

TENNESSEE COMPTROLLER OF THE TREASURY SPECIAL INVESTIGATION

APRIL 13, 2016

MANAGEMENT RESPONSE BY BRISTOL TENNESSEE ESSENTIAL SERVICES

Bristol Tennessee Essential Services ("BTES") was given a verbal summary of this report along with the BTES board and the Bristol Tennessee City Council in a private meeting convened by the Comptroller's Office on the afternoon of Monday, April 11, 2016. The Comptroller's Office provided a copy of the report marked "CONFIDENTIAL" via email to attendees of the meeting at 1:46pm on Tuesday, April 12, 2016. This document constitutes the response of BTES management to the report of the Comptroller's Special Investigation. BTES was not given an opportunity by the Comptroller to provide its response for publication along with the report of the Comptroller. The BTES board of directors will take this matter up at its next meeting.

BTES disagrees with the findings and conclusions of the Investigator from the Comptroller's Office.

As part of its ongoing commitment to exceed customer expectations and keep pace with ever-evolving technologies, BTES continues to seek ways to improve existing services and programs for its customers. The BTES Water Heater Program, which first began in the late 1970s, is no exception. The original program, in partnership with TVA, involved installing a device on a water heater that would turn the unit off during periods when the electric load is at its peak. This helped shift some of the electric load to lower-cost periods of use.

Although this system was effective for the technology that was available at the time, it managed water heaters as one large group and was not capable of collecting feedback data from water heaters on an individual basis.

That changed after the buildout of BTES' fiber-optic network in 2005, which gave the utility the ability to develop a new technology that would enhance the program and enable BTES to interact with each water heater unit. This new technology featured the development and installation of a WISE (Water Heater Information Solution for Energy) switch that monitors temperatures and has the capability to turn a water heater off and on individually. As a result of this development, BTES was able to expand the use of its Load-Managed Water Heater Program while reducing the number of customers who were running out of hot water.

Around this time TVA planned to change to demand and energy wholesale rates. The Water Heater Load Management Program that started in the 1970s is now using an outdated and unreliable communication system that TVA planned to discontinue. TVA paid each local power company to discontinue the use of the system and to end TVA's obligations. TVA agreed to keep BTES' system operational for 36 months because BTES continues to have over 10,000 units using the old system and was transitioning to the new WISE units. BTES now has nearly 7,000 new WISE units installed and is in the process of replacing the old units with the new WISE switches.

BTES' Load-Managed Water Heater Program has been highly successful and is providing a savings of at least \$1 million per year on the purchased power price, thereby helping customers avoid a rate increase. Approximately 16,000 BTES customers with a load-management switch and BTES water heater continue to receive free warranties and service on their water heaters, and the above-mentioned savings should increase as 10,000 customers using the older TVA switches transition and join the already 7,000 customers currently benefitting from the WISE switch developed under this program.

SOURCE OF THE INVESTIGATION

This investigation has been ongoing for over a year. BTES personnel have cooperated fully with the Investigator's requests, providing her access to thousands of documents. Hundreds of copies of documents have been furnished to her as requested, sometimes more than once. She has been given the opportunity to interview all BTES employees with whom she requested to meet including Dr. Browder. She has also interviewed the members of the BTES board on an individual basis.

During this entire time, the Comptroller's Investigator has never revealed either the information provided to it that caused the office to investigate or the source of that information. BTES believes that source to be the Tennessee Valley Authority Office of Inspector General ("OIG"). During the second half of 2014, the OIG was conducting an audit of the BTES Residential Water Heater Research and Demonstration Project being done under the BTES contract with TVA. When the draft of the OIG's report was provided to BTES management for comment in October 2014, BTES strenuously contested some of the proposed negative findings in that draft audit report. Those objections are set forth in a BTES letter dated November 5, 2014, a copy of which is attached. The OIG published its final summary of the audit report on its website on December 17, 2014 (screenshot attached). The actual report with the accompanying BTES response has been deemed "TVA Restricted Information" by the OIG and cannot be provided.

Thereafter, at the end of January 2015, BTES' Independent Auditor notified BTES that the Comptroller's Office had contacted him. On February 2, 2015, the Comptroller's Investigator appeared at BTES without notice to begin her investigation relating to the BTES Water Heater Program.

DR. BROWDER'S PATENT INTEREST AND DISCLOSURE ISSUE

The Investigator in the Comptroller's report repeatedly asserts that Dr. Browder co-owned the patent for the WISE switch and failed to disclose this co-ownership to the BTES Board. The use of the term "co-ownership" is misleading in this context. Dr. Browder's name was placed on the patent as an inventor due to his participation in the development of the load-management switch. His interest and the interest of the Technology Company referred to by the Investigator are independent from one another. There is no sharing of interests, as would be common in the case of co-ownership of real property, for instance. The Technology Company has performed additional development of software and firmware, design of hardware, and completion of remaining work that was necessary to build the product based on the patent concept. Dr. Browder has never taken any steps to exploit the patent and has no equity share in the Technology Company.

Prior to the September 2010 BTES board meeting, Dr. Browder disclosed his interest in the patent to the BTES counsel who also serves as the Ethics Officer under BTES Policy. He also disclosed the interest to the then-board chair. The board chair, a short time later, disclosed Dr. Browder's ownership interest to Bryan Boyd – then a board member, now the board chair. Boyd informed the Investigator of this disclosure during her interview with him.

Also prior to the September 2010 board meeting, in April 2010, the BTES board approved purchases from the Technology Company that included metering collars, which were previously being purchased, and WISE switches, which were being developed, all in furtherance of the Water Heater Program. The first deliveries of the WISE units were expected in January 2011. Purchase orders were issued to the Technology Company for the units.

“UNAUTHORIZED LOAN”

In the Sept. 15, 2010, board meeting, Dr. Browder disclosed that he was planning to enter a prepayment agreement with the Technology Company. This agreement would modify the terms of the original purchase orders and include a prepayment for \$2.2 million in exchange for a 12 percent discount on the total order. Since the board had already approved the total purchase, no additional board action was required. Additionally, by virtue of the prepayment agreement, BTES received in escrow the firmware, software and other details that would enable the utility to produce the load-management switches in the event of a performance failure experienced by the Technology Company. Finally, BTES obtained performance guarantees from the Technology Company's principals and from an affiliated company that manufactured the switch units for the Technology Company.

Throughout the Investigator's report, there are statements that mischaracterize this prepayment agreement as an “unauthorized loan.” It was clearly not a loan. Prior to issuing payment, BTES had an obligation to purchase the WISE units and collars, and the Technology Company had an obligation to deliver these items. Arrangements for progress payments such as this are commonplace in the manufacturing industry. There was to be no repayment of funds. These funds would be applied to the total purchase as outlined in the Purchase Orders. The additional security provision was only to ensure the Technology Company's ability to meet its obligation and deliver the units. This prepayment agreement also meant that BTES would have the switch units it needed to implement the Water Heater Program as planned.

At a later date, when the Technology Company was admittedly experiencing cash flow issues, BTES, again to ensure delivery of the units, entered advance payment agreements whereby it eventually began purchasing parts and materials that were required to manufacture the switches and collars and directly paying the Technology Company's manufacturer to assemble the switches and collars. Although product continues to be delivered to BTES, no additional payments have been made to the Technology Company. Furthermore, no additional payments will be made to the Technology Company until BTES' expenditures under the prepayment agreement and the discounts to which it is entitled have been fully absorbed by the retention of what would be the Technology Company's net revenue after the costs of

parts and manufacturing. As of January 2016, the \$2.2 million prepayment had been fully absorbed. Absorption of the discounts will continue commencing with future deliveries.

PARTS TO UNRELATED UTILITY

The issue raised by the Investigator concerning the use of parts by an unrelated utility from the BTES inventory has been resolved. At one point, BTES authorized the diversion of some of its stored parts to units being shipped to a sister utility who was attempting to meet a TVA deadline for its own Water Heater Program. Subsequently, that utility discontinued its program, the units have been returned to the Technology Company's assembler and are currently being reconfigured at no charge by the Technology Company's manufacturer and being shipped to BTES. In addition, BTES is still entitled to benefit from the discount provided for in the prepay agreement (now renegotiated to 15 percent), which will be applied to the remaining equipment that will be purchased for the buildout.

CONCLUSION

Despite repeated insinuation and suggestion, the Investigator's report presents no actual evidence of any impropriety or improper personal benefit to Dr. Browder.

BTES and its ratepayers have, in fact, received a demonstrable benefit from these transactions. BTES has implemented its Water Heater Program in a manner that is just as financially sound as it was planned from the outset. In addition, BTES' electric rates remain among the lowest in the Tennessee Valley, and the utility remains committed to improving its product offerings and providing reliable, safe and cost effective services for its customers.



Bristol Tennessee Essential Services

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November 5, 2014

Mr. David Wheeler, Deputy Assistant Inspector General
Office of the Inspector General
Tennessee Valley Authority
400 West Summit Hill Drive
Knoxville, TN 37902-1401

Dear Mr. Wheeler:

We have reviewed the Draft Audit 2014-15225 – Review of Bristol Tennessee Essential Services Demand Side Management – Residential Water Heater Research and Demonstration Project – Contract No. 0072597 dated October 9, 2014. Our comments on that report follow.

Unsupported Billings

On August 8, 2014, BTES provided to Mike Driver, Rick Underwood, Michael Scalf and Cindy Herron a listing of 2,569 unique locations and addresses where switches had been installed. The listing did not contain serial numbers due to billing software restrictions which were explained to audit personnel on site, by email and in telephone conversations. Since this is above the 1,780 switches TVA had paid for, there is no overpayment of \$133,440 to recover.

On August 25, 2014 in our Exit Conference with Rick Underwood, Mike Driver and Robert Dixon, Mike Browder, CEO and Lola McVey, Director of Accounting and Finance explained that BTES had installed 2,569 switches for Phase III. We have 2 way communications with all of those units. We are reporting data to TVA on over 1,600 of those units. These units are reporting in each of 96 intervals daily. **The remainder of the units are working.** We are able to turn on, turn off and communicate with these units but may be missing some of the interval data but they still have 2 way communications to be utilized in the water heater program. A valid sample size for a group of 5,000 with a 95% accuracy rate and a 5% margin of error is 357. The 1,600 units that are communicating on all intervals constitute a valid sample.

Since that time, we have been able to manually compile the listing of serial numbers and unique location identifiers. That list of 3,390 switches with serial numbers and unique location identifiers was sent to TVA on September 15, 2014.

BTES Did Not Complete All Actions Required Under the Contract

Phase I

Number of Switches Required Under the Contract Were Not Installed

During Phase I we installed 22 units out of the 25. By that time we had gathered enough information to know what improvements in the switch needed to be made which was the reason for Phase I. We decided that we did not need to inconvenience our customers by installing a switch we knew would have to be replaced at a later date.

Override Protocol Not Developed

The first switches were normally open. During this Phase, we determined that it should be normally closed so that if the control unit fails, the relay will close. With the relay closed, the water heater would continue to operate normally. Also, the switch can be operated from our office. We have turned a switch on for a customer who called us about cold water.

BTES Did Not Provide Project Report

TVA told BTES that the EPRI Report would be the project report. Any information required – random samples to be tested, administering the incentive program to ensure a high percentage of participation in the program, data gathering, handling all customer communications on behalf of TVA and EPRI was done by BTES and therefore we did not provide a separate report. BTES had no reason to believe that this report did not satisfy the contract provision to provide a project report. We have always made TVA aware that they could have raw data on this project when requested.

Switch Not Provided to TVA

BTES provided a switch to TVA. Due to numerous personnel changes at TVA we are unable to determine exactly who took possession of the switch.

Phase II

Number of Switches Required Under the Contract Were Not Installed

The EPRI report stated that 117 units were installed as of July 2009. During the auditors visit, BTES personnel reported that an additional 113 switches were installed during late 2009 bringing the total to 230. That is evidenced by the listing sent to Mike Driver, Rick Underwood, Michael Scalf and Cindy Herron on August 8, 2014.

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Phase III

Number of Switches Installed as of August 2014

As stated on Page 1, on August 8, 2014, BTES provided to Mike Driver, Rick Underwood, Michael Scalf and Cindy Herron a listing of 2,569 unique locations and addresses where switches had been installed. The listing did not contain serial numbers due to billing software restrictions which were explained to audit personnel on site, by email and in telephone conversations.

On August 25, 2014 in our Exit Conference with Rick Underwood, Mike Driver and Robert Dixon, Mike Browder, CEO and Lola McVey, Director of Accounting and Finance explained that BTES had installed 2,569 switches for Phase III. We have 2 way communications with all of those units. We are reporting data to TVA on over 1,600 of those units. These units are reporting in each of 96 intervals daily. **The remainder of the units are working.** We are able to turn on, turn off and communicate with these units but may be missing some of the interval data but they still have 2 way communications to be utilized in the water heater program. A valid sample size for a group of 5,000 with a 95% accuracy rate and a 5% margin of error is 357. The 1,600 units that are communicating on all intervals constitute a valid sample.

Since that time, we have been able to manually compile the listing of serial numbers and unique location identifiers. That list of 3,390 switches with serial numbers and unique location identifiers was sent to TVA on September 15, 2014. We are continuing to install the 5,000 switches.

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satisfy the contract provision to provide a project report. We have always made TVA aware that they could have raw data on this project when requested.

Mike Browder, CEO and Clayton Dowell, Director of Engineering were asked to present at the 20th Annual Advanced Load Control Alliance Meeting sponsored by TVA in Chattanooga in April 2013. They presented "Using Water Heaters as a Demand Response Tool" which showed historical and live data from our research project not only to TVA but other local power companies, vendors and other power companies across the country as well.

As TVA or local power companies have requested, we have also made available to others data from our research project. Currently, we are sharing data and best practices with Appalachian Electric Cooperative. They would like to shape their program after ours.

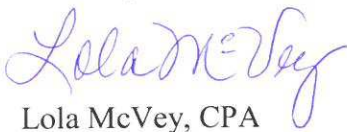
Overstated Credits under Existing DLC Program

On August 25, 2014 in our Exit Conference with Rick Underwood, Mike Driver and Robert Dixon we reviewed the credits we were getting in our current DLC program. The 15,804 units BTES was getting the load control credit for as of June 30, 2013 was a combination of new and existing units. This is addressed in Contract 00072597, Supp. No. 1 dated April 24, 2009 on Page 2. Section 2 states:

"As with Phase I of the Project, Phase II and Phase III will have no additional participation incentives, including credits to BTES' wholesale power bill, **above those which are provided under TVA Contract No. 98PCG-231562 dated October 1, 1997 (1997 Contract)**. At the conclusion of this Project, all water heaters that have been upgraded to replace the existing switches with Switches installed in Phase II or Phase III of this Project will transfer to a new yet-to-be determined program utilizing new control sequences and/or incentive payments."

This is a clear statement to us that the same credit would apply to old and new switches alike under the 1997 Contract until another contract was in place.

Sincerely,



Lola McVey, CPA

Director of Accounting and Finance



R. Michael Browder, PE

Chief Executive Officer

cc: Cynthia L. Herron


Van Wardlaw, PE

C. Thomas Davenport Jr, Attorney at Law

TVA Inspector General - Internet Explorer

http://oig.tva.gov/reports/audit-1

TVA Inspector General



Office of the Inspector General

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OIG AUDIT, EVALUATION AND SPECIAL PROJECT REPORTS

Below are links to pages containing summaries of the results of all completed audits, inspections, and special projects except for those with particularly sensitive information, such as security reviews and pre-award audits. In addition, the summaries include a link to the report itself where we determined public release of the report was appropriate. Information which generally would be withheld under the Freedom of Information Act has been redacted from those reports before making them available. Reports are listed in the fiscal year issued, in order of issuance, most recent first.

FY 2015 FY 2014 FY 2013 FY 2012 FY 2011 FY 2010 FY 2009 FY 2008 FY 2007 FY 2006 FY 2005

December 22, 2014 - Natural Gas Monitoring - 2014-15048

December 18, 2014 - Canal Barge Company - 2014-15038

December 17, 2014 - Review of Bristol Tennessee Essential Services Demand Side Management - Residential Water Heater Research and Demonstration Project - Contract No. 00072597 - 2014-15225

The OIG audited approximately \$3.36 million in costs billed to TVA by Bristol Tennessee Essential Services (BTES) as of September 30, 2014. In summary, we found costs billed to TVA were supported by invoices paid to third parties by BTES. However, we noted (1) instances where costs billed were not supported by evidence the work associated with invoices had been completed, (2) BTES had not completed all actions required under the contract, and (3) TVA had not determined the benefits of the project. Finally, we noted TVA was providing excessive credits to BTES each month under an existing Direct Load Control (DLC) program based on documentation provided to us by BTES. We recommended TVA (1) ensure all payments made to BTES under contract number 00072597 are for work completed in accordance with the specifications and timelines required by the contract and determine what actions to take if all switches are not installed and working properly by January 30, 2015, (2) receive adequate support to ensure all work related to an invoice has been completed prior to payment and make receipt of key deliverables a requirement for payment under any future research and development related contracts, and (3) determine, based on the findings of the project, whether load control schemes produce the desired effect for TVA, distributors, and residential customers before moving into a new program. Additionally, we recommended TVA reduce the monthly credits given to BTES under the existing DLC program to reflect BTES documentation of switches installed under that program. TVA management is working on plans to address the recommendations in the report.

Start

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1/19/2015