Regional Energy Resource Council (RERC) Minutes
Tennessee Valley Authority
February 24 & 25, 2025

Meeting location:
Hilton Franklin Cool Springs
Franklin, Tennessee

The Tennessee Valley Authority (TVA) Regional Energy Resource Council (RERC, or Council) convened for the 7th meeting of the 6th term, beginning at noon Central on Monday, February 24, 2025. Meeting presentations are available at **www.tva.gov/rerc.**

Council members attending in-person:
Jan Berry, Marquita Bradshaw, Monte Cooper, Erin Gill (Chair), Rodney Goodman, Chrissy Heard, Pete Mattheis, Dan Miller, Boyd Pettit, Erik Schmidt, Alexa Voytek

Council members attending virtually:
Chassen Haynes, Julie Woosley

Designated Federal Officer: Melanie Farrell
Designated Federal Officer Alternate: Althea Jones
Facilitator: Jo Anne Lavender

- Appendix A – TVA staff and stakeholders who attended the meeting
- Appendix B – Agenda
- Appendix C – Advice Statement

Purpose
The purpose of the meeting was to provide updates on TVA's Integrated Resource Plan (IRP) and for the RERC to create an Advice Statement to be sent to the TVA Board of Directors. The Council members addressed the following questions when developing the statement:

- Did the 2025 IRP process meet the objective of extensive, meaningful involvement of stakeholders and the public?
- Are the boundaries of the IRP analysis sufficient to inform a strategic portfolio direction that enables TVA to provide affordable and reliable power that is increasingly cleaner and resilient?
- What do you see as challenges and opportunities for TVA as recommended actions are implemented and signposts are monitored?

DAY 1

1. Welcome and Introductions

A. Erin Gill, RERC Chair, welcomed everyone to the meeting and said it was a particularly important meeting, because the Council would be writing a formal Advice Statement to send to the TVA Board of Directors related to the IRP. She thanked Board members, Joe Ritch (Board chair) and Bill Renick, for attending the RERC meeting.

B. Melanie Farrell, Vice President, Valley Engagement & Strategy, TVA, thanked the RERC members for their time and dedication. She also thanked Joe Ritch and Bill Renick for attending the two-day meeting. She said stakeholder and public involvement – from the IRP Working Group, to the RERC, to the general public – has played a large role in the IRP process. Collectively, the broad range of feedback strengthens the process and helps ensure TVA has a strong plan in place to meet future demand for power.

2. Designated Federal Officer Briefing — Melanie Farrell, Designated Federal Officer and Vice President, Valley Engagement and Strategy

Melanie Farrell said TVA met peak demand of about 31,000 megawatts during Winter Storm Kingston the week prior to the meeting. TVA leaned some on the market, and customers with demand response contracts helped reduce load demand. TVA also engaged customers, public officials and broader stakeholders so they knew what to expect. Farrell said that as a federal agency, TVA is making necessary adjustments given presidential Executive Orders. For example, TVA employees are returning to the office, and TVA has paused external hires and taken actions around Diversity, Equity, Inclusion and Accessibility. She noted that the Board is working on selecting TVA's next CEO. TVA also is undergoing an organizational restructuring aimed at reducing costs and strengthening efficiency. Farrell noted that public engagement is critical for TVA and that there will be a public listening session on Day 2 of the RERC meeting as well as a public webinar on Thursday, Feb. 27, related to the IRP.

3. TVA's Integrated Resource Plan Update — Candy Kelly, Sr. Manager, Resource Strategy; Kelly Baxter, IRP NEPA Project Manager; Hunter Reed, IRP Project Manager (Presentations can be found at www.tva.gov/rerc)

IRP Process and Schedule Update

Candy Kelly explained that the 2025 Integrated Resource Plan (IRP) is a study of how TVA could meet customer demand for electricity between now and 2050 across a variety of futures. A programmatic Environmental Impact Statement (EIS) accompanies the IRP to evaluate its environmental effects. The IRP provides strategic direction on how TVA will continue to provide low-cost, reliable and resilient electricity to residents and businesses across the Valley region for years to come. Kelly described the IRP's grounding in fundamental least-cost planning, the IRP and EIS timeline, and the role forecasting plays in IRP planning. She explained that the IRP process begins with evaluating scenarios (future worlds outside TVA's control), developing strategies TVA could employ in those scenarios and evaluating resource options. TVA modeled five strategies in six scenarios, generating 30 unique potential resource "portfolios" – the power supply mix that results from assessing a particular strategy in a particular scenario. Kelly reviewed the specific scenarios and strategies. Ultimately, the study will lead to a recommended strategic portfolio direction that would guide TVA decisions for decades to come.

IRP Stakeholder Engagement

Kelly Baxter reviewed statistics on stakeholder and public involvement throughout the project. She also presented information on the public meetings TVA held during the public comment period after the release of the draft IRP and draft EIS. Between Sept. 23 and Dec. 11, 2024, TVA conducted 10 open houses and two virtual webinars, with close to 600 members of the public in attendance. Baxter explained that TVA received more than 2,500 official comments during the public comment period. TVA is using the public comments to refine the analyses in the final IRP and EIS, including the development of

sensitivities and IRP recommendations for how TVA plans to meet future power demand. Public comments will be addressed in the final EIS.

QUESTIONS/ANSWERS

I like what you described about the comments being categorized. Did you weight form letters separately?

> ***Baxter:*** *The form letter comments count as one comment within the tally. We pull out the common themes and list the folks that were commenters on those. It counts as one comment, even though 800 people might have made the same comment. But they will be acknowledged as those that received a lot, and we include everyone who is a signator on the comments as well.*

The resolution of comments is important to finalize the IRP. Since we don't have that right now, it makes it difficult to have this consent statement, since I don't know how the comments will be resolved in the final. I am sure TVA did a good job of incorporating the comments, but since we don't have that information, it makes this meeting premature in my mind.

> ***Baxter:*** *For any comments that asked for additional studies or information, if it was a reasonable request, we did add additional information. Since it is a programmatic EIS with general language, we also clarify that any time a plant is built, we do individual, site-specific analysis for those projects. Also in the EIS, there is a list of relevant environmental reviews. Since we released the draft, we have had three solar environmental impact statements or environmental assessments. The list gives you an idea of what studies are underway and what studies could occur in the future. We also addressed NEPA-specific Executive Orders (EOs) in the EIS, so it is up-to-date with the latest EOs.*

I want to recognize your efforts on the public open houses and the panel format. A TVA group came out to join a KUB Community Advisory Panel, and the dialogue and the opportunity to ask questions helped inform the comments that were submitted. As you prepare for the public webinar later this week and are in the recommendation stage, will the question and answer period of the webinar be designed to seek dialogue or just to provide clarification of what is in the final recommendation?

> ***Baxter:*** *It will provide information about the final, when it will be out, what we saw in the public comments and how they will be addressed.*

I attended the public open house in Oak Ridge, and many people commented that TVA's expertise and openness were impressive.

Final Modeling Updates

Hunter Reed reviewed analysis tools, the IRP's rigorous analytical process and IRP draft results. In highlighting sensitivity analysis, he noted that sensitivities are "what if" questions that merit further evaluation. Sensitivity analyses isolate the impact of a change in one key assumption. He reviewed sensitivities TVA modeled within six focus areas: Net-Zero Trajectory, Regulatory Environment, Variation in Climate, Electricity Demand Changes, Resource Costs and Availability, and Natural Gas Commodity Prices. Reed explained that, in general, sensitivity results fall within the boundaries of the 30 core portfolios presented in the draft IRP. A few sensitivities expanded the bounds of the final IRP results:

- Extended coal operations
- Coal/gas cofiring option
- Increased energy efficiency market depth.

Reed reviewed IRP sensitivity results by 2035 and by 2050 as well as final IRP results by 2035. Final IRP results suggest by 2035 …

- 9 to 26 gigawatts incremental firm capacity needs
- 3 to 20 gigawatts of solar nameplate additions
- 4 to 19 gigawatts of natural gas, hydrogen, and carbon capture and storage additions
- 1 to 4 gigawatts of energy efficiency and demand response additions
- Up to 6 gigawatts of storage nameplate additions
- Up to 4 gigawatts of wind nameplate additions
- Up to 1 gigawatt of nuclear additions
- Projected 70 to 90% reductions in CO_2 intensity from 2025 baseline.

QUESTIONS/ANSWERS

What is TVA's obligation to serve? Do you have a cutoff point where you say you can't provide service?

***Reed**: I will echo some comments that our CEO made at the Board meeting last week. We plan to serve all load that wants to come to the Valley. It's a matter of when we can do it and what's the cost. Some of it will be a negotiation. If it is a potential large, new customer, would they sign into a demand response contract? Maybe we can get them on faster that way. If it is a new, large-load customer, we might need to build a generation asset or transmission to support that customer, and we'd need to talk about what that timeline looks like. We want to make sure our existing customers and new customers get the reliability that all of our customers expect.*

Are your reserve margins set by policy?

***Reed**: Yes. We plan to a long-term planning reserve margin target. In the case of the IRP, we planned to an 18% reserve margin in the summer and a 25% reserve margin in the winter. All of our modeling takes that as a constraint from the beginning. Our model looks maintaining the lowest cost overall solution that maintains reliability. The key reliability metric is the planning reserve margin target.*

Are the reserves a significant part of the discussion around the IRP?

***Reed**: Yes. It is a core component of our modeling. When we do our modeling, we get a load forecast that is an hourly load forecast for every hour of the year through 2050. Our modeling looks at the peak in the summer and in the winter and takes an additional 18% in the summer and an additional 25% in the winter. That is the requirement. Then, the model gives you a portfolio of assets that makes sure you hit peak load and throughout all hours of the year, you are doing that in the least-cost manner possible.*

Is there a trigger that resets the need for revisiting the IRP?

***Reed**: Yes. In the IRP recommendations, the last component is key signposts. When the Board is presented with the recommendations, these key signposts become our marching orders for the next four or five years. We keep a pulse on items like long-term natural gas prices, load growth, etc., and if any are outside the bounds of the current IRP, we know it is time to start the next one.*

Can you explain a little bit about selecting 1A and 6A. Since those don't have the growth in them, how did you incorporate the risk associated with growth.

***Reed**: 1A and 6A are reference cases, and growth is embedded in them. These would be what we expect to happen based on what we know today. There are a few cases where I highlighted the parenthetical. We took these on a case-by-case basis to ask if it would enhance the study if we looked at them through a difference lens. We are bound by the number of cases we can do. We focused on the ones with the most value and that helped answer the most important questions.*

What were signposts from the 2019 IRP that propelled this one?

***Reed**: The two main ones we saw were the strong load growth coming out of the covid pandemic and the evolving regulatory space.*

Looking at your solar costs per megawatt hour, it shows it as constant. There is other information I've seen that shows the cost of solar continuing to decrease. I don't know what the integration costs are, but it looks odd that it's flat.

***Reed**: These costs are nominal, which means they include the effects of inflation. On a real basis, if you were spending your same dollar from 2025, you would see a larger decline in costs as the maturity of solar technology improves and as manufacturing scales up, but inflation is a piece of this. Integration costs tend to go up a little bit through time. Integration costs represent the costs to the TVA system for integrating these intermittent renewable resources on a sub-hourly basis. Fluctuation in the power output actually puts more burden on resources like our existing gas fleet or battery storage, and the integration costs account for the additional wear and tear on the other resources to help mitigate the fluctuation.*

Do you see the same uptick for natural gas?

***Reed**: Yes. We expect it will increase over time.*

Are you assuming higher regulatory compliance costs?

***Reed**: Yes. That is a piece of it. In Scenario 6, there are regulations on coal assets as well and, because of less coal, there is more demand for natural gas to offset that generation.*

Does this take into account the infrastructure costs to put these resources in place, and are you looking at things like the cost involved with running additional lines for service?

***Reed**: We are. Each resource type includes an assumed cost for a generic plant in terms of transmission, gas pipeline if needed, etc. We use a generic estimated cost. The model incorporates the cost to build it, and it includes the fixed, variable, and fuel costs to operate it on an ongoing basis.*

One of the comments we heard a lot was a concern that storage and solar might be modeled separately. Could you describe how solar plus storage question was addressed? Are there sensitivities that say co-mingle them and address the intermittency issue?

***Reed**: It is embedded in all of the modeling. There are a few things to keep in mind. The IRP is looking at the system as a whole. The model can see the benefits of solar resources needing more storage. Our cases with higher renewables tend to have more storage. By modeling these as separate resources, the model is able to make the most optimal economic decisions. If it sees that the best time to charge that storage is the middle of the day when you have a lot of solar, it will do that. However, if you're in the winter and it sees the best time to charge it is overnight, it will charge it straight from the grid. We felt that within the modeling, it had the best opportunity to see the full benefit of that storage by keeping them separate. With modeling, any time you introduce an additional constraint, costs will go up. When we get beyond the IRP into the*

implementation of a project and we are evaluating deal offers, if there is an offer from a developer that includes solar plus storage and is more competitive than two separate projects, we would go with the more competitive offer. This is more about modeling than what we would do in implementation.

I worry that customer bills will increase. Memphis has a high energy burden. Fossil fuel is a finite source, and I worry about the continued cycle of energy poverty. My concern is that with the IRP not being site-specific and new things coming online, certain populations will not see a cost benefit where energy decreases. It is going to continue to increase.

***Reed**: From an IRP perspective, our goal is to ensure the lowest cost portfolio that maintains reliability. Our ultimate goal with our modeling runs is to improve the lives of the people who live in region by maintaining low rates, environmental stewardship and reliability.*

I was on a call about energy efficiency initiative and the $1.5 billion investment, and it was stated that the initiative is to offset 30% load growth. Is that in the sensitivity analysis?

***Reed**: Yes. The recommendation includes an emphasis on demand side programs.*

Why not include metrics on 2035 slide?

***Reed**: The way we have structured the metrics, we are trying to get a single number that represents how it did across the entire study horizon. If we included it on the 2035 slide, it would have been the same metric.*

Regarding the risk/benefit of the sensitivity analysis, how do you incorporate that into decision-making?

***Reed**: Risk is based on the stochastics analysis. We do not do stochastics against the sensitivity cases. Most of these sensitivities are tied to key signposts such as a regulatory driver or the cost of an underlying resource, and it is giving us a directional signal. We are doing what we call a playbook style key signposts this time. We're saying, for example, if electricity demand is higher than what we are expecting, what can we expect to happen? The answer: We would have to add more generation resources. The sensitivities help us understand that playbook style — we're monitoring this signpost, it moves in this direction, how do we react.*

Is wind capacity in Valley or out of Valley?

***Reed**: We modeled three wind options. One is an in-Valley option that uses a higher hub height. It is more expensive to build but has lower transmission costs. We modeled some off system, either coming from the Midwest via traditional AC lines or using a high-voltage direct current (HVDC) line. They are all grouped together. In general, it will probably be some combination of those options.*

Are there wind assets in the Valley in the TVA service area?

***Reed**: There are no wind assets currently in the Valley. We do have 1,200 megawatts of wind contracts, but there are all out of Valley.*

On the sensitivity results charts, when you look at the present value for higher natural gas prices at $28 billion to $30 billion and then look at a similar order of magnitude of risk if you're on the net-zero path, how do you compare the risks?

***Reed**: Some of this is making sure we keep a pulse on the market. In the case of higher and lower natural gas prices, these are plus and minus two standard deviations. This is what we would expect*

the tail ends of the standard normal curve to look like. This is, you've changed that one key variable, and how does it change it. That is the importance of keeping a pulse on these key signposts. As you see the trajectory over the long-term change, you need to adjust how your strategy responds.

Preliminary IRP Recommendations

Hunter Reed explained that the IRP recommendations will be a key component in the final document. The recommendations serve as Board-approved guidance based on least-cost planning principles, guardrails for future resource additions in the long-term and planned actions in the near-term. Reed reviewed key components of 2025 IRP recommendations, including preliminary results for power supply mix ranges by resource type (by 2035 and 2050); strategic portfolio through 2035 and recommended actions; planned actions for existing and commercial ready resources; planned actions to advance emerging technologies; planned actions to advance integrated system planning; and key signpost themes and implications.

QUESTIONS/ANSWERS

How does TVA define stakeholders?

***Reed**: There are a lot of different stakeholders. The RERC is certainly a key stakeholder group. Stakeholders are different groups, customers and the 10 million residents of the Valley as well.*

When you hold a public meetings, are there different types of stakeholders who show up?

***Reed**: It depends on the type of review we are doing. If you're talking about power generation, oftentimes you get folks who are interested in energy burden, folks who are interested in environmental impacts and folks who are in the local community. TVA does a lot of different things. A public meeting could be related to river activities. There is diversity in the groups who are interested for one reason or another.*

Are you looking at conversion of a coal facility to a gas-powered facility? Is that taken into account in the power supply mix ranges?

***Reed**: On the power supply mix ranges chart, you'll see a hashed line for coal. That represents continued operation of existing facilities in a sensitivity case. We did a sensitivity case that looked at coal and gas co-firing, but that is only Gallatin and Shawnee, because we have approved retirements for Cumberland and Kingston. That also represents the potential for extended operations at those facilities in our extended-coal sensitivity case.*

Regarding energy efficiency and demand response, I heard you say 4 gigawatts – or 30% of the load increase. It doesn't look like those numbers are consistent with that.

***Reed**: The announced plan that we can offset 30% of our load growth is 30% of the growth from today to 10 years into the future. Also, energy efficiency is more of an energy play, and you have to think about how many gigawatt hours you are saving. Demand response is more about megawatts or gigawatts you are saving. In terms of the modeling, TVA made an announcement around $1.5 billion investment in demand side programs. The first three years of our baseline forecast is included in every case that we looked at. Beyond three years, the model has the ability to select whatever the lowest cost portfolio is. It selected EE in many, if not all, of these cases. That is what is represented by this range. We saw a strong signal to keep investing in these programs.*

With combined cycle and combustion turbine in the range of natural gas, is it an "either/or" OR a "both/and" in terms of combining them for a longer comparable bar to solar? Or does it just track with level investment in solar?

***Reed**: It is a both, and that is because they have different missions. The combined cycle is more of a baseload or intermediate-type asset, and a combustion turbine is more of a peaking resource. Where you could see some offsetting is if you add more storage, you tend to offset the amount of combustion turbines you need, because they play similar roles. Or, if you add a lot more solar, that may take out some of the energy that your combined cycle plant might have provided. More solar may lead you to build a combustion turbine instead of a combined cycle. There is a lot of interplay.*

Regarding energy efficiency and demand response, based on the sensitivity analysis that we run, are the upper and lower boundaries of EE and DR based on the market penetration level, or is there another cost factor – especially at the top end – that is constraining those resources?

***Reed**: The top end is based off our Energy Programs Potential Study. We worked with a third-party provider, and they performed this Energy Programs Potential Study relative to our area. They looked at achievable potential based off different levels of incentives, and we modeled all of that. Our Strategy D – Distributed and Demand Side – forced us to take the highest levels each year. That, in combination with the sensitivity case that looked at higher potential, that sets the high end. Beyond that, the model could have selected less, but in every reference case, it tended to select more than the bare minimum. It saw value for demand side programs, and I think that will continue to be an important piece of the overall mix.*

Can you define carbon capture?

***Reed**: Primarily, this would be around adding carbon capture capability at gas facilities. You would capture carbon before it is emitted into the atmosphere, transport it, and sequester it long-term underground. It is still an emerging technology, and our Innovation & Research team is continuing to look at the technology.*

When you say you're going to collaborate with local power companies on the evolution of distributed resources program, does that mean that you may look at increasing the 5% ability for them or allow local power companies to come together and propose to generate a certain amount of capacity? That is one of the recommendations from the Utility of the Future Information Exchange.

***Reed**: That speaks to examples of what we are talking about there, although I don't have specifics of what that might look like. But we will certainly be working with customers as we continue to evolve existing and future programs.*

Since you are including Partner Flexibility projects, are you assuming that everyone is maximizing their 5%? Or are these known projects in the queue with the potential to max out 5% in the future?

***Reed**: In the IRP, we included all of the known projects. Beyond that, we used a distributed generated adoption model that looked at – based off forecasting in terms of the cost of solar, rate forecast, how quickly behind the meter is adopted – at the residential scale, commercial scale and local power company scale. For the IRP, it assumes it could be existing programs or new programs, so we do not include a hard cap on the 5%. We base it off economics. For alternative strategies, we incentivized it. That was a financial incentive within this model, so it covers a wide range of what we think could happen. Partner Flexibility and other programs are part of that 3 to 20 gigawatts. So, that 3 to 20 gigawatts is distributed scale and utility scale.*

When do you think the Clinch River decision will be made?

***Reed**: It depends on the milestone targets. We are continuing to do the evaluation. It could be as soon as the mid-2030s, but it will depend on continued evaluation and if the Board makes a decision to move forward with that project, based on least-cost planning.*

Can you see a scenario where demand decreases between now and 2035 or between now and 2050?

***Reed**: In terms of what we studied, our stagnant economy case, it is roughly flat by 2050 but it does have some near-term declines. All signs we see right now point to some level of load growth that could be substantial. Certainly a decrease is a possibility, and we explored that in our stagnant economy scenario.*

What are thresholds for when signpost changes would trigger the need for a new IRP?

***Reed**: It is easiest to think of these in terms of changing market conditions. It will be based off what we studied in the IRP. That is where the sensitivity cases and scenario ranges are so important. If we are monitoring electricity demand, you can see the upper and lower bounds. If we went above the highest case we studied, that would be a triggering event.*

If we've seen a blueprint for large loads that desire to come to the Valley with xAI in Memphis, where you can't provide firm service for that load and they build their own, does that fall under demand response or just load you don't have to serve.

***Reed**: It would depend on the structure of the contract. Typically, you would see it in the load forecast unless they are a customer. xAI entered into a demand response contract, so we count that as load, but it also has the complementary resource of a demand response contract. So typically each situation would depend on how the contract is structured.*

Can you talk about how this translates into your 10-year asset plan?

***Reed**: The IRP is setting overall strategic direction, and once we finalize it and the Board adopts it, then we will work on a couple of related plans – the near-term asset strategy, which looks at more specific things we plan to do over the next approximately 10 years, and the financial long-range plan. Both of those are important components of drilling down into specifics, while the IRP is more strategic.*

***Clifton Lowry**: Commercial strategy is another piece – things around distributed resource programs, Valley Vision next steps, business model shifts, customer ownership. It is a sub-piece of the business model and how you execute it.*

Which IRP strategy do you choose?

***Reed**: Based on 2025 IRP results, we anticipates plans to emphasize commercial ready carbon free and distributed and demand side resource additions (Strategies A, C, and D), all while staying within the confines of least-cost planning. As we looked at the metrics, we said there are components of Strategy A, C and D that are all valuable. It is a blended version of that. The strategies need to be different enough to provide insight. By having them as distinct strategies, we were able to get insight from the metrics. But we think a combined approach that leverages pieces of A, C and D is the best path.*

In the presentation, there are lots of tables – 2035 to 2050. The simplest summary graphic is for 2035 and looking at the bars and how they can change over time. Is there an opportunity to present the same graphic for 2050? I think of the energy infrastructure as evolving, and it might show how chosen strategies would play out over a longer period of time. In the chart that shows the ranges, could you do that same chart to 2050?

***Clifton Lowry**: We are sensitive that we've pushed boundaries and have big boundaries already. If we do a 2050 version, they would be even bigger.*

Regarding client action, I know you all did a lot of work on cost-benefit and that it is a planning parameter. Could you have a line that talks about enhancing risk benefits? You did a lot of work on that but you're not taking a lot of credit for it or explaining it.

***Reed**: Some of this is meant to speak to what we plan to do to enhance what we are doing.*

As you move from the directional IRP into the 10-year asset plan and the business plan, at what points are you beginning to determine that risk spread and the long-term ramifications. Where does that get incorporated into asset decision-making?

***Reed**: Internally, our day job is looking at this on a constant basis. We do two annual plans internally, and one of those two plans influences our approved budget for that year. That is a real way we keep a pulse on this. We also look at risk. We do sensitivities off those plans. The long-term piece is an important component, and they constantly look at what is going to influence that long-term cost.*

4. Next Steps and Advice Preparation Discussion – Hunter Reed, IRP Project Manager

Hunter Reed reviewed the RERC's 2019 IRP Advice Statement, then discussed 2025 IRP implementation considerations. He explained that the RERC's Advice Statement will appear in the final IRP. Next steps in the IRP process will include finalizing responses to public comments and finalizing IRP and EIS documents in preparation for planned Spring 2025 release. This portion of the meeting provided an opportunity for RERC members to offer their insights prior to development of the Advice Statement.

Reed reviewed the key discussion questions for the Advice Statement:

- Did the 2025 IRP process meet the objective of extensive, meaningful involvement of stakeholders and the public?
- Are the boundaries of the IRP analysis sufficient to inform a strategic portfolio direction that enables TVA to provide affordable and reliable power that is increasingly cleaner and resilient?
- What do you see as challenges and opportunities for TVA as recommended actions are implemented and signposts are monitored?

DISCUSSION QUESTION #1

Did the 2025 IRP process meet the objective of extensive, meaningful involvement of stakeholders and the public?

The process looked to work very well. How do you reach out to business and industry, and how do you work that into the IRP process?

***Farrell**: When we are going into a community, we try to let the local power company leader know we are coming to their community and holding an IRP open house. You make a good point, and your comment will help us look at other opportunities we may have.*

You said you engaged with an economic development group. Maybe there are other opportunities.

***Reed**: We spoke to the East Tennessee Economic Council, and we spoke to several other groups associated with industries, such as Associated Valley Industries (AVI). We asked them to connect us with others who might be interested, but there may to other opportunities to pursue.*

When I talk to regular folks in community, if they have a problem with electricity, they don't go to TVA; they go to their county or community and talk to the people they know.

Did you break down your comments by specific locations?

> ***Baxter***: *We did it at the state level. The majority were from Tennessee, then Georgia. We got comments from all seven states that we serve, and from some states outside the TVA region.*

When you met with a small group from Memphis, people thought it was cool. I just asked for it, and you provided it. One person said she had no idea how much went on for her to be able to turn on a light. Each time you are able to interact where people are, where they are able to ask a question, that builds trust. We can always do better. When looking at stakeholders, it includes everyone. There are everyday people who want to understand how this IRP will impact their utility bill. It matters to people. It is good to have meaningful involvement in places where people carry the burden of energy pollution. Thank you for doing the extra meeting, for all of your hard work and for understanding we can do better.

Something worth noting is that the diversity of expertise in this group is very well thought-out and leads to the good discussions that we have.

I have asked questions about what we think the need for energy will be in 10 years. It's easy for us to underestimate what demand will be three years from now. There is a lot of construction in the region. I think it is easy to underestimate what the need will be.

The community engagement folks you have in each region that engage in the community helps give a really positive image to TVA. Regarding the responses to public comments, will they impact the final IRP? It would be great to show how comments influenced the final product.

> ***Reed***: *They have influenced it. We reviewed everything, and we took the feedback into consideration when we developed the sensitivity list. We also have added elements to the IRP and EIS. We added several sections to the IRP as a direct response to public comments. For example, if someone commented that something was confusing, we added a section or clarified what someone thought was confusing. If a comment influenced a sensitivity or the final document, we point that out.*

The public hearings were amazing. I just organized an energy efficiency workshop and a representative from TVA came and a representative from KUB came. I think that kind of interaction is helpful to get the message out. Then, when you do big public hearings, people may already be aware. I think the energy efficiency initiative is a really good opportunity to get the word out about TVA and the good work you are doing.

When I think of TVA with the IRP Working Group, it is a more meaningful process than any other IRP process I participate in around the country. It is more interactive. From a customer perspective, we look for confidence in the process, and this is a highly detailed, highly sophisticated process that we can have some confidence in.

I appreciated the sensitivity conversation, and it is nice to hear how many of them were built off the feedback of the Working Group and public comments. It is a tricky process, and I appreciate TVA's

thoroughness and how it takes a complicated thing and distills it into information that is understandable and can be digested.

DISCUSSION QUESTION #2

Are the boundaries of the IRP analysis sufficient to inform a strategic portfolio direction that enables TVA to provide affordable and reliable power that is increasingly cleaner and resilient?

When we started the process, there were some of us who were concerned that the upper boundary wasn't upper enough. We had that discussion early in the Working Group and developed the high growth, high regulation scenario. I still am nervous about the upper end, but when you look at the modeling results, it is an astonishing range of potential load – and in this environment, it is appropriate to have that sort of range. But it is sobering.

If what TVA is doing is not reliable and resilient, the rest of it doesn't matter. Affordability is a critical factor, and the environment is a critical factor, too, but if it is not reliable and resilient, we have bigger problems. This is across the country, not just here.

Extreme weather and how it would impact resiliency is a huge uncertainty.

Do you feel confident in the sensitivity analysis you did on extreme weather?

> ***Reed***: *All cases include trended weather patterns to simulate recent observed seasonal changes. For example, summers are generally getting warmer; winters are, too. We have that baseline in all of the cases. The stochastics look at more extreme variations in weather. That analysis looks at higher and lower amounts of load based on probability. Sensitivity analysis takes it one step further and looks at trends that are exacerbated.*

You can't really prepare for the worst extreme weather. If we go four or five days with extreme weather, we would need energy from other places to fill the gap. Extreme events are hard to prepare for if they last for a long time. Resiliency and environment go hand in hand.

In this time of uncertainty, there is an opportunity to see the IRP as a living resource and one that remains flexible. For that reason, the signposts and the ways of thinking about what is around the corner are helpful.

Regarding changing weather patterns, do you have access to changing datasets? Is there something that speaks to that in the IRP?

> ***Reed****: From a planning standpoint, weather will influence load. We do two forecasts a year, and weather is certainly one of the most important influences to the load forecasts.*

The winter margin is really important. When you think about load forecast, 25% reserves is the error margin in the plan. Is that enough? Is that a recommendation we should ponder?

> ***Lowry****: In the winter weather sensitivity analysis, we increased the winter reserve by 5% to 30%. Weather is one piece, because it affects demand and asset performance. An important assumption in the IRP is that we have to maintain those assets so they perform. Over Winter Storm Elliott, we had some challenges with underperformance of assets. Following that, we made significant investments to shore up those assets. Now, we have set two all-time peaks in the most two recent winter seasons and had solid asset performance. When you think about 25% or 30%, in real time,*

what happens is as assets are offline, your reserve position drops. That's when we go to market to secure backup. There is a 25% target in the IRP, but the realized target will be something higher as we get to the peak. From the benchmarking we've done, that would be very high.

Regarding purchase power, where do those contracts sit?

Lowry: *We have some firm out-of-Valley contracts today. We are building a local system that serves the expected demand and provides the reserves for winter and summer. If we need the market, we don't want to rely on it in real-time exclusively. If we need to go back and secure an asset, we can do it in advance and use DNR, which is a designated network resource. We have control of that, and it is ours to call on. That is how we can get capacity credit to count toward meeting our load, but it is not something we rely on.*

Could you call on that for a year, two years or long-term?

Lowry: *It depends on the terms of the commitment. All utilities seem to be facing these capacity challenges. We have secured them for as long as we can.*

Affordability has to be in the model, and we have to protect lives with the right energy mix. In the signposts, are there metrics that have a percentage of how much it costs the customer? Like, if the rates increase by this number, then we need to get back to the table and figure something out.

Reed: *We do not have metrics like that, because this is all grounded in least-cost planning. All decisions are based on least-cost planning, which includes low-cost, reliability and environmental stewardship. Making decisions that are low-cost is foundational.*

Is there anything in the signposts to address energy cost and poverty?

Farrell: *The IRP looks at costs based on resource assumptions today. Energy cost is certainly a significant component of the energy burden equation, and we are always mindful of staying true to our mission of least-cost planning.*

Is there a way to consider the end-user rate? Is there a metric to let you know that the decision you made is not affordable? Is there a way to have a metric that captures where there's a pressure point?

Farrell: *After the IRP is finalized, we will have periodic updates of progress toward the IRP. Once we have this plan done, that would be part of evaluating how we are executing on the mileposts.*

Is there a metric for participant cost – like, if we have a contract and lock it in versus, for example, the natural gas price going up and down. Also, what can you describe in terms of access to energy efficiency and the demand response curve?

Lowry: *Signposts are designed to be a refresh of forward-looking assumptions. We are talking a little bit more about metrics, and there is a different process for addressing that. Feedback on how to characterize rate and affordability makes sense, but not in the IRP.*

TVA has made progress with customer-facing programs. TVA has the opportunity to support customer energy needs and the end-use customer's needs.

What will energy look like in the future? You have programs, but people are not decreasing how they use energy. The need is greater. TVA has an opportunity to increase those programs, and those programs will help decrease the load demand. Those type of investments will get us where we need to go. It is an important to address energy poverty and energy burden. We need to consider risk

management of energy pollution. When we utilize these technologies, the energy pollution is never included in that cost. We need to make sure that we have the full life cycle captured.

> ***Reed:*** *We include the total cost of environmental requirements. In terms of least-cost planning, we look at direct costs – things like costs for operation, environment regulations, fueling, staffing. We did life cycle analysis for emissions, and that is an indirect cost. In the draft, there is a full section on life cycle assessment, as well as what that translates to in terms of the social cost of greenhouse gasses. It uses a couple different forecasts and it monetizes the impacts to human health, environmental impacts and others.*
>
> ***Farrell:*** *That is new to the 2025 IRP.*

DISCUSSION QUESTION #3

What do you see as challenges and opportunities for TVA as recommended actions are implemented and signposts are monitored?

It is good that developing new technologies is mentioned, particularly as it impacts energy generation and reliability. TVA does an awesome job working with partners. The most important way I've seen is the feedback they give to developing-technology partners such as startups and small businesses. TVA's feedback at that early stage is beyond critical. It is the direct feedback about what is going to move the needle. Staying engaged with that is critical for helping new technologies get developed.

One of the biggest challenges TVA is facing is a generation shortfall. A big part is that 100% of the generation proposed has people who are opposed to whatever it is. This is an opportunity to educate people and help them understand that diversity in our generation mix is a good thing. That might help prevent opposition.

Energy education is important. We sometimes put in efficiencies, but if we don't educate on energy — on energy loss, energy consumption, how energy gets to your house – some of the energy efficiencies are wasted.

There isn't a signpost on carbon emissions or pollution from the system. It seems like we want to track and support CO_2 emissions. That is a key signpost, in my mind.

Energy efficiency efforts might be small compared to the other assets, but if you are an end-user receiving EnergyRight incentives, that could be more important than the rates. It could be a compelling message to lift up what the total benefit is to the end-users.

The work you do is important. People learn from other people. A lot of people don't understand the impacts of TVA. This is a real opportunity to talk about the IRP but also build a community.

Regarding uncertainty and the climate around regulation, it is good to separate the noise from the true market signals. It is important to make sure you have a plan that is reactive to the true market signals and that is not so responsive to the noise that it gets you off course.

DAY 2

5. Public Listening Session

Pam Jones
Thank you for your service. I originally was going to talk about the models, but after the meeting yesterday, I changed what I want to say. When listening to the discussion of advice questions, I was hoping that during the discussion of the public engagement process, I would hear about the many requests to hold a public hearing. Which, I did not. I spoke virtually at the October meeting and suggested more public engagement with a public hearing. Most utilities have a more robust stakeholder process and technical workshops with third-party experts. We have a lot of expertise on the Council and in the Working Group. Third-party experts would be like peers of people on Hunter Reed's team who dig into details of planning and who interact more with them than is currently done. In November 2023, several non-profits asked the TVA Board for a public hearing. When we didn't hear back, we held a hearing in January 2024 – the People's Voice. It included experts talking about energy issues. Please consider adding this to the Advice Statement. There is value in considering public hearings with technical experts involved. It is an industry standard. Take, for example, storage modeling. Differences would have occurred if there had been a public hearing that involved these technical experts. The IRP models 4-hour storage instead of the industry standard, 10-hour storage. There is a lot of information out there that batteries replacing gas is a preferred option to support the intermittency of renewables. A lot of choices are being made available as the cost of lithium batteries continues to come down. If 10-hour batteries had been modeled extensively, it might have shown a bigger range of resource batteries and perhaps a lot less gas. It is important for a resilient and clean energy future.

Amy Kelly
I am a campaign manager at Sierra Club. The Sierra Club has staff on the IRP Working Group. I'd like to highlight technical comments. Strategy C performs best across TVA resource modeling. It has the fastest reduction in CO_2 intensity. A commissioned expert study from Synapse Energy Economics points out the benefits of modeling adjustments, including long-duration storage. Also, IRP solar cost assumptions by 2050 are 17% higher than the National Renewable Energy Laboratory's (NREL's) Moderate scenario projections, wind is 25% higher and gas is 35% less. Making adjustments in cost assumptions would show a more realistic option. Companies usually have action plans in the IRP; TVA does not. TVA has the responsibility to be transparent with overall and near-term plans. Otherwise, the IRP is not a plan and cannot best perform as a compass. In 2019, the range for solar was to add 1,500 to 8,000 megawatts by 2028. TVA maxed out gas, showing no commitment to the recommendation. TVA has an excellent IRP website, but one thing that's missing is comments from the draft IRP period. All comments should be made public well before the final IRP. The RERC can advise based on public feedback. As the largest federal public utility, TVA needs to be generating clean, affordable, reliable energy.

Leah McCord
I am with the Clean Up TVA Coalition. Today, I have recommendations that I'd like to see you, the RERC, make to the planning staff and Board. The resource ranges are dangerously vague, in so much as virtually useless. We requested that TVA narrow the ranges and include the highest range of solar to provide reliable energy sources for the people of the Valley. TVA claims that methane gas and nuclear are required for resiliency. That is not the case. Relying on that is concerning. In the winter, TVA purchased a significant amount of power. This is heavily driven in a recent case by unexpected nuclear outages. In recent storms of past years, power failed because gas was not on line. I ask the planning staff

and RERC to robustly investigate renewables to address gas unreliability. Please revisit this issue and open the IRP up for a second comment period.

6. Advice Statement

After comprehensive discussion on both days of the meeting, the members voted unanimously to accept the Advice Statement regarding the Integrated Resource Plan. The statement will be shared with the TVA Board of Directors.

7. Closing Remarks

A. Erin Gill thanked members for their thoughtfulness and engagement, and said the RERC fulfilled its role as an advisory council. She thanked the TVA staff.

B. Melanie Farrell thanked the Council for its Advice Statement and thanked the TVA Board members in attendance and public participants as well. She noted that this meeting was the last meeting of the 6th term.

Appendix A
Non-Council Meeting Attendees

TVA (In person)	
Nathaniel Andrews	Clifton Lowry
Kelly Baxter	Aaron Melda
Rebecca Brinkley	Millie Callaway Parkes
Scott Brooks	Michelle Parkin
Aaron Brown	Barbie Perdue
Jennifer Brundige	Amy Reagan
Ross Cook	Hunter Reed
Ashley Farless	Bill Renick (Board member)
Melanie Farrell	Jason Rhodes
Bekim Haliti	Joe Ritch (Board member)
Althea Jones	Selena Robinson
Candy Kelly	Marylee Sauder
Mike Kitzman	Logan Stephens
Jo Anne Lavender	
TVA Staff Members (Virtually)	
Laura Duncan	Jane Elliott

Stakeholders (In person)	
Pam Jones	Ian McMillan
Stakeholders (Virtually)	
Sarah Al-Zhyri	Leah McCord
Al Berrong	Emily Park
Jennifer Bogus	Sarah Robbins
Kathryn Conner	Madison Rollings
Eric Coons	Gabriela Sarri-Tobar
Juliette Juillerat	Richard Shaffer
Laurie Knox	Maggie Shober
Heather Kulisek	Bonnie Swinford

Regional Energy Resource Council Meeting Agenda
February 24 and 25, 2025
Franklin, Tennessee

Hotel: Hilton Franklin Cool Springs
601 Corporate Centre Dr.
Franklin, TN 37067

Meeting Location: Hilton Franklin Cool Springs
601 Corporate Centre Dr.
Franklin, TN 37067

Advice Questions:

1. Did the 2025 IRP process meet the objective of extensive, meaningful involvement of stakeholders and the public?
2. Are the boundaries of the IRP analysis sufficient to inform a strategic portfolio direction that enables TVA to provide affordable and reliable power that is increasingly cleaner and resilient?
3. What do you see as challenges and opportunities for TVA as recommended actions are implemented and signposts are monitored?

Day 1 – Feb 24

12:00 – 12:10	**Welcome / Call RERC Meeting to Order**
12:10 – 12:20	**Introductions and Agenda Review**
12:20 – 12:30	**DFO Briefing**
12:30 – 3:30	**Final 2025 IRP Updates** • **IRP Process and Schedule** • **IRP Stakeholder Plan** • **Final Modeling Updates** • **IRP Recommendations and Discussion**
3:30 – 3:45	**Break**
3:45 – 5:00	**Advice Question Discussion**
5:00	**Adjourn Day 1**

Day 2 – Feb 25

9:00 – 9:15	**Day 1 Recap**
9:15 – 10:15	**Public Listening Session**
10:15 – 10:30	**Break**
10:30 – 11:45	**Finalize Advice Statement**
11:45 – 12:00	**Wrap up Meeting**
12:00	**Adjourn Meeting**

Tennessee Valley Authority, 1101 Market Street, Chattanooga, Tennessee 37402

Regional Energy Resource Council, February 24 and 25 IRP Advice

Advice Questions:

1. Did the 2025 IRP process meet the objective of extensive, meaningful involvement of stakeholders and the public?
2. Are the boundaries of the IRP analysis sufficient to inform a strategic portfolio direction that enables TVA to provide affordable and reliable power that is increasingly cleaner and resilient?
3. What do you see as challenges and opportunities for TVA as recommended actions are implemented and signposts are monitored?

As a diverse set of stakeholders brought together to offer advice on the development and management of energy resources in the Tennessee Valley, the Regional Energy Resource Council (RERC) appreciates TVA involving the Council meaningfully in the development of the 2025 Integrated Resource Plan (IRP). Throughout the last 15 months, the RERC has heard updates on the IRP at several milestones, which has allowed members to build an understanding of the purpose, methodology, scenarios, strategies, and assumptions that have shaped the preliminary final IRP recommendations.

Having reviewed and, for some members, been part of the numerous components of the IRP engagement and outreach strategy, the RERC affirms that TVA has met the objective for extensive, meaningful involvement of stakeholders and the public. The RERC particularly appreciates and has confidence in the work of the IRP Working Group to provide comprehensive, detailed, and accurate perspective that has informed IRP modeling and shaped the recommendations. Sharing IRP Working Group materials and other efforts to increase transparency helps build confidence and trust in the integrity and thoroughness of the planning process.

The RERC acknowledges the difficulty of securing participation from a representative sampling of Valley ratepayers. Members shared appreciation for several elements that increased reach, expanded public understanding, and offered the opportunity for meaningful engagement:

- Increasing the duration of the public comment window after releasing the draft IRP;
- Sharing key modeling assumptions and other input sources as appendices during the draft comment phase;
- Including a panel discussion and Q&A session during the Public Open Houses;
- Adding region-specific and customer-specific events responsive to the interests and needs of unique, local audiences;

- Offering the public webinar, with Q&A, to increase understanding of the preliminary final recommendation prior to TVA Board consideration.

Further, the RERC appreciates the more than 2,500 individuals and organizations who participated in the public scoping and / or comment periods for the IRP. TVA staff shared with the RERC specific examples of how public feedback informed sensitivity analyses, influenced report content and context, and ultimately informed the IRP recommendations. In the future, sharing public comments and responses alongside the preliminary final recommendations may help demonstrate greater influence from IRP outreach and engagement.

Having reviewed the summary of the preliminary final IRP, we affirm that the boundaries of the IRP analysis are sufficient to inform a strategic direction for TVA to continue to provide affordable and reliable power that is increasingly clean and resilient.
Specifically, we affirm that the scenarios and strategies yielded a robust set of portfolios that revealed a sufficient, balanced, and appropriate range of capacity resource options to support Valley energy needs. In particular, through the stochastic and sensitivity analyses, the IRP sufficiently considered the benefits, impacts, and trade-offs of an appropriately broad range of resource options and potential risks across the planning horizon. Generally, the RERC underscored the urgency of TVA utilizing the IRP direction to respond quickly to the current and projected energy demands of the Valley through a diverse energy portfolio.

As TVA moves from planning into implementation, the RERC has identified challenges and opportunities associated with the recommended actions identified as a result of the IRP process.

In a time of increasing uncertainty, it will be challenging, but critical, to monitor signposts and keep plans flexible and responsive, rather than rigid and static. The close tracking and transparent reporting of how reality, including extremes, matches with IRP assumptions and signposts across scenarios will help TVA mitigate risks and remain responsive and agile in a rapidly evolving energy landscape. Among those metrics, RERC members reiterated the importance of tracking and sharing the impacts of energy resource decisions on end-use customers in terms of energy affordability, reliability, environmental impacts, and resilience.

Leveraging the outreach and engagement strategies from the IRP, TVA has an opportunity to continue consistent, proactive engagement with communities across the Valley. Public understanding of the importance of a diverse and well-maintained generation portfolio, inclusive of demand-side resources, will continue to be important. Early engagement to expand trust and understanding will help pave the way for smooth deployment of new generation resources as well as successful adoption of demand-side programs. The RERC recognizes the importance of successfully achieving the existing plan to significantly reduce future demand growth through energy efficiency and demand response. Such efforts should emphasize participation by lower-income households, especially in those programs that promote overall energy bill affordability.

Further, by strengthening existing partnerships with local power companies and directly served customers, TVA can support and strengthen programs and processes that align demand-side and distributed energy resources to maximize benefits to the regional energy system and local distribution systems, while delivering meaningful benefits to customers and communities (reliability, efficiency, affordability, resilience, and reduced pollution).

RERC members encouraged TVA to continue to stay on the forefront of emerging technologies that can support load growth and environmental aspirations over the 2050 planning horizon. Engagement with partners at all stages of the technology research and development pipeline is meaningful and can help advance and accelerate the deployment of new resource types.

On the whole, the RERC has strong confidence in the IRP planning process and outcomes to provide a strong strategic direction to guide TVA investment and action in meeting the energy resource needs of the Valley in the decades to come.