



Memorandum from the Inspector General, ET 4C-K

September 29, 2008

TVA Board of Directors

FINAL REPORT – INSPECTION 2007-11401 – REVIEW OF TVA'S CUSTOMER RELATIONS PERFORMANCE

Attached is the final report which answers the basic question of "How is TVA doing in regards to Customer Relations." A draft of this report was discussed with Ken Breeden on September 16, 2008.

This review is the first in a series that will benchmark TVA's performance in key areas. The Office of the Inspector General will issue reports annually on TVA's performance pertaining to not only customer relations, but also financial, operational, and environmental performance. These reports are intended to give objective assessment to both the TVA Board of Directors and Congress regarding TVA's performance and to highlight significant challenges facing TVA.

These reports will be placed on our Web site and delivered to members of Congress. Please advise us of any sensitive information in this report which you recommend be withheld.

We will be happy to brief you on this report. If you have specific questions about this report, please contact Ben R. Wagner, Deputy Inspector General, at (865) 633-7500 or Robert E. Martin, Assistant Inspector General, Audits and Inspections, at (865) 633-7450.

Richard W. Moore

JAL:SDB

Attachment

cc (Attachment):

Kenneth R. Breeden, OCP 1F-NST  
Peyton T. Hairston, Jr., WT 7B-K  
Tom D. Kilgore, WT 7B-K  
John E. Long, Jr., WT 7B-K  
Emily J. Reynolds, OCP 1L-NST  
OIG File No. 2007-11401



Tennessee Valley Authority  
Office of the Inspector General

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# *Inspection Report*

## **REVIEW OF TVA'S CUSTOMER RELATIONS PERFORMANCE**

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2007-11401  
September 29, 2008

## **INTRODUCTION**

### **What We Are Trying To Accomplish**

This is the first in a series of inspections that seek to answer the question, “How is TVA doing?” Although there are existing sources to answer that question, those sources often tend to be either hyper technical or anecdotal. Neither adequately informs TVA stakeholders as to exactly how TVA is doing in key areas. Some sources require interpretation from TVA management which lacks needed objectivity. We are attempting to fill the gap that exists in the information available for most TVA stakeholders to be able to understand how TVA “stacks up” against other utilities.

### **What We Are Evaluating**

We will be addressing four key strategic areas including financial health, operational performance, environmental stewardship, and customer relations. We believe that if TVA’s performance in these areas is documented and understood, the question “How is TVA doing?” will have been answered. Our reviews are intended to give an objective evaluation of TVA’s performance and to present as appropriate the significant management challenges facing TVA. The “audience” for the Office of Inspector General (OIG) is primarily the TVA Board, Congress, and residents of the Tennessee Valley.

### **Why the Office of Inspector General Should Do These Reviews**

There are three reasons why this work should fall to the OIG: (1) We have the expertise to do it. For over 20 years the OIG has been scrutinizing TVA programs and operations, and we have developed a cadre of professionals immersed in the analysis of utility work. Simply put, our people know TVA; (2) We have the independence to do it. The OIG does not have a stake in the outcome of any report we write. We are neither fans nor foes of TVA management. Whether TVA ranks high or low in comparison to other utilities does not in any way effect the OIG. We have complete discretion to look wherever we want and to report the facts as we find them; and (3) We print what we do. Our work is public and posted on our Web page; the good, the bad, and everything in between. Transparency and accountability should be the hallmark of a government agency. Our very public work makes that more likely for TVA.

## Why Now?

The United States is facing an energy crisis of historic proportions. TVA is in the throes of making strategic decisions that will effect generations of Valley residents. The performance of TVA should be all the more transparent to all its stakeholders. A high performing, competitive, and forward-thinking TVA is more critical now than ever before.

## Why This Particular Report on Customer Relations?

Customer relations is not about the creation of warm and fuzzy feelings. Customer relations is a prime determinate of sustainable success. The strategic challenges facing TVA are too daunting not to have a shared vision with its customers that is mutually beneficial. The key has always been and will always be healthy communication. How TVA scores against other utilities in any other category is likely to be significantly impacted by how united its customers are in supporting TVA's vision for the future.

## How We Did This Report

This inspection report will provide a high-level evaluation of TVA's performance in the area of customer relations. Specifically, we reviewed TVA's strategic goals and objectives focusing our evaluation on the three primary drivers: reliability, rates, and customer satisfaction. In conducting this review, we: (1) assessed key performance measures and their alignment with the key strategic objectives, (2) evaluated TVA's results relative to targets and available benchmark information, and (3) identified key management challenges that could affect how successful TVA is in achieving these strategic objectives.

In evaluating TVA's customer relations performance results, we considered how TVA's results compare to (1) those of others and (2) the goals TVA sets for itself, as shown below. We also considered TVA initiatives for improving future performance.

RESULTS	4-5 Star Good	2-3 Star Fair	1 Star Poor
How do TVA's results compare to (1) those of others and (2) the goals it sets for itself?	<ul style="list-style-type: none"> <li>Measured results compare favorably with peer group for most of the key metrics.</li> <li>Measured results achieve TVA's goals.</li> </ul>	<ul style="list-style-type: none"> <li>Measured results compare favorably with peer group for several of the key metrics.</li> <li>Measured results achieve a portion of TVA's goals.</li> </ul>	<ul style="list-style-type: none"> <li>Measured results compare favorably with peer group for few of the key metrics.</li> <li>Measured results do not achieve TVA's goals.</li> </ul>

More information regarding our objectives, scope, and methodology can be found in the Appendix.

## **BACKGROUND**

TVA is primarily a wholesaler of power and sells power to 159 local distributors. TVA reports that this serves 8.8 million people and 650,000 businesses and industries in the seven-state TVA service area. It covers almost all of Tennessee and parts of Alabama, Georgia, Kentucky, Mississippi, North Carolina, and Virginia. TVA also directly sells power to about 59 large industrial customers and federal installations and 12 utilities with which TVA has power-exchange agreements.

- **Distributors** - There are 159 distributors that resell TVA power to consumers-- 109 municipals (munis)s and 50 co-ops. The munis and the co-ops represent the wholesale base of TVA's business, accounting for about 84 percent of TVA's revenue in fiscal year (FY) 2007.
- **Directly Served Customers** - Fifty-three industrial customers and six federal installations buy TVA power directly. They represent 14 percent of total revenue in FY 2007.
- **Offsystem Customers** - Twelve surrounding utilities buy power from TVA on the interchange market. "When TVA has more power available than its customers are using, it may be able to sell that power to other power companies. Bulk Power Trading sells power to 12 offsystem customers located outside the TVA service territory to which the TVA Act permits TVA to sell power."

According to the 2007 TVA Strategic Plan, TVA's strategic objective for its power distributor and directly served industrial customers is to: "**maintain power reliability, provide competitive rates, and build trust with TVA's customers.**" Critical success factors include:

- Strengthening relationships and trust by being responsive to stakeholder needs;
- Developing a portfolio of product and pricing structures that more accurately reflect the costs of serving load at different times and levels of use;
- Partnering with distributors and directly served customers to encourage conservation, promote energy efficiency, and reduce peak demand;
- Partnering with customers to limit volatility in rates and participate in power supply through shared generation ownership; and
- Assisting states, communities, and distributors in sustaining economic development programs.

As shown in Figure 1, TVA currently has various performance metrics in place to monitor TVA's performance toward successful implementation of its strategy.

**Figure 1:** Performance Measures For Customer Strategy

Measures	Definition
<b>Customer Satisfaction Index</b>	Measure of distributors' and directly served customers' satisfaction with TVA in a variety of areas.
<b>Participation in Energy Efficiency and Peak-Shaving Initiatives</b>	Measure of distributors' participation in demand side management (DSM) programs and pilots.
<b>Delivered Cost of Power (TVA and Distributor)</b>	Measure of TVA's Delivered Cost of Power (excluding FCA costs). It specifically represents TVA's total cost in dollars per MWh of power sold to customers.
<b>Connection Point Interruptions (CPI)</b>	Measures of reliability from the TVA customer's perspective. It tracks interruptions of power, including momentary, at connection points caused by the transmission system.
<b>Economic Development Index</b>	Measure of effectiveness of TVA's sustainable economic development efforts. The components of the index include areas such as new job creation, jobs retained, and capital dollar investment.

Source: TVA 2008 Balanced Scorecard.

## **SUMMARY CONCLUSIONS**

Overall, TVA's performance results in the area of customer relations are excellent. In summary:

- TVA has performed exceptionally well in delivering electric service with 99.999 percent reliability and performed better than the industry in key performance metrics. The challenge for TVA will be to maintain this high rating in the face of shrinking reserves and higher than average forced outage rates which could impact TVA's reliability in the future.
- TVA's electricity rates are competitive given that rates are (1) 24 percent below the national average, (2) below the median when compared with neighboring utilities<sup>1</sup>, and (3) at the median when compared to other utilities within one wheel<sup>2</sup> of TVA. TVA uses a debt-service coverage methodology to derive annual revenue requirements in a manner similar to that used by other public power entities. Factors that present a challenge to the competitiveness of TVA's rates include:
  - Higher Non-fuel Operation and Maintenance (O&M) costs. A May 9, 2008, benchmarking study found TVA to be in the bottom quartile when compared to other utilities.
  - Generation Mix and Average Fuel Cost. Each power generating utility has a unique mix of generating assets (e.g., hydro, fossil, nuclear, and combustion turbines) which dictates the type of fuel required to generate electricity. One utility may have more plants that use coal while another may have more power produced using nuclear reactors. How TVA's rates compare with other utilities is affected significantly by the demand for electricity by TVA's customers, the availability of various generating units, and the availability and cost of fuel.
- TVA slightly outperformed its potential competitors in FY 2007 in overall customer satisfaction. The highest number of negative comments received came from direct-served customers who provided a significant negative response to the interrupted rate products.

However, it is important to note that TVA faces many significant management challenges in maintaining effective relations with its customers. We have included in this report a discussion of the top four challenges that affect the area of customer relations including: (1) high cost of new generation; (2) uncertainty around fuel cost and delivery; (3) managing an aging generation fleet with potential changes to regulatory requirements; and (4) inherent conflicts in TVA's role as a regulator.

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<sup>1</sup> For neighboring utilities, all but TVA's average commercial rate was below the median when benchmarked or compared with other utilities for 2007.

<sup>2</sup> One wheel defined as a movement of power across intervening hubs with each hub counting as one wheel. CBOT® Electricity Futures and Options Reference and Applications Guide, ComEdSM and TVA Hub Electricity Futures and Options: The Reference and Applications Guide, page 12.

The following discussion provides the basis for our conclusions.

## Maintaining Power Reliability



Reliability for an electric system is, most simply, the extent to which consumers can obtain electricity from the system in the amount they want. In order to provide electricity to consumers in a reliable manner, organizations that generate and transmit electricity must ensure that the generating and transmission line capacities are adequate to meet demand. They must also ensure that the proper operating procedures for the bulk power system are followed. Most disturbances that affect consumers are caused by either plant shutdowns or adverse weather conditions affecting the electric distribution system. The cost of avoiding distribution system outages is very high.<sup>3</sup>

The TVA transmission system is one of the largest in North America. The system delivered nearly 175 billion kilowatt-hours of electricity in 2007 and has operated with 99.999 percent reliability over the last eight years in delivering electricity to customers. To the extent federal law allows access to the TVA transmission system, the TVA transmission organization offers transmission services to others to transmit power at wholesale in a manner that is comparable to TVA's own use of the transmission system. TVA has also adopted and operates in accordance with a published *Standards of Conduct for Transmission Providers* and appropriately separates its transmission functions from its marketing functions.

TVA uses the SGS Benchmarking Study for reliability data. Based on data from this study and on data calculated from this study by TVA personnel, TVA ranks in the first quartile among the 32 participant companies in four key industry reliability measures: Load Not Served (LNS), Connection Point Interruption (CPI) frequency, System Average Interruption Frequency Index (SAIFI), and System Average Interruption Duration Index (SAIDI).

- TVA performed 25 percent better than top quartile performance on LNS which is a measure of the magnitude and duration of transmission system outages that affect TVA customers, expressed in system minutes (See Figure 2). LNS excludes major events due to storms. [LNS = (% of total load not served) multiplied by (number of minutes in the period)]
- TVA performed 32 percent better than top quartile performance on CPI frequency which measures reliability from TVA's customer's perspective (See Figure 2). It tracks interruptions of power, including momentary, at connection points caused by the transmission system. [CPI = Number of Interruptions/

<sup>3</sup> Source of information was article published by the Energy Information Administration, Official Energy Statistics for the United States (U.S.) Government, U.S. Department of Energy, titled *Performance Issues for a Changing Electric Power Industry*.

99.999  
percent  
reliable  
service  
delivery  
(p.26)

Top  
quartile  
performance

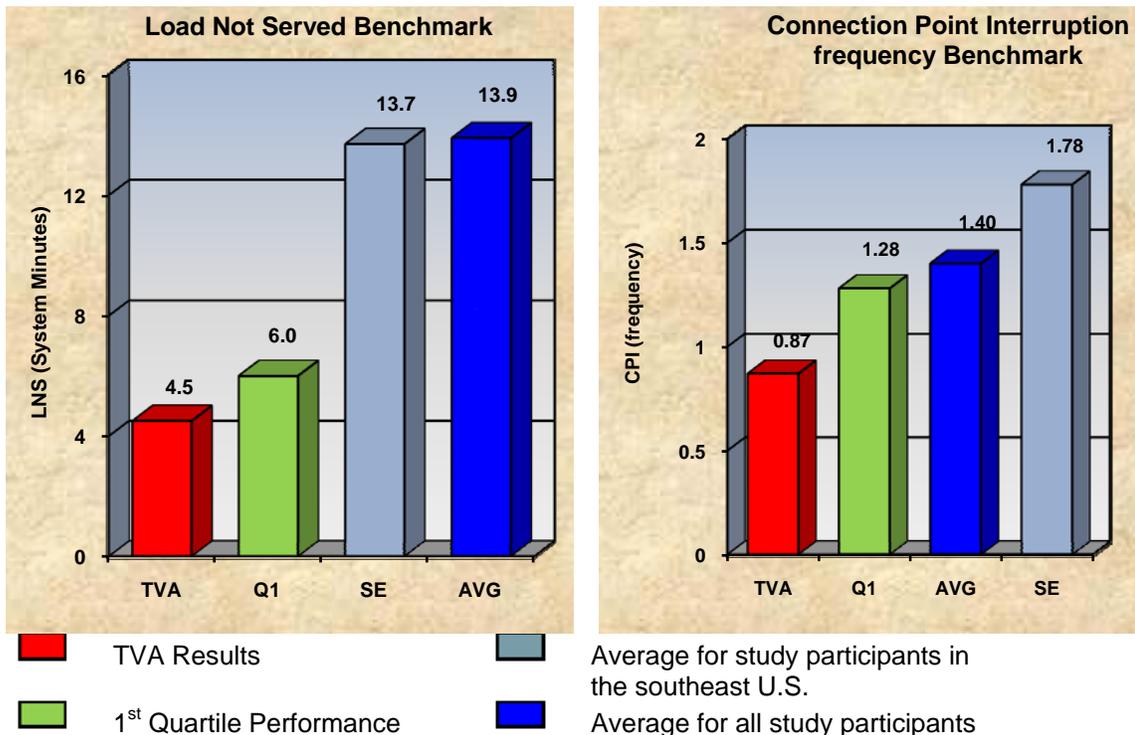
Number of Connection Points (Number of interruptions includes all interruptions, regardless of duration)] CPI excludes interruptions during declared major storms and is lightning normalized.

- TVA performed 19 percent better than top quartile on “system average interruption frequency index” which is commonly used as a reliability indicator by electric power utilities (See Figure 3). SAIFI is the average number of interruptions that a customer would experience, and is calculated as total number of customer interruptions divided by total number of customers served.
- TVA performed 38 percent better than top quartile on “system average interruption duration index” which is commonly used as a reliability indicator by electric power utilities (See Figure 4). SAIDI is the average outage duration for each customer served, and is calculated as sum of all customer interruption durations divided by total number of customers served.

Charts depicting this performance are shown below.

**Figure 2**

**LNS and CPI (frequency)\* Benchmarks  
[5-Year Averages (2002 through 2006)]**

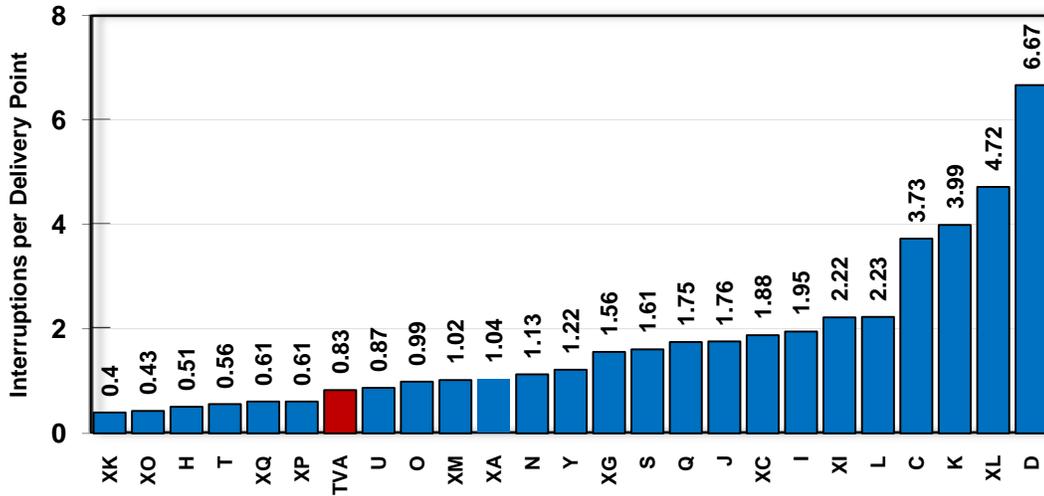


\*Industry benchmarks were calculated using the 2007 SGS Benchmarking Study. LNS benchmarks are extrapolated using Delivery Point-SAIDI (based on actual duration) and CPI benchmarks are extrapolated using Delivery Point-SAIFI (based on frequency) for Delivery Points.

Source: 2007 SGS Transmission Reliability Benchmarking Study--PowerPoint presentation provided by TVA Power System Operations Transmission Operations and Maintenance.

Figure 3

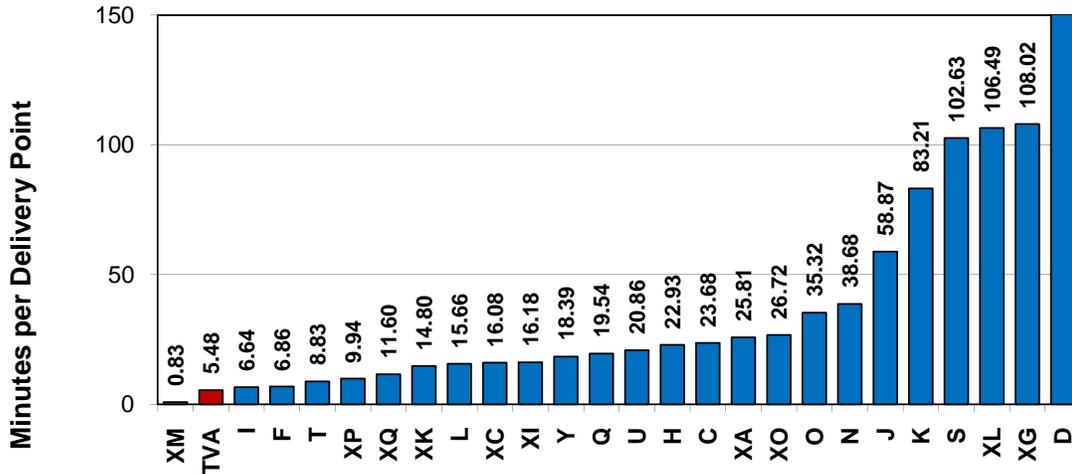
**System Average Interruption Frequency Index  
Calendar Year 2006**



Source: SGS Statistical Services Inc., 2007 Transmission Reliability Benchmarking Survey, page 51.

Figure 4

**System Average Interruption Duration Index, Delivery Point  
Calendar Year 2006**



Source: SGS Statistical Services Inc., 2007 Transmission Reliability Benchmarking Survey, page 66.

## TVA Capacity Margin

Another commonly used measure in planning for adequate generating capacity reliability is capacity margins. Capacity margins indicate “the amount of generating capacity available to provide for scheduled maintenance, emergency outages, system operating requirements, and unforeseen electricity demand.” They offer one of the simplest indications of how much generating capacity would be available above the projected peak demand if all capacity were on-line.<sup>4</sup> Generating capacity should contain a reserve margin sufficient to cover unforeseen events such as temperature variations, higher than anticipated demands, and unplanned generation outages.

The historical reserve margin over the past five years in TVA’s plan has been approximately 15 percent of the total TVA medium load forecasted demand. According to TVA management a 15 percent reserve margin, calculated on firm needs is in alignment with the reserve margins established by other entities in the utility industry, which range from 12 percent to 18 percent. The 2005 Energy Policy Act gave the Federal Energy Regulatory Commission (FERC) full regulatory authority over the North American Electric Reliability Council (NERC) reliability rules, with enforcement ability.

According to TVA officials, based on new operating reserve requirements, TVA is evaluating the risks and the drivers behind a proposed reserve margin change to 18 percent. As shown in Figure 5, TVA’s demand for power has increased since 1997 and forecasts show reserve margins dropping below 15 percent in 2009. Additionally, demand for power in TVA’s service territory is projected to increase at a rate of 2 percent per year. Forecasts indicate the Tennessee Valley will need from 6 to 12 gigawatts of additional capacity over the next 10 to 15 years.

**Figure 5:** Peak Demand for TVA Power for Ten Year Period Ending July 2006 (in megawatts)



Source: InsideTVA, *Planning today for tomorrow's power*. March 2007.

<sup>4</sup> See Footnote 3 for source of information.

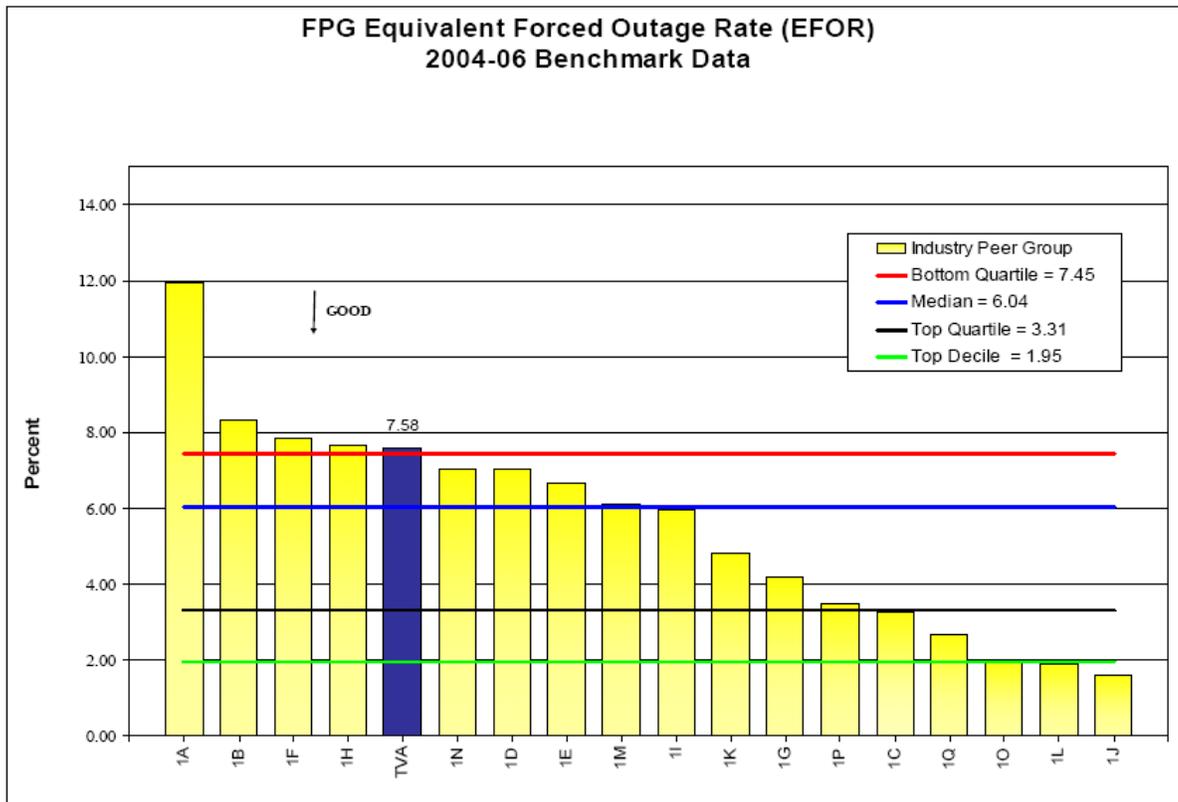
Reserve  
margins at  
15 percent

Power  
Demand  
increasing  
at  
2 percent  
annually

## Forced Outage Rates

Outage performance is another key component in maintaining reliability with increasing peak demands and overall electricity consumption. Equivalent forced outage rate is the ratio of unplanned energy losses during the period compared to the maximum availability, excluding planned outages. For the period TVA used to measure this benchmark, the Peer Group included 18 utilities in proximity to the TVA service area and TVA was in the bottom quartile, as shown in Figure 6.

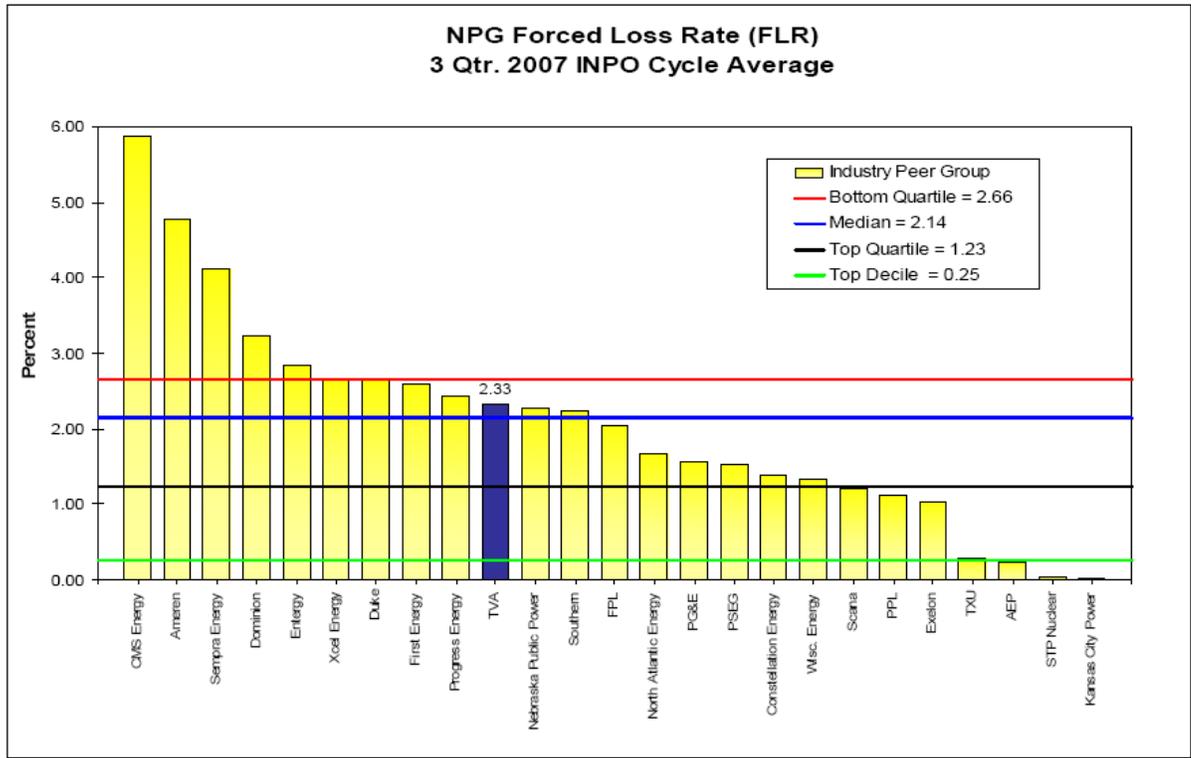
**Figure 6**



Source: TVA Benchmarking Summary, May 9, 2008, page 14.

Forced loss rate is the ratio of unplanned energy losses during the period compared to the maximum availability, excluding planned outages. Based on third quarter 2007 INPO data, the Peer Group included all nuclear units and TVA ranked in the third quartile, as shown in Figure 7.

Figure 7



Source: TVA Benchmarking Summary, May 9, 2008, page 16.

## Providing Competitive Rates



*TVA rates  
24 percent  
below  
national  
average*

Typically, a utility is regulated by a public utility commission, which approves the rates the utility may charge. TVA, however, is self-regulated with respect to rates. The TVA Act gives the TVA Board sole responsibility for establishing the rates TVA charges for power. These rates are not subject to judicial review or review or approval by any state or federal regulatory body. In setting TVA's rates, however, the TVA Board is charged by the TVA Act to have due regard for the objective that power be sold at rates as low as are feasible.

TVA sells electricity in a service area that is largely free of competition from other electric power providers. This service area is defined primarily by two provisions of law: One called the "fence" and one called the "anti-cherry-picking" provision. The fence limits the region in which TVA or distributors of TVA power may provide power. The anti-cherry-picking provision limits the ability of others to use the TVA transmission system for the purpose of serving customers within TVA's service area. Bristol, Virginia, was exempted from the anti-cherry-picking provision.

As discussed above, TVA is primarily a wholesaler of power and sells power to 159 local distributors, about 53 direct-served industrial customers, 6 federal installations, and 12 utilities with which TVA has power-exchange agreements. The TVA power contract governs the relationship between TVA and distributors, including the prices they pay and the resale rates they use. Comparison of rates will generally include the distributor markups applied to TVA's wholesale rate.

Review of rate benchmarking data supplied by TVA for the 12 months ended September 2007 noted that TVA's rates were below the national average in the major product lines as shown in Figure 8 below.

**Figure 8:** Comparison of TVA Rates to National Averages

Rate	TVA	National Average
Average Residential Price	7.8 ¢/kWh	10.5 ¢/kWh
Average Commercial Price	8.0 ¢/kWh	9.6 ¢/kWh
Average Industrial Price	4.6 ¢/kWh	6.3 ¢/kWh
Average Total Retail Price	6.6 ¢/kWh	9.1 ¢/kWh
Percent Change in Total Retail Rates	1.8 %	3.0%

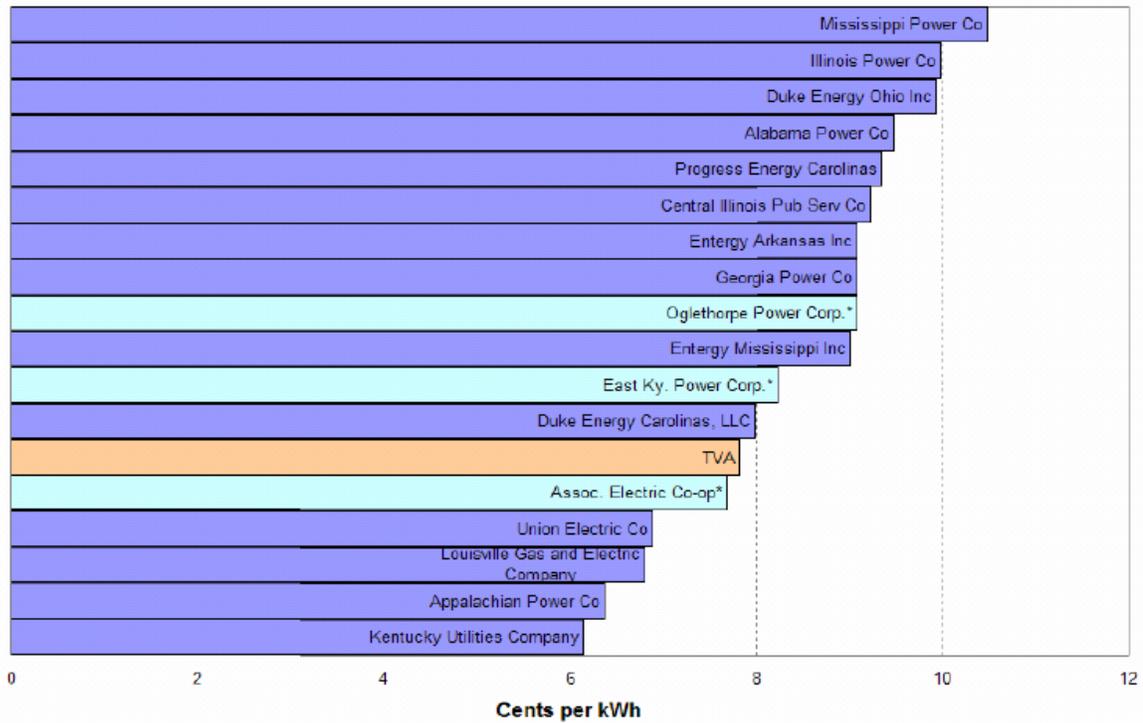
Source: Rate Benchmarking based on Energy Information Association (EIA) Monthly Electric Utility Database (Form EIA-826), PowerPoint presentation provided by TVA Strategy, Pricing and Contracts, Pricing and Product Development personnel.

*TVA rates  
at or below  
median  
when  
compared  
to likely  
competitors*

Furthermore, when TVA compared rates to neighboring utilities, TVA's rates were competitive and lower than median in all cases, except for average commercial rates. TVA Pricing and Product Development, Strategy, Pricing and Contracts, developed the following charts (See Figures 9-12) using data reported to EIA on a monthly basis, using Form EIA-826, for 14 neighboring utilities that are highlighted in purple. TVA's Chief Executive Officer requested that the additional three holding companies, highlighted in light green and emphasized with an asterisk, be added to the charts. These holding companies report their data annually to EIA using Form EIA-861. Specifically, when TVA's average residential, commercial, industrial, and retail rates were compared to a peer group of 14 neighboring utilities for the 12-month period ending September 2007:

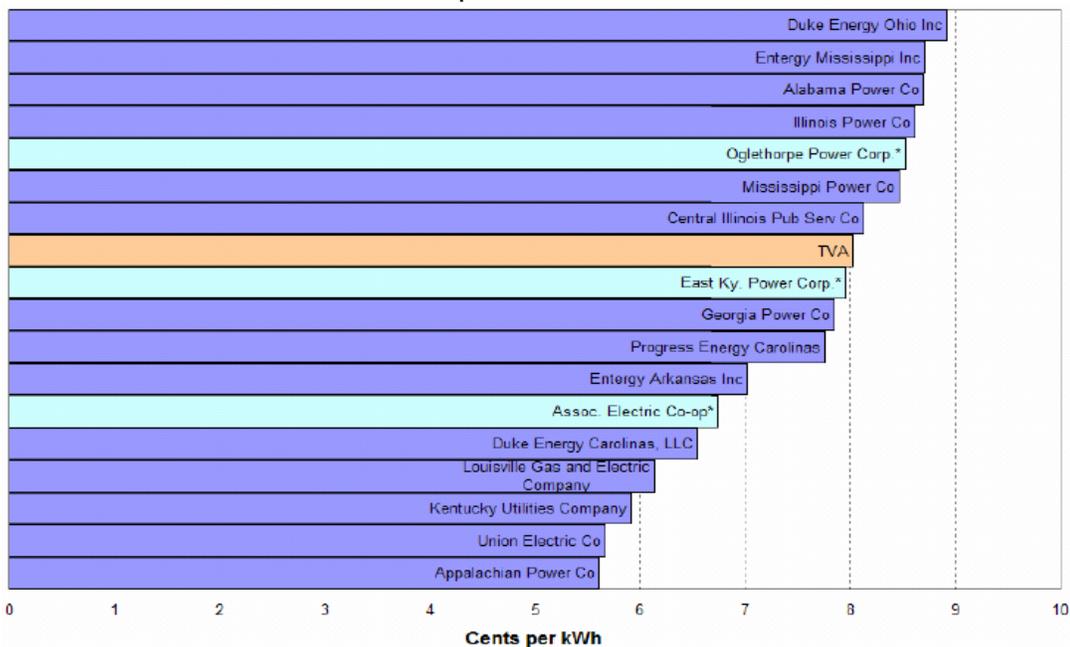
- Ten neighboring utilities had a higher average residential rate, as shown in Figure 9. While TVA's average residential rate was about 7.8 ¢/kWh, the lowest rate in the group was over 6 ¢/kWh and the highest rate was over 10 ¢/kWh.
- Six neighboring utilities had a higher average commercial rate, as shown in Figure 10. While TVA's average commercial rate was about 8.0 ¢/kWh, the lowest rate in the group was over 5.5 ¢/kWh and the highest rate was about 10 ¢/kWh.
- Eleven neighboring utilities had a higher average industrial rate, as shown in Figure 11. While TVA's average industrial rate was about 4.6 ¢/kWh, the lowest rate in the group was just under 4.0 ¢/kWh and the highest rate was over 6.5 ¢/kWh.
- Nine neighboring utilities had a higher average total retail rate, as shown in Figure 12. While TVA's average total retail rate was about 6.6 ¢/kWh, the lowest rate in the group was just above 5.0 ¢/kWh and the highest rate was over 8.5 ¢/kWh.

**Figure 9:** Average Residential Rates for 14 Neighbors and TVA for the 12 months ended September 2007



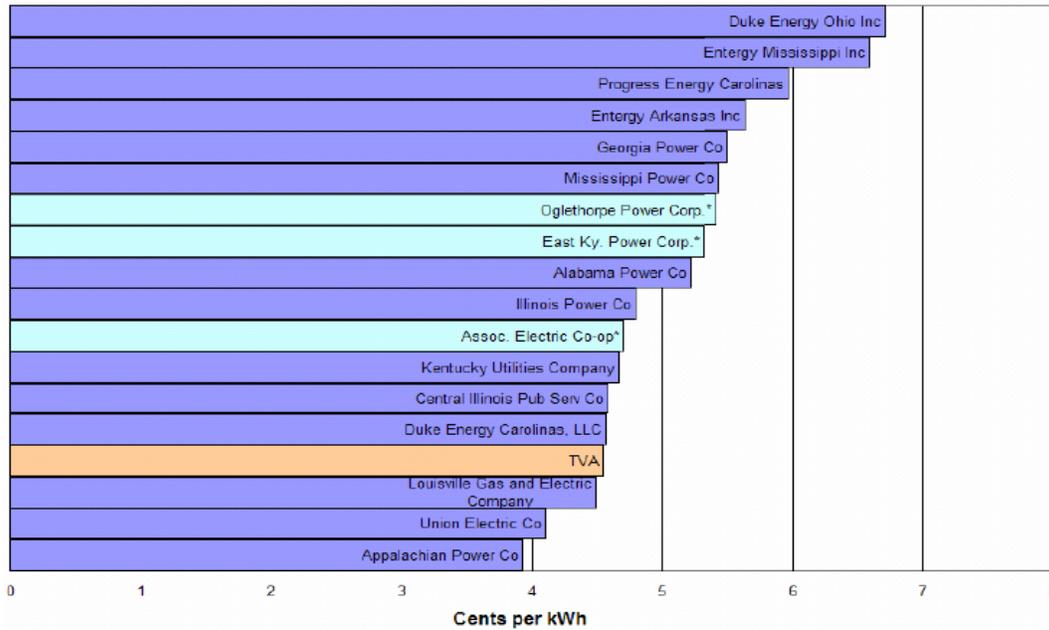
Source: Rate Benchmarking based on Energy Information Association (EIA) Monthly Electric Utility Database (Form EIA-826), PowerPoint presentation provided by TVA Strategy, Pricing and Contracts, Pricing and Product Development personnel, page 7.

**Figure 10:** Average Commercial Rates for 14 Neighbors and TVA for the 12 months ended September 2007



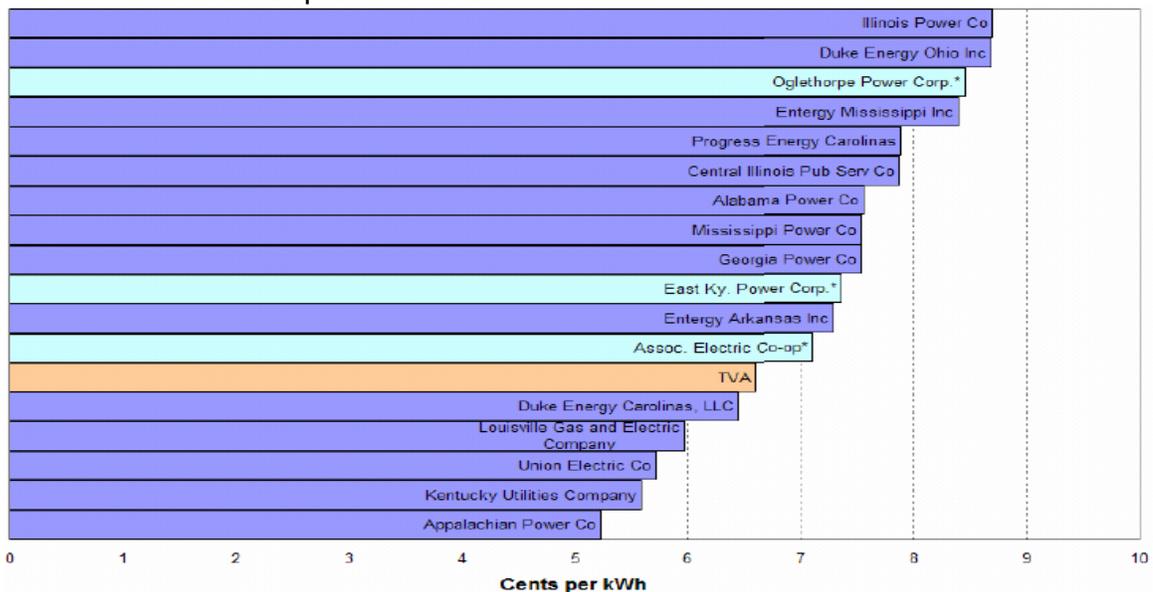
Source: Rate Benchmarking based on Energy Information Association (EIA) Monthly Electric Utility Database (Form EIA-826), PowerPoint presentation provided by TVA Strategy, Pricing and Contracts, Pricing and Product Development personnel, page 8.

**Figure 11:** Average Industrial Rates for 14 Neighbors and TVA for the 12 months ended September 2007



Source: Rate Benchmarking based on Energy Information Association (EIA) Monthly Electric Utility Database (Form EIA-826), PowerPoint presentation provided by TVA Strategy, Pricing and Contracts, Pricing and Product Development personnel, page 9.

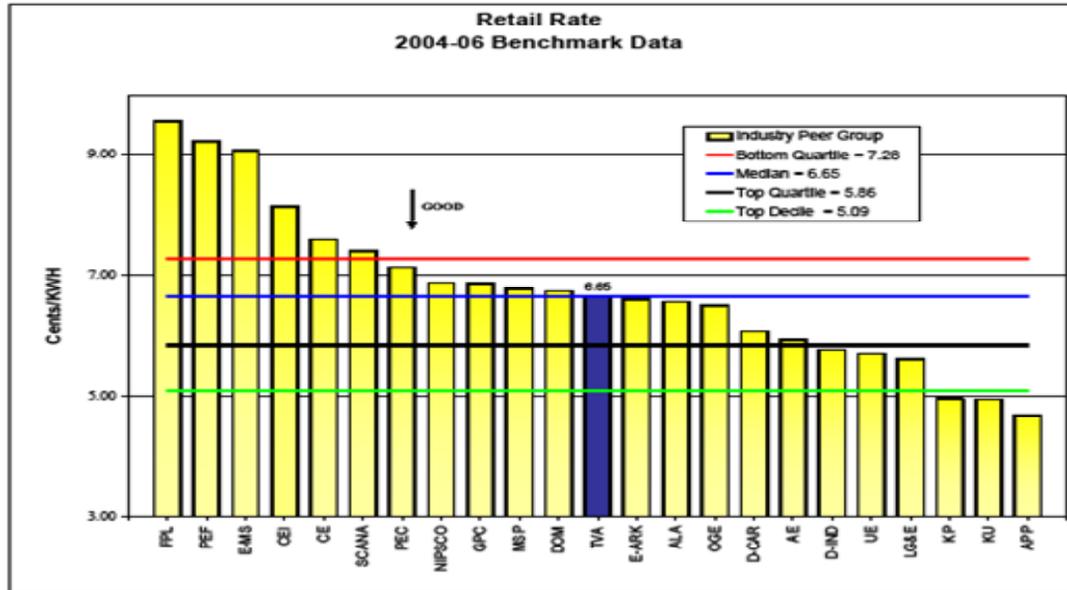
**Figure 12:** Average Total Retail Rates for 14 Neighbors and TVA for the 12 months ended September 2007



Source: Rate Benchmarking based on Energy Information Association (EIA) Monthly Electric Utility Database (Form EIA-826), PowerPoint presentation provided by TVA Strategy, Pricing and Contracts, Pricing and Product Development personnel, page 10.

We also noted that TVA retail rate benchmark data for the three-year period 2004-2006, involving a peer group which included utilities within one wheel of TVA service territory and holding company revenue greater than \$3 billion, found TVA's rate to be the median, as shown in Figure 13.

**Figure 13**

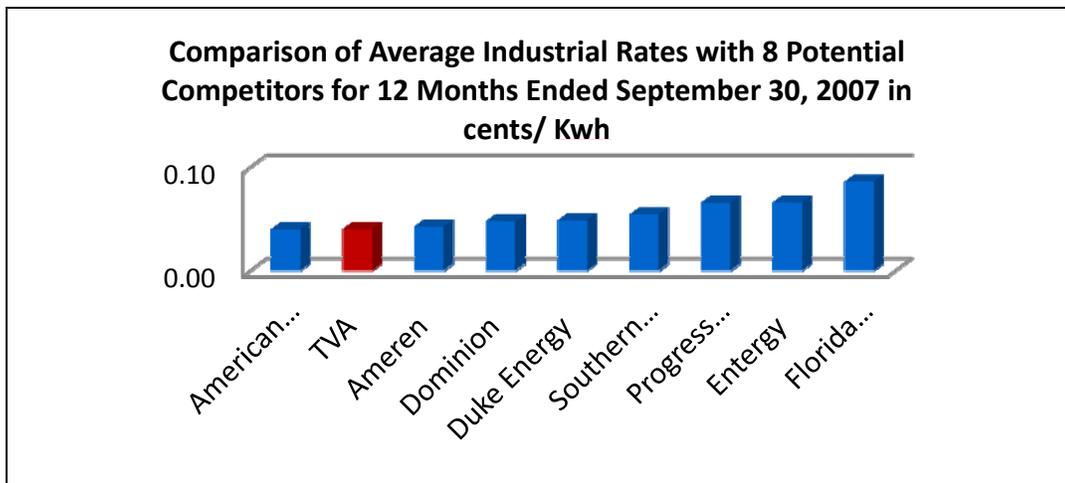


- TVA Retail rate based on total distributor revenue divided by distributor sales, "excludes direct served sales"  
 Observations:  
 - TVA was at median retail rate for 2004-06 period  
 - Peer group included utilities within one wheel of TVA service territory and holding company revenue >\$3 billion

Source: TVA Benchmarking Summary, May 9, 2008, page 5.

Using data from the EIA Web site, we found that TVA was second lowest by fractions of a cent among eight utilities we identified as potential competitors in Average Industrial Price for the 12 months ended September 2007, as shown in Figure 14.

**Figure 14**



75 percent of rate base consist of fuel and purchased power costs and O&M costs

## **Debt-Service Coverage**

In setting rates to cover the costs set out in the TVA Act, TVA uses a debt-service coverage (DSC) methodology to derive annual revenue requirements in a manner similar to that used by other public power entities that also use the DSC rate methodology. The DSC method is essentially a measure of an organization's ability to cover its operating costs and to satisfy its obligations to pay principal and interest on debt. TVA believes this method is appropriate because of TVA's debt-intensive capital structure.<sup>5</sup> This ratemaking approach is particularly suitable for use by highly leveraged enterprises (i.e., financed primarily, if not entirely, by debt capital). The revenue requirements (or projected costs) are calculated under the DSC method as the sum of the components shown in Figure 15.

**Figure 15:** Components of Revenue Requirement Using the Debt-Service Coverage Method

	2007	Percentage
Fuel and purchased power costs	3,382	44%
Operating and maintenance costs	2,382	31%
Tax equivalents	452	6%
Debt-service coverage	1,473	19%

Source: TVA 2007 SEC 10-K filing, Statement of Cash Flows, page 92.<sup>6</sup>

Once the revenue requirements (or projected costs) are determined, this amount is compared to the projected revenues for the year in question, at existing rates, to arrive at the shortfall or surplus of revenues as compared to the projected costs. Subject to TVA Board approval, power rates would be adjusted to a level sufficient to produce revenues approximately equal to projected costs. This methodology reflects the cause-and-effect relationship between a regulated entity's costs and the corresponding rates the entity charges for its regulated products and services.

## **Non-Fuel O&M Expenses**

TVA is in the bottom quartile for non-fuel O&M costs. TVA's 2007 Strategic Plan stated, "TVA intends to achieve top-quartile performance in non-fuel O&M expenses and limit the growth of these expenses to less than the growth in sales. Within three years, TVA should achieve top quartile in non-fuel O&M expenditure performance. Achieving this goal will require TVA to reduce non-fuel O&M expenses relative to total generating capacity, megawatt-hour produced, and rate of sales growth. Meeting these goals will significantly affect TVA's ability to achieve

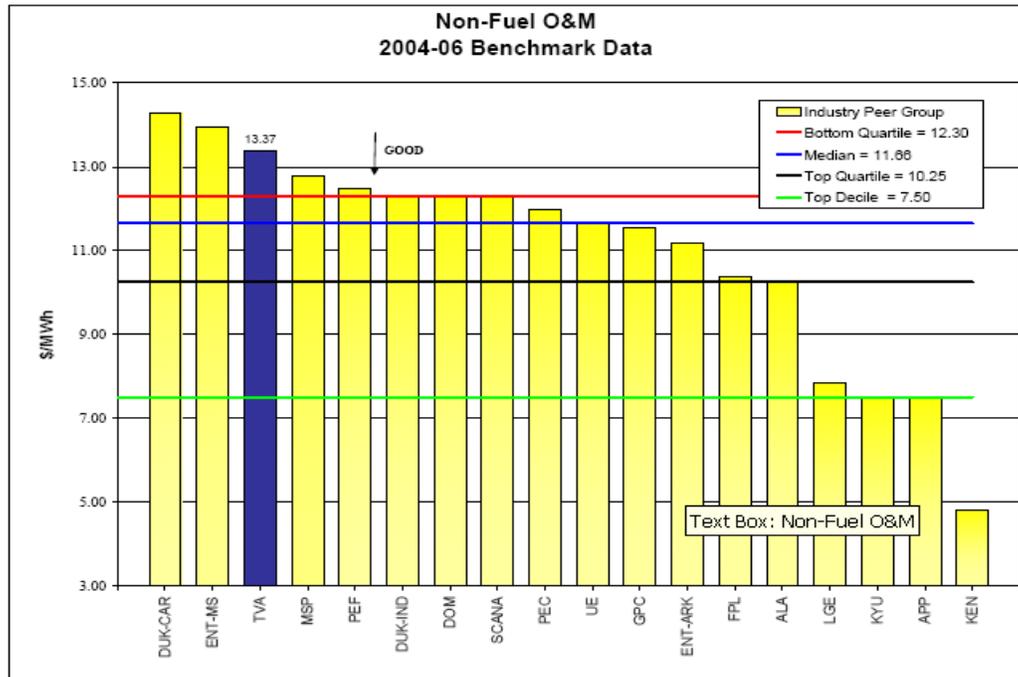
TVA non-fuel costs in bottom quartile

<sup>5</sup> Unlike investor-owned utilities, TVA does not have the ability to finance its operations by issuing stock. Instead, it finances its operations primarily through debt and operating revenues.

<sup>6</sup> Because TVA does not enumerate its Debt Service Coverage number in its 10-K filing with the Securities and Exchange Commission (SEC), we estimated debt service coverage as the sum of the following uses of cash for Financing Activities from TVA's Statements of Cash Flows from its FY 2007 10-K filing, Redemptions and repurchases, short-term (redemptions)/borrowings, payments on lease/leaseback financing, payments on equipment financing, and financing costs.

certain critical success factors identified in the Strategic Plan." As shown in Figure 16, TVA's was in the bottom quartile for 2004 through 2006 when benchmarked against other utilities. To move from bottom to top quartile, TVA set a goal of reducing non-fuel O&M costs by more than \$400 million over the three-year period 2008 through 2010.

**Figure 16**



O&M includes all non-fuel operations and maintenance expenditures as reported on FERC Form 1  
 Observations:

- Peer group consistent with ScottMadden 2006 Sustainable Performance Improvement Initiative
- TVA's performance is bottom quartile for 2004-06 period

Source: TVA Benchmarking Summary, May 9, 2008, page II-5.

Through July 2008, TVA is forecast to achieve its lowest level reduction target in non-fuel O&M expenses for FY 2008. According to TVA management, this target "is equal to FY 2008 Budget Load in addition to a slight improvement to facilitate additional productivity." S&P notes that, "an improving trend in operating and maintenance costs usually indicates that a company is focusing on streamlining its operations and controlling costs." By TVA adding non-fuel O&M as an incentivized measure to its FY 2008 Winning Performance metrics, this indicates a new focus on streamlining operations and controlling costs. The critical success factor associated with this item in the Strategic Plan is to, "achieve top-quartile performance in non-fuel O&M expenses and then hold increases to be less than unit sales growth."

*Generation  
mix drives  
total fuel  
cost*

## **Diversity of Generation/Average Fuel Costs**

There are many factors that drive how competitive electric utilities rates are. These include: (1) efficient management of the power system, (2) the generation mix and the associated fuel costs, and (3) geographic location of the utility relative to the available fuel, and (4) transmission cost relative to population density. TVA is fortunate to have a very diverse mix of generation including hydro, fossil, nuclear, combustion turbine, and to a lesser extent renewal energy from wind turbines. The ability to maintain a diverse fleet of assets is a primary driver in maintaining a competitive advantage.

When we compared TVA's generation mix and fuel costs with Duke Energy, Southern Company, Progress Energy, Entergy, Alabama Power, Entergy Arkansas, Oklahoma Gas and Electric, and Union Electric Company, we noted for 2007, as shown in Figure 17, that:

- TVA had the highest percentage of hydroelectric generation.
- TVA was the median for coal generation and coal cost.
- TVA had the next to lowest nuclear fuel cost, but generation percentage was at the median.

**Figure 17: Comparisons of Generation and Fuel Costs Mix**

Generation Type	Duke Energy		Southern Company		Progress Energy		Entergy		TVA	
	% of Generation	Fuel Cost (Cents/kWh)	% of Generation	Fuel Cost (Cents/kWh)	% of Generation	Fuel Cost (Cents/kWh)	% of Generation	Fuel Cost (Cents/kWh)	% of Generation	Fuel Cost (Cents/kWh)
<b>2005</b>										
Coal	52.50%	2.14	71.00%	1.93	47.00%	2.72	12.00%	1.57	61.52%	1.65
Nuclear	45.70%	0.41	15.00%	0.47	42.00%	0.42	33.00%	0.49	28.24%	0.39
Oil and Gas*	0.10%	28.83	11.00%	8.52	4.00%	19.5	21.00%	16.9	0.41%	11.44
Hydroelectric	1.70%	N/A	3.00%	N/A	1.00%	N/A	N/A	N/A	9.83%	N/A
Purchased Power**	N/A	N/A	N/A	N/A	6%	N/A	34%	6.33	N/A	N/A
<b>2006</b>										
Coal	63.40%	2.16	70.00%	2.4	47.00%	2.9	11.00%	1.77	64.04%	2.02
Nuclear	35.10%	0.42	15.00%	0.47	43.00%	0.43	33.00%	0.51	29.14%	0.38
Oil and Gas*	0.60%	12.67	13.00%	6.63	3.00%	20.91	15.00%	22.1	0.42%	10.65
Hydroelectric	0.90%	N/A	2.00%	N/A	1.00%	N/A	N/A	N/A	6.40%	N/A
Purchased Power**	N/A	N/A	N/A	N/A	6%	N/A	41%	5.5	N/A	N/A
<b>2007</b>										
Coal	66.50%	2.2	70.00%	2.61	48.00%	2.96	12.00%	1.86	64.05%	2.13
Nuclear	31.20%	0.38	14.00%	0.5	42.00%	0.44	33.00%	0.57	29.70%	0.41
Oil and Gas*	1.10%	9.32	15.00%	6.64	4.00%	21.47	18.00%	22.18	0.47%	7
Hydroelectric	1.20%	N/A	1.00%	N/A	1.00%	N/A	N/A	N/A	5.78%	N/A
Purchased Power**	N/A	N/A	N/A	N/A	5%	N/A	37%	6.27	N/A	N/A

\*Oil and Gas have been combined and therefore when reported separately were added together.

\*\*Some of TVA's competitors include Purchased Power as part of their generation mix and, therefore, it has been included only in those cases.

**Figure 17: Comparisons of Generation and Fuel Costs Mix (continued)**

Generation Type	Alabama Power		Entergy Arkansas		Oklahoma Gas and Electric		Union Electric Company	
	% of Generation	Fuel Cost (Cents/kWh)	% of Generation	Fuel Cost (Cents/kWh)	% of Generation	Fuel Cost (Dollars per Million BTUs)	% of Generation	Fuel Cost (Dollars per Million BTUs)
<b>2005</b>								
Coal	67.00%	1.85	22.00%	1.57	70.00%	0.98	80.00%	0.99
Nuclear	19.00%	0.46	43.00%	0.49	N/A	N/A	16.00%	0.42
Oil and Gas*	8.00%	7.43	1.00%	16.9	30.00%	8.76	1.00%	8.82
Hydroelectric	6.00%	N/A	N/A	N/A	N/A	N/A	3.00%	N/A
Purchased Power**	N/A	N/A	34.00%	6.33	N/A	N/A	N/A	N/A
<b>2006</b>								
Coal	68.00%	2.09	22.00%	1.77	67.00%	1.1	77.00%	1.08
Nuclear	19.00%	0.47	45.00%	0.51	N/A	N/A	20.00%	0.43
Oil and Gas*	9.00%	7.87	N/A	22.1	33.00%	7.1	1.00%	8.62
Hydroelectric	4.00%	N/A	N/A	N/A	N/A	N/A	2.00%	N/A
Purchased Power**	N/A	N/A	33.00%	5.5	N/A	N/A	N/A	N/A
<b>2007</b>								
Coal	69.00%	2.14	24.00%	1.86	62.00%	1.1	76.00%	1.284
Nuclear	19.00%	0.5	47.00%	0.57	N/A	N/A	19.00%	0.49
Oil and Gas*	10.00%	7.43	0.00%	22.18	36.00%	6.77	2.00%	7.58
Hydroelectric	2.00%	N/A	<1%	N/A	N/A	N/A	3.00%	N/A
Purchased Power**	N/A	N/A	29.00%	6.27	N/A	N/A	N/A	N/A

\*Oil and Gas have been combined and therefore when reported separately were added together.

\*\*Some of TVA's competitors include Purchased Power as part of their generation mix and, therefore, it has been included only in those cases.

## Customer Satisfaction



*TVA rates slightly above competitors on customer satisfaction*

TVA measures customer-stakeholder satisfaction by means of a Customer Satisfaction Survey. While TVA is primarily a wholesaler of power, TVA's potential competitors are primarily in the retail market. We found through our research and discussions with Customer Resources that wholesale customer satisfaction data is not readily available for benchmarking purposes. To address the issue of lack of benchmarkable customer satisfaction data, TVA created its own database. Specifically:

- TVA hired an independent third-party to obtain customer satisfaction information.
- The independent third-party distributed TVA's Customer Satisfaction Survey to approximately 40 customers of TVA's potential competitors and summarized the results.
- TVA used the data from the customers of TVA's potential competitors to create its own benchmarks for customer satisfaction.

We compared TVA's fourth quarter TVA Customer Satisfaction Survey with the 2007 third-party benchmarking survey and noted that TVA obtained an 86 percent satisfied rating from its customers, as compared to an 85.1 percent satisfied rating given to its potential competitors. Specific results are outlined and summarized by category in the following table, see Figure 18.

We also noted during our review that:

- For first quarter FY 2008, TVA's Customer Satisfaction Indicator had dropped minimally to 85.8 percent.
- In general, ratings from the 2007 Benchmarking Survey were lower than in the 2006 Benchmarking Survey.
- TVA's industrial customers were not as satisfied as potential competitors' customers with regards to some specific elements in the Customer Satisfaction Survey, including Economic Development, End-User /Interruptible Rate Products, and Wholesale/Retail Price.

Figure 18

### Comparison of TVA's Customer Satisfaction Survey and Benchmarking Survey

	TVA Customer Satisfaction Survey Fourth Quarter 2007 Percent Satisfied		2007 Benchmarking Survey of Potential Competitors' Customers Percent Satisfied	
	TVA Power Distributors	Direct Serve Industrial	Utilities	Retail Businesses
Customer Service Staff/Account Manager	99.1	91.6	92.5	62.5
Power Quality and Power Reliability	95.6	96.4	97.4	88.9
Transmission Issues	95.0	100.0	97.3	75.0
Power Supply Mix	97.2	92.5	86.1	50.0
Wholesale/Retail Price	82.5	47.6	71.1	77.8
End-User/Interruptible Rate Products	76.6	29.6	100.0	100.0
Fuel Cost Adjustment Clause	73.5	54.3	83.3	66.7
Contracts	84.1	64.6	76.9	66.7
Economic Development	81.6	60.9	85.2	100.0
None-Energy Products and Services	88.5	68.9	77.8	100.0
Overall Supplier	95.6	93.6	90.0	75.0
Likelihood to Switch	90.2	*****	77.1	70.0
<b>Average</b>				
Average	88.3	72.7	86.2	78.4
<b>Weight</b>				
Weight	75.0	10.9	73.3	11.8
<b>Customer Satisfaction Survey Winning Performance</b>			85.1	

Source: Developed based on data from TVA Customer Satisfaction Survey and January 2008 and 2007 TVA Benchmarking Survey.

## Management Challenges

A key element in maintaining effective customer relations is providing a reliable product at a competitive price. While TVA's current retail rates are generally below market, there are increasing pressures on reliability and rates due to various factors. Therefore, it is important to note that TVA faces many significant management challenges in maintaining effective relations with its customers. We believe the top four challenges that affect the area of customer relations include: (1) high cost of new generation, (2) uncertainty around fuel cost and delivery, (3) managing an aging generation fleet with regulatory and transmission system uncertainty, and (4) inherent conflicts in TVA's role as a regulator.

### Cost of New Generation

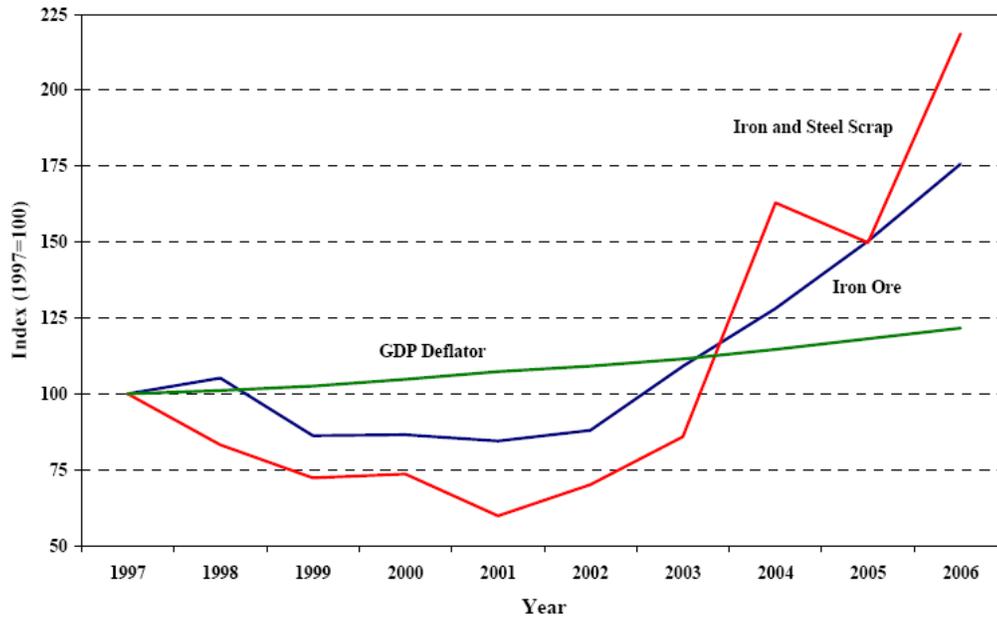
TVA has taken actions to provide power supply in the years ahead by investing in nuclear and combustion turbine generation. TVA recently completed restoring Brown Ferry Nuclear Plant (BFN) Unit 1 to service. BFN Unit 1 provides an additional 1,150 megawatts of baseload capacity. The cost to restore was about \$1.843 billion through May 2008 (i.e., total project costs of 2.1112 billion less allowance for funds used during construction of \$269 million). In addition, TVA is currently constructing the Watts Bar Nuclear Plant Unit 2 and studying the costs/benefits of constructing additional nuclear units at the Bellefonte Nuclear Plant site.

With respect to generating facilities to meet peak demand, in 2007, TVA acquired combustion turbine facilities that collectively provide 11 units and 1,296 megawatts of winter net dependable capacity. This figure represents the amount of power a plant can produce on an average winter day, minus the electricity used by the plant itself. In addition, in September 2007, the TVA Board approved the acquisition and construction of a combined-cycle facility in southwest Tennessee. The facility with an anticipated operation date of June 2010 is expected to have a planned winter net capacity of approximately 600 megawatts. Also, on April 3, 2008, TVA reported that it had agreed to purchase a three-unit, 810-megawatt combined-cycle combustion turbine facility for \$461.3 million. On top of the purchase price, TVA will pay \$5 million to terminate an existing operation and maintenance agreement at the facility.

The cost of acquiring or building assets to meet demand and ensure reliability is increasing. Labor costs are increasing due to demand for individuals with generation asset construction knowledge and experience. Also, the costs of materials are increasing, as shown in the following graphs from a presentation on rising utility construction costs prepared for The Edison Foundation in September 2007. These graphs have been reprinted with the permission of The Edison Foundation.

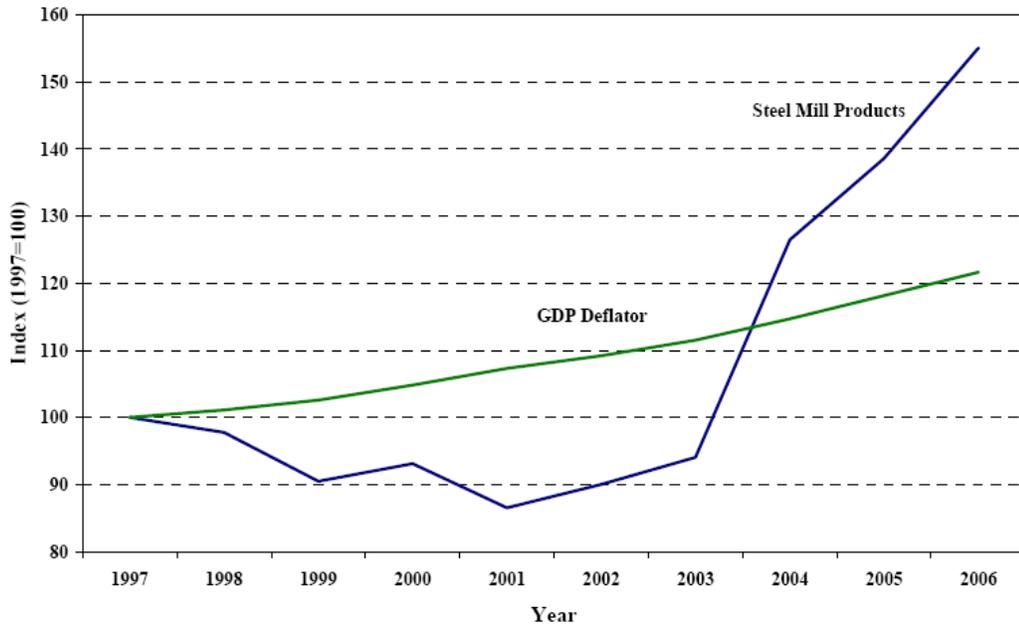
**Figure 19: Rising Utility Construction Costs**

**Inputs to Iron and Steel Production Cost Indices**



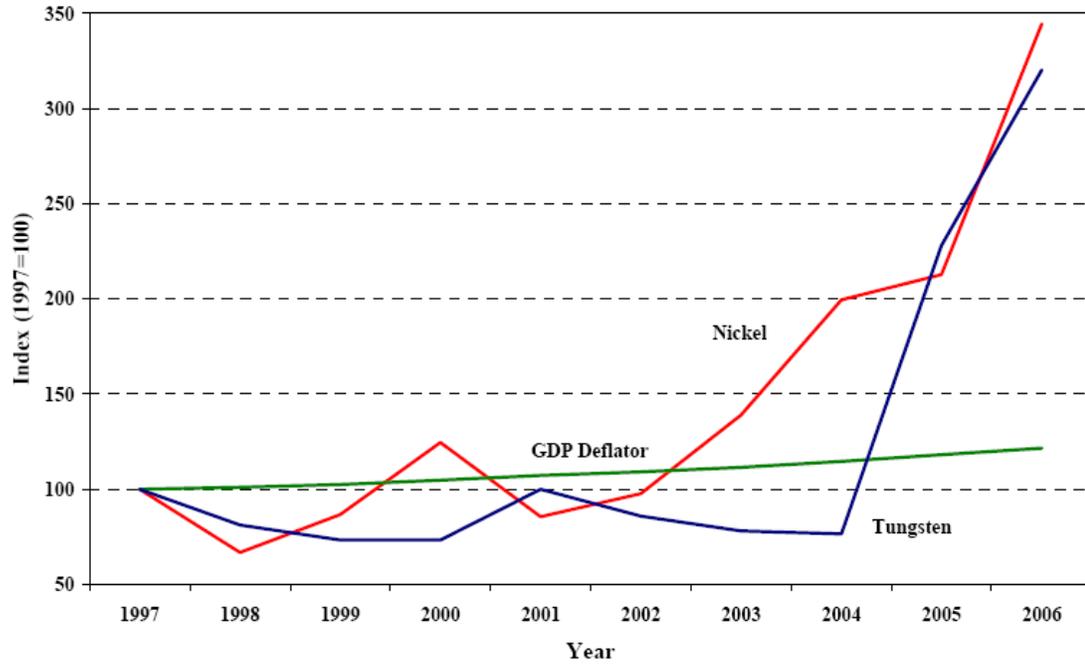
Sources: U.S. Geological Survey, Mineral Commodity Summaries, and the U.S. Bureau of Economic Analysis.

**Steel Mill Products Price Index**



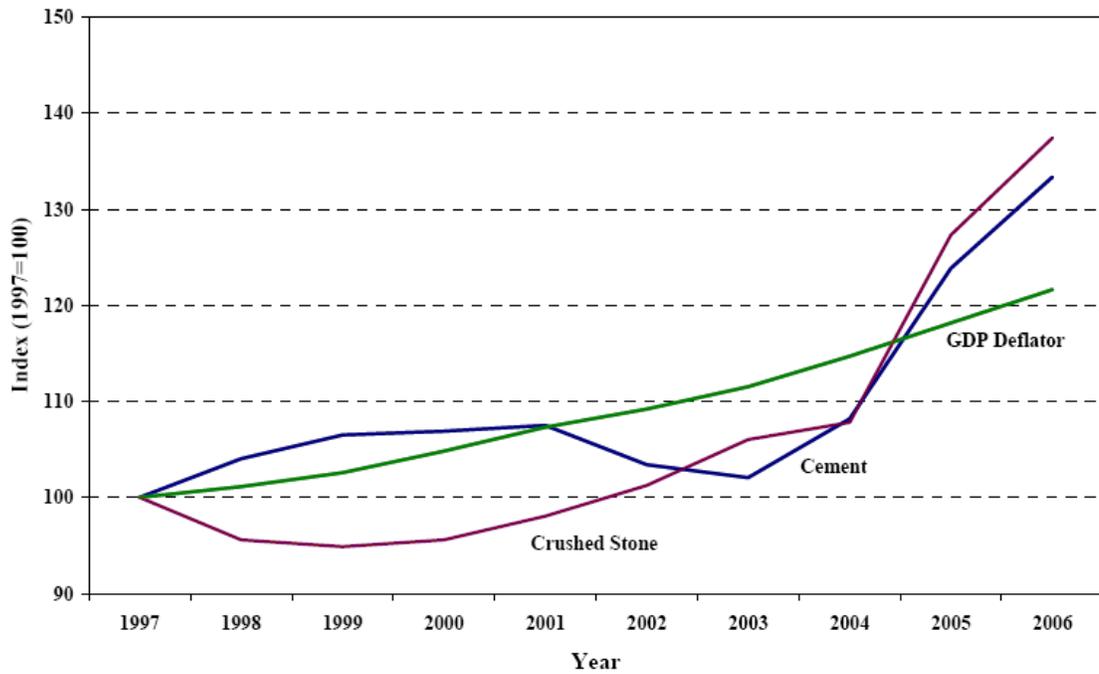
Sources: U.S. Geological Survey, Mineral Commodity Summaries, and the U.S. Bureau of Economic Analysis.

### Nickel and Tungsten Price Indices



Sources: U.S. Geological Survey, Mineral Commodity Summaries, and the U.S. Bureau of Economic Analysis.

### Cement and Crushed Stone Price Indices



Sources: U.S. Geological Survey, Mineral Commodity Summaries, and the U.S. Bureau of Economic Analysis.

Source: Rising Utility Construction Costs: Sources and Impacts, The Edison Foundation, September 2007, pages 15, 17, and 18.

With demand for power and construction costs both growing, TVA recently embarked on a new energy efficiency initiative. According to TVA, the goal of this initiative is to reduce demand growth by up to 1,400 megawatts – about the amount generated by one nuclear unit – by 2012. By encouraging customers to conserve electricity, TVA believes it will be able to reduce the number of plants it must build and the amount of power it must purchase on the market.<sup>7</sup> While a laudatory goal, accomplishing it will not be without challenges. Since TVA sells power through 159 power distributors, carefully coordinated efforts will be needed to meet the goal.

### **Fuel Cost and Delivery**

While consumers, including Tennessee Valley ratepayers, struggle with high gas prices, rising grocery bills, declining real estate values, and other economic uncertainties, they encounter rising electricity rates due to the surge in coal, oil, and natural gas prices. As discussed above, the bulk of TVA's generation is produced with coal as the fuel. While researchers state there is an abundance of coal in the United States of America (U.S.A.), price is dependent on worldwide demand. Demand for coal has been increasing worldwide, especially in China and India. The increasing global appetite for coal has fueled significant price increases. According to the Energy Department, U.S.A., coal exports jumped 19.2 percent last year and are expected to rise another 15 percent this year. Central Appalachian coal, a benchmark grade that's widely used by power plants, has jumped from around \$40 a ton in early 2007 to over a \$100 a ton now.<sup>8</sup>

As shown in Figure 16 above, over 60 percent of TVA power generation comes from coal. A presentation presented to the Finance, Strategy, Rates and Administration Committee of the Board, "there has been a rapid increase in market prices since the beginning of 2008." Spot market prices for TVA coal mix has increased 155 percent in five years while the actual cost for TVA's coal mix has increased 44 percent in five years. The rise in fuel costs has not only taken place with coal, but also in TVA's other fuel sources, crude oil and natural gas, which rose 46 percent and 77 percent respectively from January through June of 2008, as shown in Figure 20.

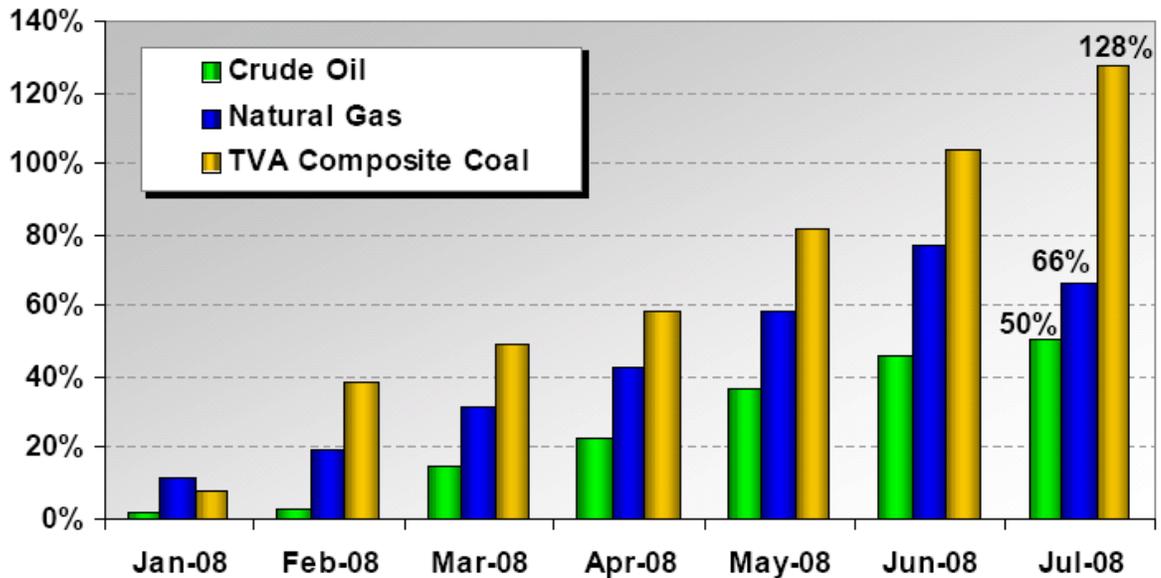
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<sup>7</sup> "Understanding How TVA Works: Time to Save Energy (Part 18 in TVA's Business Education Series)," April 2008.

<sup>8</sup> Source of information was Associated Press (AP) Centerpiece: *Surging coal prices boost electric rates, and the worst may be yet to come*. By John Wilen, AP Business Writer, April 28, 2008. The article was identified at YAHOO, FINANCE.

Figure 20

## Cumulative Percent Increase in Market Fuel Prices\*



\* Price comparison from Dec. 07 through July 24, 2008.

Source: TVA President & Chief Executive Officer's (CEO) media briefing on August 6, 2008, slide 4.

In addition to price increases due to demand, TVA is experiencing price increases as a result of the 2006 Mine Improvement and New Emergency Response (MINER) Act. Some TVA coal contracts have a clause allowing price increases due to changes in government regulations. Other factors in the market environment impact TVA coal price and delivery risk. For example:

- Fewer small mines are in operation, which used to set the ceiling on coal prices in selected basins.
- Further mine regulation may put marginal producers in financial trouble. Coal mining industry overall has poor credit ratings.
- There is an eroding transportation infrastructure due to inadequate rail infrastructure investment. TVA has faced some delivery problems due to both mine and rail issues.
- Barge and rail rates continue to rise, partially fueled by rising diesel fuel costs.

Coal commodity and coal transportation risk derives from TVA's exposure to loss resulting from adverse movements in coal prices related to uncontracted demand. Coal delivery risk exposure pertains to coal not being delivered as scheduled under fixed price contracts for various reasons, such as mine production issues, train and barge delays, unloading equipment failure, plant performance issues, or bankruptcy.<sup>9</sup> In assessing this risk, TVA Operations and Fuels officials note that,

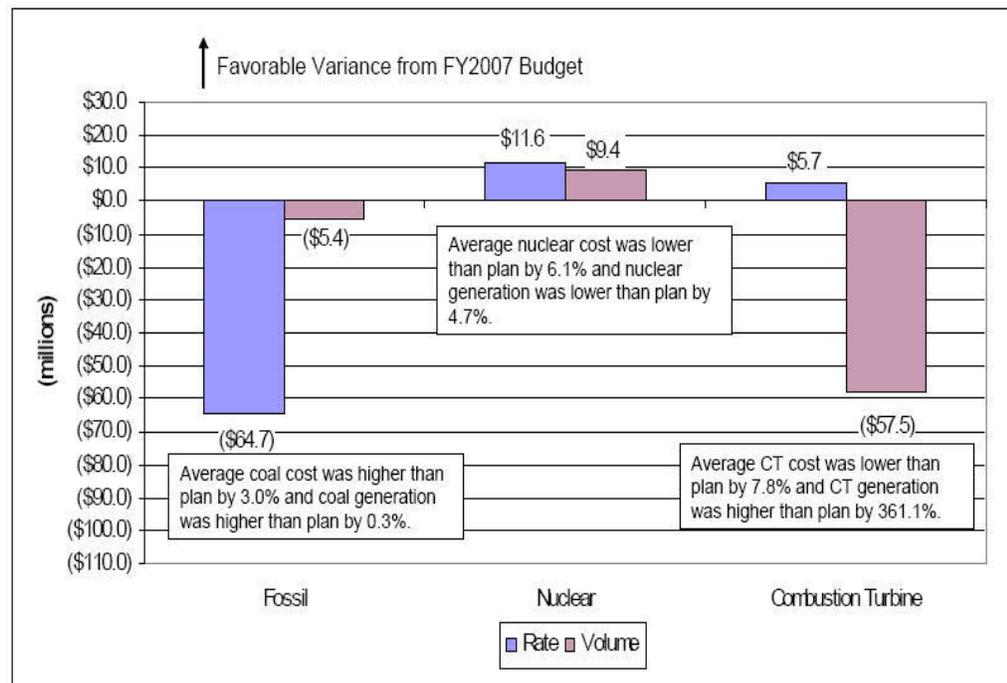
<sup>9</sup> Information obtained from presentation titled, *Coal Risk Management & Reporting*. The presentation was dated December 7, 2007.

“Both price and operational risk associated with TVA’s coal procurement are among the most significant TVA faces.”<sup>10</sup>

TVA’s cost of power is impacted by fuel prices, peak demand, and the mix of generation. Coal prices not only impact TVA’s cost of production, but other utilities cost of power which translates into higher TVA’s purchased power costs. As shown in Figure 21, a 3 percent increase in average coal cost for all of 2007 resulted in additional costs to TVA of almost \$65 million. This increased coal cost was partially offset by lower costs related to nuclear and combustion turbine generation.

**Figure 21**

## FY2007 Fuel Rate/Volume Variances



Source: November 20, 2007, TVA financial and operational update presentation given at a meeting of the Tennessee Electric Cooperative Association. The title of the presentation was "Issues Impacting Fiscal Year 2008 Rates."

<sup>10</sup> Information obtained from presentation prepared by TVA Commercial Operations & Fuels, dated October 2007, which was titled, *TVA Commodity Strategy-Coal*.

Changes in TVA's generation mix and fuel costs significantly impact TVA's cost of power. For example, the recent drought has required TVA to purchase more power, and thus increasing its cost. The cost of generation varies based on the generation mix, fuel used to generate the power, as well as on the cost to deliver that fuel to the generating plant. For example:

- The costs of delivery for coal from Kentucky to a Kentucky-based generating plant would be much lower than the costs to deliver the same coal to a generating plant in West Tennessee.
- The type of coal burned by the fossil plants to meet clean air requirements also affects total fuel cost through price and transportation costs. During 2007, TVA's coal purchases were (1) 37 percent from the Illinois Basin, (2) 24 percent from the Powder River Basin in Wyoming, (3) 23 percent from the Uinta Basin of Utah and Colorado, and (4) 16 percent for the Appalachian Basin of Kentucky, Pennsylvania, Tennessee, Virginia, and West Virginia.
- According to a presentation by TVA's CEO to the media in August 2008, the TVA region is in its third year of drought and, as a result, TVA hydro generation is down 50 percent in FY 2008. Because of this, in summer 2008, TVA is buying more than 1,000 megawatts of power on a daily basis which is the equivalent of one nuclear unit to replace the loss of hydro power its lowest-cost power source with one of the most expensive, purchased power. From January through July 2008, the price of on-peak purchased power increased more than 75 percent.

The impact of these challenges can be seen in the TVA Board's August 20, 2008, approval of a 2009 budget that includes a price increase to cover increased fuel costs and related expenses. The factors are forcing a total average increase of 20 percent in wholesale power rates, effective October 1, 2008. This increase will result in consumers seeing an average increase of \$12 to \$15 per 1,000 kilowatt-hours. Most of the increase, \$11.20 per 1,000 kilowatt-hours, will go toward the escalating costs of fuels used to generate electricity demonstrated in Figure 20 above. That part of the increase is the quarterly Fuel Cost Adjustment and according to TVA management is necessary to cover the dramatic increases in the cost of fuels, particularly coal and natural gas.

### **Aging Generation Fleet and Transmission System**

TVA, like much of the electric utility industry, is dealing with the challenge of an aging infrastructure. Examples of aging include:

- Fifty-nine coal-fired units with an average age of about 50 years. Fossil Group cites plant age and condition as major contributors to TVA's equivalent forced outage rate.
- Forty-eight combustion turbines with an average age of about 35 years.<sup>11</sup>
- Twenty-nine power producing dams with an average age of about 66 years.

<sup>11</sup> TVA also has 24 additional combustion turbines that were placed in service in FYs 2000 through 2002.

- A transmission system that in FY 1998 had 24 percent of its substation transformers over 50 years old, 39 percent of its plant transformers over 50 years old, 39 percent of its circuit breakers over 40 years old, and 21 percent of its protective relays over 40 years old.

TVA is faced with the challenge of maintaining and, in some cases, modernizing or rehabilitating its aging infrastructure in an environment which includes (1) increasing demands on the transmission system from new merchant plants, open-access requirements, and transmission wheeling; (2) increasing power demand, especially during peak seasons; (3) the need to maintain system reliability; (4) changing environmental requirements and legislation (e.g., Clean Air Requirements); and (4) the pressure to keep power rates low. At the same time, TVA (1) faces capital and O&M expenditure decisions with regard to the fossil fleet and (2) has opted to complete Unit 2 at Watts Bar Nuclear Plant and is studying the costs and benefits of completing units at Bellefonte Nuclear Plant. Previously, in this report, we have discussed increasing power demand, reliability, and rates, but clean air requirements and the increasing demand on the transmission system are also key challenges.

### **Clean Air Requirements**

As of March 21, 2008, TVA reported that \$4.8 billion has been invested to reduce emissions and is in the process of investing another \$1 billion through 2010 on additional controls. TVA plans to spend an additional \$3 billion to \$3.6 billion to comply with the Environmental Protection Agency's Clean Air Interstate Rule (CAIR). According to TVA management, this would bring TVA's investment in emission controls to over \$9 billion. The \$4.8 billion invested since the late 1970's to date has reduced sulfur dioxide (SO<sub>2</sub>) from TVA plants by more than 81 percent and has reduced NO<sub>x</sub> [nitrogen-oxide] from TVA plants during the summer ozone season by more than 80 percent.<sup>12</sup>

However, on July 11, 2008, a federal appeals court unanimously ruled that EPA overstepped its authority when it instituted CAIR. It was reported that a few electric companies opposed CAIR, but most favored it because it included cap-and-trade provisions related to emission credits.<sup>13</sup> Now TVA possibly faces a new law or replacement regulation and possible carbon and mercury legislation. In summary, clean air compliance impacts our production planning, maintenance, and capital investment decisions which impact reliability and rates.

### **Increased Transmission Line Access**

TVA is part of the Eastern Power Grid that runs from Canada to Key West. All of the transmissions in between are linked, and problems anywhere on the grid can affect systems hundreds of miles away. Whenever there is loss of a large generating unit or a major transmission-line outage, the system must immediately be assessed and stabilized or the results can be catastrophic. In August 2003, as many as 50 million people were without power in Massachusetts, Michigan, New

<sup>12</sup> Information obtained from *TVAtoday* dated March 21, 2008.

<sup>13</sup> Source was article titled, *Court Vacates CAIR Emissions Plan*, published by Power Engineering, August 2008.

Jersey, New York, Ohio, Connecticut, and Ontario. TVA does many things to make sure this does not happen in the Tennessee Valley, including building new transmission lines and power-delivery points to strengthen the grid. TVA reports that as strong as TVA's system is, blackouts show that the grid is increasingly vulnerable to growing demands. In summary, maintaining reliability through an updated, well-maintained, and expanded transmission system requires infrastructure investment which impacts rates.

TVA's electric transmission system moves power from the generating stations where it is produced to distributors of TVA power and to industrial and federal customers across the region. In addition, TVA provides transmission service on a nondiscriminatory, as-available basis to other qualified power providers requiring power transfers out of or through the TVA system. It also provides interconnection services to independent power producers consistent with sound reliability practices. In February 2008, according to the TVA publication *TVAtoday*, TVA Chief Operating Officer (COO) Bill McCollum told a prominent panel of industry leaders that honesty, realism, and understanding who's benefiting and who's paying must guide any plans to meet the challenges facing the Nation's electric power grid. According to *TVAtoday*, the panel was examining how the grid needs to adapt to meet the challenges of global climate change, increasing demand for electricity and energy security. TVA's COO also stated, "A system designed from a pure reliability standpoint is now being asked to stand up to some new challenges, including how to adapt to renewable generators that operate intermittently and how to build longer transmission lines to move power from remote generators to population centers."

### **Customer Relations and TVA's Role as a Regulator**

The TVA Act places the organization in a situation of inherent conflict in attempting to maintain good relations with its customers while at the same time being tasked with regulating them to keep rates as low as feasible. The OIG report on "TVA's Role as a Regulator (TVA's Role as a Regulator, Inspection 2005-522I, June 13, 2006, can be found on the TVA OIG Web site at [http://oig.tva.gov/PDF/06rpts/2005\\_522I.pdf](http://oig.tva.gov/PDF/06rpts/2005_522I.pdf).) demonstrated a weakness in regulation of distributors by TVA. In that report, we recommended that the Chief Financial Officer (1) continue to evaluate TVA's role as a regulator of rates as issues of deregulation and customer choice evolve; (2) formalize procedures to ensure consistent review of (a) distributor financial information and (b) business plans which propose the use of electric system revenues for non-electric system purposes; and (3) ensure that contract modifications are executed for any distributors approved to use electric system revenues for non-electric purposes.

In January 2008, the Financial Services organization created a "Role as Regulator" Working Group. "The Working Group will address issues related to both TVA's role as a regulator of distributor retail rates and distributor use of revenues." In August 2008, the Working Group recently made recommendations in a final report to TVA management and the Board of Directors. The OIG will formally respond to this report and its recommendations and will continue to monitor this area given its impact on customer relations.

The fact that it took TVA over two years to respond to our report suggests the magnitude of the problem. The TVA Act gives the Board authority to include terms and conditions in power contracts as needed to carry out the purposes of the Act, which include keeping rates as low as feasible. Pursuant to this authority, most power contracts include, in addition to a required nondiscriminatory provision, terms and conditions related to resale rates, use of revenues, and financial and accounting requirements. It remains to be seen as to whether or not TVA can manage this increasing conflict. When Congress enacted the TVA Act creating TVA, it could not have foreseen the current circumstances that compromise TVA's integrity as a regulator. It is likely that the increasing demands of distributors upon TVA will increase the conflict for TVA.

In recent years, distributors have begun to see options to purchase power from companies other than TVA. The restrictions on TVA selling power outside the Valley, however, remain unchanged. Because TVA cannot obtain new customers outside the Valley, TVA has a strong incentive to take steps to ensure it retains its current customers. As competition becomes more and more a reality, this incentive grows. This compounds the difficulty for TVA being an objective regulator of these customers.

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

The objectives of our customer-stakeholder performance review were to assess (1) how TVA evaluates and tracks performance (i.e., performance measures), (2) whether TVA's performance indicators correlate to annual performance goals and TVA's Strategic Plan (i.e., alignment of performance measures), and (3) TVA's overall performance (i.e., performance results). The scope of our review included any measures used by TVA to track customer-stakeholder performance and industry best practices regarding customer-stakeholder performance. To achieve our objectives, we:

- Interviewed key TVA personnel to determine:
  - How TVA currently measures customer-stakeholder performance.
  - Whether TVA has implemented initiatives to improve performance.
  - Whether TVA currently benchmarks its customer-stakeholder performance.
- Reviewed TVA's current strategic plan and performance goals to identify TVA's published strategic objectives, goals, and critical success factors.
- Analyzed information obtained through research and from Customer Resources to determine (1) what measures TVA currently uses to track customer-stakeholder performance, (2) whether measures being used align with TVA's current strategic plan, and (3) how TVA is doing compared to the industry and the goals it set for itself.
  - We obtained documentation from key TVA personnel and/or TVA's Web site on TVA's customer-stakeholder performance, including customer satisfaction surveys and third-party benchmarking data. Other data and information was obtained from various sources, including published documents and competitors' publicly available information. We did not independently verify this data.