Regional Energy Resource Council (RERC) Minutes
Tennessee Valley Authority
October 3 and 4, 2022

Meeting location:
TVA Missionary Ridge Building
Chattanooga, Tennessee

The Tennessee Valley Authority (TVA) Regional Energy Resource Council (RERC or Council) convened for the 3rd meeting of the 5th term, beginning at 9 a.m. Eastern on Monday, October 3, 2022. Meeting presentations and a recording of the meeting are available at www.tva.gov/rerc.

Council members attending in-person:
Michael Butler, Erin Gill (Chair), Rebecca Goodman, Rodney Goodman, Chrissy Heard, Dana Jeanes, Candy Johnson, Steve Livingston, Pete Mattheis, Dan Miller, Doug Peters, Patrice Robinson, Lloyd Webb

Council members attending virtually:
Jonathan Levenshus, Bailey Recktenwald

Designated Federal Officer: Melanie Farrell
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 present information to the Council on Valley Vision 2035 and TVA's New Nuclear Program, and to hear from local power company partner David Wade, President and CEO, EPB, in Chattanooga.

1. Welcome and Introductions

A. Erin Gill, RERC Chair, and Melanie Farrell, TVA Vice President of External Strategy and Regulatory Oversight, welcomed everyone to the meeting.

B. Jo Anne Lavender, meeting facilitator, noted it was the RERC's 3rd meeting of the 5th term. She welcomed everyone joining in person and virtually. She noted there would be a public listening session in the afternoon, and that TVA and the RERC welcomed public comments.

C. Jennifer Brundige, with TVA's Office of General Counsel, reviewed the meeting requirements.

2. Designated Federal Officer Briefing — Melanie Farrell

(Presentation can be found at **www.tva.gov/rerc**)

Melanie Farrell described TVA's new regional model, which divides the Tennessee Valley into four regions. With designated staff in each region (north, south, east, west), the model enhances TVA's engagement in local communities and its ability to meet each region's unique needs. The regional staff has been in place for about one year.

Farrell noted that TVA is following its Strategic Intent and Guiding Principles document, published in May 2021, as it builds the energy system of the future. TVA's 2019 Integrated Resource Plan (IRP) required TVA to conduct an Aging Coal Fleet Evaluation. Based on this evaluation, TVA projected end-of-life dates for the coal fleet and expects to retire the remaining coal fleet by 2035. TVA currently is assessing its Cumberland and Kingston fossil plants, using the National Environment Policy Act (NEPA) process, which ensures that federal agencies consider the environmental impact of potential actions and decisions. This summer, TVA issued a request for proposal for up to 5,000 megawatts of carbon-free energy. TVA is committed to decarbonizing its energy system while maintaining low rates, reliability, resiliency and sustainability.

Farrell also highlighted that:

- TVA plans to kick off its next IRP in 2023
- In September, Memphis Light, Gas and Water (MLGW) leadership recommended that MLGW stay with TVA and also recommended signing a 20-year agreement. There is an open comment period now on the proposal. TVA has been respectful of MLGW's process.
- Six individuals have been nominated to join TVA's Board of Directors. They are at different stages of the Senate review process. Five of the nominees have been voted on by voice to advance out of committee and will now go before the full Senate for consideration.

3. Valley Vision 2035 (Presentation can be found at **www.tva.gov/rerc**) **— Dan Pratt, Senior Vice President, TVA Regional Relations, and Hunter Hydas Rotational Management Development, TVA Regional Relations**

Dan Pratt described TVA's new regional model and the ways it enables TVA to focus on the unique priorities of each region and leverage long-term partnerships. Together, TVA and its partners are considering what the future might look like and how to plan for what lies ahead.

Hunter Hydas explained that market forces are reshaping and evolving the energy marketplace at rapid speeds, and Valley Vision 2035 is a collaboration group formed to evaluate how factors such as economic growth; competition; the political landscape; environmental, social and governance; climate change; national security; and technology innovation could impact the energy marketplace of the future. Participants in the Valley Vision 2035 Collaboration Group represent TVA, local power companies, large federal customers and customer associations. The group has identified five drivers for the future Valley business model: decentralization, electrification, decarbonization, resiliency and digitization.

The energy industry is ever-changing, and the customer marketplace is experiencing unprecedented and ongoing transformation. The goal of Valley Vision 2035 is to develop a collective vision for how to evolve public power in the Tennessee Valley to best meet customer needs in the future. The Collaboration Group's efforts entail working to understand the industry landscape, identify trends and uncertainties and define factors that drive change, construct future Valley marketplace scenarios, and translate those findings into business model attributes. The group expects to publish its report in Fall 2023.

Hydas emphasized that while business models might change over time, TVA's commitment to its mission of service — delivering reliable, low-cost energy; environmental stewardship; and economic development — will not change. He said that for each scenario that is discussed, the group will evaluate customer needs, new capabilities that might be needed, roles and

responsibilities, and new pricing, rates and programs that might be required. TVA will continue to keep the RERC updated on the group's progress, and at a later date, TVA will solicit an advice statement from the Council.

Hydas noted that Valley Vision 2035's work will help set TVA up for the Integrated Resource Plan (IRP) process. He said that while the IRP will consider how TVA's energy portfolio needs to change and will involve the public in the process, Valley Vision 2035 is a conversation between TVA and its customers about emerging issues that could impact the energy marketplace as a whole. In essence, the processes complement each other.

QUESTIONS/ANSWERS
RERC members asked Hydas questions about Valley Vision 2035 throughout the presentation. The questions and answers are summarized below.

An RERC member asked how a new public power model might impact TVA's protection of natural resources. Hydas said TVA's mission of service will not change and TVA will continue to protect natural resources. A Council member who is also in the Valley Vision 2035 Collaboration Group noted that the group is talking about a lot of topics that span beyond electricity. In response to comments about the "TVA fence," RERC members noted that the Tennessee Valley public power model will not work if the two-way fence is not in place.

In answer to a question about what the Valley Vision 2035 report will address, Hydas said it will include the Collaboration Group's findings on key trends, uncertainties, the scenarios that will have been evaluated and what a business model of the future might look like. It will lay out possibilities for future exploration. An RERC member expressed hope that Valley Vision 2035 designs a road map for the future — one that shows how to take the 153 individual distribution systems of local power companies and work them in the aggregate to add to TVA's ability to reduce carbon emissions and meet its mission.

Other questions and answers included:

- Is Valley Vision 2035 happening because the IRP is not nimble enough to address these challenges and the rate at which changes are happening?
    - Valley Vision 2035 wasn't formed because there is a shortcoming with the IRP process or because technology is changing so quickly. TVA's long-term partnerships enable conversations about the future to take place. The conversation will benefit the next IRP.
- Is the group paying attention to new data and how to use it to drive change?
    - TVA surveyed local power companies to see where they stand with developments such as smart meter deployment and electric vehicles. They are all at different stages. The group is thinking about how to build out scenarios and use the data it is collecting.
- Is Valley Vision 2035 looking at federal investments and tax credits, such as homeowners receiving cash credits for electric vehicles? How will that influence plans for the future?
    - Valley Vision 2035 is looking at where political and regulatory space is moving and the bills that are being passed. Those things are informing the trends conversation, but the group is not focusing on the mechanics of those proposals, because it is looking further out to longer-term trends.
- Will Valley Vision 2035 look at the same things the IRP looks at?

    - There are lessons learned from one IRP to the next, and TVA is getting better at the distribution piece. Valley Vision 2035 will take it further than ever before in terms of the customer being involved in discussions before the IRP.
- How will it be rolled out to the public?
    - The Collaboration Group will discuss this. Once the report is completed, the group will have a better idea of how to socialize it. The entire group collectively will own Valley Vision 2035, so collectively it will collaborate on how to roll it out.
- An RERC member commented that a big part of the IRP is managing risk. There will be a lot of IRPs before 2035. Looking ahead to 2035, TVA doesn't know where it will end up and it will have to manage risk. That will be a challenge on this IRP.

4. TVA System Operations (Presentation can be found at **www.tva.gov/rerc) — Greg Henrich, Vice President, Transmission Operations & Power System**

Greg Henrich opened his presentation by stating that being successful in the energy marketplace of the future will require outpacing change. He provided an overview of the North America power grid and TVA's role as a reliability coordinator for itself and six other utilities. TVA plans, operates and designs its operations and transmission systems. Its analyses and balancing of resources includes 10-day hourly forecasts and power trading real-time updates from the operations team, then participant scheduling and the balancing of power supply to meet hourly demands. TVA sells excess generation off-system within the restrictions of the TVA fence. It also executes demand response to directly served customers to reduce the energy peak during heavy summer or winter loads. TVA manages its power-generation system from two operations centers that are staffed around the clock, with the data mirrored in real-time at both centers.

TVA has maintained its 99.999% reliability rate and is able to meet the growing demand for power in the Tennessee Valley because it continues to invest in its operations system and transmission grid. Henrich explained that TVA continues to work at improving resilience, with focus in five key areas: seismic events, community resiliency, severe weather, electromagnetic pulse and geomagnetic storms. He described challenges TVA had during severe winters several years ago and the ways that investments in weather protection and the gas fleet since then improved performance in the extreme winter weather in 2021. The system also performed well in June 2022, when TVA experienced five days with energy demand above 30,000 megawatts.

Henrich highlighted TVA's new Primary System Operations Center (PSOC), which is under construction in Meigs County, Tennessee, and will enhance resiliency and security of TVA's power system. The center will include full redundancy of mechanical, electrical and communication systems. Construction began in March 2020, and it will be ready for occupancy in Summer 2023. TVA will begin operations at the PSOC — in parallel with the current System Operations Center — in February 2024. The PSOC will become fully operational in January 2025, and the current backup center will remain the backup.

In addition to the new facility, TVA is investing in the grid of tomorrow — with focus on grid visibility, asset management and performance, integrated optimization, distributed energy resources integration, and field technology. Communications, analytics and cybersecurity are foundational. Coordination and alignment of innovative initiatives will allow TVA to meet the goals of the energy system of the future. TVA can't predict the future, but it is building an energy system of the future that will provide reliable, resilient, low-cost energy in any circumstance.

QUESTIONS/ANSWERS
Henrich was asked how TVA determines average temperatures, and also how it manages the fluctuation of temperatures across the Valley. Henrich said average temperatures are measured predominantly at the load centers in the Valley's five largest cities. He said storm fronts most often travel west to east, so TVA has to manage weather and temperature differences — and averages can be misleading. TVA builds a 10-day plan, but it staffs its system operations centers 24/7 so real-time changes can be made as needed.

Another Council member asked how the 30,000-megawatt peak in June compared to the summer as a whole. Henrich said the summer peak historically occurs at the end of July and beginning of August. The forecasted peak is typically about 31,500-megawatt hours, but it came earlier than normal. The forecast for the June timeframe would typically be 28,500 or 29,000 megawatts, but TVA forecasters always provide extreme-weather forecasts as well.

A member asked if the load would have been higher without the Interruptible Power program, which offers demand credits for participating customers that agree to allow TVA to request a suspension of a portion of their energy load when the power system is constrained. Henrich said it would have been higher because TVA used about 800 megawatts of demand reduction. TVA had a specific number of demand response hours it would offer, and they were all used in June. It asked customers if they were interested in more hours, and many said yes. Henrich said it shows the strength of the partnership.

Other questions and answers included:

- How much forward-looking work is North American Electric Reliability Corporation (NERC) doing?
    - A lot of work is being done at research institutes. As NERC sees things being done, NERC provides input related to specific topics and starts building standards around them and moving forward. TVA has a rigorous commissions process for adding solar to its system. It is important that it goes on system in a reliable way.
- How did TVA pick the site for the PSOC?
    - TVA looked at sites in a two-hour radius from our backup control center. TVA has a strong partnership with Meigs County, and the property works well. It looked at TVA properties as well, but nothing was as conducive.
- Does TVA have any visibility behind a local power company? Do you have visibility to the interconnect?
    - In the current situation, TVA can see to the delivery point. There are pilots with local power companies on sharing data. Advanced analytics in the future would be helpful.
    - Doug Peters with the Tennessee Valley Public Power Association (TVPPA) said the organization is working to establish a meter data management system and ways to accept meter data from members. The system would help TVPPA members with rate discussions with TVA at the wholesale level and inform Valley Vision 2035 and grid transformation.
- Can you talk about interregional planning for transmission?
    - There is a FERC order that requires interregional planning. In the southeast, TVA is part of a group that does interregional planning. The group members also make sure we don't impact each other based on each other's projects. It is very formalized.

As a follow-up discussion, Henrich provided an update on TVA's participation with the Southeast Energy Exchange Market (SEEM), which is two weeks into market trials. There is a centralized system to bid in or offer in power in 15-minute increments. SEEM is optimistic about the market trials, and if all goes well, it would go live on Nov. 9. There has been outreach to ensure other participants or members have an opportunity to sign up, and there has been discussion with Florida utilities to see if they are interested in participating. As more intermittent power comes onto the TVA system, having the ability to manage in 15-minute increments will be beneficial.

5. Discussion and Member Reflection on Presentations

Council members were asked to reflect on the topics discussed in the presentations. Their reflections, as well as questions and answers, included:

- It is good for TVA and its partners to be thinking ahead.
- There is appreciation that TVA is being methodical about the process.
- SEEM provides real-time power for people relying heavily on non-dispatchable power.
    - TVA staff said SEEM will help manage the broader system as more renewables come onto the system. There is a vast area that TVA manages and with weather patterns changing, it can lean on neighbors. It will be one more enabler to decarbonize the energy sector.
- What are the details on Flexibility 2.0?
    - When 147 local power companies became long-term partners, there was a rate credit as well as the ability for them to self-generate up to 5%. With Flexibility 2.0, the TVA Board approved some structural changes subject to completion of appropriate environmental reviews so more LPCs will be able to take advantage of the 5% self-generation feature.
- RERC members discussed the fact that solar can consume a lot of land, which can lead to the cutting down of trees as well as put pressure on farming. One member encouraged TVA to consider working with industry to have solar panels placed on built infrastructure rather than on open land. Another expressed that TVA's goal should be carbon reduction and not necessarily additional solar.
    - Melanie Farrell said TVA buys most of its solar through purchase power agreements with a third party. TVA knows solar is land intensive and is looking at ways to utilize less land. The new carbon-free request for proposal is for any carbon-free energy, so it includes solar but is broader.
- The Inflation Reduction Act offers tax credits for energy communities. It is a broad definition, but it is an opportunity that makes tax credits available to sites like coal mines retired after 1999. Hopefully, TVA is looking at not just solar but also opportunities like these to take advantage of the tax credits.
    - TVA is evaluating the Inflation Reduction Act and how it can take advantage of it for the Valley.
- RERC members suggested that TVA describe topics such as the TVA fence in layman's terms, so the public understands them. Another member suggested that Council members be educated in layman's terms, too, so they can go back to their organizations and communities and describe TVA's work in ways that people can understand.

6. Public Listening Session

Daniel Joranko introduced himself as the statewide coordinator of Tennessee Interfaith Power & Light, coordinator of Christian Care Ministries of the Tennessee-Western Kentucky Conference

of the United Methodist Church and coordinator for the non-profit Tennessee Alliance for Progress. He teaches religion and sustainability at the seminary level. He said, “The recent hurricanes continue to highlight the urgent and potentially dire nature of the climate crisis. The religious people I work with are deeply concerned. I can sincerely say I was heartened by Mr. Lyash’s presentation at Nashville Electric Service Board as he outlined an overall serious and sober approach to carbon reduction. Given the urgent and dire nature of the climate crisis, any new major fossil fuel development faces a high bar. A clear and compelling case must be made. TVA seems to be leaning toward natural gas replacement at the Cumberland Plant. I am afraid the case made thus far for this current preference is not clear, convincing and compelling. Instead, the presented justification is somewhat murky. To be clear and compelling, the assumptions need to be precisely outlined and math needs to be shown. This is particularly true given new possibilities in the Inflation Reduction Act. Therefore, I respectfully hope that TVA continues this reconsideration before moving forward with such an expansion.”

7. Summary of Day 1

The Council heard presentations about Valley Vision 2035 and system operations, including an update on the new Primary System Operations Center. There also was a public comment. On Day 2 of the meeting, David Wade, president and CEO of EPB in Chattanooga, will present information on the local power company, and TVA staff will provide an update on TVA’s New Nuclear Program. Erin Gill, Chair, thanked TVA staff for its presentations on Day 1 and thanked Council members for offering their feedback and perspectives.

8. David Wade, president and CEO, EPB in Chattanooga (Presentation can be found at **www.tva.gov/rerc)**

After an introduction from Melanie Farrell, David Wade provided details of EPB’s business model and its partnership with TVA. He said it is important for businesses to always be looking toward the future and where they think they need to be. He said Valley Vision 2035 — of which he is a participant — is the GPS that will help the partners get there, but the partners have to tell it where they want to go. He said EPB is proud to be part of the TVA public power model, which is set up for success because TVA, as a large federal agency, can provide economies of scale and the local power companies (LPCs) work directly with communities to meet their needs. TVA, EPB and all of the LPCs are aligned in working to improve quality of life in the community.

EPB serves Chattanooga, all surrounding counties and three counties in northeast Georgia. It serves just under 200,000 meters and 135,000 fiber optic customers. He said he thinks the EPB activity that has had the biggest impact and will continue to have the biggest impact going forward is its fiber optic business, which is a separate company from its energy business. The electric business owns the fiber optics business, and fiber optics business pays the electric business to use it. The fiber optics business installed 1,200 automated switches on the electric system, which has improved its reliability by 55 to 60%. EPB estimates the fiber optic switches have saved 121 million outage minutes. EPB installed solar panels, which generate 2.5 megawatts of power, as well as battery storage and a small gas generator at the Chattanooga Airport, all of which can provide backup power if needed. EPB continues to add more microgrids like this one.

Wade said perhaps the best thing about the fiber business is that it caused EPB to think more like a competitive business, with a mindset of “what do our customers want?” versus telling them what they need. This is particularly important since customers don’t always want or need the same thing. Wade said he strongly believes competition in the energy industry will be even

more prevalent tomorrow than it is today, and it is up to companies to think differently in order to provide customers what they want or need.

Wade said that as an industry, power companies need to think beyond the meter. He encouraged TVA and all power companies to think about the end-use customer and what they want, because providing power isn't one-size-fits-all anymore. He said if the companies are supplying the services that meet each unique customer's needs, it is better for everyone. No one has all of the answers but thinking broadly will help provide services in the future.

QUESTIONS/ANSWERS
A Council member asked who did the engineering to integrate the power system and fiber optics network? Wade said it was done in-house after hiring employees with specific communications expertise. The communications experts shared a lot of information, then several employees that started out on the electrical side of the business learned the fiber side and are now leading the fiber engineering. He said it has been a "great" workforce exercise that has allowed people to learn and grow.

Another Council member asked about how EPB considers new business models. Wade said EPB is working through some business models, knowing that some may or may not pan out. He said EPB is looking at if it should deploy a program around using a flat fee for electric vehicle charging. The company has put 13 chargers in a parking garage, and people pay a monthly fee to park but can charge their vehicle at no extra cost. The company also is considering different products that would have fixed charges but not demand charges and also options such as having batteries on the grid to store excess solar power that could be given back to customers when they need it.

RERC members complimented EPB for its mission of service and for being a tremendous community partner. Melanie Farrell asked Wade about EPB's residential and business load growth. He said EPB is up a full percentage in new customers over what it typically sees due to increased economic development in its service area. In the past, 30 to 50 megawatts would have been a big customer in this area; now, businesses are coming in with projects with up to 600 megawatts of new load. He believes the industry is going to see a decade of electrification and that it needs to decarbonize as quickly as it possibly can.

An RERC member asked how challenges that TVA faces spill over to EPB. Wade said there is good alignment and that the challenges of electrification and load growth are new challenges the partners will face together. There are large demands for decarbonization but not a lot of proven clean technologies yet, so it is challenging to electrify and decarbonize at the same time. He said the working relationship between EPB and TVA is "better than it's ever been," and that while there may be things EPB disagrees with, there are opportunities for the partners to have more conversations and be more deliberate about what will make their systems more efficient 10 years down the road.

An RERC member said the micro side is a major issue and that investor-owned utilities will be more impacted than public power providers. Wade said the power industry has to embrace new technology.

9. TVA Nuclear Overview: New Nuclear Program and Clinch River Nuclear Project (Presentation can be found at **www.tva.gov/rerc**) **— Scott Hunnewell, Vice President, TVA New Nuclear Program**

Scott Hunnewell began his presentation by distinguishing between TVA's Clinch River Nuclear Project, which is focused on the potential development of a small modular reactor (SMR) at the Clinch River site in Tennessee, and TVA's New Nuclear Program, which is taking a broader look at a long-term plan and sitings for potential SMRs beyond the first at Clinch River.

Hunnewell said TVA's energy fleet continues to become cleaner and more diverse. In FY 2005, 57% of TVA's power generation was from coal. In FY 2022, 14% of TVA's power generation was from coal, and by FY 2030, coal is expected to represent only 5% of TVA's portfolio. As TVA progresses on its decarbonization journey, it plans to retire coal and increase nuclear, gas, wind and solar, and energy efficiency. Advanced Nuclear will be a significant tool in the future.

Hunnewell explained that TVA Board of Directors has provided direction and authorization for the New Nuclear Program, including in February authorizing up to $200 million to explore new nuclear programs and SMRs. To reduce cost and risk, TVA is taking a phased approach with three decision gates for the potential construction of an SMR at Clinch River: Gate 1, the Board authorized the team to prepare the design, licensing and estimate for the Clinch River site; Gate 2, TVA would seek Board permission to obtain the permit, finalize design and have everything prepped to send to the Nuclear Regulatory Commission (for about two years of review before potentially granting a construction permit); and Gate 3, TVA would seek Board authorization for construction and testing at the site. There are potential off-ramps at each decision gate.

SMRs are 1/10 to 1/3 the size of a traditional nuclear plant and are designed to generate about 300 megawatts, compared with 1,000 megawatts at today's traditional nuclear plants. Hunnewell reviewed TVA's SMR journey — from initial site development at Clinch River, to evaluating technologies, to the current phase of the process, which includes detailed planning and licensing for the GE Hitachi BWRX-300 SMR at the Clinch River site. TVA's vision includes unit construction at the site from 2026 to 2031 and then construction of multiple BWRX-300 units at multiple sites in the 2032 to 2039 timeframe. The BWRX-300 uses technology that is ready to deploy and the same fuel that TVA uses at its Browns Ferry nuclear facility.

Through partnerships on advanced nuclear technologies, TVA is advancing its work toward decarbonization while also reducing risks that might be associated with pursuing new technologies on its own. Hunnewell said that as TVA aspires to achieve net-zero, it remains committed to technology innovation, adhering to decision gates to ensure the timing is right, and relying on its construction experience and talent as it moves forward.

QUESTIONS/ANSWERS

One Council member asked if, based on the schedule described, it is correct to assume it would be four years until TVA would be ready to build on the Clinch River site. Hunnewell confirmed that would be the timing. Another member asked how staffing would work if TVA hires employees but the TVA Board decides not to move past a decision gate. Hunnewell said that, for now, TVA is using contractors who are not TVA employees. If the project stops, the contractors would be let go. The strategy for later in the process would be to hire a few people who could be integrated into the operating-fleet staff if a decision is made not to move on at Decision Gate 3.

Other questions and answers included:

- Will the new nuclear be dispatchable or will they operate like the traditional baseload nuclear?

    - The BWRX-300 (Generation 3, a light cool-watered reactor) would be able to do load following. It comes with a price. The fuel cycle for a plant like Browns Ferry is every two years. If you want the BWRX-300 load follow, they recommend a 12-month fuel cycle. If TVA built four at Clinch River, three might be on a two-year cycle and have one do load following on a one-year cycle. Generation 4 (nonlight water-cooled) reactors should be able to be dispatchable.
- Can you use heat capture to generate more electricity off the Gen 4?
    - With the Gen 3, there is no heat capture. Gen 4 are setting up for heat capture. Heat could be stored in a liquid sodium vault, and if there is a peak in the afternoon or morning, heat could be drawn to help with the peak.
- What is the timeline for the Ontario Power Generation?
    - Ontario Power Generation is about a year to a year and a half ahead of the Clinch River project. They anticipate getting approval from their Board of Directors on Nov. 6 to submit their version of a construction permit application. The NRC process is a bit different.
- What are the main risks to TVA's timeline?
    - There are some technological risks, including the use of Steel Bricks™ (a new method of construction for a nuclear plant that uses steel panels that are welded together without the need for rebar), safety strategy (since GE Hitachi needs to adapt its safety strategy to meet U.S. regulations), NRC approval of the fuel for use in the BWRX-300, and NRC approval for the new dose methodology.
- Where does funding fall in the decision gates?
    - By Decision Gate 2, there needs to be an understanding about funding. There are a lot of lawyers looking at the newly passed Inflation Reduction Act to see if there are tax credits for this work.
- How does the technology used in an SMR Gen 3 compare to the technology in nuclear submarines or traditional nuclear reactors?
    - Hunnewell said Navy submarines use pressurized water reactors (PWRs) rather than boiling water reactors (BWRs), which are planned for the SMRs. He also said SMRs have a simpler design than traditional nuclear reactors.
- Are there any differences related to fuel disposal for these SMRs versus a traditional nuclear plant?
    - For the BWRX-300, the fuel is the same and the disposal will be the same. For the Gen 4 reactors, it would be different because they use TRISO fuel and the volume of waste is higher.
- If TVA thinks it will be 10 years until an SMR is part of its fleet, what nuclear percentage does TVA expect by 2050?
    - There are a lot of variables and load projections more than 20 years in the future are highly speculative. EPRI has completed a study that estimates a nationwide need for 300 SMRs by 2050 to meet net zero objectives. Browns Ferry Unit 1 will turn 80 in 2053. TVA won't know the unit's viability beyond 80 years until about year 70. I have done some math that shows to replace our operating fleet, it would take 27 SMRs. For speculated load growth between now and 2050, TVA may need potentially 20 SMRs. So, we would be looking at 47 SMRs for load growth and replacing the operating fleet. Power sources such as combined cycle low-carbon gas with carbon capture and more solar and wind also would be added.
- What would the severity of the waste be with a Gen 4 reactor, and what are the tradeoffs of a Gen 4 reactor?

    - The severity should be similar. It is still uranium-based fuel. There are great advantages to Gen. 4. For one, it is walk-away safe — with no way to melt the fuel. That is a big advantage. There are some risks. There are questions about how to operate molten salt long-term, since it is a corrosive and would interact with the pipes. These are also high-temp reactors. There are technological hurdles, but assuming those are resolved, there is no reason Gen 4 reactors should not be a replacement for Gen 3 reactors down the road.
- Can you state the cost per reactor?
    - No. TVA is working with Ontario Power Generation (OPG), which is ahead of us on exploring the costs. There are unknowns that will impact the cost.

10. Closing Comments

Erin Gill, Chair, thanked everyone in person and online for their participation. Melanie Farrell thanked the Council on behalf of TVA and its Board of Directors for its dialogue. She noted that building the energy system of the future will involve engaging with customers and long-term partners to make advances in industry. The next meeting will be a joint RERC and Regional Resource Stewardship Council (RRSC) meeting on Nov. 2-3, 2022, to discuss and offer an Advice Statement on Environmental Justice.

Appendix A
Non-Council Meeting Attendees

TVA Staff Members (In person)	
Rebecca Brinkley	Scott Hunnewell
Jennifer Brundige	Hunter Hydas
Don Cahill	Althea Jones
Cathy Coffey	JoAnne Lavender
Ashley Farless	Barbie Perdue
Melanie Farrell	Doug Perry
Greg Henrich	Dan Pratt
TVA Staff Members (Virtually)	
Jennifer Bogus, TVA OIG	Marylee Sauder
Heather Kulisek, TVA OIG	Rick Underwood, TVA OIG

Stakeholders (In person)	
Al Berrong	Ken Neal
Rachael Maitland	Dave Wade
Daniel Joranko	Richard Holland
Stakeholders (Virtually)	
Ellen Getter	Maggie Shober
Marlin Gines	Julia Settles
Amy Kelly	Brady Watson

Appendix B
Regional Energy Resource Council (RERC) Agenda

Regional Energy Resource Council Meeting Agenda
October 3-4, 2022
TVA Missionary Ridge Building, Chattanooga

Day 1 – Oct 3

9:00 – 9:10	Welcome / Call RERC Meeting to Order
9:10 – 9:30	Introductions and Agenda Review
9:30 – 9:45	DFO Briefing
9:45 – 10:45	Valley Vision 2035 Presentation
10:45 – 11:00	Break
11:00 – 12:30	TVA Systems Operations Center Presentation
12:45	Adjourn Meeting
1:45 – 2:00	Welcome Back and Day 1 Recap
2:00 – 3:00	Public Comment
3:00 – 3:15	Adjourn Meeting and Day 1 Closing Remarks

Day 2 – Oct 4

8:30 – 9:15	Breakfast
9:15 – 10:00	Welcome and Speaker David Wade, President & CEO, EPB
10:00 – 10:15	Recap of Day 1
10:15 – 10:30	Break
10:30 – 11:30	Nuclear Update
11:30 – 11:45	Q&A
11:45	Adjourn Day 2
11:45	Lunch