

Arizona Public Service - July RPAC Meeting Minutes

Date	Location	Start	Stop
7/23/2024	Virtual	9:00 a.m.	10:20 a.m.

MEETING OBJECTIVES

- Recap the May RPAC meeting and provide the status of previous action items.
- Update members on RPAC leadership changes.
- Provide an overview of APS’s upcoming IRP Stakeholder Workshop presentation.
- Discuss APS’s ongoing 2023 All-Source RFP and upcoming 2024 All-Source RFP.
- Provide an overview of APS’s Redhawk CEC application process.
- Forecast next steps and future RPAC engagement opportunities.

Attendees	Organization	Title/Role
Adrian Au	E3	Senior Managing Consultant
Sandy Bahr	Sierra Club	Director, Grand Canyon Chapter
Kate Bowman	Vote Solar	Regulatory Director
Diane E. Brown	Arizona PIRG	Executive Director
Walter Clemence	Capital Power	Senior Advisor, US Regulatory
Bentley Erdwurm	Residential Utility Consumer Office	Public Utilities Analyst
Lisa Hickey	Interwest Energy Alliance	Senior Regulatory Counsel
Autumn Johnson	Tierra Strategy	CEO
Sam Johnston	Interwest Energy Alliance	Policy Manager
Phil Jones	Alliance for Transportation Electrification	Executive Director
Chris Leger	Interwest Energy Alliance	Staff Attorney
Matthew Lind	1898 & Co.	Director of Resource Planning
Dugan Marieb	Pine Gate Renewables	Regulatory Associate
Amanda Ormond	Western Grid Group	Director
Greg Patterson	AZ Competitive Power Alliance	Director
Caryn Potter	SWEEP	Arizona Representative
Alex Routhier	Western Resource Advocates	Senior Clean Energy Policy Analyst
Nick Schlag	E3	Partner
John Sherry	Holland & Hart LLP	Associate
Laura Wickham	SWEEP	Senior Arizona Associate
Patrick Woolsey	Sierra Club	Senior Arizona Associate
Scott Yaeger	Rockland Capital	Vice President, Power Marketing
Cynthia Zwick	Residential Utility Consumer Office	Director

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

- No questions.

Todd Komaromy | APS/Director, Federal Regulatory Affairs & Compliance | APS Update

Summary: Todd Komaromy, Director of Federal Regulatory Affairs and Compliance, began the meeting by informing members that he has transitioned to a new role at APS. Todd also announced that Mike Eugenis will be taking his place as Director of Resource Planning and will now manage the RPAC. Mike Eugenis shared that Akhil Mandadi, who has previously presented at the RPAC, has been promoted to Supervisor of Resource Planning and will be taking on a larger role in future meetings.

Akhil Mandadi | APS/Supervisor, Resource Planning | IRP Stakeholder Workshop

Summary: Akhil Mandadi, Supervisor of Resource Planning, followed Todd's update by giving an overview of APS's presentation that will be shared at the upcoming Arizona Corporation Commission (ACC) IRP Stakeholder Workshop that will be held on July 31st, 2024. Topics that Akhil discussed include changes between APS's approach to its 2020 and 2023 IRPs, the 2023 IRP reference case, the various portfolios that APS studied in the 2023 IRP, and the development of the 2023 IRP Preferred Plan.

- **Question - RPAC Member:** How were resiliency and redundancy incorporated into APS's IRP analysis?
 - **Response - Akhil Mandadi:** A large part of the resiliency and redundancy that APS accounted for in the 2023 IRP, from a weather perspective, is in the IRP resource adequacy study. We have been looking at additional study work to support more extreme weather forecasted into the future.
 - **Response - Mike Eugenis:** The Effective Load Carrying Capability (ELCC) study work that APS did with Astrape is the foundation of our system resiliency analysis. This study work incorporates many weather years of data and resource actuals, which allows for a better understanding of the correlation between APS's loads, resource availability, temperature in the region, and other factors when accrediting resources going forward. As we transition from a gross peak and capacity view of the system towards a net peak view that focuses on hours with the most constraints, the Astrape study does a good job of accrediting resources for those constrained periods on the grid. The stochastics behind our calculation for resiliency going forward have improved, but there is more to be done in this space. APS is focused on making sure it has a diverse portfolio of resources that is able to respond to changing system conditions.
- **Question - RPAC Member:** Has APS considered incorporating downscaled climate models in its IRP analysis?
 - **Response - Mike Eugenis:** APS utilized historical information in the generation of its 2023 IRP data set. We are starting to see events that we haven't seen on the system previously and APS is focused on ensuring that it has resilient operations for those as well. This is something APS is going to look into more with our industry partners and other utility peers.
- **Question - RPAC Member:** Can you talk about what dependable technologies APS has looked at on the demand side to serve EV loads?
 - **Response - Akhil Mandadi:** The EV profiles utilized by APS in the IRP load forecast were provided by a consultant, and we can get back to you with the specifics of the technologies assumed to forecast the profiles if desired. We assessed the impact of the EV profiles on the system from an ELCC perspective thereby accounting for their contribution in meeting the system needs to assure adequacy.
- **Question - RPAC Member:** Does APS plan on emphasizing the positive impact that RPAC member participation has had on its resource planning process in its presentation to the Commission?
 - **Response - Mike Eugenis:** APS intends to discuss the RPAC meetings that have been held over the years, the transparency we have demonstrated in our IRP process, and how APS has leveraged the RPAC as the main venue for doing so. We will also touch briefly on the fact that we shared access to our modeling tools and information with RPAC members that signed NDAs.
- **Question - RPAC Member:** Will APS make it clear that the information sharing with the RPAC has been valuable to creating a better end product?

- **Response - Mike Eugenis:** The increased transparency is valuable to APS. In terms of specifics on APS's plans for modeling licenses in the future, APS is not proposing any changes to its current licensing requirements with the Commission.
- **Question - RPAC Member:** Did APS have any major takeaways moving from an ICAP model to an ELCC model for thermal natural gas units, and will APS include storage information on the energy mix graph on slide 13 in its presentation at the Commission?
- **Response - Akhil Mandadi:** As APS moved from ICAP to PCAP, our expectations were mostly in line with the results. Installed Capacity treatment results in showing a higher contribution while Perfect Capacity shows a lower more equitable treatment of thermal resources to other types of resources because it accounts for the variability, asymmetry and the correlation between the outages between various thermal resources. A takeaway that we had during this transition is that it changed our view of performing the capacity expansion itself in terms of the planning reserve margin that we previously used. It is increasingly less impactful when a system is already heavy on traditionally ELCC rich resources, like renewable resources. This was a significant change in the accounting and how the model reacts to all of it. Regarding your question on slide 13, APS called out the storage that it is expecting in the IRP. In the near term, there is more than 2500 MW of battery storage showing up. That is a good suggestion to call out battery storage in this slide.
- **Question - RPAC Member:** Does APS have descriptive reports about what its consultants have provided as inputs for its modeling that it can share with RPAC members that are interested?
- **Response - Akhil Mandadi:** In Chapter 2 of the IRP, APS calls out the studies performed by consultants that were leveraged in the modeling, like the variable generation integration cost study work performed by E3, the 2023 resource adequacy study performed by Astrape, and the DSM and DR potential study work performed by Guidehouse. APS has attached the public versions of these study reports with the IRP and has shared the confidential version of the resource adequacy study report with the RPAC members that have signed NDAs.
- **Question - RPAC Member:** Is there a special section dedicated to the coordination between transmission expansion and generation in the IRP?
- **Response - Akhil Mandadi:** There is a chapter of the IRP that is dedicated to transmission. In the RPAC Modeling Committee meetings, APS shared how it utilized the data from transmission planning and represented it in the Resource Planning studies attempting to optimize between resource builds and transmission expansion in the capacity expansion tool. We also made sure that this was performed in a manner where the headroom on the existing transmission system was first utilized before needing to build new transmission infrastructure, to ensure efficiency and least cost solutions to meeting system needs.
- **Question - RPAC Member:** Where can RPAC members find more data for the preferred portfolio?
- **Response - Mike Eugenis:** Data for the preferred portfolio can be found in the D tables of the 2023 IRP attachments, and there is data for all of the portfolios APS studied in the F tables. (See Attachment F.1(A)(9): Preferred L&R and Energy Mix, pg. 247)
- **Question - RPAC Member:** Can you talk about how the assumptions in the early Four Corners closure portfolio differ from the Preferred Portfolio?
- **Response - Mike Eugenis:** There is a detailed layout of the specific differences between the assumptions in these portfolios in Q&A form towards the beginning of the Response to IRP Stakeholder Comments. The value in the preferred portfolio is the wind firm by gas construct that does transmission sharing and allows for multiple resources to be sited in a location and take advantage of the existing transmission system.

Derek Seaman | APS/Director, Resource Acquisition | ASRFP Update

Summary: Derek Seaman, Director of Resource Acquisition, updated members on recently signed resources from APS's 2023 ASRFP and provided information on APS's plan for its 2024 ASRFP. APS has currently signed 500 MW of wind, 575 MW of storage, 443 MW of solar, and 120 MW of natural gas resources from its 2023 ASRFP. Derek shared that APS is planning on a late Q4 release for its 2024 ASRFP, which will target years 2028 and beyond with equal focus on longer term projects.

- **Question - RPAC Member:** In the bottom pie chart on slide 15, does the value for natural gas in negotiation represent the Redhawk Expansion Project?
 - **Response - Derek Seaman:** Yes, 397 MW is the nameplate capacity of Redhawk.
- **Comment - RPAC Member:** I appreciate that APS is breaking out the 2024 ASRFP stakeholder process over multiple months.
- **Question - RPAC Member:** Does APS intend to align the 2024 ASRFP release with the timing of transitional cluster study results?
 - **Response - Derek Seaman:** That is the Company's intention. In today's quickly moving, tight market, when results come back, it can be prudent for developers to place a project in suspension to preserve their timeline. The downside to this is that those results reflect only a point in time. If we have an RFP that aligns with that point in time, the results are relevant for the RFP. If a project goes into suspension for months, once that project comes out of suspension, the refresh could result in a project that meets a different timeline or has a different cost associated with it than was originally bid into the RFP. Relevant study results are a critical piece of information and part of the reason that we want to time the 2024 ASRFP so closely with the transitional cluster study.
- **Question - RPAC Member:** How much communication is going on between APS and SRP regarding long duration energy storage in the RFP process?
 - **Response - Derek Seaman:** APS is communicating with SRP to better understand their RFP approach. One thing that is unique to their process is that they have a focused RFP for long duration storage. APS is not quite ready to break away from the ASRFP approach. APS believes that its current RFP structure can be all encompassing and does not want to deny any resource an opportunity. It is also important that APS remains open to resources that we have not historically contracted for. While APS is not comfortable being a first mover, we welcome those conversations.
- **Question - RPAC Member:** How does APS weigh flexibility in its evaluation process as it seeks longer term resources?
 - **Response - Derek Seaman:** Flexibility is certainly a factor. APS is carefully considering how it negotiates for certain risks. APS has experience being flexible around price adjustments. A near term example is tariff risk. It is important that APS is careful not to open the door completely, allowing prices to swing wildly. If APS is contracting for a resource that is years in the future, and the price doubles between the contract period and when the project is built and other components in the market have dropped significantly, there could be negative impacts on customer costs. There is room for flexibility, but within reason. APS will continue working on this as it prepares for the 2024 ASRFP launch.

Mike Eugenis | APS/Director, Resource Planning | Redhawk CEC Application

Summary: Mike Eugenis, Director of Resource Planning, closed out the meeting by providing an overview of APS's Redhawk CEC application process. APS filed its CEC application for the Redhawk expansion project with the Commission on July 8th. There will be a hearing for the Redhawk expansion project on August 19th that will span until August 23rd. Mike provided a refresher on the details of the Redhawk Expansion Project, including its size, location, and information about the technology. Mike also discussed advantages of the project, APS's energy mix, and sources that support the need for the project.

- **Question - RPAC Member:** APS's decarbonization goal is to generate 100% of its power from clean resources by 2050. The typical lifespan of a gas plant exceeds 25 years. Does APS have a plan in place to keep Redhawk from becoming a stranded asset as it progresses towards its 2050 clean energy goals?
 - **Response - Mike Eugenis:** APS anticipates that it will be able to take advantage of the innovation that will occur in this space as it nears its clean energy goals. The technologies that help us decarbonize the last piece of the system may not be available today. It is key for APS to maintain its reliability in the near term as those innovations mature to a level where utility scale investment becomes appropriate. This is part of why we are pursuing this additional generation now.

- **Question - RPAC Member:** How does APS capture and compare the cost of future innovations as it evaluates technologies in its RFP?
 - **Response - Mike Eugenis:** Any cost projections for future retrofits would be speculative in nature. It is difficult to predict what the market will do in this space and what technologies will become more mature. The other resources that are currently available to also us have drawbacks or may not be able to provide the necessary level of flexibility to the system that is needed to maintain reliability today. Knowing that there are limited options for other resources today, APS needs to lean into a small incremental piece of thermal generation as we allow the market to mature and develop viable alternatives.
- **Question - RPAC Member:** Is 500 MW the amount of new gas that is planned in the action window, or is there additional new gas in the action plan?
 - **Response - Mike Eugenis:** The action plan window in the IRP is 2023 to 2027. The Redhawk project, as it stands now, isn't anticipated to go in service until 2028 if APS continues with the opportunity. This is different from the action plan in the IRP itself, which can be expected because throughout the RFP process, the specific bids that APS receives are different than the generic price information used in the IRP process.
- **Question - RPAC Member:** Does that mean that the only natural gas that is planned to come online between now and 2027 is Sundance?
 - **Response - Mike Eugenis:** There is Sundance and there are some tolling uprates as well.
- **Question - RPAC Member:** When will the RPAC discuss gas pipeline capacity constraints?
 - **Response - Mike Eugenis:** APS will put together some materials to cover that at a future session. It is going to be material going forward as we better understand transportation limits that exist as well as how that may impact our resource planning efforts.

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

- No questions.