Memorandum from the Office of the Inspector General

May 5, 2026

Tracy D. McCrory

REQUEST FOR MANAGEMENT DECISION – EVALUATION 2025-17538 – TVA'S STRATEGIC FIBER PROGRAM

Attached is the subject final report for your review and management decision. Please advise us of your management decision on the remaining recommendations 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 Lisa H. Hammer, Director, Evaluations – Projects, at (865) 633-7342. We appreciate the courtesy and cooperation received from your staff during the evaluation.

Greg Stinson
Assistant Inspector General
(Audits and Evaluations)

NKK:KDS
Attachment
cc (Attachment):
TVA Board of Directors
Jessica Dufner
D. Brandon Gray
Tracy E. Hightower
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OIG File No. 2025-17538

Office of the Inspector General

Evaluation Report

To the Vice President, Transmission System Projects

TVA'S STRATEGIC FIBER PROGRAM

Auditor
Noel K. Kawado

Evaluation 2025-17538
May 5, 2026

ABBREVIATIONS

TVA Board	TVA Board of Directors
LPC	Local Power Company
SFI	Strategic Fiber Initiative
SPP	Standard Programs and Processes
TVA	Tennessee Valley Authority

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Evaluation 2025-17538 – TVA's Strategic Fiber Program

EXECUTIVE SUMMARY

Why the OIG Did This Evaluation

The Tennessee Valley Authority (TVA) utilizes its fiber optic communication infrastructure for transferring internal data and controlling much of its power system. Fiber optic technology is used for transmitting data safely, reliably, and resiliently over long distances needed for day-to-day TVA operations. TVA has been using a fiber network since 1988; however, over the years the network became outdated and insufficient. Due to constraints on the existing fiber network, in May 2017, the TVA Board of Directors approved the Strategic Fiber Initiative (SFI) with a budget of $300 million to expand TVA's fiber capacity by 3,500 miles over the course of ten years. Program documentation stated the 3,500 miles of fiber would be installed on 31 prioritized routes. Specific benefits for each route were identified related to operations, customer, economic development, and/or distribution energy resources. In addition, TVA planned to lease surplus[i] fiber to external entities to help offset a portion of the operational costs.

As of January 2026, the 31 routes that were originally scheduled for fiber installation had been reduced to 19 routes and mileage reduced from 3,500 to approximately 1,900 miles to stay within the $300 million budget. Due to the decrease in mileage, we initiated an evaluation of the SFI program to identify the cause(s) for the decrease in scope for the strategic fiber program.

What the OIG Found

We determined the original budget for the SFI program contained some flawed assumptions that resulted in an underestimated cost per mile. To stay within the approved $300 million budget, TVA reduced the scope of the program. We reviewed documentation that identified some of the flawed assumptions that contributed to cost increases (resulting in scope decreases), including: (1) issues with wood poles, (2) limited use of helicopter to install the fiber, (3) increased use of contractor labor, (4) environmental requirements, and (5) outage availability. Additionally, the program has not generated the amount of revenue from leasing excess fiber capacity that was anticipated. At the request of the Project Review Board, program personnel identified lessons learned to be applied to future programs of similar size and duration.

[i] Fiber is considered "surplus" if it is not being used for operations and can be declared as such to lease to an external party.

EXECUTIVE SUMMARY

What the OIG Recommends

We recommend TVA management (1) continue implementing lessons learned from the SFI program, (2) ensure estimated costs, including assumptions are adequately supported for future programs, and (3) evaluate opportunities for maximizing surplus fiber revenue to help offset program costs. Detailed recommendations are contained in the body of this report.

TVA Management Comments

In response to our draft report, TVA management agreed with the recommendations. See the Appendix for TVA management's complete response.

BACKGROUND

The Tennessee Valley Authority (TVA) utilizes its fiber optic communication infrastructure for transferring internal data and controlling much of its power system. Fiber optic technology is used for transmitting data, safely, reliably, and resiliently over long distances needed for day-to-day TVA operations. TVA has been using a fiber network since 1988; however, over the years the network became outdated and insufficient. Due to constraints on the existing fiber network, in May 2017, the TVA Board of Directors (TVA Board) approved the Strategic Fiber Initiative (SFI) to expand TVA's fiber capacity by 3,500 miles for $300 million, or approximately $86,000 per mile, over the course of ten years. Potential benefits of expanding TVA's fiber capacity included (1) improving TVA operations, (2) supporting deployment of fiber (such as broadband) through the local power companies (LPCs) that distribute TVA power, and (3) supporting economic development efforts.

TVA defines a "program" as a group of related projects managed in a coordinated way to obtain benefits not available from managing them individually. TVA Standard Programs and Processes (SPP) 30.203, *Strategic Fiber Initiative*, implemented in January 2018, defines the governance, execution, and communication around the SFI program and associated fiber projects. To gauge progress of the projects, the procedure requires tracking of one or more performance measures, such as average cost per mile, LPC connections enabled, miles scoped, and number of fiber benefits realized. Transmission Planning and Projects[1] was responsible for the installation of the fiber. The SFI program called for the installation of 144-count fiber, bundled within optical ground wire,[2] which would accommodate the existing and future needs of the power system.

Program documentation stated 3,500 miles of fiber on 31 prioritized routes would be installed through projects over the course of ten years. Specific benefits for each route were categorized into groups – operations, customer, economic development, and/or distribution energy resources, and included metrics such as substation or industrial site fiber connection, upgrades to the fiber, microwave and radio communication systems, and enabling existing LPC fiber connectivity capability. As an additional benefit, TVA planned to lease surplus[3] fiber to external entities (such as LPCs and data centers) to help offset a portion of the operational costs.

As of January 2026, the 31 routes that were originally scheduled for fiber installation had been reduced to 19 routes and mileage reduced from 3,500 miles to approximately 1,900 miles, to stay within the $300 million budget. The

[1] As of June 2025, Transmission Planning and Projects was renamed Transmission System Projects.

[2] Optical ground wire is a type of cable that is used in overhead power lines and combines the functions of overhead grounding and fiber connections.

[3] Fiber is considered "surplus" if it is not being used for operations and can be declared as such to lease to an external party.

program is scheduled to be completed in October 2027. Due to the decrease in mileage, we initiated an evaluation of the SFI program.

OBJECTIVE, SCOPE, AND METHODOLOGY

The objective of this evaluation was to identify the cause(s) of the decrease in scope for the SFI program. Our scope included the SFI program from initiation through January 2026. To complete the evaluation, we:

- Reviewed the TVA Board resolution approving the SFI program to gain an understanding of the SFI program and its associated benefits.
- Reviewed communications and program documentation to identify SFI program mileage reductions communicated to the TVA Board.
- Reviewed TVA-SPP-30.203, *Strategic Fiber Initiative*, to gain an understanding of the (1) process for implementing the SFI program, (2) performance measures used to track the progress of the SFI program, and (3) roles and responsibilities for governance, oversight, execution, and support of the SFI program.
- Reviewed TVA-SPP-34.002, *Programs*, to gain an understanding of program management guidance.
- Reviewed SFI program documentation and conducted interviews with past and current program/project personnel to gain additional understanding of the SFI program, the factors contributing to the scope reductions, and the impact of those reductions.
- Reviewed Project Review Board packages to identify funding requests associated with the SFI program.
- Reviewed documentation provided by TVA, including economic analyses prepared for the SFI program, steering committee and program update presentations and cost-per-mile data, for information related to scope decreases.

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 the original budget for the Strategic Fiber Program contained some flawed assumptions that resulted in an underestimated cost per mile. To stay within the approved $300 million budget, TVA reduced the scope of the program. We reviewed documentation that identified some of the flawed assumptions that contributed to cost increases (resulting in scope decreases), including: (1) issues with wood poles, (2) limited use of helicopter to install the fiber, (3) increased use of contractor labor, (4) environmental requirements, and (5) outage availability.

Additionally, the program has not generated the amount of revenue from leasing excess fiber capacity that was anticipated.

FLAWED ASSUMPTIONS RESULTED IN INACCURATE ESTIMATE

As the SFI program progressed, the cost per mile to install the fiber increased. This resulted in TVA reducing the scope of the program to stay within the original $300 million budget. The following graph depicts the impact of the increased cost per mile[4] on the miles of fiber installed:

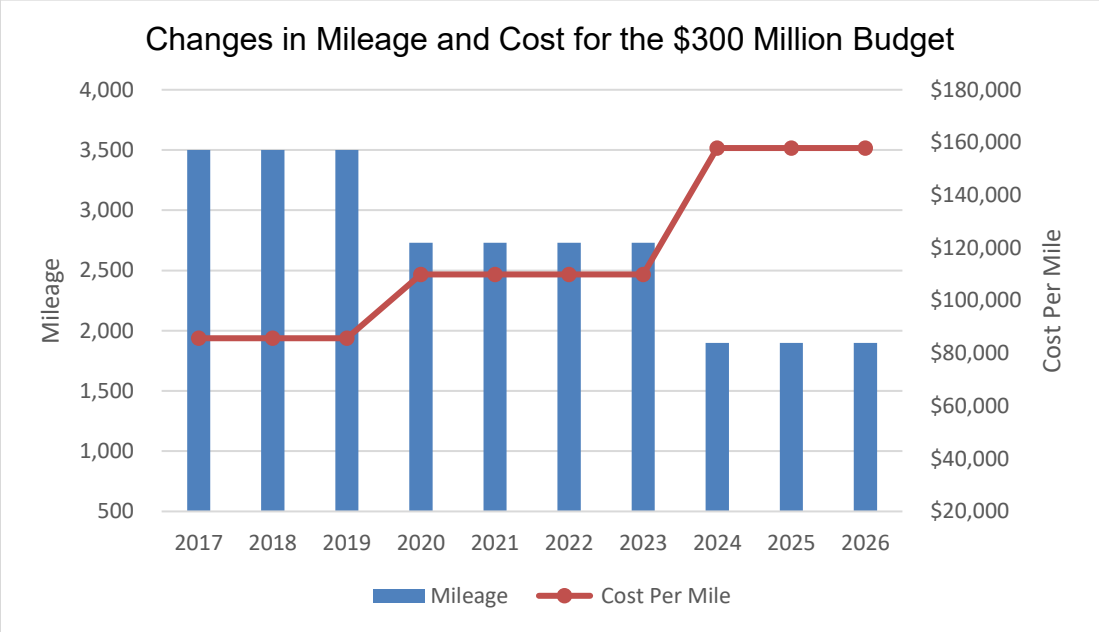

Figure 1

While there was limited documentation available showing the factors and assumptions that were used to develop the original estimate, we obtained documentation and conducted interviews with program personnel that identified some flawed assumptions contributing to cost increases, which led to the reduction in scope. These related to:

- Wood pole replacements and modifications – According to program personnel, it was originally believed that only towers would be used to string the fiber but as work progressed, it was determined that steel and wood poles would also have to be used. This resulted in higher costs for the project. TVA documentation from February 2020 estimated the installation cost using towers to be $70,000 per mile, versus $200,000 per mile for wood poles and $130,000 per mile for steel poles. In addition, TVA indicated the weight of the fiber cable required some wood poles to be replaced, which increased costs.

[4] We calculated the cost per mile as the original budget divided by the miles TVA projected to install.

- Use of helicopter – An assumption used to develop the original estimate was that Helicopter Services would be utilized as the primary method for accessing each structure location and for stringing the fiber to help reduce right-of-way costs and associated restoration work. TVA indicated using helicopters would also increase the speed of stringing the fiber and required less staff. However, scheduling helicopter resources to staff multiple jobs delayed the work because Helicopter Services had limited resources, which impacted TVA's initial plan to string the fiber.
- Use of contractors – Program documentation indicated that the original estimate was based on work being completed by in-house resources. However, there was a significant increase in the number of contractor personnel performing the work, which contributed to the increased costs.
- Environmental requirements – Documentation indicated that there were costs increases due to matting[5] needed for right-of-way access because of pole replacement and modification. Program documentation also cited compliance with environmental requirements for field surveys and storm water permits associated with the wood pole replacements as additional costs.
- Outage availability – Outages were necessary to perform the SFI work. Program documentation indicated that power system conditions interfered with these outages. This resulted in increased overtime and costs associated with keeping contract resources in the valley longer.

Program personnel identified lessons learned to be applied to future programs of similar size and duration, including improvement of benchmarking data for fiber installations on various types of lines.

ANTICIPATED FIBER REVENUE NOT REALIZED

Program documentation showed that the leasing of surplus fiber was a key economic reason for completing the SFI program. TVA originally planned to lease the surplus fiber to external entities (such as LPCs and data centers) to generate revenue and help offset a portion of the operational costs. Revenue from leasing surplus fiber has been significantly less than anticipated. The SFI program's September 2017 economic analysis noted an expected net present value of $51.6 million for surplus fiber revenue between 2019 and 2040. According to TVA, as of March 2026, TVA has only entered into five leasing contracts having total contract values of approximately $1.3 million. An economic analysis of the program, dated August 2024, showed the net present value of surplus fiber revenue was $12.2 million.[6] However, in order to achieve the $12.2 million net present value, more customer revenues would need to be realized.

[5] Mattings are platforms that are laid on the ground to facilitate heavy equipment and vehicles to travel to and conduct work at a construction site. These platforms are used to protect environmental resources and facilitate entrance into sites constrained by geographic features such as swamps or unstable, shifting grounds.

[6] An economic analysis, dated August 2025, did not specifically identify the net present value of the surplus fiber revenue.

RECOMMENDATIONS

We recommend the Vice President, Transmission System Projects:

1. Continue implementation of lessons learned identified from the SFI program for application on future programs.

2. For future programs, ensure estimated program costs are adequately supported, including the identification and evaluation of assumptions used to support the estimate.

3. Evaluate opportunities for maximizing surplus fiber revenue to help offset program costs.

TVA Management's Comments –In response to our draft report, TVA management agreed with the recommendations. See the Appendix for TVA management's complete response.

April 30, 2026

Greg Stinson, WT 2C-K

RESPONSE TO REQUEST FOR COMMENTS - Draft Evaluation 2025-17538 TVA's Strategic Fiber Program

This letter is in response to the Draft Evaluation 2025-17538 TVA's Strategic Fiber Program.

Transmission System Projects appreciate Noel Kawado, Lisa Hammer and the Office of Inspector General's thorough evaluation of TVA's Strategic Fiber Program.

Recommendations:

1. **Continue implementation of lessons learned identified from the SFI program for application on future programs.**

   Response: **Agree**

2. **For future programs, ensure estimated program costs are adequately supported, including the identification and evaluation of assumptions used to support the estimate.**

   Response: **Agree**

3. **Evaluate opportunities for maximizing surplus fiber revenue to help offset program costs.**

   Response: **Agree**

Tracy D McCrory

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