



TEP Integrated Resource Plan (IRP) Advisory Council

Meeting Summary for August 16, 2019

Attendees:

• Nicole Fyffe, Pima County*	• Caryn Massey, SWEEP*
• Chuck Huckelberry, Pima County	• Ellen Zuckerman, SWEEP (phone)
• Andrea Gerlak, U of A	• Sandy Barr, Sierra Club
• Andrew Greenhill, City of Tucson*	• Catalina Ross, Sierra Club*
• Mark Clark, PCOA	• Jordy Fuentes, RUCO (phone)
• Rene Pina, AARP/PCOA*	• Gary Krivokapich, Davis Monthan AFB*
• Rob Lamb, GLHN	• Kevin Koch, TFS
• David Welsh, Sun Corridor	
*Alternate	

Note: This summary is intended to capture key points of discussion during the meeting. Summaries will be drafted by TEP and submitted for review to Advisory Council (AC) members, who can request corrections, clarifications or amendments. Our goal is to create a high-level record of our conversations to support our resource planning process and provide observers with a way to follow the AC’s progress. These summaries are not designed to provide complete, detailed descriptions of slides, reports or other meeting materials. AC discussions will be summarized without attribution.

Welcome – Jeff Yockey, TEP Director of Resource Planning

- Participants introduced themselves

July Meeting Feedback Discussion– Jeff Yockey, TEP Director of Resource Planning

- Stakeholder Feedback
 - Does TEP have the opportunity for and are you considering short term coal contracts?

Answer: The coal contract for Four Corners Generating Station expires in 2031, and there are penalties associated with early termination. At Springerville Generating Station, the current coal supply agreement expires at the end of 2020. We will be looking for shorter terms as part of renewing that agreement.

- When generation is available above what is required to meet customer demand (load), is it sold to the market?

Answer: TEP fossil resources will sell into the wholesale market if excess capacity is available and the dispatch price for that energy is lower than the corresponding market price.



Tucson Electric Power

- Is TEP able to track the source of energy purchased for resale in order to accurately calculate Scope 3 emissions? (see Slide 5)

Answer: TEP typically does not know the source of purchased power. Scope 3 emissions would be calculated based on some regional emission factor such as those developed by EPA's eGrid.

- Are we considering how the future would look if natural gas prices increased to \$10 or \$12 in the model?

Answer: TEP will evaluate portfolios under high and low gas scenarios. The current "high case" scenario has natural gas reaching \$8/MMBtu by 2035. If there is interest, TEP can include a higher gas price scenario.

- Summarizing feedback was very helpful.
- Does total mass account for emissions associated with market sales?

Answer: Yes. Typically, total mass would be based on Scope 1 emissions which would include all emissions from the units regardless of whether the units are serving retail load or selling into the wholesale market.

- A goal should be mass based because we have to have real reductions in emissions. While carbon intensity reductions are happening, it's possible that overall emissions are still increasing.
- See slide 10. What are the components that cause the decline in CO2 emissions from 2020 to 2021?

Answer: The primary driver is the introduction of 450 MW of (zero emission) renewable energy.

- Suggestion to set the carbon target based on emission reductions in 2050.
- A concern was raised that increasing the amount of solar panels would result in an oversupply of solar, which cannot be stored due to the lack of battery storages and the high costs related to acquiring more storage.
- It is considered beneficial to the meeting to summarize comments and respond questions viewed on the previous meetings.

Resource Adequacy Study – Lee Alter, Lead Supply Side Planner

- Stakeholder Feedback
 - Is this a five-year outlook (2024)?

Answer: The study simulated various penetrations of renewable energy over one year using the forecast year 2024.

- Do these percentages correlate to any renewable target?

Answer: Not necessarily. The renewable energy percentages represent the amount of renewable energy generated as a percent of forecasted 2024 retail energy sales. These



Tucson Electric Power

percentages were selected to gauge the impact of various levels of renewables on resource adequacy.

- Is there any correlating cost associated with each of the cases?

Answer: Costs were not considered in this resource adequacy analysis. However, in the IRP, costs of the renewable resources will be considered, as well as the costs of any additional resources (e.g., energy storage) identified by the study as needed to integrate the renewables.

- What are the impacts on the grid and on its reliability?

Answer: The study is not an exhaustive analysis of all potential grid impacts, but rather an assessment of the need for other supply and demand side resources to accommodate the variability of renewable generation while continuously meeting customer demand.

- How much DG was forecasted and how does it affect the steepness of the duck curve?

Answer: A total of 300 MW of DG was forecasted, which is about 60 MW more than currently installed. The impact of this solar resource on the duck curve was not explicitly examined, but would be very similar to other solar resources, especially over a 3-hour time period.

- Are residential and industrial customers' demand both included when calculating over generation?

Answer: Yes.

- Why can we not just sell the excess generation of solar?

Answer: That is an option, but to the extent that neighboring utilities are also over generating, there might be limited opportunity to do this.

- There are customers using storage at their homes.

Response: Yes, but in order for customer sited storage to be considered for managing grid impacts, the utility would need to have control of the resource.

- Neighboring states have led to extreme market changes (such as negative prices), has TEP considered this?

Answer: Yes. This consideration has been a factor in examining wind power, which may produce a majority of its energy when prices are not negative. This consideration is also a reason for not assuming that over generation can be absorbed by regional electricity markets.

- How does TEP manage loosing wind and solar?



Answer: TEP maintains operating reserves (non-renewable resources) to compensate for losses in wind and solar power. As solar and wind penetration increase, so must the operating reserves.

Revenue Requirement – Jay Rademacher, Director of Rates & Revenue Requirements

- Stakeholder Feedback

- How did TEP determine a \$5 equity and 10% return?

Answer: The debt and equity return values on slide 5 are not actual values. They were selected for showing how Total Rate of Return is calculated.

- Is the revenue requirement the amount that TEP makes as profit?

Answer: No. The Revenue Requirement is the total amount that TEP must recover in rates to cover its expenses and profit associated with serving its customers (see slide 2). The company's profit is a small portion of the total Revenue Requirement (see example on slide 7)

- What are the advantages to TEP's shareholders or TEP's ratepayers in signing a purchase power agreement (PPA) versus buying a facility? Is acquiring a PPA more cost-effective than buying a facility?

Answer: TEP attempts to acquire resources, either PPA or direct ownership, based on the lowest cost and lowest risk to ratepayers. There are a number of factors that would make one better than the other such as tax incentives, operational control, etc. Many of the early renewable projects were PPAs as the technology was relatively new (higher risk) and developers could get more value out of tax incentives. TEP expects a higher percentage of our future renewable projects will be direct ownership. Direct ownership allows the company to earn a return for shareholders.

- How does the commission get involved in looking at operational efficiency? Are there incentives for TEP to reduce costs? Does reductions in costs result in higher profit for TEP?

Answer: The ACC's staff and interested stakeholders carefully review our operating expenses every time we apply for new, higher rates to ensure that our expenditures are prudent and appropriate. They also review the steps we've taken to operate more efficiently and can challenge expenses they believe should be lower.

TEP definitely has an incentive to control costs. In addition to helping us maintain affordable service, controlling costs increases our opportunity to earn a profit from our operations. Our rates are set based on "historic" costs incurred during "test years" – usually a recent 12-month period preceding our application. Because it usually takes the ACC more than a year to review our applications and reach a decision, our rates are already outdated on the day they take effect because they don't reflect any increases in costs since the "test year." The



Tucson Electric Power

use of historic test years in setting rates provides additional incentive for utilities like TEP to operate efficiently.

- What does the equity return look like nationally, are utilities making more or less now?

Answer: In general the equity return rates are lower than they have been in the past.

- Since county tax rates are set, are they negotiated for each utility?

Answer: No, TEP pays the same county tax rate as other businesses.

- What does TEP think about deregulation (otherwise referred to as “Retail Competition”)?

You can view comments TEP filed in the “Retail Competition” docket [here](#).

- Accelerated depreciation increases the revenue requirement, but can it save money elsewhere?

Answer: If a generating plant’s retirement date is accelerated, the revenue requirement will increase from higher depreciation. As a result of the earlier retirement date, TEP may be able to reduce maintenance expense and equipment replacements.

- Instead of passing on Investment Tax Credit (which must be amortized over the life of the asset), could TEP instead use the credit to reduce the capital cost of project.

Answer: No. The Internal Revenue Code/Internal Revenue Service requires amortization of the Investment Tax Credit.

Next Steps – Jeff Yockey, TEP Manager of Resource Planning

- Next meeting September 19th, 10am to 1pm