



2021 Integrated Resource Plan

November 9, 2020



Welcome

2021 El Paso Electric Company Integrated Resource Plan Public Participation Meeting 4

Agenda

- 1) Public participants slide presentation
- 2) Discussion by EPE regarding -
 - a) EPE's expectations as to its generation portfolio and power procurement in 2040 and 2045, consistent with REA requirements regarding renewable and non-carbon sources.
 - b) EPE's expectations regarding "must-run" resources in a non-carbon world and implications for renewable resources, including the use of curtailments.
 - c) EPE's expectations regarding the level of reliability appropriate for the system today and in 2040, and how EPE expects to analyze the provision and cost of defined levels of reliability?
- 3) Discussion by EPE of native load and system requirements in 2020, including how EPE met peak demand during the summer peak period.
- 4) Discuss future meeting agendas, additional scheduled meetings, and opportunities for open discussion periods during PAG meetings.

Safe Harbor

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.

Forward-looking statements often include words like we "believe", "anticipate", "target", "project", "expect", "predict", "pro forma", "estimate", "intend", "will", "is designed to", "plan" and words of similar meaning, or are indicated by the Company's discussion of strategies or trends. Forward-looking statements describe the Company's future plans, objectives, expectations or goals and include, but are not limited to, statements regarding [anticipated future generation costs, resource need, customer growth rates, rate structure, fuel costs, purchased power pricing]. 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 Form 10-K for the fiscal year ended December 31, 2019 and Quarterly Reports filed in 2020. Any such forward-looking statement is qualified by reference to these risks and factors. EPE cautions that these risks and factors are not exclusive.

Although the Company believes that the expectations reflected in such forward-looking statements are reasonable, no assurances can be given that these expectations will prove to be correct. Forward-looking statements by their nature that could substantial risks and uncertainties that could significantly impact expected results, and actual future results could differ materially from those described in such statements. 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.

EPE Proprietary Material



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 WebEx chat box.**
- **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.**



Public Advisory Group Integrated Planning Perspective

9 November 2020

Integrated Resource Plan Requirements:

- As EPE noted in its July presentation, the goal is: “to identify the most cost effective portfolio of resources to supply the energy needs of customers. For resources whose costs and service quality are equivalent, the utility should prefer resources that minimize environmental impacts.” (17.7.3.6 NMAC)
- “To identify the most cost-effective resource portfolio, utilities shall evaluate all feasible supply, energy storage, and demand-side resource options on a consistent and comparable basis” (17.7.3.9G(1) NMAC)
- “EPE will evaluate rate design, such evaluation to include impact of rate differentials on peak demand and energy consumption, and comparison to supply-side and other demand-side measures on cost-effectiveness” (15-00241-UT Stipulation)
- We want to help ensure these goals are accomplished.

Positives:

- EPE realization that Renewables are Coming (8/14/2020 P8)
- Awareness of challenges and solutions for renewables integration (P26)
- E3 Involvement - Able to model renewables appropriately
- Acknowledgement of Decreasing System Load Factor Problem
- EPE noted load-reducing impacts of:
 - Rate Design - Time of Day, Critical Peak Pricing, etc
 - Load Management/Demand Response
 - Energy Efficiency
- EPE considering Energy Imbalance Market

Future Resource Portfolio

A future resource portfolio will include....

- Greater integration of renewable resources
- Renewable resources such as solar and wind will operate similar to conventional gas-fired generation with dispatch control for curtailment of generation, similar to how gas-fired generation is not utilized 100% of the time
- Greater use of battery storage to shift renewable output from low load periods to higher load periods
- Leverage synergies of solar, wind, and dispatchable renewables such as geothermal and biogas
- Utilize LM/DR and energy efficiency to balance resource to load profiles
- Selective use of firm conventional gas or other evolving technologies to provide firm capacity to ensure reliability



August EPE IRP Presentation, slide 8



Overview of key questions

+ Calculate the planning reserve margin (PRM) for the system and the effective load carrying capability (ELCC) values for resources

Key Questions:

- What is the total effective capacity the system needs to meet El Paso Electric's reliability standard?
- How can solar, energy storage, wind, and other dispatch-limited resources contribute to the total capacity requirement? How does this change with penetration?

+ Develop least-cost resource portfolios that achieve clean energy targets while maintaining reliability

Key Questions:

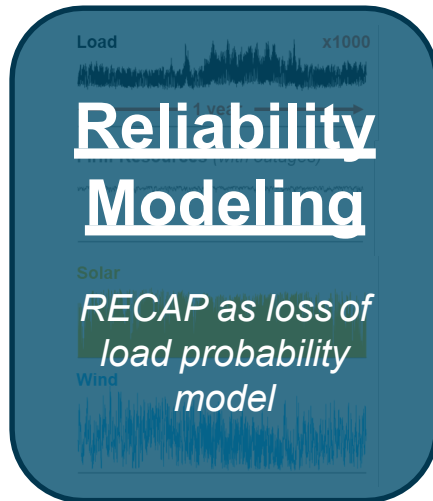
- Which resources are economic to add to the system over the planning horizon?
- How can El Paso Electric meet the New Mexico Energy Transition Act requirements most cost effectively?
- What is the role of firm generating capacity in ensuring resource adequacy?



Overview of modeling approach

+ The IRP modeling approach pairs detailed loss-of-load-probability modeling (RECAP) with capacity expansion models (RESOLVE and PLEXOS LT) to provide a robust perspective on system reliability, operations, and cost under aggressive clean energy targets

1 Conduct detailed reliability modeling to quantify the capability of variable & dispatch-limited resources to contribute to resource adequacy requirements



3 Perform detailed reliability modeling to check that the optimized system meets the reliability target

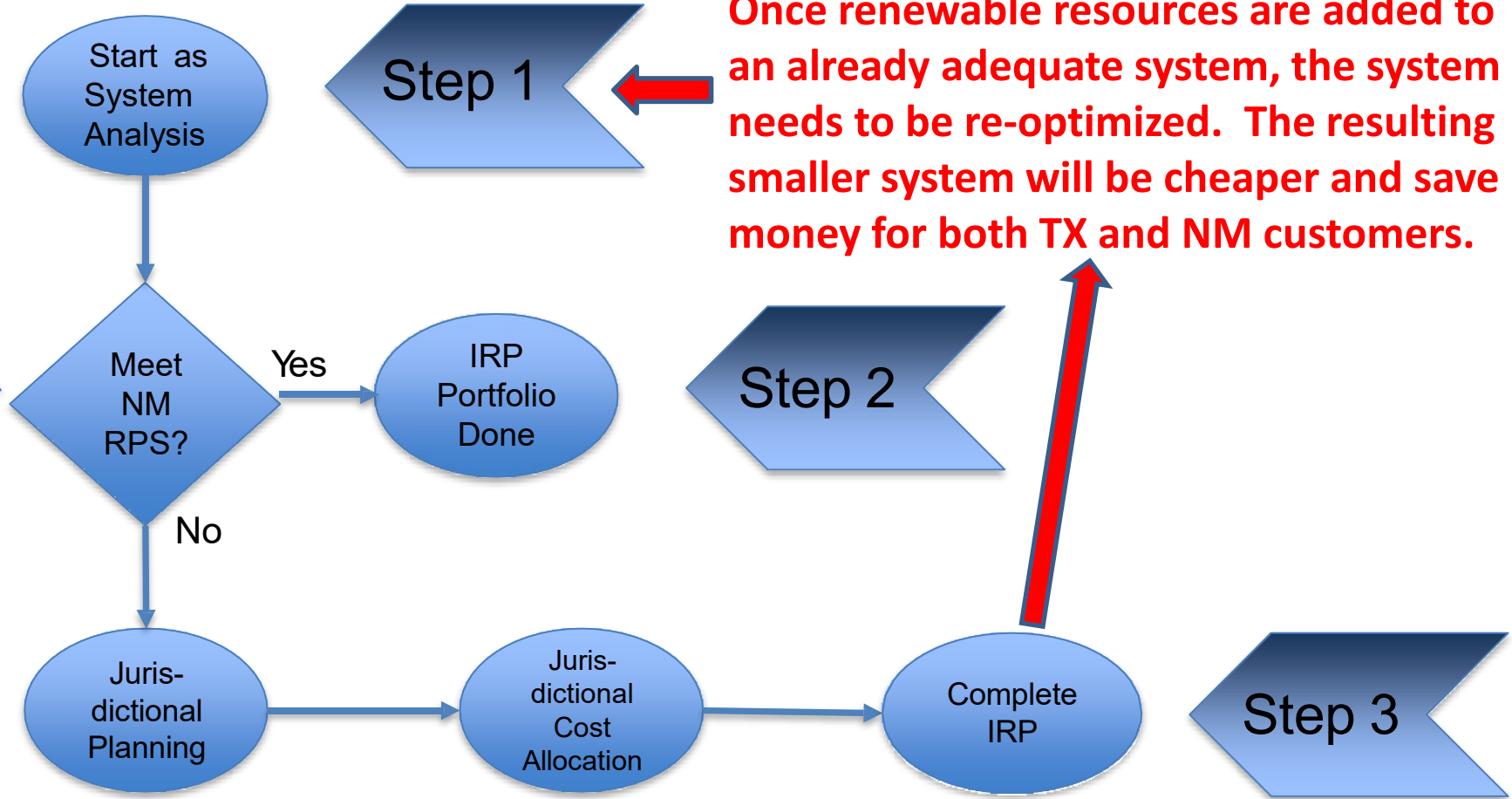
2 Optimize future resource portfolios to meet reliability and clean energy targets while minimizing cost to customers

Process Concerns:

- E3 process identified looks good, for example:
 - “How can El Paso Electric meet the New Mexico Energy Transition Act requirements most cost effectively?”
 - “Optimize future resource portfolios to meet reliability and clean energy targets while minimizing cost to customers”
- It remains unclear how E3 modeling will drive EPE resource selection in IRP
- The process outlined by EPE in July is likely to cause duplication

Process Map for IRP Analysis

If System resources from Step 1 don't satisfy the NM RPS targets in Step 2, then IRP Analysis will move forward with Step 3 for Jurisdictional Planning and Cost Allocation. If Step 1 satisfies NM RPS targets in Step 2, then Step 3 is not necessary.



Once renewable resources are added to an already adequate system, the system needs to be re-optimized. The resulting smaller system will be cheaper and save money for both TX and NM customers.

Adding renewable resources to a system that already has sufficient resources to meet capacity needs creates a system that is larger and more expensive than needed.

Demand-Side Resource Concerns:

- Past EPE modeling has excluded low-cost resources if their individual impact is small
- Energy efficiency reduces demand for both energy and capacity, but is barely mentioned in E3 slides
- Uplight household thermostat demand-response program is a good start but is small (< 5 MW)
- Why not expand existing, much larger (43 MW) commercial program, instead of freezing it?

Schedule Concerns:

- The schedule does not allow for effective engagement
 - Six month gap from November to May prevents collaboration
 - May presentation of Preliminary Draft IRP will probably prevent meaningful modifications to draft IRP presented in May - insufficient time for analysis of alternatives

Questions:

1. How will the modern E3 resource modeling results be used in the selection of IRP resources?
2. Will EPE traditional but obsolete resource adequacy analysis override E3 results?
3. If EPE resource adequacy analysis will override E3 results, will EPE commit to re-optimize system after adding renewable resources to meet ETA requirements?
4. Will EPE share E3 results with the public prior to presentation of Draft IRP?

Questions:

5. How will the E3 modeling consider energy efficiency impacts on resource needs?
6. Will E3 modeling consider expansion of household thermostat program?
7. Will E3 modeling consider expansion of commercial demand-response (interruptible) program?
8. How will E3 modeling consider Time-of-Day and other rate designs as potential demand-side resources?

Questions:

9. Will EPE commit to additional meetings between November 2020 and May 2021, to foster collaboration and cooperation?

Item 2

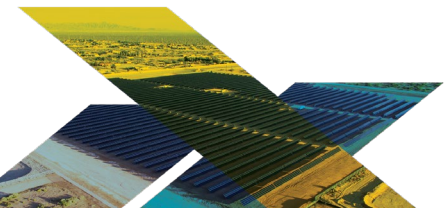
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Item 3

3) Discussion by EPE of native load and system requirements in 2020, including how EPE met peak demand during the summer peak period.



EPE Summer Peak Loads and Resources

- **2020 Peak Day – July 13, 2020**

- 2,173 MW Native Load
- Exceeded forecast and load levels were at the 2026 load estimates
- All EPE units were online
- Fully utilized all planning reserve margin
- Non-firm transmission enabled EPE to purchase 320 MW of spot market purchased power
 - Note that 150 MW of sales were arbitrage, so there were offsetting purchases of 150 MW of purchases
 - Net purchases to serve load 320 MW
- Scheduled at approximately 990 MW of imports
 - 620 MW Palo Verde
 - 50 MW Macho Springs Solar
 - 320 MW Spot Market Purchase Power (140 MW were in Southern New Mexico)

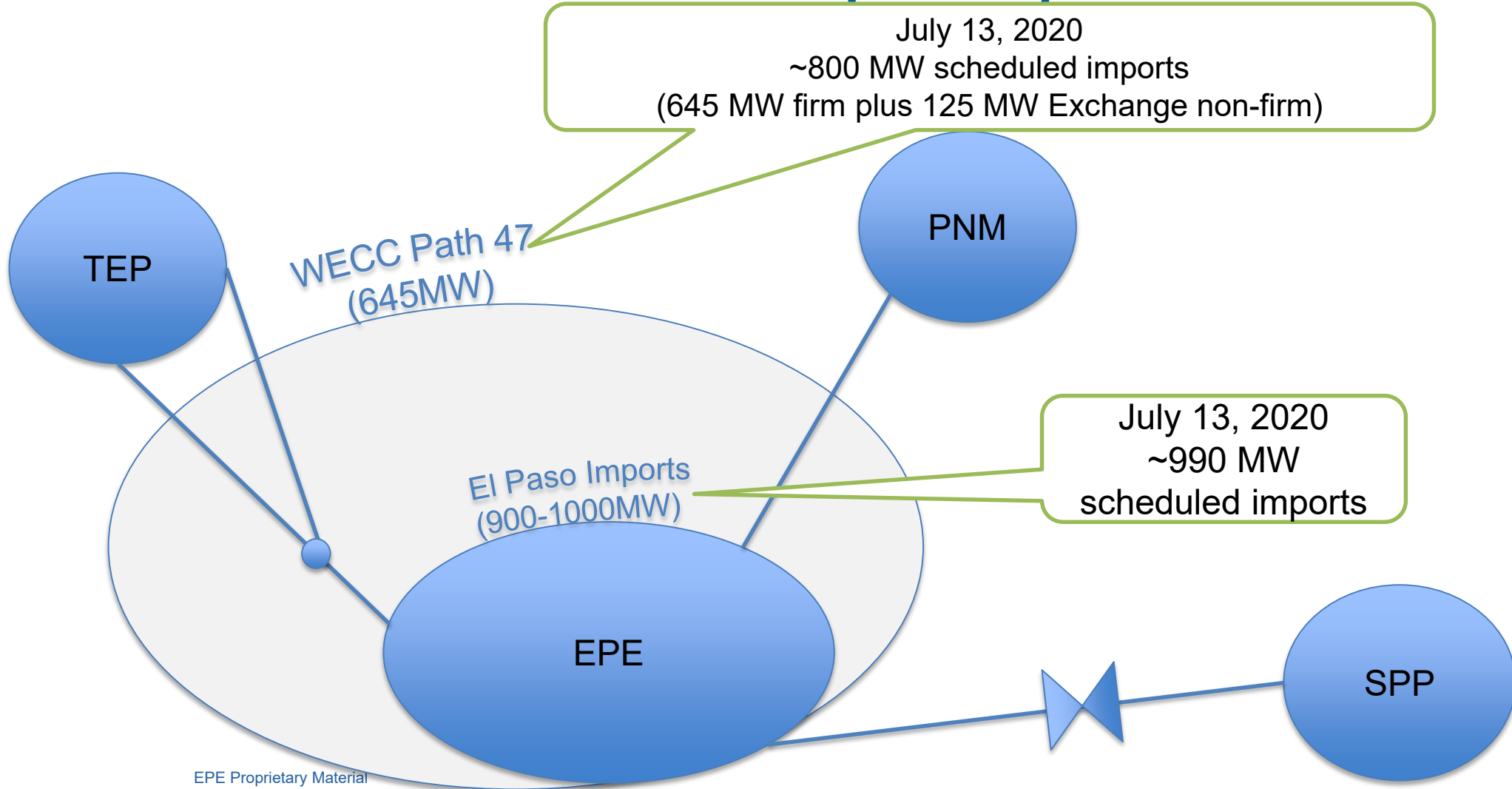
Spot Market Purchase Power may not always be available

	DATE: 7/13/2020	7/14/2020 ¹
HE:	16	16
1.0 GENERATION RESOURCES		
1.1 LOCAL		
1.1.1 COPPER	40	40
1.1.2 MONTANA	301	298
1.1.3 NEWMAN	536	564
1.1.4 RIO GRANDE	234	224
1.2 REMOTE		
1.2.1 PALO VERDE	620	621
1.3 RENEWABLE		
1.3.1 RENEWABLE RESOURCES	92	56
TOTAL GENERATION RESOURCES	1,823	1,803
2.0 PURCHASES		
2.1 SPOT PURCHASES	470	362
2.2 SPIN PURCHASES		25
3.0 SALES		
3.0 SALES	-150	-85
4.0 LINE LOSSES		
4.0 LINE LOSSES	26	26
5.0 NATIVE LOAD		
5.0 NATIVE LOAD	2173	2110

NOTES:

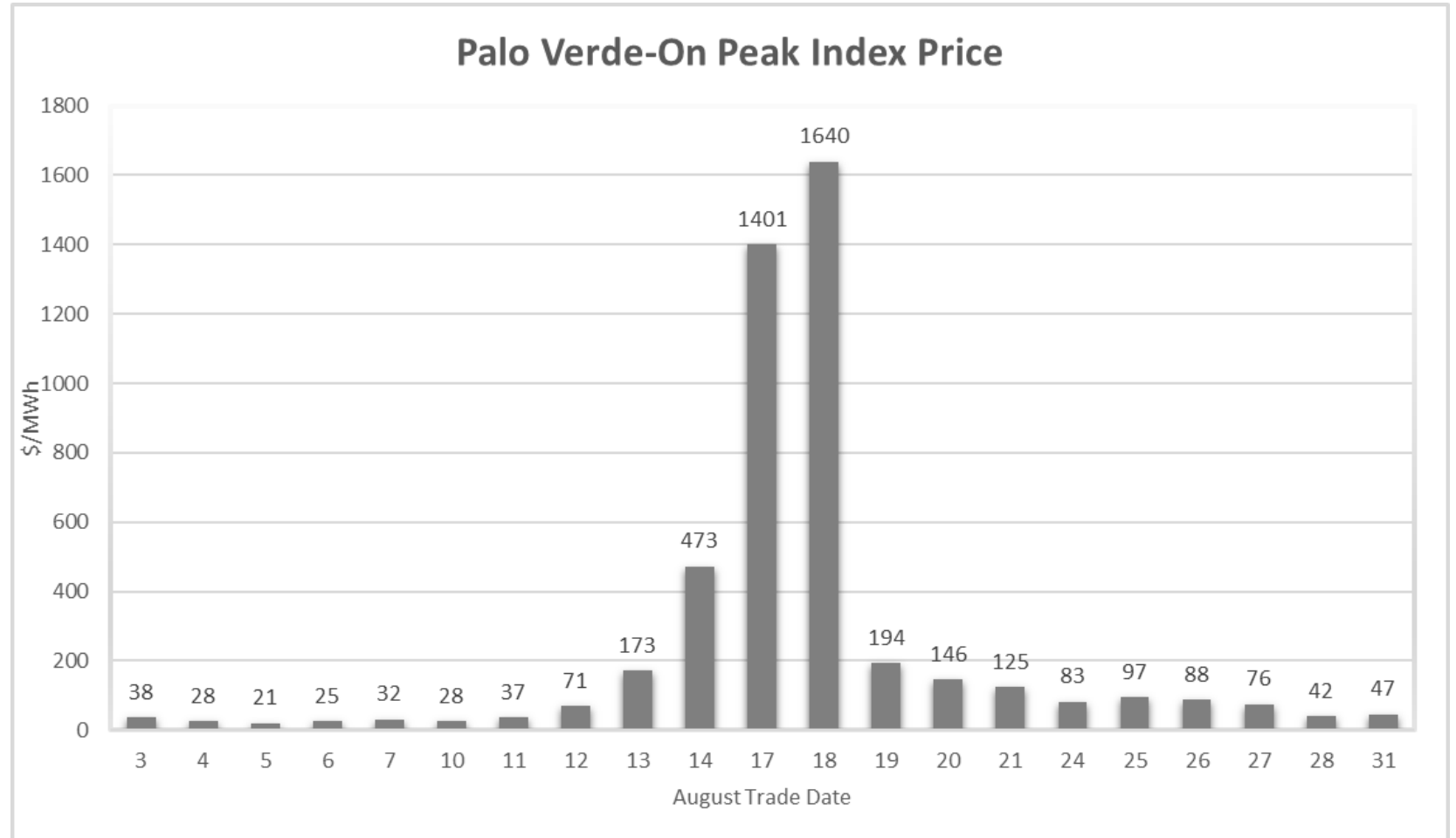
(1) TOTAL DEMAND DOES NOT INCLUDE SPIN PURCHASES AS THERE IS NO ENERGY FLOW ASSOCIATED UNLESS SPIN IS STRUCK ON.

EPE & Southern New Mexico Import Capabilities



Summer Peak Loads and Resources

- **August 14-15 California was short on resource adequacy**
 - Supply in the western market was extremely tight
 - Ultimately, California needed to institute rolling outages due to shortfall
 - The increased demand and limited availability of energy in the market was reflective in market pricing
- **Confirms that it is not always guaranteed that power will be available for purchase on the spot market**



CAISO Report on Causes of August Rotating Outages

- **Following two rotating outages on August 14 and 15 during a heat storm impacting the Western U.S., Governor Gavin Newsom sent a letter to the CAISO, CPUC, and CEC requesting immediate actions to minimize the rotating outages as the heat storm continued, and a review of existing forecasting methods and resource adequacy requirements.**
- **There were three broad categories of factors that contributed to the outages:**
 1. The climate change-induced extreme heat storm across the western U.S. resulted in the demand for electricity exceeding the existing electricity resource planning targets.
 2. In transitioning to a reliable, clean and affordable resource mix, resource planning targets have not kept pace to lead to sufficient resources that can be relied upon to meet demand in the early evening hours. This makes balancing demand and supply more challenging. These challenges were amplified by the extreme heat storm.
 3. Some practices in the day-ahead energy market exacerbated the supply challenges under highly stressed conditions.



CAISO Report on Causes of August Rotating Outages

- **The Preliminary Root Cause Analysis report identifies immediate measures to ensure reliable supplies for 2021 and beyond, including:**
 1. Update the resource and reliability planning targets to better account for:
 - a. Heat storms and other extreme events resulting from climate change like the ones encountered in both August and September;
 - b. A transitioning electricity resource mix to meet the clean energy goals of the state during critical hours of grid need;
 2. Ensure that the generation and storage projects that are currently under construction in California are completed by their targeted online dates;
 3. Expedite the regulatory and procurement processes to develop additional resources that can be online by 2021. This will most likely focus on resources such as demand response and flexibility. This can complement the resources that are already under construction;
 4. Coordinate additional procurement by non-CPUC jurisdictional entities; and
 5. Enhance CAISO market practices to ensure they accurately reflect the actual balance of supply and demand during stressed operating conditions.

EPE Item 4 Discussion

4) Discuss future meeting agendas, additional scheduled meetings, and opportunities for open discussion periods during PAG meetings.



Thank you.

