

Salt River Project (SRP) Integrated System Plan Advisory Group Meeting #8- Summary

Prepared by Kearns & West

Advisory Group – Meeting #8 Overview

Meeting Objectives

- Update Advisory Group about Integrated System Plan (ISP) Analysis Progress
- Inform the Advisory Group about the engagement framework for the synthesize phase and their role
- Review the remaining ISP engagement process & timeline
- Involve the Advisory Group in updating the Guiding ISP Principles

Topic: ISP Progress Update & Engagement Framework for the Synthesize Phase

Date: September 28, 2022

Time: 9:00 a.m. – 3:00 p.m.

Location: Project Administration Building (PAB) – Mohave East and West

Please see the appendix for the Advisory Group member roster and attendance information. The [meeting agenda](#) and [presentation](#) are available at the [ISP portal](#).

Welcome and Agenda Overview

Advisory Group members began convening in-person at 8:30 a.m. for coffee and networking with the agenda content beginning at 9:00 a.m.

Bobby Olsen, Senior Director of Corporate Planning, Environmental Services, and Innovation, welcomed Advisory Group members to the meeting and thanked them for their attendance. He acknowledged the SRP Board and Council observers and recognized the project team members.

Joan Isaacson, facilitator from Kearns & West, welcomed the Advisory Group and reviewed the meeting objectives ([slide 5](#)) and agenda ([slide 6](#)). She then asked Advisory Group members to introduce themselves and share updates.

Strategies for Ensuring Full Range of Advisory Group Perspectives are Shared and Heard

Isaacson reminded attendees of the importance of Advisory Group members representing stakeholder interests relevant to the ISP. She reviewed the reasons why members agreed to join the Advisory Group ([slide 9](#)), highlighting a stated desire to pursue collaborative solutions. She recapped the revised guides for productive meetings and opportunities to make mid-

process adjustments to improve engagement, which had been shared during check-ins with Advisory Group members in Spring 2022 ([slides 10-11](#)).

Isaacson said that the project team wants to ensure that a full range of perspectives from Advisory Group members is shared and heard. She asked members to form small groups to discuss strategies, including discussion activities, behavior, meeting environment and culture. After discussion, the four groups reported the following suggestions:

- Establish more of the purpose for why and how non-technical Advisory Group representatives can participate in the process
- Be sure to address reliability and infrastructure
- Ground technical discussion in the three pillars of sustainability, affordability and reliability
- Make the discussion more engaging by being respectful of time and not belaboring a single point
- Use nameplates to signal a desire to speak and to avoid talking over each other
- Ensure comprehension of input by repeating back or paraphrasing Advisory Group input
- Consider offering other types of meeting options
- Have pre-selected groups to mix Advisory Group members from different sectors
- Prior to meeting, provide a recap and preview areas of desired input so Advisory Group members can talk to people in their organization
- Have Advisory Group members be clear about their goals
- Better communicate SRP's current operations and decision-making
- Give insight on the interplay of the different stakeholder processes at SRP

An Advisory Group member added that SRP could be more forceful in calling on them for their input and pinpointing perspectives that would be helpful. Isaacson recapped the responses and suggested using the nameplate signal during the remainder of the meeting.

Anticipated ISP Structure

Angie Bond-Simson, Director of Integrated System Planning & Support, began by recapping how the ISP is a new process that SRP is building in four phases. The process began with the *Align* ([slides 14-15](#)) and *Prepare* phases, which included planning ([slides 16-17](#)) and gathering input ([slides 18-19](#)). Those early phases culminated in the ISP Study Plan ([slide 20](#)). She explained that work in the *Analyze* phase will create a stable foundation ([slides 21-22](#)) for examination of the 42 system plans.

Bond-Simpson then explained that today's focus would be on the fourth phase, *Synthesize*. This final phase highlights the need to balance three elements to achieve strong and stable solutions. These elements include focus and priority for future investments, flexibility to respond to evolving external conditions and clear indications for SRP's next steps ([slide 24](#)). The resulting draft products of the ISP ([slide 25](#)) are the System Strategies ([slide 26](#)), Balanced System Plan ([slide 27](#)) and ISP Actions ([slide 28](#)), which will be implemented immediately following publication of the ISP in 2023.

Question: On the cost of gas and how pricing affects customers, is this a bump in the road, and if so, how big? How does that factor into the path?

Response: Gas prices are a variable we consider in the ISP. You will see some high costs embedded in the scenarios and three sensitivities on high, low and volatile gas prices. This analysis could help us consider whether we use a different hedging strategy or look at supplier diversity (in the future). It's an example of a relevant current issue helping build future solutions.

Question: Coming out of the pandemic and given new geopolitical situations, is there anything in the analysis that shows a timeline compression, such as something that would have not been an issue until 2028 but that is now an issue?

Response: The only certainty is that things will change. We look at the boundaries of the scenario planning exercise and ask whether new information fits and if we can draw conclusions without knowing specifics. An example of this is the Inflation Reduction Act, which mirrors the Strong Climate Policy scenario, and that we think we've captured in the Study Plan.

Question: It's great to see this breakdown for public presentation. Are the Draft ISP Actions in a five-year process? Are they intermediate? Can you give details on expected near-term actions and how that impacts decision-making?

Response: We are asking whether the ISP timeline needs to be every five years, three years or something else as we try to understand what needs to be prioritized or accelerated. We invite your feedback on points of focus for refinement.

Comment: Overall, thinking about traditional resource planning and then this new ISP, a three-to-five-year plan makes sense. With the collective goal of rapid decarbonization it makes sense to have a near-term planning horizon. As it relates to the Draft ISP Actions, including specific different areas and investments, pilots, additional studies, analysis, and customer-sided resources, could help get at things in a new way. Maybe the group can make recommendations.

Question: As we look at these draft products, it would be helpful to revisit the overall SRP goals. What are the established goals?

Response: Those are in the 2035 Sustainability Goals, which are part of the overall 2035 Corporate Goals.

Question: How does this document interact with some of the other governance tools? SRP will produce a strategic plan with a three-to-five-year time horizon and an annual operation plan. How does this interact with the other plans?

Response: This is our period to monitor and adjust based on outcomes of the ISP Analysis. The project team has asked the impacted SRP planning departments to embed outcomes of the ISP in their goals and objectives and adjust moving forward. This document is a tool to adapt our operating plans.

Question: People have asked me why 2035. Was that an industry standard?

Response: When the carbon goals for the Paris Accords were developed, 2050 was a target date and so this time horizon aligns with other planning efforts.

Response: Those goals came about in the late twenty-teens, and for carbon reduction the focus was the year 2050. The time span from 2020 to 2050 is a 30-year horizon, so 15 years is a midpoint for showing progress. We have 2035 goals and 2050 aspirations that will be revisited.

Question: Will the ISP findings be agnostic to changes in the world, country and state, or is there leeway? Will you reassess each year?

Response: There is a process for revisiting the ISP. The current ISP is based on Board-established policies as they exist today.

Comment: If there is a sizable change, the ISP is a big part of getting to the goals, but things will have changed in getting there.

Response: We are going to have a lot of “aha moments”/moments of discovery. We can build a continuous process.

Question: What’s the biggest aha so far?

Response: I believe we will be able to work out the engineering and physics. Behavior change is a longer game. Subject matter experts know the rules and regulations as they exist. We need room for creative thinking and bringing together different groups. That will take longer than we thought.

Comment: As I compare this process to our planning process, we have a 10-year general plan that we develop and put in front of voters. That plan is the overarching vision and then we go through other plans, such as sustainability goals, housing plan, etc. Those plans align toward the goals and vision, which keep guardrails around the 10-year plan. The general plan helps us stay focused, which is a similar process to this.

Question: On the ISP Actions, the deliverable to the SRP Board is the actions. How much time will we have before they take the next step? How might that affect the next round of requests for proposals (RFPs)? You mentioned the Inflation Reduction Act. That will be a significant gamechanger. How does that play into our ability to provide feedback?

Response: We're envisioning that we need the System Strategies set first. Depending on financing and partnerships, those could take longer to develop. There may be some interest in developing actions after the last scheduled Advisory Group meeting in 2023. Our RFPs will be informed by these ISP Actions and System Strategies.

Response: The RFPs will be affected. On the timing, we anticipate issuing an all-source RFP late fourth quarter of this calendar year or first quarter of next year. Awards would be made after the ISP Actions are set. We will move forward with receiving bids until we have more information from the ISP, which will guide our decision-making for the RFP.

Comment: For leveling and setting the everyday operations, there could be an opportunity to provide feedback on the scoring matrix as we look at different scenarios.

Role of the Advisory Group through Remainder of the ISP Process

Bond-Simpson provided a recap of the mission statement of the ISP Advisory Group and objectives, and outlined input to be gathered during the remainder of stakeholder engagement ([slides 32-34](#)). She then presented the five output components of the ISP with the proposed timeline ([slide 35](#)), explaining that the Guiding Principles and Calculated Metrics will build out the System Strategies, Balanced System Plan and ISP Actions. She concluded by showing the timeline of upcoming stakeholder engagement ([slide 36](#)).

Question: I'm curious if the planning efforts plug other socioeconomic activity into the plan for the System Strategies. Do you believe that will be a factor for rates?

Response: When we talk about balancing, we consider sustainability, affordability and reliability. That's where we're looking for perspectives. What does it mean to be affordable? What does it mean to be reliable? We take our role seriously. If the community is impacted by what we do, we want to know that.

Comment: It's dangerous to get into a mindset that we are trading off. Sustainability, affordability and reliability all have equal standing and have to be brought forward together all the time. It's only in the very extreme that we should look at compromise. If we fall into that kind of thinking it's like, well this one compromises this time so who takes the hit next time? These need to be in equal standing.

Comment: You hear about good, fast, cheap and having to pick two. In the case of the ISP, it has to be all three.

Response: The intention behind the word tradeoffs is in reference to these three pillars. Is there a better word choice? We can't yet have all three in perfect balance. We are asking how to move those forward with equal purpose and priority but also to understand the impact of the levers we are pulling.

Guiding ISP Principles

Bond-Simpson introduced the Guiding ISP Principles as the decision-making framework for the ISP. Although she noted SRP has created guiding principles for efforts like the Integrated Resource Plan (IRP), they want to refine these principles for the ISP. She described SRP's commitment and duty to serve customers in balancing the three pillars of sustainability, reliability and affordability. Next, she recapped the customer preference research and purpose of the Guiding ISP Principles before presenting the six draft principles ([slides 39-43](#)).

Isaacson then explained that many planning processes use similar frameworks for guiding decisions and that the Guiding ISP Principles will be used to make sure SRP is considering and balancing the three pillars of reliability, sustainability and affordability in the *Synthesize* phase. Next, she shared the questions for small group discussion ([slide 44](#)).

Comment: Are you asking that all three pillars be equal? I struggle with affordability. It feels so powerful right now in how unbalanced it is. With the recent rate hikes with SRP, the goal line is moving further and further away for people who can't afford rates even today vs. tomorrow. How do we zero in on one more than the other two?

Question: Have we defined those three terms [sustainability, reliability and affordability]? I'm wondering if there is a definition of affordability. It is so different for different groups of customers. How do we plan for and incorporate those definitions?

Response: These terms have not yet been uniquely defined for the ISP. On the metrics, there were some things we wanted to focus on but this is the input we seek in the small groups.

Comment: On low-income groups, another way to look at it is cost allocation. The groups that struggle to pay, maybe they don't get allocated all the cost they cause to ease the stress of affordability. You see a balance between different classes of customers. You see different debates on cost causers and who pays. Maybe business customers vs. residential customers pay different amounts. That's a policy question.

Comment: This conversation is a critical one that has been missing since the day we convened the Advisory Group. We all come in with different ideas of what is important to us; it's behind the perspectives we bring. Affordability is a major issue and we have only begun to see the problem. The hydrocarbon system is disrupted more than it was in the 1970s and I predict it will get worse. We are headed into a cold war and picking sides and we get our raw materials from China. This system is really disrupted and that will cause affordability problems. If we lose power in the summer and air conditioning goes out, people die. The whole Southwest is close to the edge. California is close, Texas has had problems. We have to look at all three pillars all the time and be creative in looking at possibilities. We don't get to pick one. We have to do them all.

Comment: To the first comment on affordability, we don't have to compromise on trading off the three pillars. You keep them all, but how do you implement affordability? There is a vulnerable population and how do you address it? Not all things are equal but that doesn't mean we give up on the goal. Which group pays and how much?

Comment: In our organization, reliability is essential. We need affordability and we have sustainability goals as well.

Comment: When we think of pillars, we think of them as separate but they are intersectional and impact each other in different ways. We have to think about them all together. They are more like a circle where they go round and round and impact each other. We have to think about how they impact each other through different lenses. In the energy efficiency space, that rings true for me. How do we maintain affordability and keep prices low?

Question: For the ISP principles, is it affordability, reliability and sustainability for SRP or for its customers?

Response: It's for our customers.

Question: How can you include customer actions? You can incentivize, but do you include their actions toward the goal, or is that gravy on the side?

Response: We will have that discussion about customer programs and forecasting a bit later today. After analysis for the ISP is complete we will have a lot of new information. We expect that we can design the next set of customer programs based on that. We will have moments of discovery that help to fine-tune customer programs.

Question: Does SRP consider nuclear energy sustainable?

Response: We consider it carbon-free.

Comment: Reliability is number one from my organization's perspective but when you look at your larger customer base you have to balance out all the other factors.

Comment: Economics, or the allocation of scarce resources is my area. [It means] if you adjust one element then you affect the others.

Comment: It's all about the customers and educating them in a creative way. Provide more education so they don't find out about it on the news.

Isaacson introduced the next activity and explained that Advisory Group members would be discussing the Draft Guiding Integrated System Principles in small groups. Isaacson directed Advisory Group members to join one of the three discussion groups where they would discuss the three questions below and report back on the third question:

- Do these Guiding ISP Principles balance affordability, reliability and sustainability?
- In what ways do the Guiding ISP Principles address customer preference?
- What are suggestions for modifications to the draft Guiding ISP Principles for optimizing balance?

Suggestions for Modifications to the Draft Guiding ISP Principles

Breakout Group 1

- In the introductory paragraph, add language “without sacrificing one for the other” for balancing the principles
- Under Integrated Long-term View, revise to “changing customer needs” rather than “growing” since growth is not assumed across all scenarios
- Under Transparency, add “reporting process”
- Under Manage Costs, it’s a societal problem but utilities can enable systematic discussions on cost and have an important role to play
- Under Adapt Toward a More Sustainable Future, add “in line with the climate science”

Breakout Group 2

- Nothing addresses short-term; consider the next three years and those impacts
- Consider adaptability to changes, such as deregulation
- Allow for predictability so customers can understand their costs over a long period of time; this will help with their consumption and SRP’s generation
- Add implied impacts to SRP and customer under each principle
- Be transparent about different customer types (size, location, ways they use power)
- Under Manage Costs, specify as compared to what: What is low? Is that compared to other utilities? The West?

Breakout Group 3

- Overarching takeaway is that they do not adequately address affordability
- [There are] clear metrics for sustainability and reliability but not affordability
- Electricity is essential to daily life; it’s compromised when you can’t pay your bill
- Under Manage Costs, there is concern since it doesn’t allow for equity
- Equity has never really been discussed; costs are a relative thing and equitable access has to consider affordability

Comment: We also talked about customer behavior and how people get excited about a \$50 rebate for program participation but not the thermostat going to 80 degrees. Provide a pathway, but know that bringing as much education and information as you can to everyone – urban and rural – will be an important piece. What SRP wants a customer to do and what customers do doesn't always match up.

Comment: Personally, the incentive of \$50 isn't a big deal for me. I'll participate in the program either because it helps others or the program has a bigger financial incentive for me. For the tradeoffs and the Guiding ISP Principles we have to look at whether they create real change or a perceived change.

Comment: It comes down to rate design. The most efficient allocation comes from appropriate rate signals. You have to incentivize the behavior you want to see.

ISP Analysis

Kyle Heckel, Senior Analyst for Integrated System Planning & Support at SRP, provided an update on the analysis for the ISP Study Plan, highlighting the 42 system cases ([slide 48](#)). He remarked that all planning teams have been busy, although due to interdependencies and data handoffs they can't all work in parallel. All teams are on track to conclude analysis by the end of 2022.

ISP Scenarios Customer Demand Forecasts

Jed Cohen, Manager of Load Forecasting and Research at SRP, began his presentation of early results from the customer demand forecast by recapping the four ISP scenarios and highlighting fundamental factors that are driving differences in customer demand ([slide 50](#)). He presented the peak load forecast for each scenario ([slides 51-52](#)) and then showed the hourly load shapes for projected summer peak days in 2023 and 2035 for both the Current Trends and Strong Climate Policy scenarios ([slide 53](#)). Results of a sensitivity analysis of energy efficiency were also shared ([slide 54](#)).

Question: Are these forecasts showing the net load?

Response: Yes, this is the electricity that SRP needs to supply.

Question: Do these scenarios assume net load with no distributed, or customer-sided generation?

Response: These would be net of customer-sided generation. We use an expected generation profile for the customer-sided resources.

Question: Can you dig into the assumptions for managed charging?

Response: We have built managed charging into each of the scenarios. The difference in magnitude is the number of vehicles in the different scenarios.

Question: Have you run analyses of daytime electric vehicle (EV) charging?

Response: We have not for this ISP, but we are looking at that internally.

Question: Do you expect you can't get people to charge during the day?

Response: We see most people charge at home when they return from work.

Comment: It may not be of benefit in Arizona to charge during the night.

Response: We do have a sensitivity for high load management. It's a model that has flexibility for where the load occurs within reasonable parameters. Given our future generation profile, we are trying to figure out where it is beneficial to shift demand.

Question: On the projections for hourly demand [[slide 53](#)], what are the energy differences in megawatt hours (MWh)? Those don't look large.

Response: The exact energy figures in MWh are not yet available. There is a slight difference and the projections are marginally lower in the Strong Climate Policy scenario.

Question: Are batteries included in any of the assumptions?

Response: There is a distributed generation and battery assumption of about 65 MW by 2035 coupled with customers who have solar. The batteries shift usage off peak.

Comment: It seems like that connects to EV charging.

Nathan Morey, Manager of Customer Programs at SRP, began by describing how customer programs shape the load for the ISP scenario forecasts. A graph showing load shapes for a peak day in 2035 and overlaid with three different customer programs ([slide 55](#)) illustrated how current programs won't align with this projected peak. He described how SRP tries to shape demand with technology and showed the 2035 peak day with hourly program impacts ([slides 56-57](#)), indicating where the peak is out of phase with carbon-free energy (e.g., solar). To conclude, he described customer program impacts for both a peak day and winter day in 2035 ([slides 58-59](#)).

Question: Do you have any idea when you might make changes to customer programs?

Response: We don't have anything scheduled right now.

Response: A time-of-use exploratory study is based on this question and there will be a Technical Working Session on the topic.

Question: Is there much difference in power demand between June and July?

Response: Our summer months run from May to October. Our peak day is most often in July, but it has moved around.

Question: Schools seem to be opening earlier and earlier, like at the end of July. Are school district schedules in harmony with the power demand?

Comment: Early opening is a trend in the East Valley. Our schools still start in early August. One argument is that children aren't outside so why not have them in school. The problem seems to be going toward shedding load as the school day is finishing up. It becomes challenging and the solution is essentially usage plans.

Question: Is beneficial electrification considered in these models?

Response: It is through our electric technologies program, mostly commercial and industrial based, and absorbed in the Strong Climate Policy forecast. Our E-tech program did not have a big enough impact to show up on the slide, but it is there.

Question: Peak EV charging is a concern. Are you looking at grid integration and things beyond pricing for some of these issues? That could help move EVs from posing a problem to helping.

Response: SRP has three pilots on shifting demand. It's on our radar.

Question: Is there anything with the pilots that we should be looking at with this ISP?

Response: One challenge is that the pilots are based on what we know today. We will adapt over time.

Comment: It might be helpful if you had indicators to show what is a good, bad or problem area. There's so much information there. It would be one more step to show what this means, how it impacts utilization, etc.

Response: Top takeaways include that we must manage the EV load in those peak hours. We are early in the adoption stage and shifting of the EV load is the fastest and most heavily evolving technology in the next decade. Demand response creates a great value now, but there is sacrifice on the customer side. We can't rely on too much customer sacrifice to meet the projected load. On energy efficiency, we have a mature portfolio and it's there to meet some of the affordability goals customers have. That will evolve over time. The winter day slide [[slide 57](#)] shows a lot of lower-cost, lower-carbon efforts we can shift into.

Response: We don't want to draw conclusions before we see all the results, but if you can shape the programs to benefit the system you get a greater benefit overall. On customer behavior and expectations and how they actually perform, we have to consider what we are trying to drive to.

Question: What does energy efficiency look like? What are the programs?

Response: We have a full spectrum of residential and commercial/industrial programs. The most potential is in cooling-based programs. We have things from servers to window glazing to new construction design assistance. We are doing everything we can.

Question: You have rebates, for example?

Response: Yes.

Comment: With a time-of-use shift to 7:00 p.m. you would then have to be careful with electricity use most of the evening when you get home. That gets straight to affordability. On the shift to charging vehicles during the day, how do we build that into commercial spaces vs. at-home charging?

Question: What about heat island effects? How is SRP involved in efforts on this?

Response: We manage a shade tree program where we give out 5,000-6,000 trees each year.

Question: Are there offsets offered for trees?

Response: That program has been mostly residential, not commercial. We have a vegetation management program, cool roofs and a variety of options to shade building exteriors to reduce cooling load.

Response: We see an upward drift in temperatures due to climate change in the modeling. This summer, nighttime temperatures were higher. We are looking at modeling increased temperatures over time with more complexity. The research shows that with programs like the cool roofs, we can offset the increased temperatures if we put all the programs into action by 2035. We are looking to integrate these aspects into future load forecasts.

Maintaining Reliability in the Near Term

Presentations on maintaining reliability in the near term began with Olsen introducing Nick Schlag from E3, the technical consultants for the ISP. Schlag outlined both short- and long-term industry perspectives on maintaining reliability and defined firm capacity as a resource that can operate at full capacity for extended periods of time ([slide 63](#)). He highlighted key trends in the Southwest, the need to develop new resources and the role of firm capacity ([slides 65-67](#)).

In describing challenges, Schlag pointed to tight supply chains and the doubling in cost for storage ([slide 68](#)). He noted that utilities are scrambling to procure new resources and some are delaying plant closures ([slide 69](#)). He shared common findings, presented an illustrative case for 2050 and summarized key points about the role of firm resources in maintaining reliability as renewables and batteries are placed on the system ([slides 71-73](#)).

Question: Is nuclear not under consideration?

Response: Nuclear energy doesn't show up since this chart [[slide 66](#)] is based on utilities' current plans for the next 10 years. Nuclear power has a long lead time.

Question: Why is the one bar past 2030 [\[slide 66\]](#) so much higher?

Response: It reflects the schedule for coal plant retirements.

Question: With all that solar energy, when we get to winter, you're dumping off a lot of power, yes?

Response: Yes, we see a curtailment issue with long-term reliability.

Question: Are these rate- or mass-based reductions [\[slide 72\]](#)?

Response: Mass-based.

Question: On the 52-week model [\[slide 72\]](#), is it the case that an interconnection needs firm capacity to keep the grid grounded enough?

Response: For inverter-based resources there is a lot of work being done. This modeling is an abstract exercise that assumes this problem will have been solved.

Response: Inverter-based, or variable resources like wind and solar, are a topic for an upcoming ISP Technical Working Session.

Question: Is this [\[slide 72\]](#) showing that solar and storage are the best for peaking needs but winter poses the most problems?

Response: It depends on what you mean by best. Most peaking needs are met in summer but there is a greater need for firm resources in the winter.

Comment: That seems counterintuitive.

Response: Solar is a big part of the story in California and Arizona with both being summer peaking systems.

Comment: The excess could be sold to the Energy Imbalance Market (EIM), or wholesale market for trading energy.

Response: Yes, but everyone could be trying to sell at the same time and then no one wants to buy it.

Question: Are we assuming storage is carrying 100% of the load during the night? Would we still need those firm resources throughout the year?

Response: Yes.

Question: I appreciate the three types of sources: low carbon, balancing and firm [\[slide 71\]](#). How are we looking at energy efficiency as a capacity resource in forecasts? In Arizona that helped avoid 14 gas units coming online.

Response: You're right to point out energy efficiency as a resource to help us get there. Whereas energy efficiency does provide a capacity benefit, none of those solve the problem entirely.

Comment: That's a problem of putting the pieces together.

Response: Yes, there are pieces and constraints.

Comment: There are other substantive ways to deal with these issues that come up over and over. We need a session where people roll out what they believe could be done differently, the magnitude of impact and what it might look like. Otherwise, we get this sentiment in the Q&A that there could be a better way but we never get there.

Response: Would that be an Advisory Group meeting where we ask members to present?

Comment: It depends on the interest of the Advisory Group. That's going to be a very technical discussion. Some may find it interesting; others might wonder what they're doing there. I would offer, but make it optional. It would be great to discuss these ideas that come up but never quite surface completely.

Question: On firm resources, doesn't additional nuclear power create a problem since you can't turn it on and off? How does that fill the need?

Response: Nuclear power changes the equation in putting the pieces together. It means rebalancing the other carbon-free resources in the portfolio.

Comment: There's still a need to be able to ramp up.

Comment: You adjust the solar power to match.

Question: What about the base load plants? How do you fill that gap with nuclear power? Maybe if nuclear power fed into storage, or were used to make hydrogen?

Response: If you change one piece of the portfolio, the other pieces have to adjust. You might need more storage for modulation.

Question: Are you saying that is not as easy as it looks? The ISP is going to have to come to some realization of the recommendations since it won't happen overnight from a realistic point of view and to be part of an honest solution.

Response: I don't want to say we need to slow down. We need to be pushing harder but we also need to think about the pace.

Maintaining Reliability as SRP Decarbonizes Its Portfolio

John Coggins, Associate General Manager & Chief Power System Executive, provided background on SRP's near-term planning for reliability. He showed a timeline of planned coal retirements, presented the load forecast comparison between 2012-2022 and 2023-2035, and described renewable and energy storage resources ([slides 76-79](#)).

Question: What's the time-frame for batteries? Do they run 24 hours?

Response: Lithium-ion is the commercially available option and the batteries run two to four hours.

Question: How many batteries are needed for what type of duration?

Response: With a 4-hour battery you just move the peak by four hours. To span a longer period, you have to buy a greater number of batteries, which is very expensive. Other technologies are coming, but this is what we have right now.

Question: Do you have an idea of how many batteries you will have?

Response: We have 1500 MW planned by 2025 [[slide 79](#)]. We need an all-of-the-above approach because we can't solve everything with solar and batteries alone.

Question: Are the customer solar resources in SRP's service area mostly residential rooftop?

Response: Yes.

Highlighting reliability as the key challenge as the energy industry transforms, Coggins explained its importance and shared a sample of reliability metrics used by SRP ([slides 80-82](#)). Isaacson asked Advisory Group members to respond to the question, "What kind of impact does an outage have on your organization or community sector?" ([slide 83](#)).

Comment: Larger employers have significant impacts. For smaller employers an outage might be a disruption but it's not as critical as for high-tech manufacturing.

Comment: It's a big deal at my organization due to high tech equipment, experiments and facilities that have to operate. We have backup systems but we don't like to use those.

Comment: We think deeply about the impact on the ground in two ways. First, during the hottest summer months, it's a public health emergency. We plan for multi-day outages where we talk about moving people out of the city, especially those on the margins or in substandard housing. Second, we look at water utilities; pumps and boosters require electricity. We can get through a short duration outage, but for longer ones we have sophisticated backups. We work to install microgrids so the water plant doesn't go down. The bad news is that they are generally diesel.

Comment: Everything is ruined when the power goes out and bringing equipment back online can be difficult. Even a 30-second outage is disruptive for drives and microprocessors. It sets back production and we lose product.

Comment: We have liability for patient care and loss of life. We have emergency generators but if the outage goes on too long, we have to do evacuations.

Comment: Our concern is safety. A half-second blip creates a dangerous situation where molten steel can start spraying across the mill floor.

Comment: An outage is not so hard for me since I have my office and home in different locations and it's not likely power is out in both places, but if you are a single parent and the air conditioning goes out and it's 120 degrees, you might not have anywhere to go.

Comment: People who are most vulnerable don't have another option of where to go.

Question [SRP]: Do you see outages affecting the pace of electrification?

Response: I'm not concerned at this moment, but we have to consider it.

Question [SRP]: Does reliability factor into people's decisions?

Response: That becomes a challenge with decarbonization and electrification. We have to look at all these considerations together.

Comment: I echo the comment on the most vulnerable people. We still have the Federal Emergency Management Agency (FEMA) assisting people who were displaced in July. The power was out for over a week and we're still recovering.

Comment: I would just say thanks. Power is one of those things we take for granted. Outages are so infrequent, and power comes right back on. That quality of service sometimes gets lost.

Ciggins continued by describing reliability requirements, firm flexible resource options, current uncertainties with lithium-ion batteries and the potential for power disruptions propagating more rapidly with renewables due to less ability to rely on system inertia ([slides 84-86](#)). He concluded by describing how firm flexible gas generation can complement battery innovations ([slides 87-88](#)).

Question: How does distributed generation affect the grid? Is that a major concern?

Response: We have a team working on that. The grid wasn't designed to go both ways. We have distribution enablement so customers can connect what they want and maintain reliability. We are working to understand those impacts. We can solve it but need time and resources.

Engagement Calendar, Wrap-Up and Next Steps

Bond-Simpson thanked the Advisory Group members for their attention and engagement and recognized the SRP operations team and SRP Board Member Rovey for their attendance. She noted that Advisory Group members have the option to attend upcoming meetings where preliminary results and key findings of the modeling will be shared ([slide 90](#)) and informed on next steps for engagement ([slide 92](#)).

Appendix

Meeting Attendance

Advisory Group Member Organizations (members in attendance on 9/28 are indicated in **bold**)

Arizona Hispanic Chamber of Commerce

A New Leaf

American Association of Retired Persons (AARP)

Arizona State University (ASU)

Arizona Public Interest Research Group (PIRG)

Building Owners and Managers Association (BOMA)

Chicanos Por La Causa

City of Phoenix

CommonSpirit Health

CMC Steel Arizona

CyrusOne

Environmental Defense Fund (EDF)

Intel

Kroger

Local First

Mesa Public Schools

Pinal County

Profile Precision Extrusions

SRP Customer Utility Panel (CUP)

Salt River Pima-Maricopa Indian Community (SRPMIC)

Southwest Energy Efficiency Project (SWEEP)

Western Resource Advocates (WRA)

Wildfire

Key SRP Staff

Angie Bond-Simpson, Director of Integrated System Planning & Support

Bobby Olsen, Senior Director of Corporate Planning, Environmental Services, and Innovation

Domonique Cohen, Integrated System Plan Communications Lead

Jed Cohen, Manager of Load Forecasting and Research

John Coggins, Associate General Manager & Chief Power System Executive

Kyle Heckel, Senior Analyst for Integrated System Planning & Support

Nathan Morey, Manager of Customer Programs

Key Facilitation Team

Lakshmi Alagappan, E3

Nick Schlag, E3

Brisa Aviles, Kearns & West

Jenna Tourjé-Maldonado, Kearns & West

Joan Isaacson, Kearns & West

Karen Lafferty, Kearns & West

SRP Board and Council Observers

Chris Dobson, SRP District Vice President

Larry Rovey, SRP Board Member

Suzanne Naylor, SRP Council Member