carbon resources must generate enough energy on an annual basis to match the REA NM retail sales target
- Natural gas resources and/or imports can serve New Mexico's energy needs in some hours if that generation is offset by additional zero-carbon generation in other hours
- Annual balancing allows New Mexico customers to reap the benefits of being served by a larger system



NM customers can be served by gas resources and unspecified imports if offset in other hours

Hourly Balancing

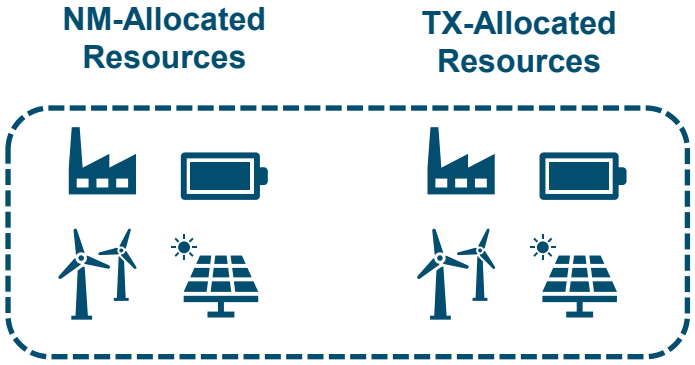
- New Mexico cannot receive power from gas resources or unspecified imports in any hour
- Zero-carbon generation from New Mexico-allocated resources must serve New Mexico energy demand in all hours of the year
- This would be a more stringent zero-carbon requirement, as it would not allow for balancing between New Mexico and Texas resources

NM customers cannot be served by gas resources or unspecified imports an any hour

Two Approaches for Modeling Capacity Pooling to Ensure Reliability

Capacity Pooling Allowed

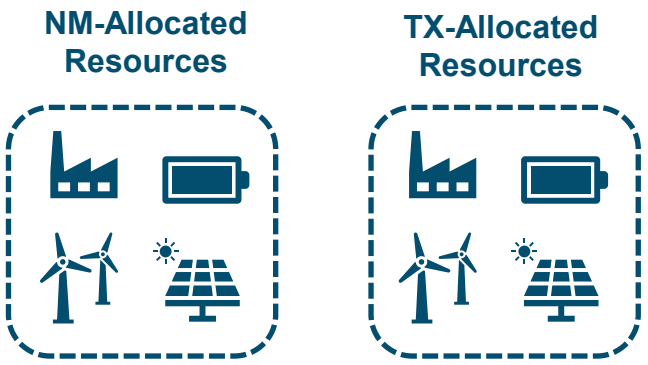
- For reliability planning purposes, NM and TX loads can be served by NM resources, TX resources, and/or system resources
  - If the NM jurisdiction doesn't have enough resources to satisfy load in an hour, then it can rely on TX resources, and vice versa
- NM and TX customers must still pay for enough resources to satisfy their share of system reliability needs



All resources together ensure systemwide reliability across all hours, subject to the reliability standard

Capacity Pooling NOT Allowed

- For planning purposes, TX and NM must each have enough resources to ensure reliability across a range of potential conditions without relying on the other jurisdiction (i.e. on a standalone basis)
- This would be a more stringent planning approach; NM would need to plan to have enough resources without falling back on TX gas resources in some hours



For planning purposes, each jurisdiction ensures reliability on its own across all hours, subject to the reliability standard

New Mexico REA Scenarios and Jurisdictional Allocation

- **E3 modeled a few scenarios with different approaches for how to satisfy the REA requirements**
  - Different approaches of the REA requirements have meaningful implications on how planning is performed for New Mexico customers
  - The more stringent approaches of the REA requirements will result in higher system costs relative to less stringent approaches
  - To ensure equitable treatment of customers across jurisdictions, any incremental costs of satisfying the REA requirements would be allocated to New Mexico customers
- **For each scenario, resources and costs are allocated between the New Mexico and Texas jurisdictions**
  - The allocation of resources follows directly from a particular approach to modeling REA compliance. If a particular approach requires more resources to be added versus the least-cost case, then those resources are allocated to the New Mexico jurisdiction
  - Capacity, generation, and cost for the New Mexico jurisdiction are presented for each scenario

New Mexico REA Scenarios

	Least Cost ("LC")	Least Cost + REA Resources ("LC+REA")	Separate System Planning ("SSP")
Portfolio optimization	Least-cost system optimization	Reoptimize Least Cost to add additional renewables & storage dedicated to NM to satisfy REA requirements	Optimize NM and TX systems independently without modeling interactions between them
NM zero-carbon generation balancing period	Annual	Annual	Hourly
NM and TX capacity pooling to ensure reliability	✓	✓	✗
Resource allocation	Resources allocated proportionally; more RECs allocated to NM	Incremental resources are allocated to New Mexico	Optimization identifies resources specifically for NM and TX jurisdictions
NM allocated new gas capacity	✓	✗	✗

More stringent REA interpretation

Closing Comments

Thank You!