Memorandum from the Office of the Inspector General

December 13, 2024

Buddy Eller
Clifton R. Lowry

REQUEST FOR MANAGEMENT DECISION – EVALUATION 2023-17465 – TVA'S ANALYSIS OF THE POWER SUPPLY PLAN RELIABILITY

Attached is the subject final report for your review and management decision. Your written comments, which addressed your management decision and actions planned or taken for five of the six recommendations, have been incorporated into the report. Please advise us of your management decision on the remaining recommendation within 60 days from the date of this report. In accordance with the Inspector General Act of 1978, as amended, the Office of the Inspector General is required to report to Congress semiannually regarding evaluations that remain unresolved after 6 months from the date of report issuance.

If you have any questions or wish to discuss our findings, please contact Lucas W. Cotter, Senior Auditor, at (423) 785-4826 or Lindsay J. Denny, Director, Evaluations – Operations, at (865) 633-7349. We appreciate the courtesy and cooperation received from your staff during the evaluation.

David P. Wheeler
Assistant Inspector General
(Audits and Evaluations)

LWC:KDS
Attachment
cc (Attachment):
TVA Board of Directors
Janda E. Brown
David B. Fountain
Jeffrey J. Lyash
Jill M. Matthews
Aaron P. Melda
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Ben R. Wagner
OIG File No. 2023-17465

Office of the Inspector General

Evaluation Report

To the Vice President, Communications and to the Vice President, Enterprise Planning

TVA'S ANALYSIS OF THE POWER SUPPLY PLAN RELIABILITY

Evaluation Team
Lucas W. Cotter
Rand C. Clapp

Evaluation 2023-17465
December 13, 2024

ABBREVIATIONS

EF	Enterprise Forecasting
EP	Enterprise Planning
FY	Fiscal Year
MW	Megawatt
PPA	Purchased Power Agreement
PSP	Power Supply Plan
SPP	Standard Programs and Processes
TOPS	Transmission Operations and Power Supply
TVA	Tennessee Valley Authority

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APPENDICES

Evaluation 2023-17465 – TVA's Analysis of the Power Supply Plan Reliability

EXECUTIVE SUMMARY

Why the OIG Did This Evaluation

The Tennessee Valley Authority's (TVA) Power Supply Plans (PSPs) combine optimized capacity and generation plans that balance load and power supply and provide detailed dispatch and generation forecasts used in resource decisions, budgeting, and analysis. PSPs incorporate key planning assumptions, including load and commodity forecasts, fleet characteristics, and other inputs, applying least-cost planning methodology. According to TVA Standard Programs and Processes (SPP) 33.000, *Resource Planning*, the PSP shall be issued semi-annually in the form of a (1) Strategic PSP, focused on long-term strategic issues to support fleet and asset decisions and (2) Budget PSP that optimizes short-term operational alignment and sets the stage for budgeting and fuel plans.

TVA's 2025 Draft Integrated Resource Plan identified the TVA region is experiencing increasing demand for electricity driven by population, employment, and industrial growth, weather trends, and increasing electric vehicle usage. Due to the importance of effective power supply planning to meet future load and energy demand requirements, we performed an evaluation of TVA's analysis of the reliability of the PSP. The objective of our evaluation was to evaluate TVA's process for analyzing the reliability of the PSP and taking corrective actions as necessary.

What the OIG Found

We determined TVA took steps to analyze the reliability of some elements of the PSP and took corrective actions as necessary. While TVA does not have an SPP defining analysis of the reliability of the PSP, we found that TVA utilized several procedures and practices to provide governance of its power supply planning process. Additionally, we identified examples of corrective actions TVA had taken to improve the reliability of some aspects of the PSP.

We also found some elements of the PSP process that could impact its reliability. Specifically, we identified (1) significant variance in near-term[i] planned system changes, (2) misalignment of cost assumptions in the modeling and approvals process, (3) some PSP input controls not working as designed, and (4) several SPPs past their review cadence.

[i] We considered any changes in net capacity additions or reductions in PSP Lego Charts greater than 500 megawatts for the same year from one plan to the next that were scheduled within five years of the plan date to be significant variances in near-term planned system changes.

Additionally, we identified a misalignment between PSP projections and public messaging.

What the OIG Recommends

We made recommendations to TVA management to improve the reliability of PSPs and reinforce the process for public communications. Our detailed recommendations are listed in the body of this report.

TVA Management's Comments

In response to our draft report, TVA agreed or generally agreed with our recommendations and provided actions planned, ongoing, or taken to address five of the six recommendations. TVA management also provided additional context to several points and conclusions in the report. See the Appendices for TVA management's complete response.

Auditor's Response

We concur with TVA management's planned, ongoing, and completed actions.

BACKGROUND

The Tennessee Valley Authority's (TVA) Power Supply Plans (PSPs) combine optimized capacity and generation plans that balance load and power supply and provide detailed dispatch and generation forecasts used in resource decisions, budgeting, and analysis. PSPs incorporate key planning assumptions, including load and commodity forecasts, fleet characteristics, and other inputs. According to TVA Standard Programs and Processes (SPP) 33.000, *Resource Planning*, the PSP shall be issued semi-annually in the form of a (1) Strategic PSP, focused on long-term strategic issues to support fleet and asset decisions and (2) Budget PSP[1] that optimizes short-term operational alignment and sets the stage for budgeting and fuel plans. While TVA does not have an SPP defining analysis of the reliability of the PSP, TVA employs several procedures and practices to analyze the reliability of the PSP and the inputs driving the PSP. Based on our review of TVA procedures and processes and discussion with Enterprise Planning (EP), we found that TVA's PSP process consists of three phases: (1) input approval and submittal, (2) creation of the PSP, and (3) communication and utilization of the PSP to support resource decisions, budgeting, and analysis.

The capacity plan seeks to provide an adequate portfolio of generation resources to meet peak demand and maintain proper system reserves. The capacity planning model forecasts the month and year that new resources are expected to be in service or existing capacity that is expected to be retired for a twenty-year horizon. Significant additions and reductions to the TVA generating portfolio included in the capacity plan are depicted in a Lego Chart document, which EP personnel informed us is used to present the plan for strategic conversation to various levels, including TVA management and the Board of Directors. Generation plans include generation dispatch and production cost analyses used for long-term asset operation profile, major contracted asset decisions, budgeting, and business planning and analysis. According to TVA-SPP-19.102, *Demand and Energy Forecasting*, Enterprise Forecasting (EF) is responsible for the development of the load forecast, a key planning assumption in the PSP. Semi-annually, EF submits the load forecast, which forecasts the expected demand requirements for use in TVA system operations planning, power supply evaluations, revenue forecasting and transmission expansion planning.

Analysis of the reliability of inputs to the PSP is governed by TVA-SPP-33.100, *Capacity Planning*, and TVA-SPP-33.200, *Long Term Generation Planning*, which include PSP inputs and approved input providers from multiple TVA organizations. These procedures state that, prior to submittal, input providers should ensure that inputs are reviewed and approved by appropriate management. In addition, it is the responsibility of EP to compile and review assigned inputs to determine accuracy and completeness and to update the capacity and generation planning models with the most recent inputs to create the PSP. EP utilizes a PSP Input Schedule to communicate to input providers

[1] The Strategic PSP is typically issued in the fall and the Budget PSP is typically issued in the spring.

when their input submissions are due for inclusion in the PSP. Following input approval and submittal, EP is responsible for creating and communicating optimized capacity and generation plans, the combination of which constitute the PSP.

Draft PSPs are communicated to stakeholder business units during Input and Common Sense Reviews that allow for feedback from input providers and end users prior to issuance of the final PSP. Finalized plans are presented to a range of end users, including the Enterprise Leadership Team and the Board of Directors for strategic decision making.

TVA's 2025 Draft Integrated Resource Plan identified the TVA region is experiencing increasing demand for electricity driven by population, employment, and industrial growth, weather trends, and increasing electric vehicle usage. Due to the importance of effective power supply planning to meet future load and energy demand requirements, we performed an evaluation of TVA's analysis of the reliability of the PSP.

OBJECTIVE, SCOPE, AND METHODOLOGY

The objective of this evaluation was to evaluate TVA's process for analyzing the reliability[2] of the PSP and taking corrective actions as necessary. The scope of our evaluation included all PSPs from the FY 2016 Strategic PSP through the FY 2025 Strategic PSP. To achieve our objective, we:

- Interviewed program managers and reviewed the following TVA SPPs to gain an understanding of the TVA PSP process and program requirements.
  - TVA-SPP-19.000, *Strategic Planning*
  - TVA-SPP-19.102, *Demand and Energy Forecasting*
  - TVA-SPP-33.000, *Resource Planning*
  - TVA-SPP-33.100, *Capacity Planning*
  - TVA-SPP-33.200, *Long Term Generation Planning*
- Compared each semi-annual PSP to identify variances and corrective actions taken between plans for the following:
  - Net generating impacts of planned additions and reductions.
  - Generation additions and reductions by resource type.
  - Forecasted load demand.

[2] We evaluated risks to reliability as those which could impact the PSPs' ability to achieve their stated purpose; to combine optimized capacity and long-term generation plans that balance load and power supply and provide detailed dispatch and generation forecasts used in resource decisions, budgeting, and analysis.

- Compared TVA monthly weather-normalized peak load[3] for Calendar Years 2015 through 2023 to the corresponding Budget PSP forecasted load to assess the reliability of load forecasts and corrective actions taken. This resulted in 108 total months for comparison.
- Interviewed input providers and reviewed inputs to the FY 2024 Budget PSP and the FY 2025 Strategic PSP to determine if inputs were reviewed, approved, and submitted to EP prior to inclusion in the PSP.

This evaluation was conducted in accordance with the Council of the Inspectors General on Integrity and Efficiency's *Quality Standards for Inspection and Evaluation*.

[3] TVA forecasts its demand on a weather-normalized basis in order to account for deviations from normal weather. In addition, TVA monitors reported peak demand as well as weather-normalized peak demand in order to estimate the impact of nonnormal weather on measured peak demand. TVA performs monthly comparisons of its forecasts to the weather-normalized peak on a monthly basis to determine its forecast error.

FINDINGS AND RECOMMENDATIONS

We determined TVA took steps to analyze the reliability of some elements of the PSP and took corrective actions as necessary. While TVA does not have an SPP defining analysis of the reliability of the PSP, we found that TVA utilized several procedures and practices to provide governance of its power supply planning process. Additionally, we identified examples of corrective actions TVA had taken to improve the reliability of some aspects of the PSP.

We also found some elements of the PSP process that could impact its reliability. Specifically, we identified (1) significant variance in near-term[4] planned system changes, (2) misalignment of cost assumptions in the modeling and approvals process, (3) some PSP input controls not working as designed, and (4) several SPPs past their review cadence.

Additionally, we identified a misalignment between PSP projections and public messaging.

TVA TOOK STEPS TO ANALYZE THE RELIABILITY OF SOME ELEMENTS OF THE POWER SUPPLY PLAN AND TOOK CORRECTIVE ACTIONS AS NECESSARY

Based on our review of TVA procedures and processes and discussion with EP, we found that the semi-annual PSP process consists of three phases; (1) input approval and submittal, (2) creation of the PSP, and (3) communication and utilization of the PSP to drive strategic decisions. We observed that TVA took steps to analyze the reliability of the PSP at each of these phases.

We reviewed all inputs to the FY 2024 Budget PSP and the FY 2025 Strategic PSP and determined that most had been reviewed for reliability and received management confirmation prior to inclusion in those PSPs. In addition, most input providers we interviewed provided examples of collaboration with EP to analyze input reliability. EF analyzed the reliability of the load forecast input by performing (1) monthly load forecast assessments, (2) load outlook analyses, and (3) summer and winter post-op assessments.

During creation of the PSP, EP presents the draft PSP in an Input and Common Sense review to allow for feedback from input providers and end users. After feedback is provided and final input updates are incorporated, EP management reviews and approves the Final PSP.

We also observed TVA utilized cross-functional committees, including the Holistic Asset Strategy Core Team and Resource Strategy Team to provide input, review,

[4] We considered any changes in net capacity additions or reductions in PSP Lego Charts greater than 500 megawatts (MWs) for the same year from one plan to the next that were scheduled within five years of the plan date to be significant variances in near-term planned system changes.

and recommendations for major asset decisions included in the PSP. According to documentation provided by EP, the Holistic Asset Strategy Core Team met nine times between January 2023 and May 2024 in order to discuss a range of PSP components, including capacity planning, reserve margin studies, and asset strategy. The Resource Strategy Team met seven times between February 2023 and May 2024 to discuss PSP elements such as solar and storage studies, new technologies, capacity planning, and system position.

Corrective Actions

As a result of steps taken by TVA to analyze the reliability of the PSP, we observed that TVA took corrective actions in response to identified risks by updating the following:

- Load Forecast – According to EF, the peak forecast error threshold is +/- 3 percent deviation between the forecast and weather-normalized peak demand. In their July FY 2021 *Peak and Weather Response* presentation, EF recognized peak demand exceeded the forecast at certain temperatures due to factors such as residential customer growth and new, LPC-served loads. As a result, EF updated its load forecast model, with changes reflected beginning October 2022. From January 2015 to September 2022, we found forecasts differed from loads by 3 percent or more in 28 of 93 months reviewed. In the subsequent 15 months after the changes, we identified only two forecast errors exceeding EF's error threshold.
- Solar and Storage Inputs – Input providers informed us they worked with EP to make changes to a solar input[5] following the FY 2023 Strategic PSP to better reflect the market environments impacting solar energy procurement. As a result, updated pricing assumptions were used in the FY 2023 Budget PSP planning cycle and we observed the cumulative amount of net dependable solar capacity planned between FY 2023 and FY 2035 was reduced by 2,402 MWs.

  Additionally, an update was made during the FY 2023 Budget PSP cycle to include risk-adjusted capacity values for prospective solar purchased power agreements (PPA).[6] These risk-adjustments lower the capacity value for projects depending on where a project is in its life-cycle and its corresponding likelihood of completion. According to the solar input provider, planned MW additions previously reflected a potential overstatement of solar that could be added to the system because the capacities used did not account for project delays or default risk. By including risk-adjusted values as an input to the PSP, the model better reflects reliable solar capacity values.

[5] The Capacity Planning and Long-Term Generation Planning Procedures refer to this input as "Expansion unit characteristics for PPAs"

[6] PPAs are bilateral wholesale or retail power contracts.

SOME ELEMENTS OF THE POWER SUPPLY PLAN PROCESS COULD IMPACT ITS RELIABILITY

We identified elements of the PSP process that could impact its reliability. Specifically, we identified (1) significant variances in near-term planned system changes, (2) misalignment of cost assumptions in the modeling and approvals process, (3) some PSP input controls not working as designed, and (4) several SPPs past their review cadence.

Significant Variances in Near-Term Planned System Changes Could Impact the Reliability of the Power Supply Plan

As stated previously, the Lego Chart is used to communicate significant, planned capacity additions and reductions in TVA's PSP to TVA personnel, executives, and the Board of Directors and serves as strategic direction to these groups. Our comparison of the net of capacity additions and reductions between the FY 2016 Strategic PSP and the FY 2025 Strategic PSP identified 21 instances where there was a change of greater than 500 MW for the same year from one plan to the next that were scheduled to be completed within a five-year horizon. Fluctuations of this magnitude within the five-year horizon could impact the reliability of the PSP. We determined some of the variances in the Lego Charts were the result of the following:

- PPA additions were not handled consistently in the PSP Lego Charts. In some instances, anticipated PPA additions were included as capacity additions. In other cases, PPAs that were needed to support system position and expected to be completed, were not included on the PSP Lego Charts. According to EP, Lego Charts typically do not include unsigned contracts. As discussed above, the Lego Chart is used to communicate TVA's PSP for strategic direction. Without consistency in how PPAs are included in the Lego Charts, there is an increased risk that incomplete and inaccurate information could be communicated.
- On one occasion, a gas plant build, with capacity exceeding 800 MW, was added to a PSP Lego Chart, to be completed within the next five-years, and then removed in the subsequent PSP Lego Chart. Due to the timeframes and regulatory requirements for new generation construction, the completion of a major generation asset yet to receive project approval would be unlikely. As a result, its inclusion in the PSP within such a short timeframe could have communicated an unrealistic plan and impacted the reliability of the PSP.
- Planned battery storage additions fluctuated by substantial amounts from plan to plan. Figure 1 shows wide variance between three consecutive PSPs. This amount of fluctuation could reduce the PSP's reliability.

PSP	Total MW Additions between FY 2025 and FY 2030
FY 2024 Strategic PSP	770
FY 2024 Budget PSP	2,730
FY 2025 Strategic PSP	548

Figure 1

In addition to the PSP variances we observed, several input providers and end users of the PSP cited concerns regarding the reliability of the PSP. Specifically, these personnel discussed (1) pressure to meet the demands of the PSP Input Schedule timeframe, which could impact the reliability of inputs; (2) a lack of visibility into how inputs resulted in changes to PSP forecasts; and (3) volatility in the PSP asset strategy, making plans difficult to interpret and execute.

Recommendation
We recommend the Vice President, EP, take steps to improve consistency in the capacity plan.

TVA Management's Comments – TVA management agreed with the recommendation and provided some additional context regarding the capacity plan. See Appendix A for TVA management's complete response.

Auditor's Response – Although TVA management agreed with our recommendation, they did not provide information regarding their plans to implement the recommendation.

Misalignment of Cost Assumptions in the Capacity Planning Model
The capacity planning model used in the PSP process relies on cost information to inform a least-cost asset strategy to meet demand. As discussed above, changes were made to the solar input to better reflect the current market environment. While these updates may improve the reliability of solar purchase assumptions in the capacity model, current construction timeframes could result in the model using inaccurate cost assumptions for new solar projects.

According to TVA personnel, due to extended construction timeframes for solar projects, solar capacity procured now may not be online for six to seven years. Therefore, solar contracts need to be signed under current market conditions in order to fulfill long-term solar capacity needs. However, TVA personnel informed us the capacity planning model uses lower forecasted prices rather than the current market prices for long-term solar purchases. As a result, the capacity model could make recommendations for long-term solar capacity based on inaccurate cost information.

Recommendation
We recommend the Vice President, EP, evaluate the solar cost assumptions in the capacity planning model and take actions as necessary.

TVA Management's Comments – TVA management generally agreed with the recommendation and stated they recognize the need to continue to review and refine solar inputs. The Strategic PSP currently in-progress has taken further continuous improvement steps to align to near-term market expectations transitioning to a long-term moderate forecast. See Appendix A for TVA management's complete response.

Auditor's Response – We concur with TVA management's planned and ongoing actions.

Some Power Supply Plan Input Controls Were Not Working as Designed
The Capacity Planning and Long-Term Generation Planning procedures include PSP inputs from multiple TVA organizations. These procedures state that, prior to submittal, input providers should ensure that PSP inputs are reviewed and approved by appropriate management. In addition, it is the responsibility of EP to compile and review assigned inputs to determine accuracy and completeness and to update the capacity and long-term generation planning models with the most recent inputs to create the PSP.

In order to manage the input submittal process, EP utilizes a PSP Input Schedule to communicate to input providers when their input submissions are due. However, our review identified eight PSP inputs which were not included on the PSP Input Schedule, including:

- Annual loss of load expectation or planning reserve margin targets.
- Off-System Purchase Limits.
- Discount Rate.
- Transmission expansion upgrade cost estimates.
- Operating and economic characteristics for site specific expansion nuclear generating assets.
- Capital cost estimates for site expansion nuclear generating assets.
- Fixed Operations and Maintenance estimated expenses for site specific expansion nuclear generating assets.
- Construction time frames, including cash flow distributions, for site specific expansion nuclear generating assets.

We identified two of these inputs were not submitted to EP:

- Off-System Purchase Limits – The Off-System Purchase Limits input is the responsibility of a Transmission Operations and Power Supply (TOPS) representative. However, we found the input had not been approved and submitted by TOPS since 2018. During our interviews with input owners, TOPS representatives informed us they were not familiar with the input submittal process. Subsequently, TOPS met with EP and recommended updating the Off-System Purchase Limits input as well as involving TOPS moving forward.
- Transmission Expansion Upgrade Cost Estimates – Approval and submittal of this input is the responsibility of a Transmission Planning representative. EP informed us that they calculated transmission expansion upgrade costs using various inputs from transmission studies and asset strategy conversations. However, EP had not contacted Transmission Planning to receive approval

on the final input during the FY 2024 Budget PSP or FY 2025 Strategic PSP cycles.

We also identified two additional inputs that had not received management approval as required by procedure.

- Seasonal Unit Outages Schedule Information and Outage Characteristics for Raccoon Mountain Pumped Storage – TVA-SPP-33.400, *Outage Derate and Must Run Concurrence Process*, outlines the request, concurrence, and approval process for all work creating generating asset outages. However, we were provided 15 examples of outages submitted outside of the concurrence process and determined 10 were included in the FY 2025 Budget PSP Seasonal Unit Outages Schedule Information input. According to EP management, they rely on TVA-SPP-33.400 as the concurrence process for the Seasonal Unit Outages Schedule Information input.

Not including required PSP inputs in the PSP Input Schedule could increase the risk that responsible input providers are not consulted for approval on their inputs. Without proper review, approval and submittal of inputs, TVA faces increased risk of including unreliable information in the PSP.

Recommendations
We recommend the Vice President, EP:

- Consider aligning the PSP Input Schedule with the PSP Inputs listed in procedures.
- Ensure PSP inputs are approved and submitted by designated input providers for inclusion in the PSP.

TVA Management's Comments – TVA management agreed with the recommendations and stated they were in the process of revising the Capacity Planning and Long-Term Generation Planning procedures and will reflect updates as needed. They also recognized the importance of consulting the responsible input provider and have implemented actions to gather Off-System Purchase Limits and the Transmission Expansion Upgrade Cost Estimates inputs from Transmission and Power Supply. See Appendix A for TVA management's complete response.

Auditor's Response – We concur with TVA management's planned and ongoing actions.

Several Standard Programs and Processes Were Overdue for Review
As part of our work to gain an understanding of the TVA PSP process and program requirements, we reviewed the following TVA SPPs. These SPPs were in use, but were overdue for review and approval as of August 1, 2024:

- TVA-SPP-19.000, *Strategic Planning*, overdue by 421 days.

- TVA-SPP-19.101, *Economic Forecasting*, overdue by 279 days.
- TVA-SPP-19.102, *Demand and Energy Forecasting*, overdue by 332 days.
- TVA-SPP-19.200*, Strategic Issues Process*, overdue 1128 days.

EP management informed us that these procedures were being updated at the time of the evaluation. However, without current, reviewed, and approved procedures, TVA increases its risk of outdated processes governing the PSP process.

Recommendations
We recommend the Vice President, EP, review, update, and approve the SPPs in the PSP process.

TVA Management's Comments – TVA management agreed on the importance of reviewing and revising procedures that support the reliability of TVA's PSPs and indicated they were currently in the process of updating the procedures. See Appendix A for TVA management's complete response.

Auditor's Response – We concur with TVA management's ongoing actions.

MISALIGNMENT BETWEEN POWER SUPPLY PLAN PROJECTIONS AND PUBLIC MESSAGING

During the course of our evaluation, we identified information contained in the PSPs that differed from public statements made by TVA regarding forecasted demand expectations. Specifically, during a November 2023 public Board of Directors meeting, a TVA executive stated TVA expected "that load growth will continue at a rate of about 1,000 MWs per year for the next three years." However, load forecasts in the PSPs from that time did not forecast demand growth at as rapid a rate. The FY 2025 Strategic PSP load forecast, issued in August 2023, forecasted an average annual load increase of 286 MW for the following three years. We discussed this misalignment with EP management, who informed us they did not believe the statement made at the Board of Directors meeting was accurate.

According to TVA-SPP-36.003, *Communications with Internal and External Audiences,* Business Communications personnel are responsible for engaging in and advising strategic business unit/business unit leaders regarding strategic communications products and plans that align with their mission and goals. Communications management informed us they received approval from EF on language regarding load growth expectations. We reviewed that language and concluded it aligned with the lower growth rates forecasted in the PSP. However, we found the language was altered to reflect higher load growth before being used at the board meeting. Communications management informed us this change was inadvertent but agreed that the materiality of the change should have warranted an additional approval from EF.

This disparity between the forecasted load growth used in the PSP and the public statement regarding expected load growth could hamper TVA's efforts to maintain transparency and open communication with the public. The difference between an increase in peak load of 1,000 MW per year and 286 MW per year (714 MW) is roughly equivalent to the generating capacity of TVA's recently added combustion turbine units at Paradise Combined Cycle plant (750 MW).

Recommendation

We recommend the Vice President, Communications, reinforce the process for engaging strategic business unit/business unit leaders for communication approval.

TVA Management's Comments – TVA management agreed with the recommendation and updated their review process on all Board materials to send draft materials to Finance, Office of the General Counsel, and EP for review and concurrence to ensure accuracy. See Appendix B for TVA management's complete response.

Auditor's Response – We concur with TVA management's actions and will verify completion prior to closing the recommendation.

November 26, 2024

David P. Wheeler, WT 2C-K

RESPONSE TO REQUEST FOR COMMENTS - DRAFT EVALUATION 2023-17465 -TVA'S ANALYSIS OF THE POWER SUPPLY PLAN RELIABILITY

Reference: OIG Memorandum dated October 16,2024

This letter is in response to the Draft Evaluation 2023-17465 - TVA's Analysis of the Power Supply Plan Reliability ("Draft Evaluation"). TVA management appreciates the efforts put forth by Lucas Cotter, Randall Clapp and the audit team to conduct this evaluation. We fully recognize the importance of TVA's Power Supply Plans and power supply planning process and appreciate the recognition of TVA's efforts to maintain the integrity of the plans and processes as well as to implement corrective actions as needed. Regarding the recommendations, many have already been identified by Enterprise Planning and are being addressed or are planned to be addressed through the collaborative efforts of our staff.

TVA's Power Supply Plans are complex and dynamic. The Capacity Plan determines TVA's future resources and asset mix, and the Generation Plan determines the economic dispatch of those resources to meet demand. Together, these combine to create an overall Power Supply Plan (PSP). These plans are developed through a collaborative process driven by a planning schedule, which outlines the steps to collect the necessary information for the plan, perform model runs, and issue the plan.

Thank you for the opportunity to review and respond. Our response to the recommendations is provided in the attached. Please let us know if you have any further questions.

Clifton Lowry
Vice President, Enterprise Planning
MR 3H-C

cc: David B. Fountain, WT 6A-K
John Thomas, MR 6D-C
OIG File No: 2023-17465
Don Moul, WT 7B-K
Aaron Melda, MR 3H-C

Attachment A

Audit 2023 -17465
TVA's Analysis of the Power Supply Plan Reliability - Enterprise
Planning Response to Request for Comments

Recommendation 1:

Take steps to improve the consistency in the capacity plan.

Response: Capacity planning is grounded in least-cost planning principles defined by statutory, regulatory, and other irrevocable parameters. TVA develops resource plans that will reliably supply TVA's customers guided by TVA's strategic priorities, risk considerations, and least-cost planning principles. While we agree with the recommendation, there are several points and conclusions to which we would like to respond.

The Draft Evaluation refers to the "Lego Chart" which is not an official term and only serves as one of many possible visuals for the Capacity Plan. The Lego Chart visual (i.e. the Capacity Plan) alone does not set TVA's strategic direction. The Capacity Plan reflects optimized capacity additions and retirements which can be evaluated against TVA's strategic direction.

Capacity planning recognizes the challenge created by the uncertainty of the future. Input assumptions are foundational to the quality of the resulting Capacity and Generation Plans. As inputs and the electric industry continue to transition and as TVA creates plans 20 years into the future, we anticipate seeing inflection points for some of the newer technologies in the plan causing some of the fluctuations noted. TVA continues to monitor the inputs and assumptions around these newer technologies and facilitates discussions to understand risks to the lowest feasible cost plan.

The goal of the capacity plan is not consistency. The goal is to reflect least cost planning principles and TVA's strategic direction, and to strive to clearly articulate risk uncertainties and drivers of change. TVA's Capacity Plan brings clarity and understanding of the resource plan built upon the latest inputs, which themselves can and will change over time.

Recommendation 2:

Evaluate the solar cost assumptions in the capacity planning model and take actions as necessary.

Response: We generally agree with the recommendation and recognize the need to continue to review and refine solar inputs.

TVA's Power Supply Plan is a result of all its input assumptions. Therefore, assumptions must be thoroughly vetted prior to modeling analyses which ultimately produce the Capacity and Generation Plans. A collaborative interaction between input providers and resource planners helps ensure expectations are met in terms of quality and timeliness of the periodic updates. TVA continues to review the Power Supply Plan process for additional collaboration points. Solar inputs, specifically market pricing for long-term solar purchases, is one of those inputs that TVA found to need enhancing by further collaboration with input providers.

The Strategic Power Supply Plan currently in-progress has taken further continuous

improvement steps to align to near-term market expectations transitioning to a long-term National Renewable Energy Laboratory (NREL) moderate forecast.

Recommendations 3 and 4:

Consider aligning the PSP Input Schedule with the PSP Inputs listed in procedures and ensure PSP inputs are approved and submitted by designated input providers for inclusion in the PSP.

Response: We agree with the recommendations, but there are several points and conclusions to which we would like to respond.

TVA is in the process of revising the Capacity Planning and Long-term Generation Planning procedures and will reflect updates as needed. TVA's procedures are generally high-level documents on process that are intended to span 3-5 years rather than serve as desktop guides for employees. On a continual basis, input assumptions and input data may need to evolve. These changes are reflected in the evolution of Power Supply Plan schedules rather than revising the procedures with every Power Supply Plan.

We recognize the importance of accurate outage reporting and the role the concurrence process plays in that effort. While we do agree there are some examples of outages submitted outside the concurrence process, providing context is important. A total of 2,699 outages were included in the outage input for the FY25 Budget Power Supply Plan, meaning the 10 outages that were outside concurrence account for less than one percent of the total.

We also recognize the importance of consulting the responsible input provider and have implemented actions to gather both the Off-System Purchase Limits and the Transmission Expansion Upgrade Cost Estimates inputs from Transmission & Power Supply (TPS) during the Strategic Power Supply Plan currently in-progress. Key personnel from both EP and TPS are collaborating on updates in the model.

Recommendation 5:

Review, update, and approve the SPPs in the PSP process.

Response: We agree on the importance of reviewing and revising procedures that support the reliability of TVA's Power Supply Plans to minimize risk of outdated processes. As mentioned in the Draft Evaluation, EP is currently in the process of reviewing and updating these procedures. We plan to review the procedures for applicability and then update and approve those deemed necessary and applicable.

Recommendation 6:

Recommend the Vice President, Communications, reinforce the process for engaging strategic business unit/business unit leaders for communication approval.

Response: Not applicable for EP

From: Eller, Buddy
Sent: Tuesday, December 10, 2024
To: Wheeler, David P.
Subject: OIG Response -- Communications

Communications Response

We agree with the recommendation in the report. Accuracy is foundational to the work we perform in Communications, and our processes should assist in supporting this objective.

Following discussions with OIG, Communications has updated our review process on all Board materials – including the President's Report. Draft materials are sent to Finance, OGC, and Enterprise Planning for review and concurrence to ensure accuracy.

In response to your findings, TVA Communications has fully implemented the following procedures:

1. **Advance Distribution:** The factual content of each President's Report is verified with TVA's most recent 10-K and Annual Report documents. Factual content from the drafted President's Report is then provided in advance of each Board of Directors meeting via TVA email with key stakeholders in Enterprise Planning, the Office of General Counsel, and Financial Reporting. These stakeholders include a Senior Advisor in Financial Services, a Director of Corporate Finance, a Senior Manager in General Counsel & OGC Operations, a Director in Resource Planning & Strategy, a Director in Portfolio Risk Management and Analytics, and a Director in Enterprise Forecasting and Financial Planning.
2. **Collaborative Review:** Working with their teams, these stakeholders review the content for accuracy and alignment with TVA's strategic goals and financial performance. Any identified inconsistencies or inaccuracies are promptly addressed and adjusted in collaboration with the relevant teams and the Senior Consultant Speechwriter in Communications. The Vice President of Communications then provides the final review and signoff of material prior each Board of Directors meeting.
3. **Streamlined Review Process:** This process has been in place since August 2024. TVA Communications is also currently working to develop an even more efficient review process through software programs to further enhance the quality and timeliness of future President's Report reviews.

We believe these measures demonstrate our commitment to transparency, accountability, and the accurate presentation of Board information.

Please let me know if you have any further questions or require additional information.

Buddy Eller
Vice President, Communications