Comments regarding TVA IRPs

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What are you testifying about today?
Today I'm testifying about the structure of TVA's IRP modeling process and how it compares to IRP proceedings in other jurisdictions.

What is an integrated resource plan?
To begin, I'll give an overview of what IRPs are and what their purpose is. An integrated resource plan (IRP) is a study used to determine how an electric provider can best meet forecasted customer electric demand over a set period of time. IRPs consider supply-side resources (like central power stations and renewables), demand-side resources (like energy efficiency and distributed generation), and peaking resources (like energy storage, demand response and virtual power plants). IRPs typically develop resource portfolios to meet specific goals, such as keeping costs low, minimizing risks, or reducing environmental impacts. The resource portfolios are plans for specific resources to be run, built or purchased to meet customer needs. And, to be clear for those who might be less familiar with these terms: A resource portfolio is a list of all the resources (power plants, solar farms, energy efficiency savings, batteries) that will be used in each future year, including dates when resources will be built or retired.

Is TVA required to perform IRPs?

TVA is required to perform IRPs. The U.S. Energy Policy Act of 1992 (Title 16 U.S. Code § 831m-1) requires TVA to "provide adequate and reliable service" to TVA customers at the "lowest system cost" by engaging in a resource selection process in which it treats supply- and demand-side resources on an consistent and integrated basis while accounting for system operation features of those resources (such as diversity and reliability) and the ability to verify and measure energy savings from efficiency and conservation.

Has TVA produced IRPs?
TVA prepared IRPs in 2011, 2015, and 2019, and is expected to complete its next IRP by the end of 2024.

What do IRPs typically provide or conclude?

The purpose of an IRP is to provide a roadmap for near-term electric sector planning. IRPs typically examine multiple potential resource mixes in the context of multiple scenarios of future political and economic circumstances. IRP modeling searches for the resource mix that meets any required goals set by state or federal law at the lowest possible cost to electric ratepayers across a range of possible futures. That portfolio is very often called the "preferred portfolio" and it is the conclusion of the IRP process. The preferred portfolio becomes the roadmap for utility planning in the years until the next IRP process takes place.

Do TVA's IRPs provide a preferred or recommended resource portfolio?

TVA's IRPs to date differ from typical utility IRPs in not providing a preferred resource portfolio that declares a roadmap for operational and resource build-out decisions. Instead, TVA's IRPs present prospective ranges (from low to high) for capacity additions and retirements over 20-year planning periods. The ranges provided are for each resource in isolation; that is, they do not "talk to one another" showing an interrelationship between the levels selected for different resources, and they don't provide a schedule of proposed additions. TVA's large ranges are also detrimental to accountability: They do not lend themselves to any determination of whether, after the fact, the planning exercise was a success or a failure.

What is the consequence of not providing a recommended resource portfolio in IRP planning?
Overall, TVA's failure to develop a preferred plan from its IRPs eliminates accountability from the TVA's planning. An IRP is an opportunity for a utility to demonstrate that its resource investments, made with ratepayer money, are the best possible investments leading to the lowest customer costs that are consistent with overarching goals. Failure to make a clear recommendation based on IRP planning devalues the IRP, rendering it a mere thought exercise rather than a concrete plan for near-term future actions that can involve billions of dollars.

Have TVA's IRPs been indicative of the actual planning decisions that followed them?
What's more, often TVA's IRPs have not been indicative of the actual planning decisions that have followed them:

- The 2011 IRP planned for no coal retirements whatsoever. Over the next 10 years TVA would retire more than 9 GW of coal, more than half of its fleet. TVA' 2015 IRP again underestimated actual coal retirements.
- TVA's 2021 announcement of its net zero emissions by 2050 goal made its 2019 IRP defunct. TVA cannot meet its obligations under Federal executive orders using 2019 IRP planning due to the scale of its range of planned gas additions (which are larger than planned renewables additions).
- TVA's 2022 planning documents for the Cumberland coal plant retirements are not consistent with the assumptions or conclusions of the 2019 IRP. The Cumberland Environmental Impact Statement makes a clear and compelling case for accelerating all TVA coal plant retirements that is not anticipated by the 2019 IRP.

Do TVA's IRPs include any errors in assumptions or modeling?
TVA's IRPs also include errors in modeling. TVA's 2019 IRP modeling process puts a thumb on the scale for the selection of gas-fired resources, effectively assuming that energy efficiency, demand response, wind, solar and storage resources cannot be viable components of a resource mix to replace aging coal generation. Some TVA planning documents assume that new gas generation is less costly than new renewables. Non-fossil resources are dismissed or severely limited before their inclusion in modeling. Instead of allowing IRP modeling to determine the best possible resource mix for ratepayers, TVA boxes in the model, limiting its options, and creating constrained outcomes.

Does TVA allow for stakeholder participation in its IRP process?

Most IRP processes also have a robust stakeholder process that goes beyond the listening sessions offered by TVA to hold a lengthy series of technical workshops attended by both stakeholders and third-party experts in electric sector planning. These sessions present and receive feedback on modeling assumptions and planned scenarios in advance of modeling. Stakeholders may also request that the utility carry out specific modeling runs on their behalf. Listening sessions are not sufficient to allow full transparency and true engagement. A series of technical workshops improves the quality of inputs used in IRP modeling and allows the public to have a real role in using IRP modeling to find the best portfolio for ratepayer interests.

In your description of the IRP process, you mentioned supply-side resources, demand-side resources, and peaking resources. Is that sequence important; in other words, if demand-side resources were considered first, would the resulting portfolio be the same?

The order in which resources are considered doesn't matter but treating supply and demand-side resources on an even playing field is critical to achieving useful, accurate IRP results. An IRP exercise should begin with an open mind, gather the best possible data about real-word prices and availability for all resources (preferably through an all-source RFP) and then let the model find the least-cost result without the constraint of modeler's preconceptions.

What are the benefits of using an all-source RFP?

An all-source RFP gathers real-world market information on the prices and availability of resources. Prices are more accurate because they are market prices specific to the IRP's context and availability is based on offers to provide resources not on assumptions or modeler's preconceptions.

What specific recommendations do you have?

I would recommend a few changes for the TVA's 2024 IRP process:

- TVA should be transparent about its assumptions and modeling inputs, both before modeling begins and in a detailed technical report submitted with the IRP;
- TVA should conduct an all-resource Request for Proposals (RFP) for new resources.
- TVA should select a preferred resource plan, setting out a clear roadmap for its near-future actions;
- TVA should set aggressive climate goals in line with Biden-Harris Administration's executive orders, specifically achieving carbon free electricity by 2035;
- TVA should plan to utilize the grants, loans, and tax credits of the Inflation Reduction Act; and
- TVA should provide clear, detailed information on its solar and wind resources, including specifying what resources TVA itself owns.