



Memorandum from the Office of the Inspector General

March 28, 2018

Cassidy L. Larson, MR 3M-C
Diane T. Wear, WT 4B-K

**REQUEST FOR FINAL ACTION – EVALUATION 2017-15490 – DATA USED TO
CALCULATE FUEL COST ADJUSTMENTS**

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 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 Leslie A. Franks, Auditor, at (865) 633-7330 or E. David Willis, Director, Evaluations, at (865) 633-7376. We appreciate the courtesy and cooperation received from your staff during the evaluation.

David P. Wheeler
Assistant Inspector General
(Audits and Evaluations)
ET 3C-K

LAF:FAJ
Attachment
cc (Attachment):

TVA Board of Directors
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OIG File No. 2017-15490



Office of the Inspector General

Evaluation Report

To the Vice President, Pricing
and Contracts, and to the
Vice President and Controller,
Corporate Accounting

DATA USED TO CALCULATE FUEL COST ADJUSTMENTS

Auditor
Leslie A. Franks

Evaluation 2017-15490
March 28, 2018

ABBREVIATIONS

| | |
|-----|---------------------------------|
| FCA | Fuel Cost Adjustment |
| IEE | Itron Enterprise Edition |
| kW | Kilowatt |
| kWh | Kilowatt hour |
| MWh | Megawatt hour |
| RCA | Resource Cost Allocation |
| SPP | Standard Programs and Processes |
| TVA | Tennessee Valley Authority |

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MEMORANDUM DATED MARCH 27, 2018, FROM CASSIDY L. LARSON AND
DIANE T. WEAR TO DAVID P. WHEELER



Evaluation 2017-15490 – Data Used to Calculate Fuel Cost Adjustments

EXECUTIVE SUMMARY

Why the OIG Did This Evaluation

The Tennessee Valley Authority (TVA) has both fixed and variable costs that it must recover. According to TVA, most of its costs are fairly stable and variations in costs may be adequately recovered through base rates and base-rate adjustments. However, TVA's largest single expense, fuel and purchased power cost, can be volatile from month-to-month. Since these costs can fluctuate significantly with changes in weather and shifts in supply and demand, TVA recovers these costs through the fuel cost adjustment (FCA) rate charged to its customers. These charges represent approximately one-third of TVA's total wholesale rate and include the costs of fuel (i.e., nuclear, coal, oil, natural gas) used in TVA's generating plants and the cost of purchased power.

TVA calculates two separate FCA rates (collectively referred to as FCA), one rate for Standard Service Customers and another for Non-Standard Service Customers. Standard Service Customers are generally residential and business customers, including small customers with contract demand less than or equal to 1,000 kilowatts (kW). Non-Standard Service customers are generally large industrial customers and customers served directly by TVA with contract demands greater than 1,000 kW.

The FCA is calculated monthly and comprised of two main components: core and deferred. The core component is a forecasted rate based on TVA's projected fuel and purchased power expenses and energy sales; the deferred component is utilized to true up prior months' forecasts with actual expenses and sales data. Deferred is a settlement of any costs that TVA over- or under-collected and is comprised of several component calculations, including the resource cost allocation (RCA)ⁱ and true-up amount.ⁱⁱ

Due to the importance of correctly calculating the FCA, as well as findings from a prior Office of the Inspector General evaluation,ⁱⁱⁱ we performed an evaluation of the data used in TVA's FCA calculations. Our objective was to determine whether TVA was using the appropriate data to calculate the FCA. The scope of our work included the actual sales and expense data used to calculate the May 2017 FCA rates.

ⁱ The RCA allocates actual fuel and purchased power expenses between Standard Service and Non-Standard Service customers in proportion to the average hourly energy load of each customer class, weighted by the hourly dispatch costs (i.e., the variable operating cost of generating each additional megawatt hour [MWh]) of the top 100 MWh.

ⁱⁱ Once expenses have been allocated among customers in the RCA calculation, the true-up amount is calculated based on the difference between the expenses incurred and the revenue collected from each customer class. Any difference, referred to as a deferral, is carried forward in future FCA amounts and starts to be recovered about 2 months after costs.

ⁱⁱⁱ Evaluation 2017-15463, Fuel Cost Adjustment Calculation, June 13, 2017.



Evaluation 2017-15490 – Data Used to Calculate Fuel Cost Adjustments

EXECUTIVE SUMMARY

What the OIG Found

We determined TVA was not using the appropriate sales data to calculate the FCA due to (1) inaccurate unbilled energy sales, (2) the misclassification of sales made to small direct-served customers, and (3) inaccurate hourly energy loads. Based on our recalculations using corrected data inputs, we determined the errors identified understated the May 2017 Non-Standard Service FCA rate by \$0.01 per MWh.

Additionally, TVA determined the total impact of the errors over a 25-month period (October 2015^{iv} – November 2017) to be approximately \$562,000 too much deferred cost in the Standard Service Customer account and \$528,000 too little deferred cost in the Non-Standard Service Customer account.^v

In addition to the errors identified, we also determined the FCA process could be improved to reduce the risk of errors in the FCA. Specifically, the FCA process is reliant on many hand offs, manual calculations, queries, and complex spreadsheets. Further heightening the risk of error, we found TVA's FCA process was not documented. The errors we identified went undetected by TVA for up to 2 years, indicating the need for tighter controls to prevent, detect, and correct errors in the FCA.

During the course of our evaluation, we discussed our findings with pertinent TVA personnel and management, who took actions to address the errors identified and implement controls to prevent future recurrence. These actions included (1) adding excluded meters to the Itron Enterprise Edition report and unbilled sales calculations, (2) implementing a control to verify all relevant meters are included in the unbilled sales calculations, (3) creating queries to properly classify energy sales made to small direct-served customers, (4) modifying the hourly energy load queries to correct errors self-identified by TVA in the RCA calculation, (5) adding parallel validations and calculations to prevent recurrence of the RCA errors identified, and (6) making the necessary accounting entries to adjust the FCA deferral accounts.

^{iv} The current FCA methodology was approved by TVA's Board of Directors on August 21, 2015, effective October 1, 2015.

^v According to TVA, eligible fuel expenses incurred during the same time frame totaled \$6.2 billion.



Evaluation 2017-15490 – Data Used to Calculate Fuel Cost Adjustments

EXECUTIVE SUMMARY

What the OIG Recommends

In addition to the actions already taken by TVA, we recommend TVA's Vice President, Pricing and Contracts, evaluate the billed hourly energy load queries to verify that all queries are pulling the data intended and sales are correctly classified. We also recommend TVA's Vice President, Pricing and Contracts, in conjunction with TVA's Vice President and Controller, Corporate Accounting, (1) evaluate the FCA process to identify opportunities to streamline and automate the process to reduce the potential for miscalculations and implement additional internal controls to prevent and detect errors in the FCA and (2) document TVA's FCA process, including the queries, spreadsheets, and rationale used by the individual FCA data stewards.

TVA Management's Comments

In response to our draft report, TVA management agreed with the recommendations presented in the report and provided planned actions to address each, including: (1) evaluating the billed hourly energy load queries to enhance accuracy, (2) developing an automated system to collect and process the FCA each month, and (3) publishing a drafted Standard Programs and Processes (SPP) to document the FCA process. See the Appendix for TVA management's complete response.

Auditor's Response

We concur with TVA management's planned actions for two of the three recommendations. However, we reviewed the drafted SPP and do not believe it adequately documents the FCA process. Specifically, the drafted SPP is high-level and does not include documentation of the queries, spreadsheets, or rationale used by the individual FCA data stewards. We recommend TVA management create detailed documentation of the FCA process beyond the high-level information contained in the draft SPP.

BACKGROUND

The Tennessee Valley Authority (TVA), like many businesses, has both fixed and variable costs that it must recover. According to TVA, most of its costs are fairly stable, and variations in costs may be adequately recovered through base rates and base-rate adjustments. However, TVA's largest single expense, fuel and purchased power cost, can be volatile from month-to-month. Since these costs can fluctuate significantly with changes in weather and shifts in supply and demand, TVA recovers these costs through the monthly fuel cost adjustment (FCA) rate charged to its customers. Costs recovered through the FCA include the direct cost of fuel¹ (e.g., nuclear, coal, oil, natural gas) used in TVA's generating plants, certain variable fuel-related costs,² and the cost of purchased power. The FCA represents approximately one-third of TVA's total wholesale rate.³ In fiscal year 2017, TVA's eligible fuel and purchased power expenses totaled approximately \$2.6 billion.

The current FCA formula (the Adjustment Addendum)⁴ was approved by the TVA Board of Directors on August 21, 2015, and went into effect October 1, 2015. In addition to the Adjustment Addendum, TVA's Accounting Memorandum 2013-3, *Accounting for TVA's Fuel Cost Adjustment*, provides guidance regarding specific fuel-related costs eligible or ineligible for recovery through the FCA. In accordance with the Adjustment Addendum, TVA calculates two separate FCA rates (collectively referred to as FCA), one rate for Standard Service Customers and another for Non-Standard Service Customers. Standard Service Customers are generally residential and business customers,⁵ and Non-Standard Service customers are generally large industrial customers.⁶

The FCA is calculated monthly and comprised of two main components: core and deferred. The core component is a forecasted rate based on TVA's projected fuel and purchased power expenses and energy sales, while the deferred component is utilized to true up prior months' forecasts with actual expenses and sales data. The deferred component is (1) a settlement of any costs that TVA over- or under-collected and (2) comprised of several component calculations, including the resource cost allocation (RCA) and true-up amount.

¹ An example of a direct fuel cost included in the FCA is the cost of coal burned in TVA's coal plants, which includes costs associated with transporting the coal from mine to plant.

² An example of variable fuel-related costs is the cost of physical coal inventory surveys.

³ The total wholesale rate is comprised of base, environmental, and fuel rate components.

⁴ *Adjustment Addendum to The Schedule of Rates and Charges for Distributor*, effective October 1, 2015, and *Adjustment Addendum to Direct Service Power Rates Schedules*, effective October 1, 2015. Although the inputs for each Adjustment Addendum may differ based on customer class, the FCA calculation methodology is the same and therefore referred to collectively as the "Adjustment Addendum" in our report.

⁵ Standard Service Customers are customers for which distributors are billed under Standard Service charges and all other customers with contract demands less than or equal to 1,000 kilowatts (kW).

⁶ Non-Standard Service Customers include distributor-served customers with contract demands greater than 5,000 kW and customers served directly by TVA with contract demands greater than 1,000 kW.

The RCA allocates actual fuel and purchased power expenses between Standard Service and Non-Standard Service customers in proportion to the average hourly energy load of each customer class, weighted by hourly dispatch costs.⁷ Once expenses have been allocated among customers, the true-up amount is calculated based on the difference between the expenses incurred and the revenue collected from each customer class. Any difference, referred to as a deferral, is carried forward in future FCA amounts and starts to be recovered about 2 months after costs. See Figure 1 for an illustration of the FCA formula.

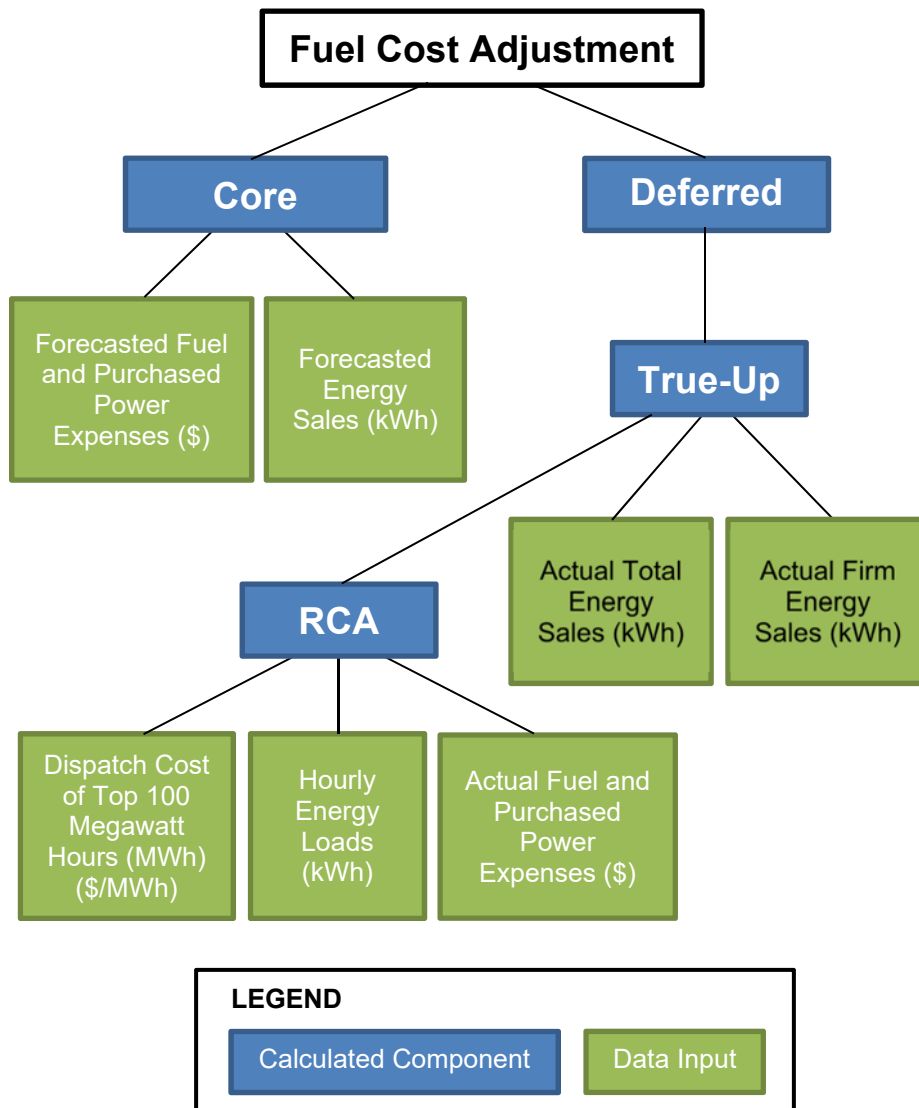


Figure 1

The actual sales data inputs used to calculate the FCA (i.e., total energy sales, firm energy sales,⁸ and hourly energy loads) are comprised of both billed and unbilled energy sales. Energy usage data from each customer's meter is

⁷ Dispatch costs are the variable operating costs of generating each additional MWh. The RCA calculation uses the dispatch costs of the top (i.e., most expensive) 100 MWh.

⁸ Firm energy sales include energy guaranteed to be delivered under terms defined by contract.

transferred from Itron Enterprise Edition (IEE)⁹ to TVA's power billing system on the customer's billing date, which is the first of the month for all but six of TVA's customers. Energy sales to these six customers are referred to as unbilled sales and are transferred to the power billing system mid-month rather than first of the month. The actual expense data used to calculate the FCA is obtained from TVA's general ledger.

Due to the importance of correctly calculating the FCA, as well as findings from a previous Office of the Inspector General evaluation,¹⁰ we performed an evaluation of the actual sales and expense data used to calculate the FCA.

OBJECTIVE, SCOPE, AND METHODOLOGY

The objective of this evaluation was to determine whether TVA was using the appropriate data to calculate the FCA. The scope of our work included the sales and expense data¹¹ used in the May 2017 FCA calculations. We did not verify the accuracy of the data in the underlying systems as part of this evaluation. As such, we are providing no assurance whether the FCA amounts were correct. To achieve our objective, we:

- Interviewed employees in TVA's Corporate Accounting, Distributed Energy Resources, Enterprise Planning, Financial Operations and Performance, and Transmission and Power Supply organizations to identify authoritative documents governing the FCA and gain an understanding of the FCA process, including the data, queries, calculations, and spreadsheets used to calculate the FCA.
- Obtained and reviewed the following to gain an understanding of the current formula, methodology, and criteria used by TVA to calculate the FCA:
 - *Adjustment Addendum to The Schedule of Rates and Charges for Distributor*
 - *Adjustment Addendum to Direct Service Power Rates Schedules*
 - *Accounting Memorandum 2013-3, Accounting for TVA's Fuel Cost Adjustment*
- Obtained TVA's calculation of the May 2017 FCA, including the data, queries, and spreadsheets to determine if the appropriate data was used in the calculation.
- Queried TVA's general ledger and power billing system to identify the relevant expense and sales data needed to recalculate the May 2017 FCA rate, in accordance with the current FCA formula and methodology approved by the TVA Board of Directors.

⁹ IEE is the system TVA uses to manage its meter data.

¹⁰ Evaluation 2017-15463, Fuel Cost Adjustment Calculation, June 13, 2017.

¹¹ Due to subsequent revisions made to the billed hourly energy load data in the power billing system, we were unable to test that portion of the actual sales data.

- Searched TVA's power billing system records to identify all meters associated with TVA's six mid-month billed customers. We provided this list of meters to TVA to search IEE for meter usage data. We relied on the results of the IEE report generated and provided by TVA to identify unbilled energy sales for inclusion in our recalculation of the May 2017 FCA.
- Recalculated the May 2017 FCA rates using sales and expense data we independently obtained by querying TVA's general ledger and power billing system, as well as unbilled sales data obtained from IEE and provided to us by TVA.

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

FINDINGS

We determined TVA was not using the appropriate sales data to calculate the FCA due to (1) inaccurate unbilled energy sales, (2) the misclassification of sales made to small direct-served customers, and (3) inaccurate hourly energy loads. We determined the errors identified understated the May 2017 Non-Standard Service FCA rate by \$0.01 per MWh. Additionally, TVA determined the total impact of the errors identified over a 25-month period (October 2015 through November 2017) to be approximately \$562,000 too much deferred cost in the Standard Service Customer account and \$528,000 too little deferred cost in the Non-Standard Service Customer account. In addition to the errors identified, we also determined the FCA process could be improved to reduce the risk of errors in the FCA.

INAPPROPRIATE SALES DATA USED IN FCA CALCULATION

We determined TVA was not using the appropriate sales data to calculate the FCA due to (1) inaccurate unbilled energy sales, (2) the misclassification of sales made to small direct-served customers, and (3) inaccurate hourly energy loads. The errors identified impacted the actual energy sales and hourly energy load inputs to the RCA and true-up calculations in the deferred component of the FCA rate.

Inaccurate Unbilled Energy Sales Used to Calculate the FCA

When FCA calculations are performed at the beginning of the month, TVA must run a report in IEE to identify the amount of unbilled energy sales and unbilled hourly energy loads for the six mid-month billed customers. According to TVA, the list of meters used to obtain IEE meter data is based on customer records from the power billing system. However, the list of meters was only periodically checked for accuracy against power billing system records, which created the opportunity for new meters to be inadvertently excluded from the IEE report. We found five meters that had been excluded from TVA's IEE report; therefore, we determined the unbilled energy sales used to calculate the FCA were not accurate due to incomplete sales data.

The exclusion of these meters from TVA's search of IEE resulted in a portion of (1) Standard Service sales being excluded from the unbilled calculations beginning in November 2015 and (2) Non-Standard Service sales being misclassified as Standard Service beginning in February 2016. In total, we determined the Standard Service unbilled sales used in the May 2017 FCA were understated by 936,324 kilowatt hours (kWh),¹² and Non-Standard Service unbilled sales were understated by 859,787 kWh.¹³ These inaccuracies affected the RCA and true-up calculations in the deferred component of the FCA.

We discussed our findings with pertinent TVA personnel, who agreed and stated the missing meters had been added to subsequent IEE reports and unbilled sales calculations. In October 2017, TVA implemented a monthly independent review to verify all relevant meters are included in the unbilled sales calculations.

Misclassification of Sales Made to Small Direct-Served Customers

According to the Adjustment Addendum, the Standard Service customer class includes all customers with contract demands less than or equal to 1,000 kW. As such, sales made to and revenue collected from these small customers should be included in the Standard Service FCA calculations. However, we found energy sales for small direct-served customers had been erroneously misclassified as Non-Standard Service sales since October 2015.¹⁴

To calculate the true-up component of the FCA, TVA determines the amount of sales and revenue for each customer class in comparison to the fuel and purchased power expenses incurred during the same period. To do so, TVA queries the power billing system for all relevant energy sales made to Standard Service and Non-Standard Service customers. FCA revenue amounts are then calculated based on the amount of kWh sold and the associated fuel rate charged to each customer class.

We found TVA's queries of the power billing system did not identify energy sales made to small direct-served customers for inclusion in the Standard Service calculations; rather, those sales were included in the Non-Standard Service sales data. In the May 2017 FCA calculation, energy sales to small direct-served customers totaling 938,838 kWh¹⁵ were misclassified as Non-Standard Service sales. This error impacted the true-up calculation in the deferred component of the FCA by understating Standard Service revenue and overstating Non-Standard Service revenue. We discussed our findings with pertinent TVA personnel, who agreed and took action to prevent future misclassification of

¹² After the identified errors were corrected, unbilled Standard Service sales totaled 122,643,108 kWh in the May 2017 FCA calculation. These unbilled sales represented 1.42 percent of the total 8.6 billion kWh Standard Service sales included in the May FCA.

¹³ After the identified errors were corrected, unbilled Non-Standard Service sales totaled 7,750,173 kWh in the May 2017 FCA calculation. These unbilled sales represented 0.23 percent of the total 3.4 billion kWh Non-Standard Service sales included in the May FCA.

¹⁴ Prior to the approval of the current FCA methodology contained in the Adjustment Addendum, TVA calculated only one FCA rate for all its customers.

¹⁵ In the May 2017 FCA calculation, 938,838 kWh represented 0.01 percent of the total 8.6 billion kWh sold to the Standard Service customer class.

sales made to small direct-served customers by creating queries to identify and properly classify these energy sales.

Inaccurate Hourly Energy Loads

TVA's RCA methodology allocates fuel and purchased power expenses in proportion to the average hourly energy loads (including both billed and unbilled) of each customer class. As discussed above, we determined the unbilled hourly energy loads used to calculate the RCA were not appropriate due to the exclusion of five meters' energy usage data from TVA's unbilled sales calculations. We were unable to determine if the billed hourly energy load data was appropriate due to subsequent revisions made to the data in the power billing system. However, TVA personnel informed us that during their analysis to determine the impact of the FCA errors we identified, they discovered some of the billed hourly energy loads used to calculate the RCA were incorrect.

TVA determined the billed hourly energy loads had been inaccurate due to the duplication of hourly energy load data for two of TVA's customers in the RCA calculations. Specifically, (1) one Non-Standard Service customer's hourly energy loads were included in both the Standard Service and Non-Standard Service calculations, and (2) another Non-Standard Service customer's hourly energy loads were erroneously included in the Standard Service calculations as well as double-counted in the Non-Standard Service calculations. These duplications dated back to March 2017 and October 2015, respectively, and resulted from errors in the design of two of the four queries used by TVA to obtain billed hourly energy load data from the power billing system. Upon identifying these errors, TVA corrected the queries accordingly and implemented controls to prevent the duplications from recurring.

The inaccurate hourly energy loads ultimately resulted in the misallocation of expenses between customer groups. Although TVA was using the appropriate general ledger expense data to calculate the FCA, the inaccurately calculated RCA misallocated expenses among customers. This misallocation impacted the calculation of deferred account balances, true-up amounts, and the deferred component of the FCA rate.

FCA PROCESS COULD BE IMPROVED TO REDUCE RISKS

We determined TVA's FCA process has opportunities for improvement related to (1) streamlining and automation; (2) controls to prevent, detect, and correct errors in the FCA; and (3) documentation of the process. As presented above, our evaluation of the data used to calculate TVA's FCA identified several inaccuracies, which resulted from a process reliant on many hand offs, manual calculations, queries, and complex spreadsheets. The errors we identified went undetected by TVA for up to 2 years, indicating the need for tighter controls around the FCA process. The risk is heightened because this process is not documented through either (1) governing Standard Programs and Processes (SPP) or (2) documentation of the individual processes used by the FCA data stewards, including the queries, spreadsheets, or rationale used in carrying out

their FCA responsibilities.¹⁶ Based on this information, we determined the FCA process could be improved to reduce risks.

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In summary, we determined TVA was using the appropriate expense data to calculate the FCA; however, TVA was not using the appropriate sales data, which caused the expenses to be misallocated in the FCA calculations. The FCA errors we identified resulted from a process reliant on many hand offs, manual calculations, queries, and complex spreadsheets. Based on our recalculations using corrected data inputs, we determined the errors identified understated the May 2017 Non-Standard Service FCA rate by \$0.01 per MWh. Additionally, TVA determined the total impact of the errors identified over a 25-month period (October 2015 – November 2017) to be approximately \$562,000 too much deferred cost in the Standard Service Customer account and \$528,000 too little deferred cost in the Non-Standard Service Customer account.¹⁷

During the course of our evaluation, we discussed our findings with pertinent TVA personnel and management, who agreed and took actions to address the errors identified and implement controls to prevent future recurrence. These actions included (1) adding excluded meters to the IEE report and unbilled sales calculations, (2) implementing a control to verify all relevant meters are included in the unbilled sales calculations, (3) creating queries to properly classify energy sales made to small direct-served customers, (4) modifying the hourly energy load queries to correct errors self-identified by TVA in the RCA calculation, (5) adding parallel validations and calculations to prevent recurrence of the RCA errors identified, and (6) making the necessary accounting entries to adjust the FCA deferral accounts.

RECOMMENDATIONS

In addition to the actions already taken by TVA, we recommend TVA's Vice President, Pricing and Contracts, evaluate the billed hourly energy load queries to verify that all queries are pulling the data intended and sales are correctly classified. For any errors or misclassifications identified, make corrections and establish controls to prevent recurrence as needed.

We also recommend TVA's Vice President, Pricing and Contracts, in conjunction with TVA's Vice President and Controller, Corporate Accounting:

- Evaluate the FCA process to identify opportunities to streamline and automate the process where feasible to reduce the potential for

¹⁶ TVA personnel provided us with examples of obscure and sometimes counterintuitive information necessary to correctly perform their FCA duties that was not documented but learned over time, in some instances, only through trial and error.

¹⁷ According to TVA, eligible fuel expenses incurred during the same time frame totaled \$6.2 billion.

miscalculations and implement additional internal controls to prevent and detect errors in the FCA.

- Document TVA's FCA process, including the queries, spreadsheets, and rationale used by the individual FCA data stewards.

TVA Management's Comments – In response to our draft report, TVA management agreed with the recommendations presented in the report and provided planned actions to address each, including: (1) evaluating the billed hourly energy load queries to enhance accuracy, (2) developing an automated system to collect and process the FCA each month, and (3) publishing a drafted SPP to document the FCA process. See the Appendix for TVA management's complete response.

Auditor's Response – We concur with TVA management's planned actions to evaluate the billed hourly energy load queries and develop an automated system to process the FCA. However, we reviewed the drafted SPP and do not believe it adequately documents the FCA process. Specifically, the drafted SPP is high-level and does not include documentation of the queries, spreadsheets, or rationale used by the individual FCA data stewards. We recommend TVA management create detailed documentation of the FCA process beyond the high-level information contained in the draft SPP.

March 27, 2018

David P. Wheeler, Assistant Inspector General
ET 3C-K

RESPONSE TO REQUEST FOR COMMENTS – DRAFT AUDIT 2017-15490 – DATA USED
TO CALCULATE FUEL COST ADJUSTMENTS

In response to the request for comments dated February 26, 2018, a review of the draft audit has been completed.

TVA staff confirms that the six actions identified within the Executive Summary of the Office of the Inspector General (OIG) findings have already been taken to improve the accuracy of the monthly processing of the Fuel Cost Adjustment (FCA) and were incorporated into that process beginning in December 2017.

Based on the recommendation of the subject audit, Rate Design & Administration has partnered with Revenue, and Fuel Accounting to develop the following plan of action to address each recommendation:

1. Recommendation: evaluate the billed hourly energy load queries to verify that all queries are pulling the data intended and sales are correctly classified.

Response: TVA staff agree that further improvements should be made here and we have started evaluating the load queries to enhance their accuracy. We anticipate closure in the next two months.

2. Recommendation: evaluate the FCA process to identify opportunities to streamline and automate the process to reduce the potential for miscalculations and implement additional controls to prevent and detect errors in the FCA.

Response: TVA staff agree with these recommendations:

- a. The Revenue organization has placed new controls in place to identify new meters and discontinued meters taken out of service.
- b. The Pricing and Contracts organization is in the process of developing a new automated system to collect and process the total monthly fuel cost each month. TVA staff expects the new system will be ready for parallel testing in October 2018.

3. Recommendation: document TVA's FCA process, including queries, spreadsheets, and rationale used by the individual data stewards

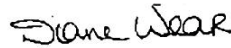
Response: TVA staff agree with this recommendation. Rate Design & Administration has drafted a Standard Process and Procedure (SPP) for the total monthly fuel cost and has provided it to the OIG as part of this audit. We note in particular that there are pending changes which will go to the TVA board for approval in May 2018 to become effective on October 1, 2018. Therefore, TVA staff believes the appropriate time to update the SPP would be after May 10, 2018 but before it goes into place on October 1, 2018.

David P. Wheeler, Assistant Inspector General
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We would like to thank the OIG team for their professionalism in conducting this audit. If you have any questions or if you need additional information, please contact Mike Hynes at (865) 632-3233 or Leslie Bazzoon at (865) 632-4003.



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OIG File No. 2017-15490