



Memorandum from the Office of the Inspector General

September 24, 2025

Cassidy L. Larson
Clifton R. Lowry

REQUEST FOR FINAL ACTION – AUDIT 2025-17537 – TVA'S FINANCIAL HEDGING PROGRAM

Attached is the subject final report 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 audits 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 Rick C. Underwood, Director, Financial and Operational Audits, at (423) 785-4824. We appreciate the courtesy and cooperation received from your staff during the audit.

Greg Stinson
Assistant Inspector General
(Audits and Evaluations)

RLT:KDS

Attachment

cc (Attachment):

TVA Board of Directors
Monika Beckner
Brian M. Child
Jessica Dufner
Jeremy P. Fisher
Jill M. Matthews
Donald A. Moul
Thomas C. Rice
Ronald R. Sanders II
Rebecca C. Tolene
Ben R. Wagner
OIG File No. 2025-17537



Office of the Inspector General

Audit Report

To the Vice President, Pricing
and Contracts, and to the Vice
President, Planning and
Investor Relations

TVA'S FINANCIAL HEDGING PROGRAM

Audit Team
Rick L. Taylor
Robert L. Dixon

Audit 2025-17537
September 24, 2025

ABBREVIATIONS

FCA	Fuel Cost Adjustment
FHP	Financial Hedging Program
FTP	Financial Trading Program
FY	Fiscal Year
MMBtu	Million British Thermal Units
TVA	Tennessee Valley Authority
TVIC	Tennessee Valley Industrial Committee
TVPPA	Tennessee Valley Public Power Association
VaR	Value at Risk
VP	Vice President

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AND CASS LARSON TO GREG STINSON



Audit 2025-17537 – TVA'S Financial Hedging Program

EXECUTIVE SUMMARY

Why the OIG Did This Audit

In September 2003, the Tennessee Valley Authority (TVA) established the Financial Trading Program (FTP) to utilize financial instruments to hedge or otherwise limit economic risks associated with the price of commodities. In September 2014, TVA suspended the FTP. In response to an Office of the Inspector General report on the FTP,ⁱ TVA management stated, "TVA's Board of Directors (TVA Board) and management team determined that the impact to ratepayers from fluctuations in natural gas prices can be managed within acceptable risk tolerance levels without using additional financial instruments at this time."

In November 2021, the TVA Board approved the reinstatement of TVA's hedging program. The FTP was renamed the Financial Hedging Program (FHP), and its stated objectives are to reduce fuel rate volatility and balance operational and financial risks. TVA began hedging natural gas prices in April 2022 under the reinstated FHP. From its reinstatement in April 2022 through February 2025, TVA's FHP experienced losses of approximately \$645 million. We performed an audit of the FHP due to the financial risks associated with hedging. Our audit objective was to determine if TVA's FHP is achieving its objectives of reducing fuel rate volatility and balancing operational and financial risks.

What the OIG Found

We determined the FHP achieved its objective of reducing fuel rate volatility between April 2022 and February 2025. Over the 35-month period, fuel rate volatility was reduced by an average of about 3.5 percent. However, we were unable to determine if TVA met its objective of balancing financial and operational risks because the objective is unclear and TVA has not defined parameters to define successful achievement of the objective.

Although the fuel rate volatility was reduced over the entire time frame, the FHP resulted in (1) approximately \$645 million in losses that were passed on to TVA's customers and (2) a 2 percent increase in fuel rate volatility in fiscal year 2024. We also found TVA had not performed the required back testingⁱⁱ to measure volatility reduction and the effectiveness of the FHP. At our request, TVA performed the back testing that showed the program had reduced fuel rate volatility.

ⁱ Audit 2011-14477-01, *Follow-up Audit of TVA's Financial Trading Program*, March 28, 2014.

ⁱⁱ Back testing evaluates the effectiveness of a trading strategy by running it against historical data to see how it performed. TVA's back testing calculates fuel rate volatility to measure volatility reduction and the effectiveness of the hedging instruments and programs.



Audit 2025-17537 – TVA'S Financial Hedging Program

EXECUTIVE SUMMARY

Additionally, we identified an opportunity for TVA to improve the information provided to the TVA Board, Tennessee Valley Public Power Association,ⁱⁱⁱ and Tennessee Valley Industrial Committee (TVIC)^{iv} related to FHP fuel rate volatility and FHP gains/losses.

What the OIG Recommends

We made recommendations to TVA management to evaluate the program objective to balance operational and financial risk, verify back testing is performed regularly, and improve TVA Board and stakeholder communications.

TVA Management's Comments

In response to our draft report, TVA management agreed with our recommendations and provided actions they plan to take to address each recommendation. See Appendix B for TVA management's complete response.

Auditor's Response

We agree with TVA management's planned actions.

ⁱⁱⁱ Tennessee Valley Public Power Association is the nonprofit, regional service organization that represents the interests of consumer-owned electric utilities operating within the TVA service area.

^{iv} TVIC is comprised of 35 member companies with operating locations/facilities in the TVA service area involved in the production of metals, chemicals, industrial gases, forest products, automotives, and data management services. TVIC's primary mission is to seek and maintain competitive electric rates from TVA in order to preserve and expand jobs in the region.

BACKGROUND

According to the United States Energy Information Administration (EIA),¹ prices for basic energy such as natural gas are generally more volatile than prices of other commodities. Natural gas price volatility can result from the following factors: weather changes, production issues, storage levels, transportation, and macroeconomic growth. See Figure 1 below for historical Henry Hub² average monthly natural gas prices in dollars per million British thermal units³ (MMBtu) from April 2022 through February 2025. The average monthly price ranged from \$8.81/MMBtu to \$1.49/MMBtu during the period, which represents approximately a 490 percent difference between the lowest and highest price.

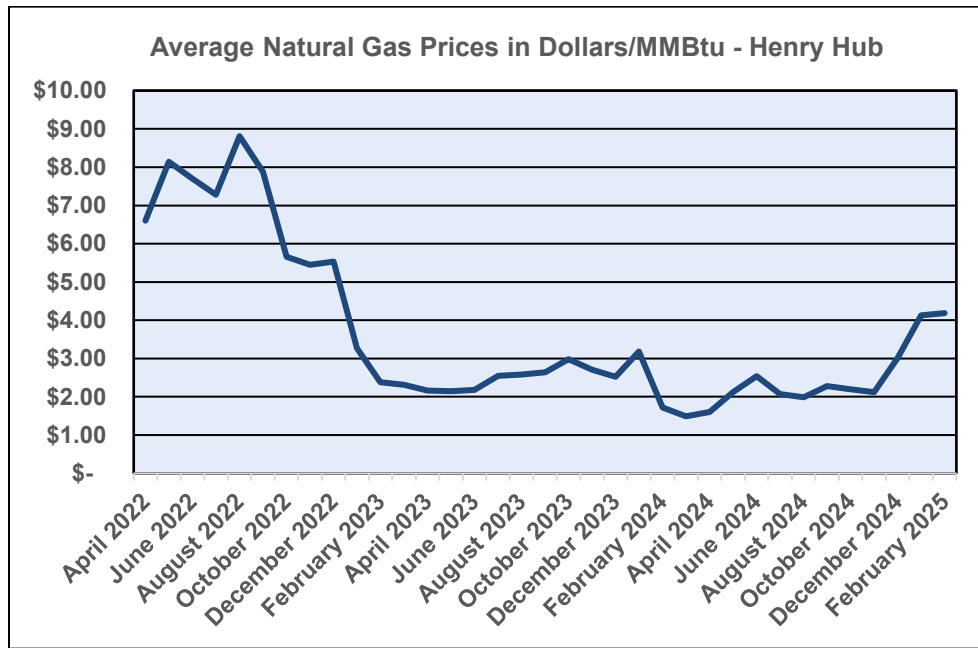


Figure 1

Hedging is the use of derivative contracts⁴ to protect companies from unexpected or adverse price fluctuations in commodities. However, hedging does not typically lower the long-term price paid for the commodity. According to TVA personnel and TVA customer representatives, it is a common practice for utilities and other companies that use or sell natural gas to actively hedge natural gas prices with financial instruments. In addition, the National Regulatory Research

¹ The EIA is the statistical and analytical agency within the United States Department of Energy. EIA collects, analyzes, and disseminates independent and impartial energy information to promote sound policymaking, efficient markets, and public understanding of energy and its interaction with the economy and the environment.

² Henry Hub is the benchmark for natural gas prices in North America.

³ A Btu is a measure of the heat content of fuels or energy sources.

⁴ An energy derivative is a financial product such as an option or future that derives its value from the price of an energy product, like oil or natural gas.

Institute⁵ reported it is common for state regulators to encourage utilities to have a hedging program.

Hedging of natural gas comes in two forms – physical and financial. Contracting to purchase the physical natural gas used in a company's operations is the physical form of hedging. Physical hedging uses various contract lengths to lock-in the price of the natural gas being purchased and stored. Financial hedging utilizes derivative instruments such as futures,⁶ options,⁷ or swaps⁸ to reduce natural gas price volatility, but the instruments are not used to purchase natural gas. The Tennessee Valley Authority's (TVA) Financial Hedging Program (FHP) uses the financial form of hedging.

TVA's Previous Financial Trading Program

TVA's Financial Trading Program (FTP) was established to utilize financial instruments to hedge or otherwise limit economic risks directly associated with the price of fuel cost adjustment (FCA)⁹ "covered commodities," and other approved commodities under the FTP. TVA's Financial Trading Pilot Program (which later became the FTP) was approved by TVA's Board of Directors (TVA Board) on September 11, 2003. At that time, the maximum value at risk (VaR)¹⁰ for TVA's portfolio was not to exceed \$5 million on an annual basis without TVA Board approval.

On May 17, 2005, the TVA Board approved the request to fully implement the Financial Trading Pilot Program. The FTP permitted the use of futures, options, swaps, and combinations of these instruments to hedge or otherwise limit economic risks associated with the following covered commodities: (1) natural gas, (2) fuel oil, (3) electricity, (4) coal, (5) emission allowances, (6) nuclear fuel, and (7) other commodities (in which the cost is included in calculating the FCA, such as ammonia and limestone).

From fiscal year (FY) 2006 through the first quarter of FY 2012, TVA's natural gas-related costs were \$3.14 billion; the FTP hedging program activities resulted in \$840 million in net losses for total costs of \$3.98 billion. The FTP hedging program losses reflected the difference between the hedged price and the market price of natural gas at the time of delivery. TVA management at the time

⁵ The National Regulatory Research Institute is the research arm of the National Association of Regulatory Utility Commissioners and its members.

⁶ According to EIA, futures contracts allow participants to manage their exposure to market volatility by locking in a price today for a future purchase or a future sale of a physical commodity.

⁷ Options provide the right, but not the obligation, to buy or sell an underlying asset at a set strike price, offering investors a way to leverage their positions or hedge against risks.

⁸ Hedging with a fixed price natural gas swap allows a natural gas consumer to fix their natural gas cost, regardless of whether natural gas prices rise or fall between the date that they enter into the transaction and the expiration date of the transaction.

⁹ The FCA is an adjustable rate designed specifically for the recovery of TVA's variable fuel and purchase power costs recovered through monthly customer power bills, based on individual energy usage.

¹⁰ VaR is a calculation representing the amount of money TVA could lose over a certain period of time with a certain level of confidence. TVA based its VaR calculation on a 1-day holding period with a 95 percent confidence interval.

stated the \$840 million was a result of the dramatic drop in the price of natural gas over the period.

In September 2014, TVA suspended the FTP. In response to an Office of the Inspector General report on the FTP,¹¹ TVA management stated, “TVA’s Board of Directors and management team determined that the impact to ratepayers from fluctuations in natural gas prices can be managed within acceptable risk tolerance levels without using additional financial instruments at this time.”

TVA’s Reinstated Financial Hedging Program

On November 10, 2021, the TVA Board approved the reinstatement of TVA’s hedging program. The FTP was renamed the FHP and eliminated the use of the VaR aggregate transaction limit and instead utilized risk tolerances and measures, which address counterparty exposure, liquidity risk, and reduction in fuel cost volatility. The objectives of the FHP are to reduce fuel rate volatility and balance operational and financial risks. According to TVA personnel, the FHP is designed and operated as a hedging program and is not intended to be operated for speculative purposes, which is taking calculated risks to seek opportunities for significant gains/profits based on gas price movements.

According to TVA personnel, significant factors leading to FHP reinstatement were TVA customers’ focus on reducing fuel rate volatility and the risks associated with not hedging. TVA began hedging natural gas prices in April 2022 under the reinstated FHP. As shown in Table 1 below, TVA’s FHP experienced net losses for the period April 2022 through February 2025 of approximately \$645 million.

TVA FHP Gains and Losses FY 2022 – 2025	
	<u>Amount</u>
FY 2022	\$47,082,870
FY 2023	(347,501,419)
FY 2024	(294,657,260)
FY 2025*	(49,717,655)
Total	(\$644,793,464)

* Through February 2025

Table 1

We performed an audit of the FHP due to the financial risks associated with hedging.

OBJECTIVE, SCOPE, AND METHODOLOGY

Our audit objective was to determine if TVA’s FHP is achieving its objectives of reducing fuel rate volatility and balancing operational and financial risks. Our audit scope included FHP program activities from April 2022 through

¹¹ Audit 2011-14477-01, *Follow-up Audit of TVA’s Financial Trading Program*, March 28, 2014.

February 2025. A complete discussion of our audit objective, scope, and methodology is included in Appendix A.

FINDINGS AND RECOMMENDATIONS

We determined the FHP achieved its objective of reducing fuel rate volatility between April 2022 and February 2025. Over the 35-month period, fuel rate volatility was reduced by an average of about 3.5 percent. However, we were unable to determine if TVA met its objective of balancing financial and operational risks because the objective is unclear and TVA has not defined parameters to define successful achievement of the objective.

Although the fuel rate volatility was reduced over the entire time frame, the FHP resulted in (1) approximately \$645 million in losses that were passed on to TVA's customers and (2) a 2 percent increase in fuel rate volatility in FY 2024. We also found TVA had not performed the required back testing¹² to measure volatility reduction and the effectiveness of the FHP. At our request, TVA performed the back testing that showed the program had reduced fuel rate volatility.

Additionally, we identified an opportunity for TVA to improve the information provided to the TVA Board, Tennessee Valley Public Power Association (TVPPA),¹³ and Tennessee Valley Industrial Committee (TVIC)¹⁴ related to FHP fuel rate volatility and FHP gains/losses. Details of our findings are discussed below.

THE FINANCIAL HEDGING PROGRAM REDUCED FUEL RATE VOLATILITY BUT REQUIRED BACK TESTING WAS NOT PERFORMED

We determined back testing was an internal control significant to the audit objective because it is the primary way the results of the FHP can be measured and the actual impact on fuel rate volatility determined. The design of the control was adequate and capable of achieving the objective of measuring volatility reduction and program effectiveness. However, the control was not implemented and therefore not operating effectively. Without back testing, TVA did not have a means for determining the FHP's effectiveness in reducing fuel rate volatility.

At our request TVA performed the back testing and we determined the FHP was achieving its objective of reducing fuel rate volatility. The FHP had reduced fuel

¹² Back testing *evaluates the effectiveness of a trading strategy* by running it against historical data to see how it performed. TVA's back testing calculates fuel rate volatility to measure volatility reduction and the effectiveness of the hedging instruments and programs.

¹³ TVPPA is the nonprofit, regional service organization that represents the interests of consumer-owned electric utilities operating within the TVA service area.

¹⁴ TVIC is comprised of 35 member companies with operating locations/facilities in the TVA service area involved in the production of metals, chemicals, industrial gases, forest products, automotives, and data management services. TVIC's primary mission is to seek and maintain competitive electric rates from TVA in order to preserve and expand jobs in the region.

rate volatility by an average of about 3.5 percent over the period of April 2022 through February 2025, which covered parts of four FYs. Figure 2 below shows the fuel rate volatility calculated by TVA, including the effects of hedging.

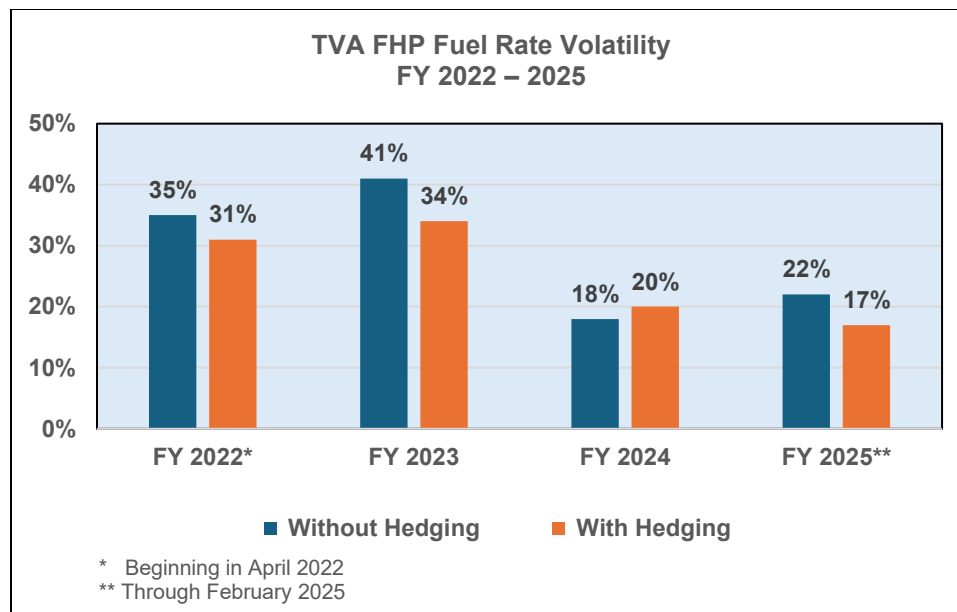


Figure 2

For the 35-month period, fuel rate volatility averaged 25.5 percent with hedging and 29 percent without hedging. For FY 2024, TVA's calculation of fuel rate volatility showed TVA's hedging resulted in a 2 percent higher fuel rate volatility than if TVA had not hedged. According to TVA, fuel rate volatility increased with hedging for FY 2024 due to low gas prices (see Figure 1 on Page 1) and low gas price volatility. However, for the other years and in total, TVA's calculations showed that fuel rate volatility had been reduced by hedging. The 3.5 percent reduction in fuel rate volatility resulted in hedging losses of \$644,793,464 that were passed along to ratepayers through the FCA, over the same period.

Recommendation – We recommend the Vice President (VP), Planning and Investor Relations, verify back testing is performed annually.

TVA Management's Comments – In response to our draft report, TVA management agreed with our recommendation and stated back-testing will be conducted annually in collaboration with the Treasury and Risk business unit. See Appendix B for TVA management's complete response.

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

BALANCING FINANCIAL AND OPERATIONAL RISKS OBJECTIVE WAS NOT CLEAR

We were unable to determine if TVA met its objective of balancing financial and operational risks because the objective is unclear and TVA has not defined

parameters to indicate successful achievement of the objective. According to TVA Pricing and Contracts personnel, the objective could be better defined. Although the objective was unclear and did not have defined parameters, TVA has taken steps to manage risks associated with the FHP.

TVA has established hedge ladders¹⁵ that limit the size of the FHP. According to TVA Pricing and Contracts personnel, the use of the hedge ladders indirectly impacts price, liquidity, and credit risks. The hedge ladders establish a minimum and maximum percentage of TVA's forecasted gas burn that can be hedged. Currently, the ranges are:

- 40 to 60 percent of expected gas burn in the next 12 months,
- 20 to 40 percent of expected gas burn between 13 and 24 months, and
- 0 to 25 percent of expected gas burn between 25 and 36 months.

According to the Executive Risk Report¹⁶ for March 2025, TVA's hedged positions were within the hedge ladder limits.

TVA has also implemented changes to address risks related to cash administration. During the previous FTP, movements in natural gas prices created unpredictable collateral requirements that made cash management difficult and impacted TVA's liquidity and credit risks. TVA has improved cash administration by:

- Limiting the derivative instruments the FHP uses to only swaps,
- Improving counterparty agreements,
- Entering into transactions with credit worthy counterparties, and
- Monitoring daily counterparty credit exposure.

As a result, TVA was not required to post collateral related to FHP activities during our audit period.

Recommendation – We recommend the VP, Pricing and Contracts, evaluate the program objective to balance operational and financial risks to determine if it should be eliminated or rewritten to clarify intent.

TVA Management's Comments – In response to our draft report, TVA management agreed with our recommendation and stated that staff will evaluate the FHP objective of balancing operational and financial risk to determine if it should be eliminated or rewritten to clarify intent. See Appendix B for TVA management's complete response.

¹⁵ The minimum and maximum quantity allowed to be hedged under the FHP, expressed as a percentage of forecasted burn.

¹⁶ Monthly internal report that addresses natural gas hedging positions and market conditions, coal physical hedging and market conditions, TVA system information, and fuel cost estimates.

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

FINANCIAL HEDGING PROGRAM INFORMATION PROVIDED TO THE TVA BOARD OF DIRECTORS AND STAKEHOLDERS COULD BE IMPROVED

As stated above, we found TVA was not performing back testing to determine FHP's effectiveness in reducing fuel rate volatility. Without this information, TVA was unable to report to the TVA Board and customers if the program was meeting its objective. We reviewed documentation and determined the information provided annually to the TVA Board and stakeholders contained limited information on the gains and losses of the FHP. Specifically, TVPPA and TVIC were only provided the losses of the FHP for one year of the program and the TVA Board was provided losses as a small annotation in the presentation that made them difficult to identify.

According to TVA personnel, TVA provides information on the FHP gains and losses to TVPPA and TVIC on an ad-hoc basis. We discussed this with a representative of TVPPA and TVIC who confirmed that TVA provides information about the FHP as requested, and they were aware of the FHP's gains and losses. In addition, the TVPPA and TVIC representatives were comfortable with the level of information TVA provided concerning the FHP.

Without information on the actual effect of the FHP on fuel rate volatility and with gains/losses associated with the program being difficult to identify, the TVA Board may not have the information it needs to make strategic decisions regarding financial hedging.

Recommendation – We recommend the VP, Pricing and Contracts, report annually the FHP's impact on fuel rate volatility and its hedging gains/losses in a more transparent manner to the TVA Board, TVPPA, and TVIC.

TVA Management's Comments – In response to our draft report, TVA management agreed with our recommendation and stated that TVA will report annually on the FHP's impact on fuel rate volatility and hedging gains/losses to the TVA Board, TVPPA, and TVIC. See Appendix B for TVA management's complete response.

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

OBJECTIVE, SCOPE, AND METHODOLOGY

Our audit objective was to determine if the Tennessee Valley Authority's (TVA) financial hedging program (FHP) is achieving its objectives of reducing fuel rate volatility and balancing operational and financial risks. Our audit scope included FHP program activities from April 2022 through February 2025. To achieve our objective, we:

- Reviewed TVA Standard Programs and Processes 13.501, *Fossil Fuel Commodity Risk Guidelines*, to identify key requirements applicable to the FHP.
- Determined the significance of internal control to our audit objective and documented our understanding of the internal control environment relating to the FHP, including primary controls in place, as well as our identification of the control we determined was significant to the audit objective. We determined the requirement included in TVA Standard Programs and Processes 13.501 to perform back testing to measure volatility reduction and the effectiveness of the hedging instruments and program to be a control significant to the audit objective.
- Interviewed personnel in TVA's Pricing and Contracts; Financial Planning and Portfolio Analytics; Credit, Insurance, and Portfolio Risk; Power Supply and Fuels; Finance; and Fuels organizations to obtain information related to the FHP.
- Obtained and reviewed information pertaining to TVA and counterparty agreements and collateral postings to determine if the posting information was accurate.
- Obtained information pertaining to TVA's calculation of the fuel rate volatility metric (back testing), which is used to measure the FHP's impact on reducing fuel rate volatility. We obtained the supporting documentation for the calculation and reviewed the methodology used to calculate the fuel rate volatility and recalculated the fuel rate volatility.
- Obtained and reviewed information for the FHP gains and losses for the period April 2022 through February 2025 and agreed this information to TVA's general ledger.
- Obtained and reviewed documentation of information provided to the TVA Board of Directors, Tennessee Valley Public Power Association (TVPPA)¹ and Tennessee Valley Industrial Committee (TVIC)² about the FHP.

¹ TVPPA is the nonprofit, regional service organization that represents the interests of consumer-owned electric utilities operating within the TVA service area.

² The TVIC is comprised of 35 member companies with operating locations/facilities in the TVA service area involved in the production of metals, chemicals, industrial gases, forest products, automobiles, and data management services. TVIC's primary mission is to seek and maintain competitive electric rates from TVA in order to preserve and expand jobs in the region.

- Interviewed representatives of TVPPA and TVIC to obtain customer perspective of the FHP and assess the level of information about FHP structure and operating results provided by TVA to these customer groups.
- Obtained and reviewed supporting documentation, including counterparty agreements, collateral posting thresholds, and collateral posting documentation, to determine if TVA was balancing operational risks.

We conducted this performance audit in accordance with generally accepted government auditing standards. Those standards require we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

September 18, 2025

Mr. Greg Stinson, Assistant Inspector General
Audits and Evaluations
TVA Office of the Inspector General

RE: REQUEST FOR COMMENTS – DRAFT AUDIT 2025-17537 – TVA'S FINANCIAL HEDGING PROGRAM

As requested, below are the responses to OIG's recommendations to Financial Planning and Investor Relations (FP&IR) and to Pricing and Contracts (P&C). All actions will be completed during FY 2026.

OIG recommends the VP, FP&IR:

1. Verify back-testing is performed annually.

Planning & Investor Relations (formerly FP&IR) Response:

TVA agrees and back-testing will be conducted annually in collaboration with the Treasury and Risk business unit.

OIG recommends the VP, P&C:

2. Evaluate the program objective to balance operational and financial risks to determine if it should be eliminated or rewritten to clarify intent.

P&C Response:

TVA agrees and staff will evaluate the financial hedging program objective of balancing operational and financial risk to determine if it should be eliminated or rewritten to clarify intent.

OIG recommends the VP, P&C:

3. Report annually the financial hedging program's impact on fuel rate volatility and its hedging gains/losses in a more transparent manner to the TVA Board, TVPPA, and TVIC.

P&C Response:

TVA agrees and will report annually the financial hedging program's impact on fuel rate volatility and hedging gains/losses to the TVA Board, TVPPA, and TVIC.

Thank you for the work your team has done in evaluating TVA's financial hedging program.

If you have additional questions, please let us know.

Sincerely,



Clifton Lowry
Vice President, Planning & Investor
Relations
Finance



Cass Larson
Vice President, Pricing & Contracts
Business Operations

cc: Monika Beckner
Brian M. Child
Jeremy P. Fisher

Thomas C. Rice
Rebecca C. Tolene
OIG File No. 2025-17537