



**Memorandum from the Office of the Inspector General**

September 12, 2025

Gregory James Henrich

**REQUEST FOR FINAL ACTION – EVALUATION 2025-17533 – TRANSMISSION  
CONDITION OF ASSETS**

The Tennessee Valley Authority (TVA) owns and operates more than 16,400 miles of transmission lines to deliver electricity to 10 million people in the Tennessee Valley. TVA has delivered 99.999 percent reliability since the year 2000 and continued investment in its transmission system helps TVA meet the daily challenge of moving power to where it is needed. Due to the importance of transmission assets to system reliability and the risk associated with the degradation of transmission assets, we performed an evaluation to determine if Transmission (1) is assessing the condition of its transmission assets and (2) has plans in place to address asset degradation.

We determined Transmission is assessing the condition of its assets and has plans in place to address asset degradation. However, according to the fiscal year (FY) 2024 Transmission Long-Term Asset Study, TVA faces increased risk to reliability over the next 10 years based on planned spending levels. We made one recommendation to the Senior Vice President, Transmission, to address funding concerns. In response to our draft report, TVA management agreed with our recommendation and provided planned actions to address the recommendation. See the Appendix for TVA's complete response.

**BACKGROUND**

According to Transmission's Strategic Asset Management Plan, effective asset management is the key to the ability to maintain reliability of the transmission system. Transmission assets include transmission lines, substations, power switch yards, switching stations, transmission structures, and connection points. According to the FY 2024 Transmission Long-Term Asset Study, much of TVA's transmission system is still operating original asset installations, and \$1.2 billion of core substation assets will be past their expected life within 10 years.

The mission of TVA's Transmission Asset Management group is to steward transmission asset lifecycle strategies to assure maximum value by balancing resources, risk, and reliability. Transmission Asset Management utilizes Copperleaf C55 (C55)<sup>1</sup> to model transmission asset health and prioritize asset investment for proposed projects. Transmission leverages C55 to analyze the overall state of asset infrastructure and model the total risk in the fleet based on probability and consequence of failure. This allows Transmission to forecast the trajectory of overall asset risk and communicate funding

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<sup>1</sup> C55 is a tool used by TVA for asset and investment planning, project and portfolio management and optimization, portfolio project forecasting, and project funding authorization.

challenges with predictive analytic studies. Asset condition is tracked in C55 for 19 asset classes.<sup>2</sup>

Transmission has evolved its approach to manage and maintain its transmission assets, both at the individual and asset class level, by utilizing the Transmission Asset Performance Center (APC).<sup>3</sup> The APC (1) serves as the primary window into transmission asset condition, (2) proactively looks at transmission equipment from an asset management and overall reliability perspective, (3) combines monitoring inputs with analytic engines to provide proactive and predictive asset insights, and (4) continuously monitors asset performance.

Other transmission assets are monitored outside of C55 and the APC. Specifically, 21 asset classes have their condition tracked in other databases.<sup>4</sup> Transmission has plans to include additional asset classes in C55 in the future and has a program to add additional asset classes to the APC by the end of FY 2028.

In addition, Transmission has identified key asset classes for which they have developed asset management plans (AMP). AMPs identify activities, resources, and timescales for a group of assets to achieve asset management objectives. AMPs summarize maintenance requirements for their respective assets and reference maintenance manuals for specific instructions, including testing and monitoring frequencies.

Due to the importance of transmission assets to system reliability and the risk associated with the degradation of transmission assets, we performed an evaluation of Transmission condition of assets.

### **OBJECTIVE, SCOPE, AND METHODOLOGY**

The objective of our evaluation was to determine if Transmission (1) is assessing the condition of its transmission assets and (2) has plans in place to address asset degradation. The scope included Transmission assets and asset classes as of March 2025. To achieve our objective, we:

- Identified a listing of transmission asset classes and compared it to C55 and TVA's other asset management databases to determine if the condition of all transmission assets was being assessed.
- Judgmentally selected all 3 circuit breakers and 1 transformer<sup>5</sup> that had a significant change in condition score in C55. Additionally, we selected 2 transformers out of 11 that had a moderate change in condition score. We selected these assets to

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<sup>2</sup> An asset class is a major transmission asset category. Examples are circuit breakers, switches, transformers, batteries, relays, and telecom equipment.

<sup>3</sup> The APC is a monitoring center for the condition of transmission assets.

<sup>4</sup> Other databases include eDNA, ESRI, Telenium, etc.

<sup>5</sup> The breakers and transformers were selected based on condition score changes that could indicate an event affected the condition score from FY 2023 to March 2025. C55 scores asset condition on a scale of zero to 10 with 10 being a new asset. We deemed a condition score change of five or more to be significant and a score change of less than five and greater than two to be moderate.

determine (1) if testing and monitoring was performed timely in accordance with AMPs and appropriately reflected in C55 and (2) what caused the condition score to change.

- Statistically selected a sample of 66<sup>6</sup> transmission assets from a population of 11,801 assets with poor condition<sup>7</sup> in C55 as of March 27, 2025, to determine if plans were in place to address the asset condition. We selected the sample using rate of occurrence sampling with a 95-percent confidence level.
- Judgmentally selected a sample of 5 transmission asset classes<sup>8</sup> from 21 assets classes that have asset condition monitored outside of C55 to determine if plans were in place to address the asset condition.

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

## **FINDINGS**

We determined that Transmission is assessing the condition of its assets and has plans in place to address asset degradation. However, according to the FY 2024 Transmission Long-Term Asset Study, TVA faces increased risk to reliability over the next 10 years based on planned spending levels.

Transmission utilizes data from C55, the APC, and other databases to assess the condition of their assets. C55 and the APC assign asset condition scores which Transmission utilizes to manage and maintain assets. In addition, our testing of 66 assets with poor condition found Transmission had plans in place to address the degradation. Specifically:

- Twelve assets have been replaced or are currently being replaced.
- Thirteen assets have planned replacements allocated for replacement at a future date.
- Forty-one assets are being continually monitored, and no issues have been identified to indicate a need for replacement.

We also reviewed a selection of 3 transformers and 3 circuit breakers with significant or moderate condition score changes and determined (1) maintenance for each asset was performed in accordance with the asset type's respective AMP and (2) condition score changes were supported by appropriate documentation. Additionally, for the 5 asset classes with condition monitored outside C55, we determined the condition of these assets is being monitored and investment requests are made through C55 for funding prioritization and approval as needed.

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<sup>6</sup> We selected a sample of 67 assets however, Transmission Asset Management determined one of the items was not a TVA asset.

<sup>7</sup> C55 scores assets from zero to 10 with 10 indicating the asset is new. Poor condition is indicated in C55 with a score of 2.98 and below.

<sup>8</sup> The 5 asset classes were judgmentally selected for coverage of different asset databases. The 5 asset classes selected were optical ground wires, tower lighting, condition monitors, right-of-way, and digital fault recorders.

While TVA is currently assessing and addressing the condition of its assets, there is a risk that planned funding in the future could be inadequate to maintain current reliability. The FY 2024 Transmission Long-Term Asset Study estimated a baseline funding need of approximately \$275 million per year, over the next 20 years, to maintain current reliability. However, the budget for FYs 2026 through 2029, allocated to Transmission, is approximately \$181 million per year, resulting in an estimated funding gap of approximately \$94 million per year. The study indicated reliability risk will grow by 30 percent over the next 10 years based on planned spending levels. According to Transmission personnel, during the recent business plan cycle, they requested an increase in base capital funds to mitigate these concerns; however, the funding request was not allocated. According to Financial Operations and Performance personnel, business units can escalate funding requests that are denied to executive management for additional consideration. Without adequate funding, Transmission may not be able to maintain its current reliability.

#### **RECOMMENDATION**

We recommend the Senior Vice President, Transmission, evaluate Transmission's budget and determine if there are other funds that could be reallocated to close the funding gap or consider escalating the request for additional funding.

**TVA Management's Comments** – TVA management agreed with the recommendation and plans to closely monitor the budget and actively seek additional funding for asset replacements and evaluate additional funding measures in collaboration with Financial Services. Additionally, Transmission plans to document the high asset risk on TVA's Enterprise Risk Matrix. See the Appendix for TVA's complete response.

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

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This report is for your review and final action. Your written comments, which addressed your management decision and actions planned or taken, have been included in the report. Please notify us when final action is complete. 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.

Gregory James Henrich  
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If you have any questions or wish to discuss our observations, please contact Lindsay J. Denny, Director, Evaluations – Operations, at (865) 633-7349. We appreciate the courtesy and cooperation received from your staff during the evaluation.

A handwritten signature in black ink that reads "Greg Stinson". The signature is fluid and cursive, with the first name "Greg" and last name "Stinson" clearly distinguishable.

Greg Stinson  
Assistant Inspector General  
(Audits and Evaluations)

KSL:FAJ

cc: TVA Board of Directors  
Jessica Dufner  
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OIG File No. 2025-17533

September 10, 2025

Greg Stinson

RESPONSE: EVALUATION 2023-17533 – Transmission Condition of Assets

Reference: OIG Memorandum dated August 18, 2025

Thank you for the opportunity to address the Draft Report for Evaluation 2023-17533 - Transmission Condition of Assets. We would like to thank Kristin Leach and Jake Morris for their professionalism and courtesy during this audit and their willingness to meet with our team.

**General Comment:**

Considering the extensive nature of this audit, the overall report reinforces the importance of maintaining our transmission assets to ensure system reliability. Utilizing the tools in place and expanding as needed, the condition of the assets will be continuously assessed while addressing their degradation.

**Recommendation 1:**

Recommend that the Senior Vice President, Transmission, evaluate Transmission's budget and determine if there are other funds that could be reallocated to close the funding gap or consider escalating the request for additional funding.

**Management Response:**

We agree with this recommendation. As we progress through the fiscal year, we will closely monitor the budget and actively seek additional funding for asset replacements and evaluate additional funding measures in collaboration with our Financial Services team. Additionally, we will document the high asset risk on TVA's Enterprise Risk Matrix. CR 2036950 has been created to track this recommendation.

If you have further questions, please let me know.



Greg Henrich  
Senior Vice President  
Transmission

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OIG File No. 2023-17533