

Regional Energy Resource Council (RERC) Minutes
Tennessee Valley Authority
October 3, 2024
9 a.m. Eastern

Meeting location:
The Westin Chattanooga
Chattanooga, Tennessee

The Tennessee Valley Authority (TVA) Regional Energy Resource Council (RERC or Council) convened for the 5th meeting of the 6th term, beginning at 9 a.m. Eastern on Thursday, October 3, 2024. Meeting presentations are available at www.tva.gov/lerc.

Council members attending in-person:

Jan Berry, Marquita Bradshaw, Monte Cooper, Erin Gill (Chair), Pete Mattheis, Dan Miller, Doug Peters, Boyd Pettit, Erik Schmidt, Julie Woosley

Council members attending virtually:

Rebecca Goodman, Chassen Haynes, Chrissy Heard, Alexa Voytek

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

Purpose

The purpose of the meeting was to provide updates on TVA’s Integrated Resource Plan (IRP) and Innovation & Research.

1. Welcome and Introductions

- A.** Melanie Farrell, Vice President, Valley Engagement & Strategy, TVA, welcomed everyone to the meeting and thanked them for their time and dedication. She asked everyone to think about and support the communities impacted by Hurricane Helene, and she noted that TVA’s general manager of River Management would offer an update on TVA’s flood control efforts later in the meeting.
- B.** Erin Gill, RERC Chair, welcomed everyone to the meeting and emphasized that the RERC will play an important role in the 2025 Integrated Resource Plan process by providing formal advice to the TVA Board in early 2025. She thanked all utility service workers for supporting communities impacted by Hurricane Helene.

2. TVA Helene Update – James Everett, General Manager, River Management
(Presentation is available at www.tva.gov/lerc.)

James Everett provided background information about weather conditions related to Hurricane Helene and information about TVA's response. The region already had experience heavy rainfall prior to the hurricane, and by the end of the storm, the area had seen 20 to 25 inches of rain. That amounts to about two months of rainfall in a three-day period, which prompted record flood levels on the Nolichucky, French Broad, Pigeon and Watauga rivers. The flood levels and rainfall totals were unprecedented. Everett described the conditions at TVA dams on each river.

TVA owns the Nolichucky Dam – a non-power dam in Greene County, Tennessee, that uses a large concrete overflow spillway to pass water. The water elevation at the Nolichucky Dam got so high that it surpassed its previous record by almost 10 feet. Water was coming up and over the dam as well as coming around the sides. TVA issued emergency declarations to the counties immediately within the dam's vicinity to give them advanced warning. TVA partnered with the National Weather Service and the local county emergency management services to issue an unprecedented warning for a potential breach at a dam. The water levels receded the next morning and the dam stood strong. There is significant damage that is being evaluated, but TVA was able to rescind the emergency conditions and is focused now on stabilization and recovery at the site.

The Nolichucky, French Broad and Pigeon rivers all experienced record flood levels. They drain into TVA's Douglas Dam in Sevier County, Tennessee. The dam received an unprecedented amount of water, but it worked as designed to reduce flood levels and provide protection for areas in East Tennessee. Currently, TVA's main focus is on communities that are suffering. It is working to ensure people are safe, while also focusing on resetting TVA's reservoir system. Everett said TVA continues to be vigilant about managing and recovering flood water so the system is prepared to function as needed. TVA is working with federal, state and local partners to determine the extent of debris in the reservoirs. It is putting in place plans for debris containment and removal. TVA also has staff in the field supporting communities as well as others working to get bring the transmission back online in impacted areas.

COMMENTS

Julie Woosley, director of the North Carolina State Energy Office, made the following comment. *About one-third of our state has been impacted. Our emergency responders and utility companies are still in the assessment phase now, almost a week later, because there are so many areas that are still inaccessible. There's nothing like going through a disaster like this to bring home how important it is to make sure that as we're making these plans for the future, we're not basing it on looking backward. I am not convinced that only looking at up to the 100- or up to even 500-year floodplain is a good idea when you're talking about significant assets. We really need to be looking more broadly than that for the potential for additional record-breaking weather in the future and think about how best we can address that. I don't know that there's any way to fully prepare for a storm like this, but I think there are things we can do to increase resiliency of some of these communities, particularly communities that are difficult to reach after an event like this, because there's not a lot of connectivity in the transportation sector. I think there's one microgrid in the affected area in North Carolina. I think additional ones would have been really helpful during this assessment and outreach phase when we're trying to figure out exactly what all the needs are. So I'm hoping that as we go forward with this plan, we can view it through that lens and think about how we can improve it for the future.*

3. Designated Federal Officer Briefing — Melanie Farrell, Designated Federal Officer and Vice President, Valley Engagement and Strategy (Presentation can be found at www.tva.gov/rerc)

In her briefing, Melanie Farrell focused on TVA's Clean Energy Report, which was issued in September. The 10-page report describes the actions TVA is taking toward a clean energy future. Based on statistical data from organizations such as the Edison Electric Institute (EEI), TVA is positioned as a national leader in carbon reduction. Farrell discussed a few TVA focus areas, including:

- **Nuclear energy.** TVA has the third largest nuclear fleet in the country and continues to invest in advanced nuclear technologies.
- **Hydroelectric power.** TVA's dam system is the backbone of TVA and offers clean energy.
- **Solar deployment.** TVA's goal is to achieve at least 10,000 megawatts of solar by 2035. Currently, it has approximately 4,000 megawatts of solar in operation or development.
- **Energy efficiency and demand response.** TVA plans to spend \$1.5 billion in energy efficiency and demand response programs through fiscal year 2028 to lower energy bills and energy use.

Farrell also noted that as TVA moves toward an even cleaner energy portfolio, companies committed to clean energy generation are locating to the Tennessee Valley region based on TVA's commitment.

4. TVA's Integrated Resource Plan Update —Clifton Lowry, Director, Resource Planning & Strategy; Hunter Reed, IRP Project Manager; and Amy Edge, Director, Customer and Community Relations (Presentation can be found at www.tva.gov/rerc)

In the Integrated Resource Plan (IRP) presentation, staff members of the IRP team provided an overview of the project and offered information on draft 2025 IRP key inputs, a review of draft 2025 IRP results, and information on next steps.

Clifton Lowry, Director, Resource Planning & Strategy, provided an overview of the IRP, which 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.

Lowry explained that TVA's integrated resource planning is grounded in fundamental least-cost principles: low cost, risk informed, environmentally responsible, reliable and resilient, diverse and flexible. The IRP helps identify the optimal mix of resources to meet the region's future energy needs. Lowry reviewed the IRP timeline and how the IRP process works. It begins with evaluating scenarios (future worlds that are outside TVA's control), developing strategies (business 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. Ultimately, the study will lead to a recommended strategic portfolio direction that would guide TVA decisions for decades to come.

Lowry described the detailed process TVA and the IRP Working Group, a diverse group of stakeholders who meet regularly to provide comprehensive feedback on the IRP, used to develop the scenarios:

- Scenario 1 – Reference Case (without Greenhouse Gas Rule)
- Scenario 2 – Higher Growth Economy
- Scenario 3 – Stagnant Economy

- Scenario 4 – Carbon Regulation
- Scenario 5 – Carbon Regulation Plus Growth
- Scenario 6 – Reference Case (with Greenhouse Gas Rule)

He also described the detailed process TVA and the IRP Working Group used to identify the strategies:

- Strategy A – Baseline Utility Planning
- Strategy B – Carbon-free Innovation Focus
- Strategy C – Carbon-free Commercial Ready Focus
- Strategy D – Distributed and Demand-Side Focus
- Strategy E – Resiliency Focus

Lowry also reviewed highlights of the draft and final EPA greenhouse gas rules; major assumptions of the net-zero regulation scenarios; resource options; the strategy design matrix that provides the roadmap for how resource promotions are applied in the strategies; the rigorous analytical process; Inflation Reduction Act (IRA) tax credits; and details related to IRP metrics.

Hunter Reed, IRP Project Manager, reviewed the draft 2025 IRP results, noting that initial modeling for the draft IRP offers the following specific ranges for power generation resources:

- 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

He also described the following key themes, which are based on the initial IRP analysis:

- New capacity is needed in all scenarios to replace retiring and expiring capacity, support economic growth, and enable further electrification of the economy.
- Firm, dispatchable technologies are needed to ensure system reliability throughout the year.
- Solar expansion plays an increasingly substantial role, providing economic, carbon-free energy.
- Gas expansion serves broad system needs, with the potential for emerging carbon capture and hydrogen options to enable deeper decarbonization.
- Energy efficiency deployment reduces energy needs, particularly between now and 2035, and demand response programs grow with the system and the use of smart technologies.
- Storage expansion accelerates, driven by evolving battery technologies and the potential for additional pumped storage.
- Wind additions have the potential to add more diversity and carbon-free energy to the resource mix.
- New nuclear technologies, with continued advancements, can also support load growth and deeper decarbonization.

Reed also reviewed incremental capacity by 2035, total energy in 2035, incremental capacity by 2050, total energy in 2050 and strategy performance. In discussing the draft Environmental Impact Statement (EIS), he noted that the EIS evaluates the potential environmental impacts of the IRP on:

- Air quality

- Climate and greenhouse gases
- Water resources
- Land resources
- Solid and hazardous waste
- Fuel requirements
- Life cycle analysis
- Socioeconomics
- Environmental justice.

Highlights of draft EIS observations include:

- **Air quality:** Long-term reductions in air emissions of all types with expected coal retirements
- **Climate and greenhouse gases:** Long-term reductions in carbon emissions and intensity
- **Water resources:** Reductions in water use from 2025 to 2050, except in Scenario 5, which has the most nuclear expansion
- **Land resources:** Increases in land use primarily driven by solar expansion
- **Solid and hazardous waste:** Coal combustion residuals production drops to zero by 2035

Amy Edge, Director, Customer and Community Relations, discussed the importance of public engagement and reviewed the schedule of two virtual meetings and 10 public open houses across the Tennessee Valley region. She encouraged people to review the draft IRP and draft EIS and provide official comments. TVA staff will review all submitted comments and incorporate feedback, as appropriate. In consultation with the IRP Working Group, and informed by public comments, TVA will evaluate and model sensitivity cases for inclusion in the Final IRP throughout the fall and winter. IRP staff expects to meet with the RERC again in early 2025 to provide updates on public comments received and planned sensitivities. IRP staff also expects to meet with the RERC to present the Final IRP results and recommendation and seek an advice statement.

QUESTIONS/ANSWERS

I believe you all have shared quite a bit of the background information on your website about what went into creating this plan. Where can we find information on the assumptions that went into the model? Where do the assumptions come from?

Lowry: *I appreciate that comment. For charts and graphics in the IRP, we have the data available on the [IRP website](#). In regards to where the assumptions come from, some are internal to TVA – such as our load forecast or resource costs that we are familiar with. Then we use a blended cost framework for resources we contract for, things like solar and storage. We have a sense of what that near-term cost would look like, but we blend toward a longer-term forecast that comes from the National Renewable Energy Laboratory (NREL) for most of the clean energy technologies. We also compare those against other available third-party forecasts. We provided a benchmarking study specific to those cost assumptions in the IRP as well to ensure we're being transparent and thorough on how we're building these key inputs. So, on the website, all of that is available either in the document itself or through the accompanying Excel files.*

For solar, you talked about seeing the potential of 3 to 20 gigawatts of solar additions. Can you give an example of industrial solar? What would it take in terms of size to create one gigawatt?

Reed: For solar results, utility scale and distributed scale solar are grouped together. When we look at utility scale solar, 7 to 10 acres per megawatt is generally the requirement for utility scale solar.

Why does the reference case with greenhouse gas result in lower capacity needs?

Reed: When we looked at this from a scenario standpoint, there were a few key drivers that resulted in a lower long-term electric demand forecast. Most of these are economic in nature. Almost inevitably, whenever you introduce additional regulations that put some sort of constraint on industry, these regulations typically result in higher costs, and these higher costs are going to have a dampening impact on load growth. If businesses are forced to pay more for their electricity because the cost of producing that electricity has gone up, there will be some economic dampening that occurs. Also, as a result of maybe less widgets being produced, there's also the potential that there's going to be more investment in energy efficiency. There's also the uptake of naturally occurring energy efficiency. And, if I see that my electric bill is increasing higher than I would have expected, I may be more likely to invest in more efficient windows or a more efficient HVAC system. Additionally, our electric vehicle forecast is slightly lower as a result of fuel switching. So, there might be some fuel switching opportunities, whether it is a vehicle or even a company that may decide to stay with some sort of fossil-based boiler as opposed to going to an electrified boiler.

You mentioned carbon capture and storage (CCS) once it's available. Is the model going to use it as much as it can? Is the same true for solar and storage? Is there any prioritization of storage over other types of backup generation?

Reed: The model is going to do its best to make use of the renewable energy. It understands there are going to be some seasonal constraints to that, so it's looking to optimize across the entire study horizon. There may be more solar energy than you would need in certain seasons, like spring, so the model will capture that surplus energy. The model understands when it's going to have these periods of excess energy, and one of the tools in its tool belt is the addition of storage. The portfolios with the highest amounts of solar and wind also typically have the highest amounts of storage.

I find it interesting that you're saying that low-carbon technologies are more expensive than gas to install. Could you explain that?

Reed: We have to consider the contribution of renewable resources to providing reliable energy across all hours, including when we need it most to ensure reliability. The model is solving for the overall least-cost portfolio. Depending on which forecast you look at, a resource might appear to have a lower cost on a dollar-per-megawatt-hour basis, but if, for example, solar needs to be paired with gas or a storage asset for reliability, that impacts cost. The model takes that into consideration.

I don't know what the drivers are, but I've seen increases from \$27 for maybe one hour to now it's closer to \$60. That is what purchased power is looking like. That's strictly solar, without any storage coupled to it. There has been a pretty steep increase in what it costs to buy it.

Reed: That tracks with what we've been seeing. We have incorporated the latest in terms of what the market offers in the near-term. We do blend in the forecast over the medium- and long-term, but we're reflecting near-term pricing.

**Do you include purchase power anywhere or transfer from other utilities or other areas?
Do you include that in your modeling at all?**

Reed: Yes, and it manifests in a few different ways. In the near term, if the model sees a need for getting purchased power to ensure reliability, it can use that option. But over the long term, it is going to build its own assets to reliably meet our demand. Some of the resources ultimately could be sourced through a purchase power agreement. It's more focused on what is the resource type. Is it solar?

Is it wind? But theoretically, that could be Midwest wind. The model has limited amounts of market potential from a purchasing standpoint that it can execute on, and we do see that in the results. It's typically a pretty small amount in the results that we see, because the model wants to build its own reliable dependable capacity to meet power needs.

We have a new regulation in North Carolina that's passed about handling solar at the end of its life for large-scale installations. Does Tennessee have something similar that requires a fund or other costs upfront for handling the waste at the end of life for a large solar installation?

Another RERC member: Yes. I know there's a decommissioning law that was passed. I don't believe there's a fund associated with it though.

Does your analysis take into account cost for land? We have seen huge increases in the cost per acre of land. Does your analysis take into account the additional transmission costs that are part of building out the solar capacity?

Reed: Yes. Both the cost of land and the cost of transmission interconnection are included and are factors for all resources.

I am curious on the land intensity for solar. What are you basing that on?

Reed: The 7- to 10-acre per megawatt hour is based off a few factors. It's based historically on what we have seen in past projects. Also, while community solar is probably fixed axis, this would be utility scale single access tracking, so that tracking is going to require a little bit more land between each panel. When you get into some of these utility scale projects, if you're looking at a 100-megawatt or 200-megawatt facility, you may have to purchase a track of land that is quite a bit bigger, because you might have a stream going through it or you might have some hills that are unusable from a solar standpoint.

When you talk about the retirement of facilities that may have been built as a 60-year asset – coal, in particular – does the IRP in any way address the repurposing of those facilities to be used potentially as a gas-fired plant?

Reed: It does not in that amount of specificity. The IRP is really more focused on what's the appropriate resource mix. Site-specific decisions such as what we would do with the facility when it is retired would be studied at a later time. It doesn't preclude the fact we could do that, but it doesn't identify that.

I was looking back at some of the advice statements that we provided last time and wondering if you can give us some clarity as to where we might find or when we can expect some of this. We talked a little bit about sensitivity analysis as being one of the key next steps in testing the limits of some of these assumptions. At what point will we see that sensitivity analysis play into this process?

Reed: The sensitivity analysis is something that we're working on right now. We've had a couple conversations already with the IRP Working Group in terms of the possible short list of initial sensitivities. We are also holding off until we have all of the public comments. We'll have a couple more conversations with the Working Group to create the final sensitivity list. The team already is beginning to work on ones we think have the highest value and that we want to do based off

Working Group discussions and TVA's identification of needs. We'll be working on that throughout the fall and the winter, and we expect to begin presenting those to the Working Group later this calendar year. Then we can come back to this group early next calendar year to start talking about the sensitivities you can expect to see in the final IRP.

The other suggestion we made last time was around environmental justice metrics, and I believe I saw a lot of those brought out in the draft Environmental Impact Statement, the EIS. One of the metrics that we highlighted was around energy burden, and I know that that's a challenging one because it does not contemplate cost to consumers. Energy burden impacts are really going to be a function of how much energy efficiency and demand response the model has recommended. Can you maybe speak to some of that nuance and where we might look in these documents to get some granularity around that metric?

Reed: Yes. It is difficult in a study like the IRP to point to one thing and say that that is how we're addressing environmental justice. But I would say that throughout the entire IRP study, environmental justice shows up in a lot of different places. For example, low-cost metrics. When I think of how does a portfolio address concerns specific to environmental justice communities, I think of cost and I think of the environmental impacts. We've got those captured within the metrics. We are not addressing the potential for rate increases, but the system average cost metric speaks to the possible need for rate action in the future. On the environmental front, we have a number of environmental metrics related to air impacts, water impacts and the production of greenhouse gases. We're looking at strategy performance and what are the key trade-offs, and low-cost power and strong environmental performance are both key concerns.

Lowry: Chapter 2 in the draft IRP is about stakeholder engagement. It has an entire section dedicated to our approach to environmental justice. The IRP doesn't focus on site-specific environmental justice considerations, but it talks how we think about it from a stakeholder perspective. That section is a direct result of the feedback and advice of this group.

Can you give clarity to the scenarios and the references cases they are based on?

Reed: All of the scenarios have the same origin. It's just what is layered on top that is different. Scenario 1 is Reference without the Greenhouse Gas Rule. Scenarios 2 and 3 look at the macroeconomic impact around what is happening in the broader economy, what's happening with productivity and all of that. Scenarios 4 and 5 include the EPA's draft Greenhouse Gas Rule, which actually was more extensive than the final Greenhouse Gas Rule. For Scenarios 4 and 5, we utilize the requirements under the draft rule. Scenario 6 incorporates the final Greenhouse Gas Rule.

Your public meetings are scheduled at 6 p.m., when it will be dark. Seniors often don't drive after dark. In order to make sure we have meaningful involvement, it is possible to have a lunchtime meeting so people can come by on a lunch break and so seniors could come during the day? I would also recommend considering places with easy parking or that are on bus routes.

Edge: We can certainly consider if there are other engagements that would be appropriate to ensure we reach as many people as possible. We encourage people to suggest activities we could do in early afternoon hours in the cities where we're doing the open houses at night.

Did you mention that the October meetings in Murphy, N.C., and Bristol, VA, might change?

Edge: We're having some conversations with our internal folks as well as external folks to make sure that from a safety lens, after Hurricane Helene, that we are doing what's best for those communities. We are committed to having activities in those cities during the comment period, so they might shift into November.

I know your outreach plan includes social media. Does it include traditional media and untraditional services as well?

Edge: Social media is just one aspect of what we're doing. We have regional field teams on the ground that have been heavily involved with communicating throughout their communities. We'd love to have additional input if there is something beyond an open house that you'd like us to do in your community.

5. Public Listening Session

Bill Mall

My name is Bill Mall. I'm wearing my Sierra Club hat, but my comments are really based on my other background. I was trained in math and operations research at Columbia and Georgia Tech, and I was a consultant for Price Waterhouse Coopers for 20 years. I'm going to talk about the key factor that's used in evaluating the strategies – the present value of revenue requirements (PVRR). This is used to determine which decisions to make in the model, which ones have the lowest present value. This uses the time value of money, and I believe they use 7%.

It's a way of translating time payments to a specific point in time. We're talking here about the present value. That's a really sound concept. It is used to evaluate investment decisions, but it has a lot of assumptions we don't really think about, because you assume that all those payments are going to be made, you assume that that interest is there.

Now when you look at 7%, this discounts future expenses. For instance, at 7 years, you only bring back 50% of the value, so \$100 million 10 years out is like \$50 million today. At 20 years, it's 25%, and at 25 years – in 2050 – it's only 18%. This really means that you don't worry about spending that money further out. Now where does this come in for our decisions? In the TVA/local power company consumer world, what happens is you don't have a payment that pays for what those higher prices might be in the future. You take it all now. You wouldn't worry about the fact that in 10 years, it's going to be a lot higher.

Let's say it's a business that wants to move here. If you have these low prices at the beginning and stick people with a plan that has high prices at the later time, they are going to show up. So, you need to consider what those costs are further out. There needs to be a little caution in there.

The other part is a basic issue of modeling. When you model, you can have your inputs, maybe lots of them and you have your rules. You apply all these and you get a result. That's a deterministic model. You make one run. Another version is a casting model where some of your inputs are variables. Then when you do run, you get a lot of runs because you're going to get a wide range of results. As near as I can tell within this IRP, they've taken the deterministic model and represented other possibilities by different scenarios. Some utilities do it that way, some don't. The disadvantage of doing it that way is you get a much lower estimate of what your real variation is, of what your risks are because you're doing one thing at a time, and that doesn't talk about the interaction. It's way too late now, but I would highly recommend that the next time we go through this, we use a stochastic model in which all strategies include timeline, technological transmission and/or market depth, uncertainty and execution risk, which are amplified by low growth and regulatory impacts. I highly recommend that we use a model that includes this so we see what those risks are in the future.

Leah McCord

I'm speaking today on behalf of the members of the Clean Up TVA Coalition, a group of 20-plus organizations working towards a better energy future for the people of the Tennessee Valley. I want to start by expressing our coalition's deep sadness over the devastation so many of our neighbors are currently facing with the catastrophic flooding caused by Hurricane Helene. While we work to support the critical recovery efforts of partners on the ground, we cannot afford to set aside the task of trying to shape TVA's long-term planning. We know that the decisions made over the next months and years will determine impacts like this for decades to come.

"Lord willing and the creek don't rise." This common southern phrase means you intend to do a thing unless something unexpected stops you. In Southern Appalachia and the Tennessee Valley, the creeks did often rise. TVA was founded in part to control that very thing. Along the way, it brought power to our communities. Clean, renewable energy that still serves us today. Dams across eastern Tennessee and Western North Carolina saw unprecedented amounts of water and unprecedented speeds. But they likely prevented the devastation from being even worse, and TVA management has helped move water quickly and safely through the system in the aftermath.

The kind of forethought of the New Deal almost 100 years ago and the responsibility of safeguarding our communities should be the bedrock of the modern TVA. It is why we will continue to demand that TVA abandon its methane gas expansion, embrace its clean energy roots and once again become a leader in renewable generation. The 2025 IRP still has an opportunity to set a better course for the people of the Valley. I've submitted a written comment with our full list of what the RERC should request from TVA, but I'd like to call out a few now. TVA should include a near-term action plan that charts a clear path to decarbonization goals and renewable investments over the next five years. They should hold a public hearing that allows for testimony from a diverse group of stakeholders. And they should publish an interim report prior to the final IRP with the results of these requests, along with another 30-day comment period.

This draft IRP shows that TVA likely plans to continue to expand methane gas production, but the creeks have risen. Much of the destruction might be outside of TVA service footprint, but it is not outside of the impact of these decisions. The warning signs are not warning signs anymore. They are devastating fact. TVA must change course while there is still time. Thank you for your time today.

Joe Franklin

I come from Johnson City, which is close to the destruction zone from Helene, but I seem to have survived in good shape. Thanks to TVA for their hydropower management and flood control, especially in light of the great flood event. So, thanks, everyone that works for TVA. The draft IRP and EIS published by TVA appears to be very broad and covers a wide range of energy mixes for the Tennessee Valley. I would say there seem to be too many portfolios or scenarios and a little confusion on which path the agency might prefer to follow, especially in the near term. I would also say from what I can glean, the draft IRP is biased toward fossil gas production and model-driven around that structure. I would like to see the IRP Working Group narrow that down. In my opinion, TVA could be a catalyst in developing community solar and expanded renewable power generation using the Tennessee Solar For All program. I encourage the agency to adopt this course going forward and develop more resources towards solar expansion. With TVA controlling over 16,000 miles of transmission lines, I can't see why TVA can't devote more of the land to build out solar power instead of fossil gas pipelines.

As mentioned, the agency must employ environmental justice guidance as set forth in several federal actions, including executive orders 13990, 14008 and 14096, to ensure that a gradient percentage of benefits flow to disadvantaged communities in the Valley. As I pointed out in previous comments to the Board, achieving net-zero carbon emissions by 2050 is way too late, as the pace to decarbonize must quicken to avert further climate disruption and breakdown. In closing, I'll say, TVA must focus the coming IRP to reflect the emergent energy system of the future — to be a robust, durable energy system that relies on clean energy, which will require the development of new energy projects where people live, play and work. Reaching out to and engaging disadvantaged communities in the service region must be one of the primary focuses in the final IRP and EIS. Transparency must be the North Star compass used throughout the IRP planning and subsequent final plan. Change is never easy, yet TVA needs to come to the realization that a transformative shift has been and will continue to occur in a green power generation. And I urge the IRP Working Group and Board to move in this direction going forward.

Nancy LaPlaca

I'm a long-time regulatory policy consultant. I've been doing this work for 20 years, served as a policy advisor to a commissioner in Arizona for four years, where, honestly, I sadly watched Arizona kill solar. I appreciate that I'm allowed to make these comments, because I live in Boone and am not a TVA customer. The devastation from Hurricane Helene is absolutely horrific. It is time for us to face reality that climate change is real. I attended one of the IRP meetings and I asked a very nice young man what percentage of TVA energy of solar. He told me he didn't know, so I sent it to him. It's 0.003% solar generation. That is sad. That is letting us down. That is letting down future generations. It's wonderful that TVA put 10 gigawatts of solar in their plan, but it's terrible that they don't even give us any dates or interim. The deadlines that you have are too late.

Look at what's happening to our climate. Methane is a very, very powerful greenhouse gas. It's 86 times more powerful than CO₂. We know that from the Intergovernmental Panel on Climate Change. They released their 5th assessment in 2014; that's 10 years ago. We know that methane is 86 times worse and climate scientist after climate scientist is telling us that the quickest way to address climate change is to reduce methane. You are going in the exact opposite direction. We know that solar is the cheapest electricity on Earth. We also know that it needs batteries, and it only works obviously when the sun shines, but it's clean energy and we need more clean energy. We can do this.

Why is TVA killing distributed solar? At ISO New England, its entire capacity is about 35,000 megawatts. That's about what TVA is. They have 6,500 megawatts of behind-the-meter solar that individuals put up and the utility didn't have to spend any money on. This was people using their own money and their own resources putting up solar. I'm sure there's thousands and thousands of TVA customers who would love to do that, but they can't. We can do this, but we're not. The price volatility for natural gas is staggering. What happens when we have the next price spike? What happens when we have the next climate disaster? This one's probably going to cost \$100 billion. When it comes to methane, you've got leakage, climate change, pipelines, explosions. Look at the lack of transparency. I also want to mention something: on average, 70% of the cost to run a natural gas power plant is the fuel. We're going to make the estimate in our IRP that in 10 years the same natural gas that costs a dollar a million BTUs today is going to cost 20 cents a million BTU in 10 years. That is awful. That is ridiculous. Who in their right mind thinks that methane gas is going to cost 20% of what it costs today in 10 years. This issue is so complicated; most people don't get it, but modelers get it. So, your lack of transparency is hurting us. It's hurting the future. It's hurting our children.

I want to end with a quote by Ayn Rand, a pretty famous writer and philosopher and who is adored by conservatives. She made the statement a long time ago: “You can deny reality, but you can’t deny the consequences of avoiding reality.” Those consequences are here.

Gabby Sarri-Tobar

I'm an energy justice campaigner with the Center for Biological Diversity. I want to begin by acknowledging all the devastation that's come from Hurricane Helene. So many families and communities have been impacted by this disaster, and many are still suffering. I want to commend TVA for the role they played in flood control in the Valley through the management of its dams. Helene and every disaster we've witnessed this year serves as a stark reminder that we're living in a climate emergency. TVA has a history of responding to the crises of our time, and we need TVA to carry through on that purpose by leading the way forward and abandoning fossil fuels that are driving the climate emergency in favor of transitioning to resilient renewable power.

Just last week, TVA released its long anticipated 2025 Integrated Resource Plan. This plan is an opportunity for TVA to put forward a clear-eyed vision for how it will meet the energy needs of the 10 million people that depend on TVA to keep the lights on. Unfortunately, TVA's draft falls short. Instead of paving the way to 100% renewable energy, this IRP would lock in fossil fuels like gas for decades, saddling families in the region with even more pollution, rising energy costs to fund expensive gas plants and pipelines, and more climate disasters like Helene. This burden will fall most heavily on rural communities, communities of color and low-income families.

A gas-filled future doesn't support the strong and resilient future the Tennessee Valley deserves. The climate emergency is only getting worse, and this is the future that TVA needs to prepare for and stop fueling by preparing an IRP that would transition the Valley to 100% renewable, resilient and distributed energy in a just and equitable way. To that end, I encourage the RERC to urge TVA staff and leaders to first model an additional scenario in the IRP that meets federal targets for 100% clean power by 2035, while maximizing distributed renewable energy alternatives like rooftop and community solar with battery storage and energy efficiency. The draft IRP even acknowledges that there's great potential in the Valley for rooftop solar and solar on parking lots and integrated lands. TVA should show utilities across the country what it looks like to lead on solar by maximizing these opportunities that also help reduce land impacts. Second, produce a near-term action plan for clean energy investment in the Valley. The final IRP should have a more prescriptive plan that charts a clear path to decarbonization goals and investments in efficient and renewable generation over the next five years. Third, the RERC should encourage TVA to narrow resource ranges to prevent TVA staff and executives from exploiting broad portfolio ranges that would maximize fossil gas generation while slow walking the transition to renewables. We've seen this happen since the release of the 2019 IRP, and it's completely unacceptable. And finally, to strengthen this IRP, the Board must hold an accessible public hearing that allows for testimony from experts. This is standard practice at regulated utilities, and TVA's process should be no different.

Pam Jones

I'd like to address the public engagement process around this IRP, and this echoes some of the other comments that you've heard already. This IRP is being developed differently than the way most large utilities develop their IRPs, under the scrutiny of public utility commissions. One of the biggest differences has to do with stakeholder engagement. Most large utilities have a robust stakeholder process that goes beyond the listening sessions offered by TVA to hold a lengthy series of technical

workshops that are attended by both stakeholders and third-party experts in electric sector planning. These sessions present and receive feedback on modelling assumptions and planning scenarios in advance of the modelling, and stakeholders may also request that the utility carry out specific modeling runs on their behalf. You certainly need an additional scenario that meets federal targets of decarbonizing by 2035, and also a good addition would be a sensitivity analysis that models storage and solar together, which we don't really have here.

In November 2023, several nonprofit organizations, including Appalachian Voices, submitted a request for more transparency and public engagement with the development of this IRP. The TVA Board, though, failed to respond to the groups for more than 30 days, and as a result, they held their own hearing in January 2024. You guys have probably heard about it – the People's Voice on TVA's Energy Plan hearing. I go back to this now because it highlights the inadequacy of TVA's stakeholder engagement process as it exists now. At that hearing, a number of subject matter experts gave presentations that illustrate what real stakeholder engagement in the process should look like, and a recording of that hearing and copies of all the presentations are still available online. It really is an eye opener of what it should look like but doesn't. It's not too late to hold this kind of public hearing that allows for testimony from a diverse group of experts and stakeholders, and I urge the Council to make this recommendation to TVA for a public hearing.

As far as the upcoming open houses that TVA plans to hold in various locations, TVA said that these would include a presentation, a panel style Q&A, and then discussion. I certainly hope the panel style Q&A means that the public can ask questions to which members of a panel will respond. TVA says that it will consider public comments as it prepares its final IRP. Summaries of public comments and specifics of how those will be addressed in the final IRP should be made available publicly on TVA's website, and that would include comments like we've heard here today at the RERC meeting as well as presentation addresses to the comments addressing the IRP at Board meetings and also at the open houses. We never really see in detail what TVA is doing with these comments, and we really need that. In summary, there are still significant shortcomings in TVA's public engagement process that need to be addressed, and I encourage the Council to press for these changes.

Tracy O'Neill

I'm a resident of Cheatham County, and I appreciate the opportunity to speak with you today. I would like to begin by also recognizing TVA's invaluable role in the flood control and getting power restored to customers following Hurricane Helene. Those of us in Middle Tennessee experienced horrific flooding in 2010, so the efforts to ensure the safety of the Valley are greatly appreciated. However, today, I'm here to address a critical aspect of resource management where TVA falls short. The fragmentation of proposed projects, particularly in the context of the recently released IRP.

As an advisory body to TVA, the RERC has the responsibility to assess whether TVA strategies align with sound resource management, public accountability and environmental stewardship. Unfortunately, in the draft IRP, we see that TVA has taken an approach to segment out key elements that prevent it from truly being an integrated resource plan, particularly in its approach to energy efficiency, energy storage with renewables and transmission. In each of these areas, TVA has taken a flawed piecemeal strategy of isolating elements from the broader energy mix. In the draft IRP, energy storage is only modeled separately from renewables, which limits the benefit it could offer the grid. Transmission is also an essential element of our energy system, yet TVA has failed to include the kind of robust analysis that can inform other resource investments.

Cheatham County, which is my home, is a prime example of TVA's fragmented resource management. The site of the methane gas plant that TVA is proposing is zoned agricultural, and it's opposed by the entire community, including our locally elected officials. TVA has not explored less impactful alternatives, and we're years away from a decision on the plant. Yet TVA right now is pushing forward with high voltage transmission lines to serve the plant. They're even suing landowners for the right to survey for eminent domain. By segmenting transmission from the gas plant in broader needs analysis, TVA risks burdening ratepayers with costly, unnecessary projects. For example, would it be better for TVA to simply optimize some of its existing transmission infrastructure, which haven't seen significant upgrades outside of extreme weather events for decades? We don't know, because TVA hasn't done the analysis.

As an advisory board focused on both energy and environmental impacts, I urge you to challenge TVA segmentation of key elements that prevent us from getting a complete picture of long-term resources. This fragmented approach is allowing TVA to avoid comprehensive environmental and financial reviews, and it risks wasting billions of taxpayer dollars. I hope the RERC will push for a more holistically review – urging TVA to model combined solar and storage, prioritize energy efficiency, and optimize existing transmission assets before investing in more speculative gas projects and their associated transmission lines.

6. Innovation & Research Update — Amy Henry, Director, Transformative Innovation, and Bonnie Latta, Senior Manager, Transformative Innovation Initiatives (Presentations can be found at www.tva.gov/rerc)

Amy Henry reviewed key aspects of the future power system, with its increasing load and demand and the fact that it will be even more dynamic in the future. She also reviewed TVA's key focus areas for technology transfer, which are:

- Advanced Nuclear Solutions
- Decarbonization Options
- Storage integration
- Future Grid Performance
- Regional Grid Transformation
- Connected Communities
- Electric Vehicle Evolution.

Henry said that TVA is collaborating with stakeholders in each of these focus areas to discuss their ideas, what the stakeholders want to achieve in the future and how to move forward together toward those goals. She noted that TVA's mission is not changing, that TVA will continue to deliver on its mission of providing affordable, reliable, clean energy; environmental stewardship; and economic development. TVA will continue to advance and modernize the way it delivers on its mission.

Henry and Latta reviewed three of the transformative innovation initiatives in detail: Regional Grid Transformation, Connected Communities and Electric Vehicle Evolution.

Regional Grid Transformation

Henry explained that the Regional Grid Transformation initiative is working to transform the power grid into a more resilient, flexible and integrated system in which power can flow both ways. The transformation requires new technology and equipment that enables interconnection and flow. TVA has

established a pilot program with 17 local power companies (LPCs), and together, they have developed a Capability Progression Model. The initiative is driving important conversations about modernization and investments LPCs can make based on their needs. TVA is working with the LPCs in the pilot program to evaluate barriers LPCs face and what can be done to remove those barriers.

Connected Communities

Latta explained that the Connected Communities initiative uses technology and data-related solutions to address community challenges and prepare for a modern energy system. The initiative has four focus areas:

- Broadband & Digital Literacy
- Economic Empowerment
- Energy & Environmental Justice
- Enhanced Community Resiliency.

TVA provides resources that include a community information hub, community partnership support, pilot project funding, and a network for sharing information and success models. Latta explained the Connected Communities team provides flexible support tailored to communities' needs and identifies the priorities through the lens of the four initiative focus areas.

Electric Vehicle Evolution

Latta explained that TVA's Electric Vehicle (EV) Evolution work is helping prepare for and enable the adoption of EVs to benefit communities and the grid. Latta said TVA's preparation for EVs is to ensure that the energy system is prepared for EVs on Valley roadways in the future. The EV Evolution focus areas including:

- Preparing for EV impacts
- Understanding EVs as a resource
- Enabling EV adoption.

TVA is accelerating research, testing and demonstration of EV-grid technologies that improve the energy system, and it is collaborating with stakeholders to identify and address barriers to large-scale adoption of all EV types. For example, TVA is involved with the Fast Charge Network, which is working to place fast chargers at least every 50 miles along interstates and major highways across TVA's seven-state service area by 2026.

QUESTIONS/ANSWERS

What would the total build out of electrified transportation look like in terms of percentage of load growth as a whole?

Henry: We have modeled that under different scenarios of adoption. We've recently been able to get a little better handle on not just the light-duty personal vehicles but the fact that we could expect medium- and heavy-duty vehicles to begin electrification at some point in the next decade. I think it depends on what time you're looking at, but we think that if all of that happens at the highest scenarios, we could be looking at gigawatts of power demand over time.

You called out the load growth because of electric vehicle evolution, but I think we're all starting to understand that AI and data centers are going to have equally significant load growth. Would you have a different strategy for those data centers and the AI?

Henry: We don't have a specific strategy just for data centers and our initiatives, but I think we do want to understand options with customers – be they residential, commercial or industrial. We're just starting some discussions about options for co-optimizing energy demand and supply.

QUESTIONS/ANSWERS about Regional Grid Transformation

Are you considering rate structures – Time of use? Different ways to incentivize this modernization with the distributed resources? I think business models will be a part of this conversation.

Henry: Right now, this focuses on technology and what kinds of technology need to be in place in order to make these systems work together. Certainly, when you start talking about virtual power plants or aggregations of things, then you have some value there that you want to talk about.

QUESTIONS/ANSWERS about Connected Communities

How did you select the communities that have become engaged?

Latta: For the process, it was a little like a request for proposal. We put out a call for pilots. We used our stakeholder networks to help get the word out, and we had a lot of interest. We also target areas of need. For example, we targeted Mayfield, Kentucky, after the tornado hit there. They said, we can't do it right now but keep us in mind for another time – and they eventually came back and said they were ready. We had six pilots in our first round of partnerships, we have six again this year, and we have a goal to have eight next year. We provide a year of consulting support.

Is there a goal that the local community continues beyond that year?

Latta: That's the idea. We're trying to build deliverables in for them, whether that be a project or a strategic document or a sustainable entity that will live on. The idea is that we're helping get it going and to power the community to move forward. In a lot of these cases, the projects also have federal funding.

QUESTIONS/ANSWERS about Electric Vehicle Evolution

I heard a presentation from the state of Tennessee, where they were also building out EV Chargers. I assume that that you're collaborating with state on that.

Latta: Absolutely. We're in lockstep with the state energy office. It was a collaborative effort. That's actually a really good example of a road map put into action. In the early days, the EV group was one. The first initiative was to lay out some of this framework and Drive Electric Tennessee is the outcome of the early work. Now, by FY 2026, there will be fast chargers every 50 miles. That's 80 to 100 chargers. We're working through partnerships with local power companies and businesses. We have 35 chargers in place now, and I know we've got contracts for about double that in place.

Henry: Some of the first participants in the Fast Charge project have been rural communities off the interstate. Fort Payne, Alabama, was the first, and Martin, Tennessee, was the second. Towns are seeing the chargers as an opportunity to draw drivers off the interstate to their local downtowns, so while the car is charging for 30 minutes at the fast charger, people can get out of their cars and get a coffee or visit stores.

What is the price for charging?

Henry: *The chargers are all available to the public. One of the ways that TVA worked to break down barriers to EVs was to take a look at the rate for charging. We set up a public charging optional rate that LPCs can adopt. That is an energy rate only. We have the wholesale rate, and then whoever owns the charger – it's a local power company, usually – sets the final rate. TVA has set a wholesale rate that we hope enables that program, because it doesn't have a demand charge.*

7. Closing Remarks

Melanie Farrell thanked everyone – the RERC members, presenters and the public – for their participation in the meeting. She noted that she leads TVA's stakeholder engagement efforts, and the two Federal Advisory Councils – the RERC and the Regional Resource Stewardship Council (RRSC) – bring a lot of value to TVA. The Councils' feedback strengthens TVA programs and is shared with the Board of Directors. Regarding the IRP, she noted that stakeholders and the public are encouraged to provide official comments during the IRP Public Comment Period. Comments received will be addressed and incorporated into the final document. A virtual RERC meeting will be held in early 2025 to review comments and to explain where TVA is in the process of incorporating them. Then, a little later in the year, an in-person RERC meeting will be held, and the RERC will be asked to provide an advice statement regarding the IRP. TVA Board members will be invited to that meeting.

Farrell said TVA will continue to think about its neighbors in East Tennessee and Western North Carolina, and as opportunities are made available to support the communities, TVA will share information. Farrell encouraged participants to contact TVA if they have questions, comments or thoughts about anything shared at the meeting.

QUESTIONS/ANSWERS

When do you think the IRP will go before the Board?

Farrell: We are shooting for May.

Appendix A
Non-Council Meeting Attendees

TVA Staff Members (In person)	
Brian Baker	Mike Kitzman
Cornelius Bayes	Trystan Knowles
Rebecca Brinkley	Bonnie Latta
Jennifer Brundige	Jo Anne Lavender
Brad Carmony	Josh Litchfield
Brian Child	Clifton Lowry
Amy Edge	Millie Callaway Parkes
Ashley Farless	Barbie Perdue
Melanie Farrell	Hunter Reed
Scott Fiedler	Benjamin Robbs
Bekim Haliti	Marylee Sauder
Amy Henry	Chance Silvers
Althea Jones	Jennifer Walton
Candy Kelly	
TVA Staff Members (Virtually)	
James Everett	

Stakeholders (In person)	
Emma Barton	Sandy Kurtz
David Floyd	Bill Mall
Nicholas Hill	Bonnie Swinford
Heather Kulisek	Rick Underwood
Stakeholders (Virtually)	
Sarah Al-Zhyri	Jay-Paul Lenker
Travis Blake	Rachael Maitland
Dan Delurey	Farah Mandich
Stephanie Eyocko	Sheree Martin
Joe Franklin	Leah McCord
Amanda Garcia	Tracy O'Neill
Jason Haynes	Erik Reed
Pam Jones	Gaby Sarri-Tobar
Nancy LaPlaca	Emily Sherwood

Appendix B:
Regional Energy Resource Council Meeting Agenda
October 3, 2024
Chattanooga, Tennessee

Meeting Location: The Westin Chattanooga
801 Pine St
Chattanooga, TN 37402

Objectives:

- Review the draft Integrated Resource Plan
- Receive an update about TVA's Regional Grid Transformation work

October 3

9:00 – 9:10	Welcome / Call Meeting to Order
9:10 – 9:20	Introductions and Agenda Review
9:20 – 9:35	Helene Update
9:35 – 9:45	DFO Briefing
9:45 – 12:00	TVA's Draft Integrated Resource Plan Updates (includes Q&A time and break)
12:00 – 1:00	Lunch
1:00 – 2:00	Public Listening Session
2:00 – 2:15	Break
2:15 – 3:15	Innovation Research Update
3:15 – 3:30	Wrap Up Meeting
3:30	Adjourn Meeting