

Arizona Public Service - October RPAC Meeting Minutes

Date	Location	Start	Stop
10/25/2023	Virtual	9:00 a.m.	11:50 a.m.

MEETING OBJECTIVES

- Recap the September RPAC meeting and provide the status of previous action items.
- Review the APS resource portfolio development process.
- Rocky Mountain Institute guest presentation with findings and recommendations related to the APS modeling results.
- WRA, GridLab, and Energy Strategies’ review of the APS modeling results, as well as the preliminary results of their independent scenario analyses.
- Review the APS Preferred Plan and demonstrate the features of the interactive dashboard created, so that stakeholders can evaluate and compare results across all portfolios.
- Discuss the next steps and future RPAC engagement opportunities.

Attendees	Organization	Title/Role
Steve Jennings	AARP	Associate State Director
Luke Hutchison	Arizona Corporation Commission	Engineering Supervisor
Gregory Blackie	Arizona Free Enterprise Club	Deputy Director of Policy
Diane Brown	Arizona PIRG	Executive Director
Gary Dirks	ASU	Senior Director, Global Futures Laboratory
Taylor McNair	GridLab	Program Manager
Sam Johnston	Interwest Energy Alliance	Policy Manager
Nitin Luhar	Mitsubishi Power	Director, Regional Sales & Marketing
Nicole Hill	Nature Conservancy	AZ Climate Program Director
John Mitman	Obodo Energy	Founder & CEO
Amanda Ormond	Ormond Group LLC	Principal
Cynthia Zwick	Residential Utility Consumer Office	Director
Scott Yaeger	Rockland Capital	Vice President, Power Marketing
Tyler Fitch	Rocky Mountain Institute	Manager
Gabriella Tosado	Rocky Mountain Institute	Senior Associate, Carbon Free Electricity
Patrick Woolsey	Sierra Club	Associate Attorney
Sandy Bahr	Sierra Club	Director, Grand Canyon Chapter
Alondra Regalado	Strategen	Policy Analyst
Caryn Potter	SWEEP	Arizona Representative
Devi Glick	Synapse Energy Economics	Senior Principal

David Millar	Wärtsilä Energy	Principal, Markets, Legislative, and Regulatory Policy
Alex Routhier	Western Resource Advocates	Senior Clean Energy Policy Analyst
Murphy Bannerman	Western Resource Advocates	AZ Government Affairs Manager
Claire Michael	Wildfire	Director of Climate Equity
Todd Komaromy	APS	Director, Resource Planning
Michael Eugenis	APS	Manager, Resource Planning
Tara Beske	APS	Business Advisor, Resource Management
Keri Copp	APS	Support Technician, Resource Acquisitions
Rodney Ross	APS	Director, State Affairs & Compliance
Nicole Rodriguez	APS	Consultant, Strategic Communications
Jill Freret	APS	Director, Resource Integration & Fuels
Vern Braaksma	APS	Senior Account Manager
Adam Constable	APS	Federal/State Regulatory Consultant
Yessica Del Rincon	APS	Communications Consultant
Brent Goodrich	APS	Federal/State Regulatory Advisor
Justin Joiner	APS	Vice President, Resource Management
Ashley Kelly	APS	Manager, Regulatory Compliance
Rachael Leonard	APS	Manager, Regulatory Compliance
Pamela Nicola	APS	Manager, Sustainability
David Peterson	APS	Corporate Strategy Advisor
Jason Smith	APS	Manager, Regulatory Affairs & Compliance Adm
Timothy Rusert	APS	Director, Power Supply Service
Kent Walter	APS	Manager, Resource Management Analysis & Engagement
Jeffrey Allmon	Pinnacle West - APS	Senior Attorney
Melissa Krueger	Pinnacle West - APS	Associate General Counsel
Nick Schlag	E3	Partner
Lakshmi Alagappan	E3	Partner
Evan Lipsitz	1898 & Co.	Consultant
Matthew Lind	1898 & Co.	Director of Resource Planning
Madeline Suellentrop	1898 & Co.	Lead Power & Utilities Analyst
Keaton Clark	1898 & Co.	Power & Utilities Analyst
Chase Kilty	1898 & Co.	Consultant

Matt Lind | 1898 & Co./Director of Resource Planning | Welcome & Meeting Agenda

- No questions.

Mike Eugenis | APS/Manager, Resource Planning & Analysis | IRP Portfolio Process

- No questions.

Tyler Fitch | Rocky Mountain Institute/Manager | Arizona Resource Planning Review: APS 2023 IRP

General Questions

- **Question - RPAC Member:** Can any of the new Energy Efficiency (EE) or Demand Side Management (DSM) programs that were mentioned be particularly helpful for APS, or are they more general programs?
 - **Response - Tyler Fitch:** Redesigning the EE and DSM programs and presenting that during an RPAC meeting would be difficult. We looked at PacifiCorp and Portland General Electric's 2023 IRP, and in both cases, we saw a modification to what they expected with these resources. It is often best to build from the analysis that we currently have, and my recommendation is to see how we can adapt it to real-life conditions.
- **Question - RPAC Member:** Regarding transportation electrification, did anything stick out to you?
 - **Response - Tyler Fitch:** The APS forecast includes consideration of the IRA policies regarding its transportation electrification. This will definitely be a load driver in the following decades, and it will be interesting to see how we can manage it.

Taylor McNair | GridLab/Program Manager | 2023 APS Preferred Portfolio

Slide 32 - Scenario Summary

- **Question - RPAC Member:** Have you added any ratepayer costs into your scenarios? I flag it because the nuclear cost is extremely prohibited for many rate payers. I appreciate the reduction of emissions, but I don't appreciate it as much when ratepayers' bills increase as a result.
 - **Response - Alex Routhier:** We have looked at cost as shown on slide 32; however, we have not broken it down to an individual ratepayer level.
- **Question - RPAC Member:** What is APS's reaction to these last two presentations?
 - **Response - Todd Komaromy:** We received the presentation shortly before the meeting, so we have not yet had a chance to dig into the details. We look forward to reviewing and digesting the information, as well as understanding the modeling strategies and techniques they used. This kind of information exchange is one of the benefits to stakeholders having access to and leveraging the same modeling tools used by APS. There is a benefit to having different perspectives in the conversation, and we see this improving APS's process moving forward.
 - **Comment - Alex Routhier:** Beyond filing the IRP, APS has committed to continued collaboration with WRA and leveraging the learnings from this process in future IRP efforts. We see this as a collaborative process that both WRA and APS are getting substantial value from.

Alex Routhier | Western Resource Advocates/Senior Clean Energy Policy Analyst | 2023 APS Preferred Portfolio

General Questions

- **Question - RPAC Member:** Will there be any regrets for the Navajo Nation if Four Corners is retired in 2028?
 - **Response - Alex Routhier:** This point should not be overlooked. I think this is an issue we have not captured in this presentation and one that we need to think of holistically. This would have a significant impact on the Navajo Nation, and there is a lot going on in this space. This is something that we are still figuring out, and I want to make sure that it is not something that we have forgotten about. We will be considering that when we file our comments in January.
 - **Response - Taylor McNair:** We made lots of mention of no regrets and least cost strategies. We are looking at that in a very narrow context, basically total system cost, an output of the Aurora model. That is a takeaway from looking at a singular data point, and it is not the only thing to consider. Transitioning from Tyler's presentation to Alex's is a nice segway because Tyler highlighted some compelling opportunities for Four Corners and some of the transitions that might occur on the APS system over the next decade. The more we can think and talk

about the opportunities for replacing these resources, the more we will significantly advance the conversation around retirements and replacements.

Mike Eugenis | APS/Manager, Resource Planning & Analysis | IRP Preferred Portfolio

Slide 49 - Revenue Requirements Comparison

- **Question - RPAC Member:** Has APS identified what percentage of residential costs will increase from the preferred portfolio resource additions?
 - **Response - Mike Eugenis:** The IRP process aims to identify a portfolio that maintains reliability for customers at the least cost to customers. Resource Planning impacts affordability by seeking to reduce the cost associated with electric service while maintaining the reliability and the quality that customers expect from APS.

Slide 50 - Annual Capacity Additions | Preferred Portfolio

- **Question - RPAC Member:** Are all the microgrids run on oil?
 - **Response - Mike Eugenis:** The microgrids are oil-based (diesel). They do not run very often and are mainly a source of capacity for the system.
- **Question - RPAC Member:** The Commission requires a scenario with the economic dispatch of coal plants. Does the preferred portfolio have that economic dispatch?
 - **Answer - Mike Eugenis:** That is correct; APS has modified the Four Corners plant's modeling in all scenarios to better understand all the costs to run the plant. The fuel costs associated with running the Four Corners plant are adjusted to cover all the relevant costs.
- **Question - RPAC Member:** From 2024 to 2038, it does not show many Energy Efficiency capacity additions. I want to better understand what is happening and what APS is looking at here.
 - **Answer - Mike Eugenis:** This chart is a part of the dashboard, and APS intends to share the dashboard with the RPAC group. Sometimes, the changes in this chart tend to get distorted because of the scale of the graph and the number of resources that are being displayed. There is yearly variation, but it can be hard to see.
 - **Comment - Todd Komaromy:** These are incremental views and are additive. This should not be viewed as a static amount year over year.

Slide 51 - Dashboard Review

- **Question - RPAC Member:** Regarding the natural gas buildout, have you looked at how the EPA's proposed changes within Section 111 of the Clean Air Act would impact the economics if the replacement resource had to operate at a lower capacity factor?
 - **Response - Mike Eugenis:** We see these as low-capacity factor additions, and in the preferred portfolio, we have paired the combustion turbines with the wind we are receiving in New Mexico. Whenever the wind is blowing, we take that resource, and when we need the additional capacity, we run the combustion turbines at Four Corners. That structure does limit the capacity factor as we advance. We anticipate the proposed EPA rules will not have a large impact primarily due to the timing of Four Corners and Cholla retirements and because we see diminishing capacity factors of natural gas facilities moving forward.
- **Question - RPAC Member:** Do you model gas excursions related to extreme weather or supply shortages? Although these events may be brief, the costs customers pay skew the scenario when a utility looks at a long and slow increase in gas prices.
 - **Response - Mike Eugenis:** We have seen much volatility of natural gas prices in the past few years. We are responding to that by including a tremendous amount of renewable investment in the preferred plan. The incremental natural gas facilities provide the capacity when it is most needed. Because these facilities are dispatchable, they function most whenever other resources are not available. This makes them relatively insensitive to changes in fuel pricing. APS also has a natural gas hedging program. With the hedging program, APS can reduce some of the gas price volatility impacts, which is usually worse in the near-term.
- **Question - RPAC Member:** In 2031, when Four Corners goes offline, I will presume that with the All-Source Request for Proposals (RFPs) being evaluated, the capacity additions could significantly change as we get closer to that year, is that safe to assume?

- **Response - Mike Eugenis:** We plan to update this plan as we get updated costs, better ideas of resources coming online, and more emerging technologies.
- **Question - RPAC Member:** Is there any modeling based on joining a day-ahead market?
 - **Response - Mike Eugenis:** Due to modeling complexity in a day-ahead market, we did not explicitly model a day-ahead market. In the future, we will include more explicit impacts of the day-ahead market construct.
- **Comment - RPAC Member:** I wanted to voice my concern about that much gas being added when we should not be adding fossil fuels. Even if the carbon intensity goes down, the atmosphere does not care if the intensity goes down as long as carbon is still being put into the atmosphere.
 - **Response - Mike Eugenis:** The IRP planning process is around 15 years; we look at what assets are necessary. There will be changes in the future that will impact the actual resources procured. While our analysis shows this being the most cost-effective resource, we are interested in these resources' hydrogen capability and other new technologies that can provide dispatchable and clean energy benefits.
- **Question - RPAC Member:** Comparing the preferred portfolio with the high-demand side portfolio, what seems to be the big difference is that the high-demand side is getting at 1.5% incremental energy savings annually. The assumption for that higher demand-side technology was that there was an artificial lowering of the benefit-to-cost ratio. It is good to study some of those assumptions; we are concerned that it would cancel out the model's ability to select this. Has APS considered this or looked any further?
 - **Answer - Mike Eugenis:** Energy efficiency is an essential part of modeling. As APS approached the High Demand Side Technology case, we worked closely with Guidehouse to see what the savings would look like. APS plans to continue to work with the DSM group, which is led by the Customer to Grid Solutions Team, and the Commission on what the most cost effective and most appropriate levels of DSM are.
- **Question - RPAC Member:** Is the preferred portfolio Energy Efficiency adoption from the high scenario or the Business-as-Usual (BAU) case?
 - **Response - Mike Eugenis:** It is from the Business-as-Usual case. This is the baseline for Energy Efficiency as it was the most cost-effective case.
- **Comment - RPAC Member:** I wanted to echo the mentioned point regarding gas and ratepayer stranded costs. Scenarios might be looking at what happened in 5 to 10 years, showing the capacity additions. Still, you might not be directly looking at what the ratepayers would pay or how they would benefit from the investments.
 - **Response - Mike Eugenis:** The revenue requirement looks at the total cost of resources. We did some sensitivity analysis on revenue requirements in a longer timeframe, and directionally, we saw the same results as what we were getting in the shorter timeframe.
- **Question - RPAC Member:** We are really interested in the economic cycling and economic retirements of your modeling. We are struggling with it in Aurora. Outside of the emissions intensity calculations, do you have any calculations on the percent reduction from different baselines outside of the 2005 baseline? Have you charted any pathways to meeting those targets?
 - **Response - Mike Eugenis:** The economic cycling is challenging, and we are happy to work with you all to get that done in Aurora. The additions of renewables to our portfolio are unprecedented, and we will better be able to capture the benefits with time and track our pathway into meeting these targets into the future.
- **Question - RPAC Member:** Does APS include analysis related to resource sharing from participating in the Western Resource Adequacy Program (WRAP)?
 - **Response - Mike Eugenis:** We see that as a necessary step to modeling a day-ahead marketplace. It is challenging to model, given all the nuances and uncertainty, but it is something that can be modeled in the future.
- **Question - RPAC Member:** What is the total amount of gas you are proposing to add during the plan period?
 - **Response - Mike Eugenis:** Approximately 300MW of natural gas facilities will be added from 2023 to 2027 in our action plan period.

Slide 53 - Appreciation for Stakeholder Involvement

- **Comment - Mike Eugenis:** Thank you for all the collaboration, questions, and engagement throughout the IRP process. It has been a tremendous amount of work, and we have learned a lot during this process. We appreciate the perspectives you provided and believe they have materially benefited our IRP study and resulted in a better overall work product.

Matt Lind | 1898 & Co./Director of Resource Planning | Next Steps & Closing Remarks

Slide 55 - IRP Timeline

- **Comment - Todd Komaromy:** I want to thank the guest presenters for their contributions. The diverse perspectives make the process better. We will send out a notification when we make our filing on November 1st. Following the filing, we will be holding a Public Stakeholder Meeting on November 7th from 9:00 - 12:00 AZ time. Although the current IRP process is coming to a close, APS is committed to continued collaboration with the RPAC. We will continue to have discussions on topics that are relevant to resource needs and resource adequacy going forward.