

Tennessee Valley Authority

**Government Performance and Results Act**

**Annual Performance Report**  
**FY 2000**

*Submitted*  
**March 2001**



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## Introduction

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This document is the Tennessee Valley Authority's (TVA) Performance Report covering FY 2000 as required by the Government Performance and Results Act of 1993 (GPRA). Information is expressed in terms required by GPRA and the Office of Management and Budget (OMB) Circular A-11. This report documents TVA's actual performance and progress in achieving the goals and objectives identified in its strategic plan and annual performance plan for FY 2000. TVA's strategic plan and performance plan cover its power and resource management programs.

TVA was not aided by any non-federal parties in the development of this plan or report.

## Mission Statement

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The mission of the Tennessee Valley Authority is to develop and operate the Tennessee River system to improve navigation, minimize flood damage, and to provide energy and related products and services safely, reliably, and at the lowest feasible cost to residents and businesses in the multi-state Tennessee Valley region. TVA's integrated management of the entire Tennessee River watershed optimizes the benefits of the water resource. Major functions of the corporation include:

- Management of the Tennessee River system for multiple purposes including navigation, flood control, power generation, water quality, public lands conservation, recreation, and economic development;
- Generation of electricity;
- Sale and transmission of electricity to wholesale and large industrial customers;
- Stimulation of economic development activities that generate a higher quality of life for citizens of the Tennessee Valley;
- Preservation and environmentally-sensitive management of TVA assets and federal lands entrusted to TVA; and
- Research and technology development that addresses environmental problems related to TVA's statutory responsibilities for river and land management and power generation.

## TVA General Goals and Objectives

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1. Operate the Tennessee River system to minimize flood damage, maintain navigation, generate electricity, provide acceptable water quality, protect public health, and support recreational uses.
2. Continue to be the electrical energy supplier of choice for customers in the Tennessee Valley by offering adequate supplies of electricity and energy-related services at competitive prices.
3. Manage the natural resources of the Tennessee Valley region in an environmentally sustainable manner.
4. Maintain the value of federal assets entrusted to TVA while supporting their wise use by and for the public in support of TVA's mission.
5. Positively impact the capacity for economic development in the Tennessee Valley region.

## Relationship of TVA's General Goals and Strategies to the Performance Goals

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TVA has identified strategies that are implemented in order to achieve its general goals. Performance goals are selected to quantify attainment of the General Goals and Strategies and are expressed as performance measures and annual targets. The following table illustrates the linkages between TVA's General Goals, Strategies, and Performance Goals / Measures.

***TVA General Goals, Strategies, and Performance Measures***

<b><i>Goals</i></b>	<b><i>Strategies</i></b>	<b><i>Performance Measures</i></b>
<p>1. Operate the Tennessee River system to minimize flood damage, maintain navigation, generate electricity, provide acceptable water quality, protect public health, and support recreational uses.</p>	<p>1.A. Minimize flood damage by operating the river system according to best management practices with flood control as a priority.</p>	<ul style="list-style-type: none"> <li>• Flood Storage Availability</li> </ul>
	<p>1.B. Maintain a navigable commercial waterway from Knoxville to Paducah while making system improvements to improve safety and increase shipper savings.</p>	<ul style="list-style-type: none"> <li>• Days Navigable Waterway Is Available from Knoxville to Paducah</li> <li>• Shipper Savings</li> </ul>
	<p>1.C. Provide acceptable water quality.</p>	<ul style="list-style-type: none"> <li>• Aeration System Availability</li> <li>• Minimum Flow Achievement</li> </ul>
	<p>1.D. Optimize the value of hydro generation subject to flood control, navigation, and water quality constraints.</p>	<ul style="list-style-type: none"> <li>• Discretionary Zone Attainment</li> <li>• Conventional Hydro Equivalent Availability Factor</li> </ul>
	<p>1.E. Support recreational uses of the river system and associated federal lands.</p>	<ul style="list-style-type: none"> <li>• Summer Lake Level Attainment</li> <li>• Percent Occupancy at Campgrounds</li> </ul>
<p>2. Continue to be the electrical energy supplier of choice for customers in the Tennessee Valley by offering adequate supplies of electricity and energy-related services at competitive prices</p>	<p>2.A. Prepare for utility deregulation by reducing TVA's delivered cost of power to 3.4 to 3.5 cents/kWh by 2007.</p>	<ul style="list-style-type: none"> <li>• Delivered Cost of Power</li> <li>• <i>Energy Sales Growth*</i></li> </ul>
	<p>2.B. Increase agency flexibility by altering the TVA cost structure from the current high fixed-to-variable cost relationship to a structure that is better able to adjust to a volatile marketplace.</p>	<ul style="list-style-type: none"> <li>• Total Debt Outstanding</li> </ul>
	<p>2.C. Build stakeholder support and value by developing opportunities for mutual support and partnership.</p>	<ul style="list-style-type: none"> <li>• <i>Customer Satisfaction with TVA as a Business partner and Power Supplier*</i></li> <li>• Wholesale Customers with Continuing Contracts</li> </ul>
	<p>2.D. Ensure that TVA's electric power generation and transmission system has the capacity to meet customer demand while maintaining required levels of reliability and power quality.</p>	<ul style="list-style-type: none"> <li>• System Reliability (Load not Served)</li> <li>• Fossil Plant Equivalent Availability Factor</li> <li>• Nuclear Plant Net Capacity Factor</li> </ul>

<i>Goals</i>	<i>Strategies</i>	<i>Performance Measures</i>
	2.E. Maintain investor confidence that TVA will continue to be competitive and able to meet debt obligations.	<ul style="list-style-type: none"> <li>• Bond Rating</li> </ul>
3. Manage the natural resources of the Tennessee Valley region in an environmentally sustainable manner.	3.A. Operate and maintain TVA facilities in accordance with environmental regulations.	<ul style="list-style-type: none"> <li>• Reportable Environmental Events</li> <li>• ERC RCRA Cleanup (Percent Complete)</li> </ul>
	3.B. Improve the hydrologic condition of watersheds in the Tennessee Valley.	<ul style="list-style-type: none"> <li>• Hydrologic Units with Resource Condition Maintained Or Improved</li> </ul>
	3.C. Manage reservoir lands to protect cultural resources, reduce erosion, and provide wildlife habitat.	<ul style="list-style-type: none"> <li>• Critically Eroded Sites Stabilized</li> </ul>
4. Maintain the value of federal assets entrusted to TVA while supporting their wise use by and for the public in support of TVA's mission.	4.A. Ensure TVA dams, bridges, and other structures meet applicable federal guidelines and are maintained in a safe manner.	<ul style="list-style-type: none"> <li>• Dams That Meet Federal Guidelines for Dam Safety</li> </ul>
	4.B. Support public uses of federal assets under TVA management that are consistent with statutory responsibilities while protecting the value of those assets for the future.	<ul style="list-style-type: none"> <li>• Reservoirs with Completed Land Management Plans</li> </ul>
5. Positively impact the capacity for economic development in the Tennessee Valley region.	5.A. Create and expand opportunities for business and industrial development in the TVA region.	<ul style="list-style-type: none"> <li>• Capital Investment Leveraged</li> <li>• Jobs Created</li> </ul>

\* Two performance indicators originally included in TVA's strategic plan have been removed from its performance plans. The first is Energy Sales Growth. Annual energy sales have proven to be so strongly influenced by weather variations that this measure was determined to be ineffective. The second is Customer Satisfaction with TVA as a Business Partner and Power Supplier. Performance on this indicator was measured through a bi-annual customer survey. TVA last performed this survey in FY 1998 and did not plan to conduct the next survey until FY 2000. During FY 1999, TVA decided to replace this survey with in-depth focus group interviews as a better way of determining customer needs.

## Performance Goal Targets and Results

The following pages describe TVA's GPRA performance goals, its FY 2000 and outyear targets, and its actual FY 2000 performance on these goals. Explanations are provided where target levels were not achieved, along with a description of steps that will be taken to accomplish the goals in the future.

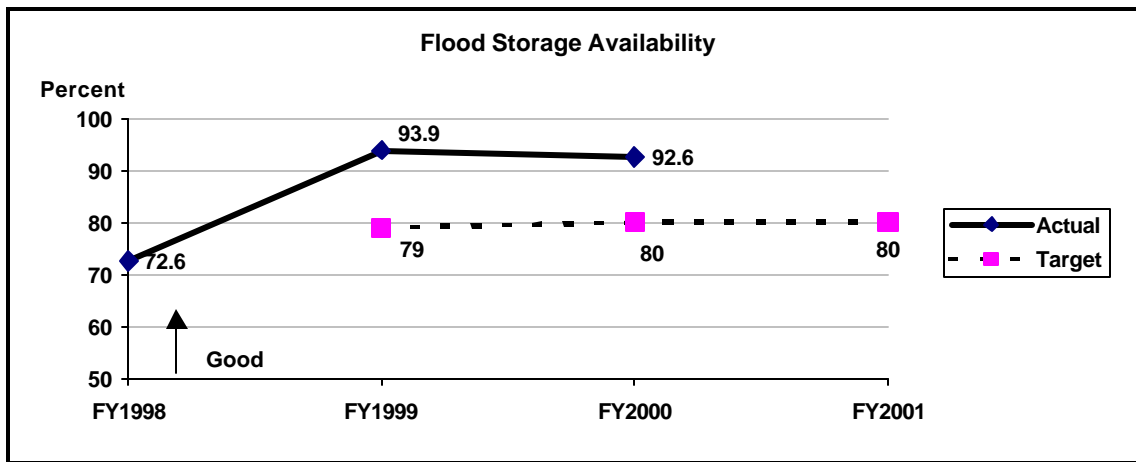
**Performance Goal**

**Flood Storage Availability**

**TVA Strategy**

Minimize flood damage by operating the river system according to best management practices with flood control as a priority.

Description: Flood storage availability indicates TVA’s readiness to control damaging floods. The reservoir system is operated based on mandates of the TVA Act and broad policy last reviewed as part of the Lake Improvement Plan in 1991. Based on these guidelines, monthly flood storage availability targets were established for each of TVA’s 11 storage projects. Operation of the system in accordance with these targets ensures that the priority placed on flood damage avoidance is maintained.



FY 2000 Target: 80%  
FY 2000 Performance: 92.6%

Targeted performance on this goal was achieved.

Performance Explanation: Performance on this measure is strongly affected by rainfall patterns. The Tennessee Valley watershed continued to experience dryer than normal conditions with runoff in FY 2000 significantly lower than normal. This lack of rainfall was the major reason for above-target performance on this indicator.

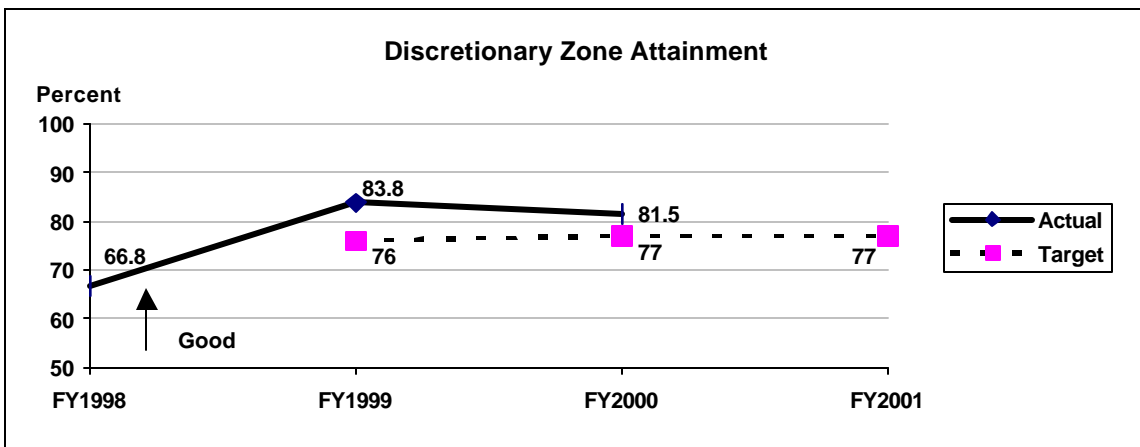
**Performance Goal**

**Discretionary Zone Attainment**

**TVA Strategy**

Optimize the value of hydro generation subject to flood control, navigation, and water quality constraints.

Description: Valley residents expect TVA to operate the Tennessee River system of reservoirs for multiple benefits, including flood control, navigation, water quality, and hydroelectric generation. To satisfy these requirements, TVA monitors a performance goal that tracks the ability to maximize the flexibility and value of hydropower generation after meeting higher priority objectives. This “discretionary zone” is a region of operation bounded by the flood guide on the top and the minimum operating guide (MOG) on the bottom. Under TVA’s river system operation methodology, power value is optimized by operating tributary storage reservoir levels within the discretionary operating zone whenever possible.



FY 2000 Target: 77%  
FY 2000 Performance: 81.5%

Targeted performance on this goal was achieved.

Performance Explanation: Performance on this measure is strongly affected by rainfall patterns. The Tennessee Valley watershed continued to experience drier than normal conditions in FY 2000. This contributed to TVA’s ability to maintain tributary reservoir levels below the flood guide. However, low rainfall makes it more difficult to maintain reservoir levels. In order to ensure that minimum levels were maintained TVA began holding water in the tributary reservoirs earlier in the year.

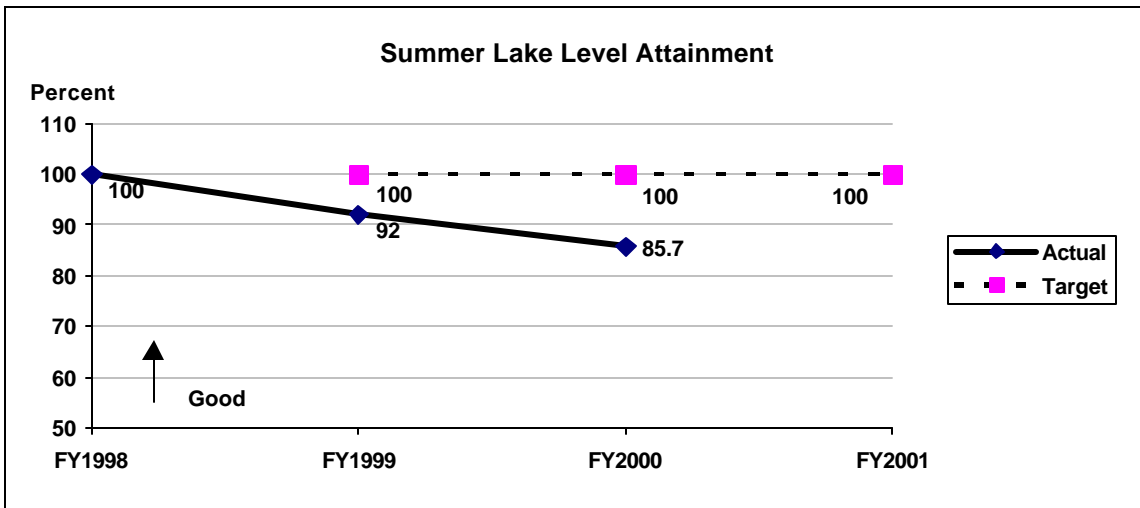
**Performance Goal**

**Summer Lake Level Attainment**

**TVA Strategy**

Support recreational uses of the river system and associated federal lands.

Description: Recreational lake users want TVA to maintain high water levels during the summer. These customers provide regional economic benefits through increased expenditures for recreational activities. In its 1991 Lake Improvement Plan, TVA made commitments to the user public to maintain tributary lakes at specified levels during June and July to support recreational uses that have significant economic impacts for the Tennessee Valley. TVA measures its commitment to these customers by monitoring achievement of targeted minimum water levels during June and July in 10 tributary storage reservoirs.



FY 2000 Target: 100%  
FY 2000 Performance: 85.7%

Targeted performance on this goal was not achieved.

Performance Explanation: Rainfall totals continued to be significantly below normal in FY 2000. Eight reservoirs attained their specified summer lake levels by June 1. Despite limiting discharges during the spring, Cherokee reservoirs did not attain minimum summer lake level until June 26<sup>th</sup>, and Notttely reservoir never reached its target minimum summer level of 1770 feet (it reached elevation 1769.4 on July 5<sup>th</sup>). Minimum levels were maintained at or above target on 9 of the 10 tributary lakes through August 1.

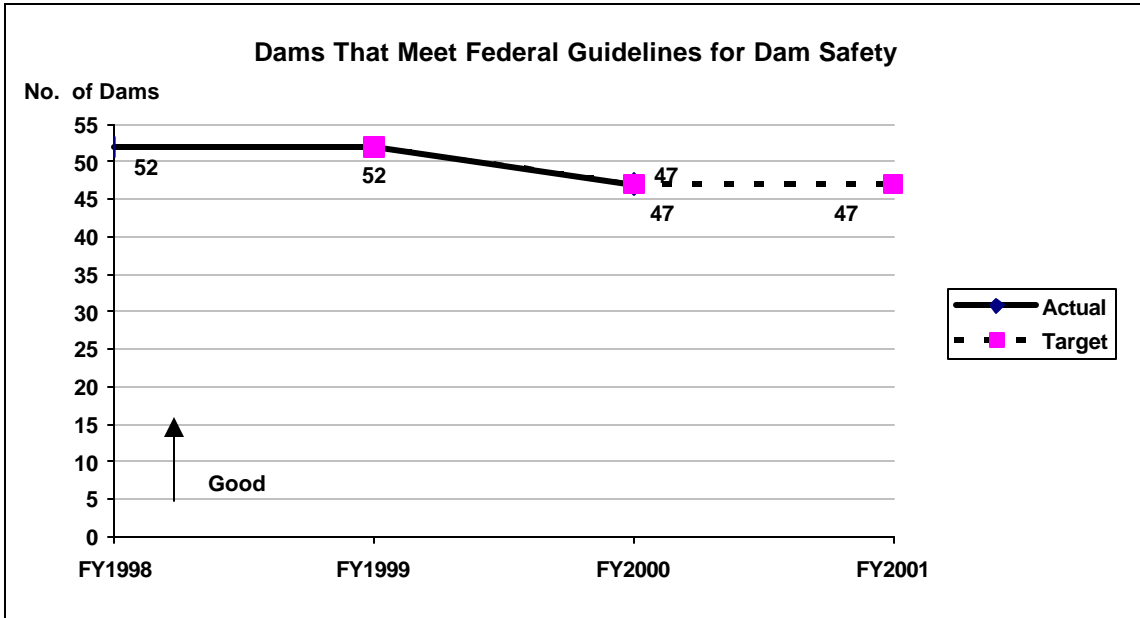
Actions To Achieve Targets in Future Years: TVA’s commitment in its Lake Improvement Plan is to meet the 100% target at least nine out of 10 years in recognition of the potential for extremely low rainfall in some years. TVA will continue to utilize state of the art weather forecasting and river management techniques to optimize the use of the water in the Tennessee River watershed for flood control, navigation, power supply, water quality, and recreation.



**Performance Goal**      Dams That Meet Federal Guidelines for Dam Safety

**TVA Strategy**              Ensure TVA dams, bridges, and other structures meet applicable guidelines and are maintained in a safe manner.

Description: In FY 2000, TVA was responsible for the inspection, operation, maintenance, and repair of 49 dams that are between 20 and 88 years old. Concrete growth and deteriorating operating machinery threaten the integrity and operations of spillways, powerhouses, and locks. In accordance with federal guidelines, TVA is modifying its dams to ensure they meet modern-day design criteria for the probable maximum flood and maximum credible earthquake.



FY 2000 Target:              47 dams  
FY 2000 Performance:      47 dams

Targeted performance on this goal was achieved.

Performance Explanation: While work continued on planning and design for required modifications to the two remaining dams, neither was targeted for completion in FY 2000. (Note: With the transfer of Land Between The Lakes to the Department of Agriculture in October 1999, the number of dams for which TVA is responsible was reduced from 54 to 49.)

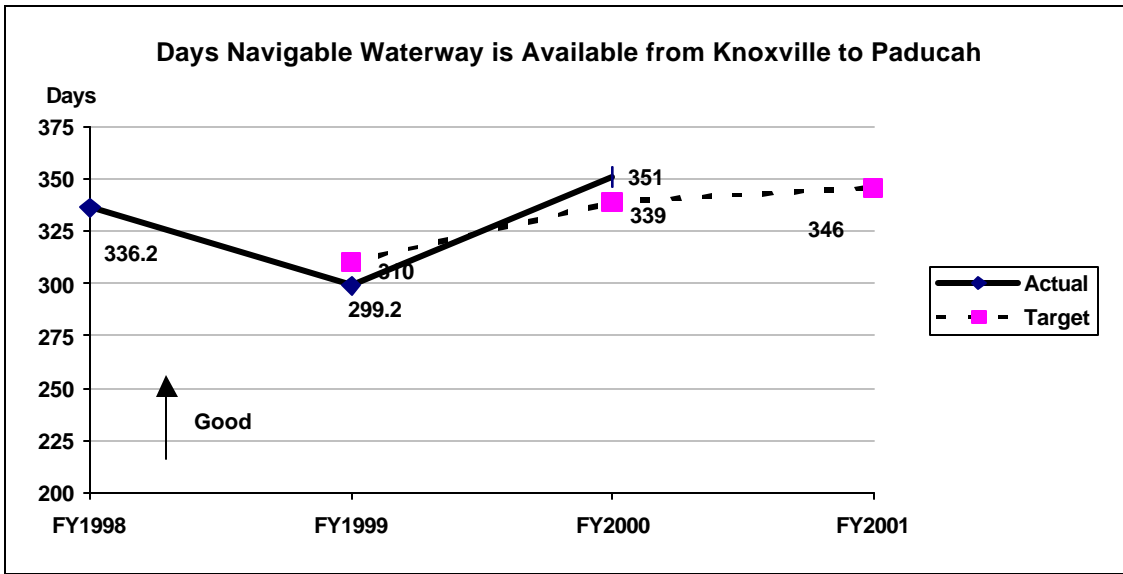
**Performance Goal**

Days Navigable Waterway is Available from Knoxville to Paducah

**TVA Strategy**

Maintain a navigable commercial waterway from Knoxville to Paducah while making system enhancements to improve safety and increase shipper savings.

Description: Commercial shippers rely on TVA to maintain locks and other navigation system components in operable condition and to operate the river system to minimize disruptions to navigation. TVA has a statutory responsibility to maintain a navigable channel along the Tennessee River from Knoxville to Paducah.



FY 2000 Target: 339 days  
FY 2000 Performance: 351 days

Targeted performance on this goal was achieved.

Performance Explanation: The Watts Bar lock closure was originally estimated to require 22 days. The condition of the lock was better than expected and the lock remained closed for only 11 days. In addition, there were only four days of unanticipated closures, rather than the five days originally estimated.

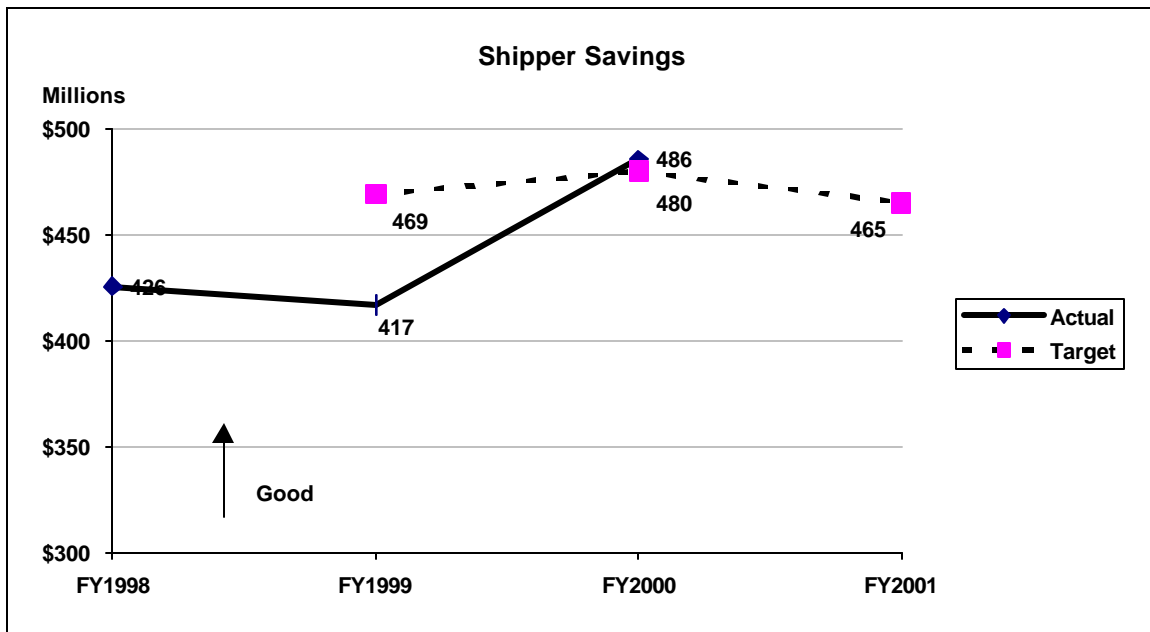
## Performance Goal

## Shipper Savings

### TVA Strategy

Maintain a navigable commercial waterway from Knoxville to Paducah while making system enhancements to improve safety and increase shipper savings.

Description: Commercial shippers rely on TVA to maintain locks and other navigation system components in operable condition and to operate the river system to minimize disruptions to navigation. TVA has a statutory responsibility to maintain a navigable channel along the Tennessee River from Knoxville to Paducah. Shipper savings include reductions in costs accruing to those shipping by barge. If the navigation system is not operable for extended periods of time, shipper savings are reduced.



FY 2000 Target: \$480 million  
FY 2000 Performance: \$485.5 million

Targeted performance on this goal was achieved.

Performance Explanation: Commodity traffic on the Tennessee River system increased during the last four months of the fiscal year resulting in slightly higher annual shipper savings than expected.

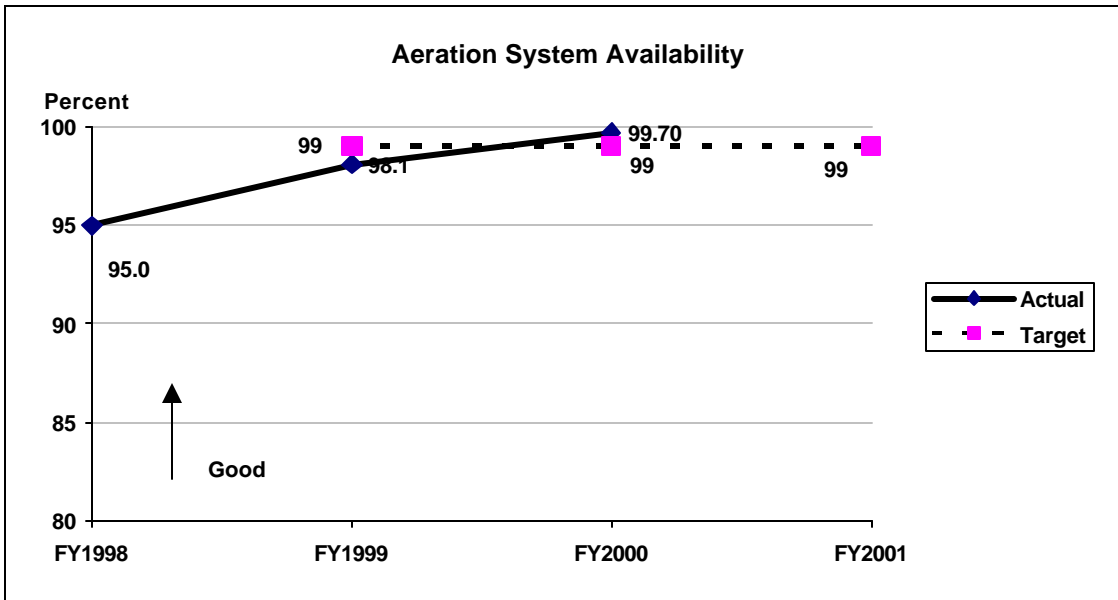
**Performance Goal**

**Aeration System Availability**

**TVA Strategy**

Provide acceptable water quality.

Description: The vacillating effects of water storage and hydro generation processes drastically alter dissolved oxygen levels, water temperature, and water flow rates. Fisheries, aquatic habitat, and potable water quality bear the most stress. TVA has installed aeration systems that have improved water quality at 16 dams. These systems are operated during the low dissolved oxygen season. This period is site-specific, but can range from mid-April to December. Ensuring that aeration systems are functioning helps TVA minimize adverse environmental impacts to aquatic habitats and potable water quality associated with dam operations.



FY 2000 Target: > 99%  
FY 2000 Performance: 99.7%

Targeted performance on this goal was achieved.

Performance Explanation: Problems with aeration systems that prevented goal attainment in FY 1999 were resolved and systems operated correctly in FY 2000.

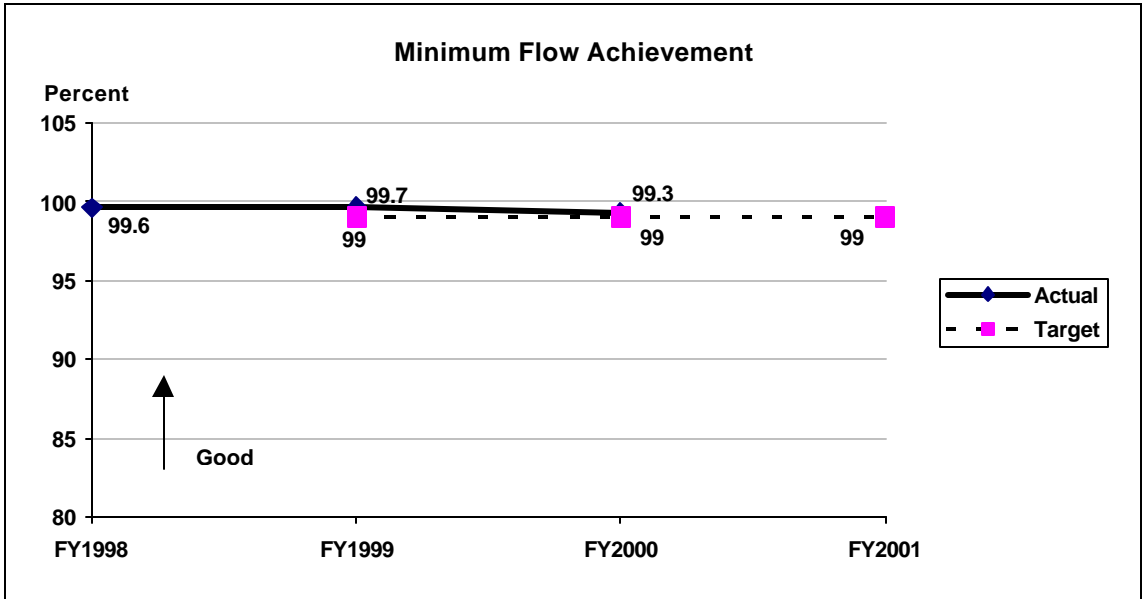
**Performance Goal**

**Minimum Flow Achievement**

**TVA Strategy**

Provide acceptable water quality.

Description: The vacillating effects of water storage and hydro generation processes drastically alter dissolved oxygen levels, water temperature, and water flow rates. Fisheries, aquatic habitat, and potable water quality bear the most stress. TVA maintains minimum flows below 16 dams to improve the quality of releases. Sustaining these minimum flows helps TVA minimize adverse environmental impacts to aquatic habitats and potable water quality associated with dam operations.



FY 2000 Target: 99%  
FY 2000 Performance: 99.3%

Targeted performance on this goal was achieved.

Performance Explanation: TVA maintained required minimum flows at facilities, in spite of unusually low rainfall in the Tennessee Valley. This was achieved by close attention to water scheduling in order to optimize the use of the water that was available.

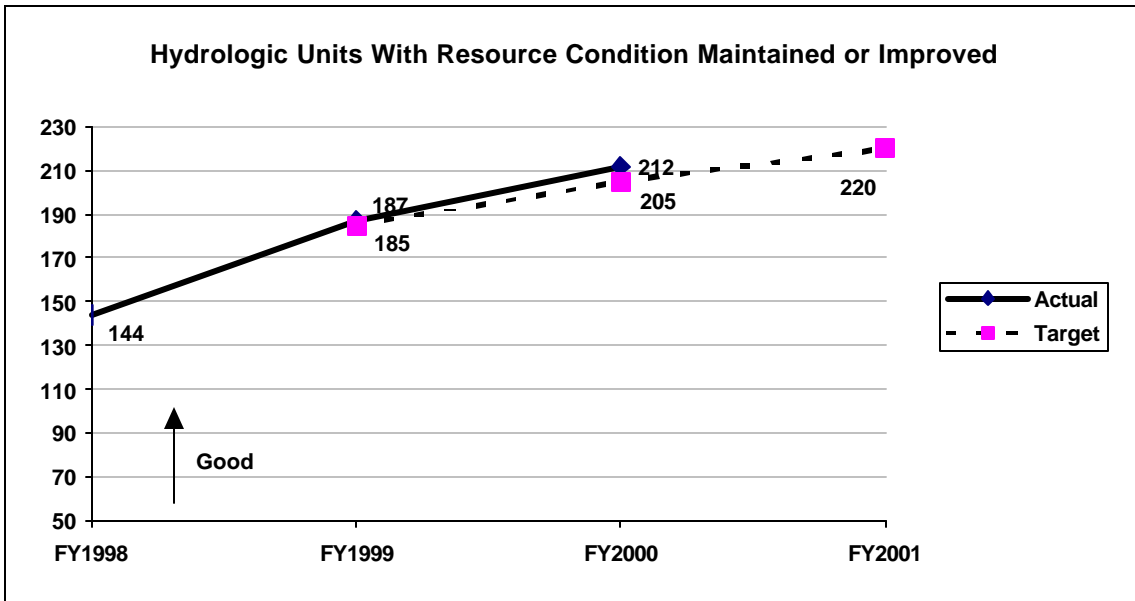
**Performance Goal**

Hydrologic Units With Resource Condition Maintained or Improved

**TVA Strategy**

Improve the hydrologic condition of watersheds in the Tennessee Valley.

Description: There are 611 hydrologic units that make up the Tennessee River watershed. TVA leads cooperative efforts involving local and regional public and private partners to improve water quality by reducing nonpoint source pollution. Periodic assessments identify hydrologic unit status by evaluating stream and reservoir ecological health, suitability for customer use, and customer satisfaction.



FY 2000 Target: 205  
FY 2000 Performance: 212

Targeted performance on this goal was achieved.

Performance Explanation: Improvement and maintenance of the watershed condition reflects the level of effort by TVA and its partners to improve or maintain improvements already made in the overall quality of the water resource base. It is less dependent on yearly variations in rainfall/runoff events.

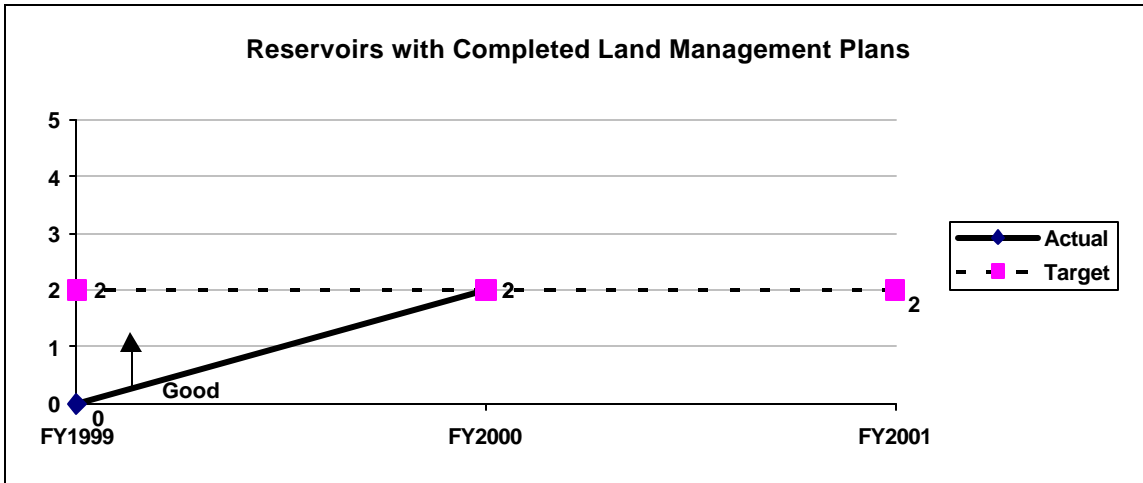
**Performance Goal**

**Reservoirs With Completed Land Management Plans**

**TVA Strategy**

Support public uses of federal assets under TVA management that are consistent with statutory responsibilities while protecting the value of those assets for the future.

Description: TVA manages 293,000 acres of public land around reservoir projects in seven states. The reservoir system is a nationally important recreation and tourism resource that attracts millions of visits per year from residents and tourists who enjoy water-based sports and contribute to a \$1 billion industry. Waterfront properties are highly valued and generate demands for growth that often conflict with the protection of public resources and wildlife habitat. TVA manages these potential conflicts with the use of land management plans that establish allowable uses for TVA property. TVA will develop comprehensive plans for 27 reservoirs.



FY 2000 Target: 2  
FY 2000 Performance: 2

Targeted performance on this goal was achieved.

Performance Explanation: Plans for Tims Ford and Tellico Reservoirs were completed in FY 2000.

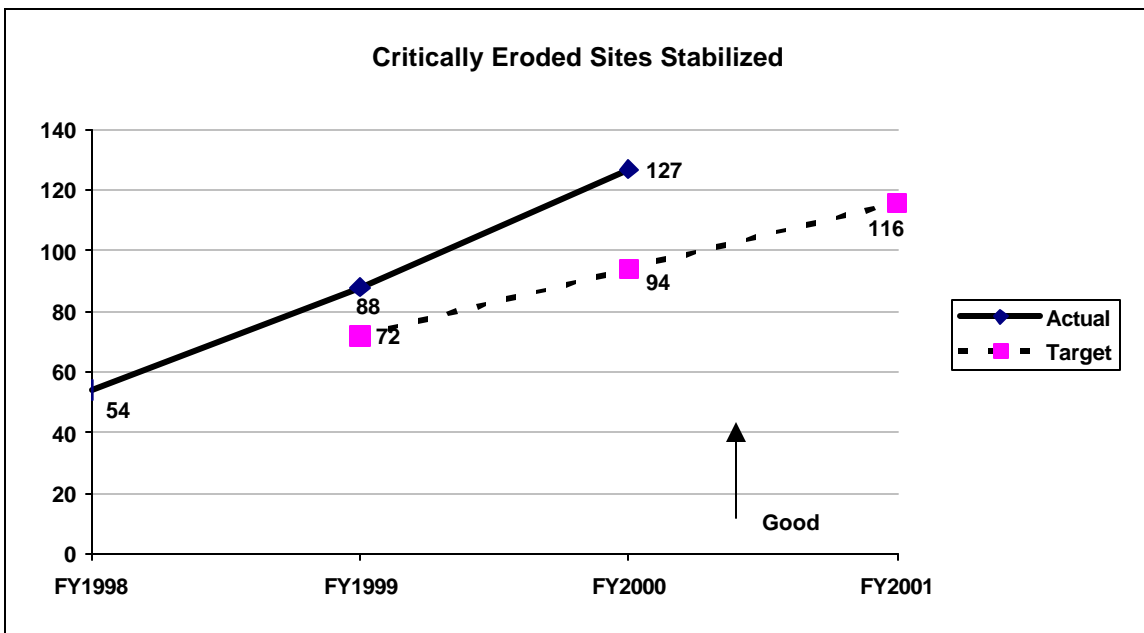
**Performance Goal**

**Critically Eroded Sites Stabilized**

**TVA Strategy**

Manage reservoir lands to protect cultural resources, reduce erosion, and provide wildlife habitat.

Description: TVA’s public shorelines are its most visible and accessible land resource. Reservoir lands throughout the Valley have highly eroded strips of shoreline and riparian area. TVA has estimated that nearly 110 miles, or one percent of its shoreline, may be critically eroding. Left unprotected, erosion will result in deterioration of the beauty and value of public shoreline assets, the loss of shoreline and associated wildlife habitat, and increased nonpoint source water pollution. Eroded sites may be up to 25 feet in height and several hundred feet in length. Treatments stress both vegetative and structural approaches that are ecologically friendly as well as combination treatments of vegetation and structures.



FY 2000 Target: 94  
FY 2000 Performance: 127

Targeted performance on this goal was achieved.

Performance Explanation: The FY2000 target was 22 additional sites. TVA completed 39 sites through the involvement of numerous cooperators including state & local agencies, local governmental bodies, material suppliers, and lessees of TVA lands who contributed additional resources and funding (approximately \$0.40 for each TVA dollar invested).



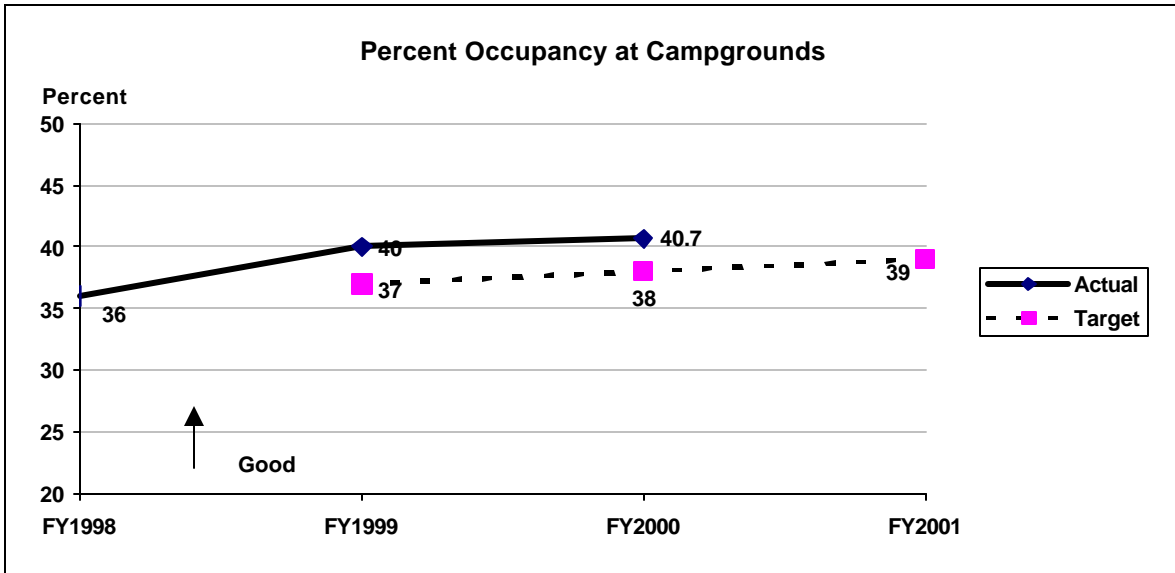
**Performance Goal**

**Percent Occupancy at Campgrounds**

**TVA Strategy**

Support recreational uses of the river system and associated federal lands.

Description: Recreational users of TVA camping sites and recreation facilities express a high level of interest in the maintenance and availability of the region’s natural resources for recreational and educational use. To determine the extent to which existing camping facilities are being utilized, TVA measures total camping sites occupied as a percentage of total sites available at a given time.



FY 2000 Target: 38%  
FY 2000 Performance: 40.7%

Targeted performance on this goal was achieved.

Performance Explanation: Campsite usage exceeded target. Based on customer input, TVA has added electrical and water hook-ups to campsites in three TVA-managed campgrounds. The increase in campground occupancy is attributed to addition of these utility services.

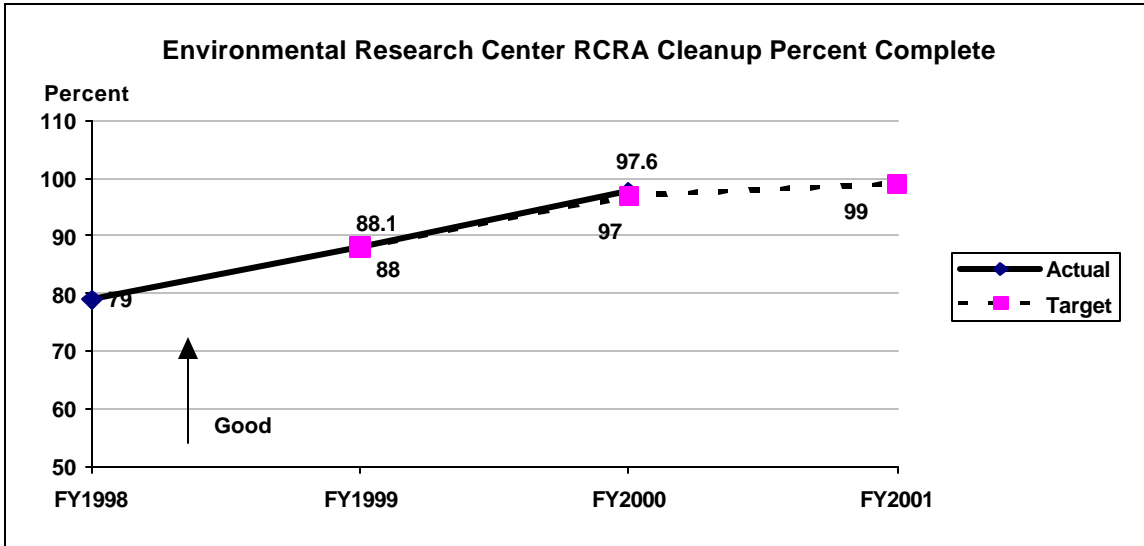
**Performance Goal**

**Environmental Research Center RCRA Cleanup**

**TVA Strategy**

Operate and maintain TVA facilities in accordance with environmental regulations.

Description: TVA is mandated by Federal law to complete the cleanup of contaminated sites at the Environmental Research Center (ERC) reservation in Muscle Shoals, Alabama. The Resource Conservation and Recovery Act (RCRA) Corrective Action Program supports the safe cleanup of contamination caused by decades of federally-funded munitions and fertilizer research and development activities at the ERC.



FY 2000 Target: 97%  
FY 2000 Performance: 97.6%

Targeted performance on this goal was achieved.

Performance Explanation: Completion of RCRA cleanup activities on schedule for completion in early FY 2002.

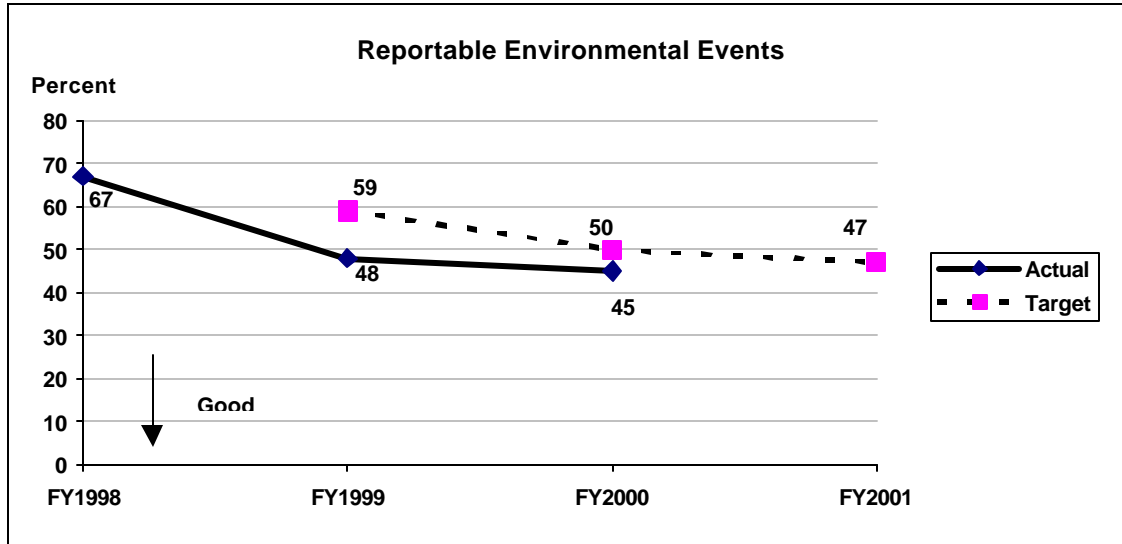
**Performance Goal**

**Reportable Environmental Events**

**TVA Strategy**

Operate and maintain TVA facilities in accordance with environmental regulations.

Description: Energy customers and the general public expect TVA to be environmentally responsible in conducting operations in order to protect public health, natural resources, and environmental quality. TVA measures the performance of its operations in meeting environmental regulatory compliance requirements by monitoring occurrences of violations at TVA facilities that trigger notifications to, or enforcement actions by, a regulatory agency.



FY 2000 Target: 50  
FY 2000 Performance: 45

Targeted performance on this goal was achieved.

Performance Explanation: TVA experienced fewer reportable events than target, reflecting a continuing focus on improving processes, internal auditing, appropriate training, and sharing lessons learned.

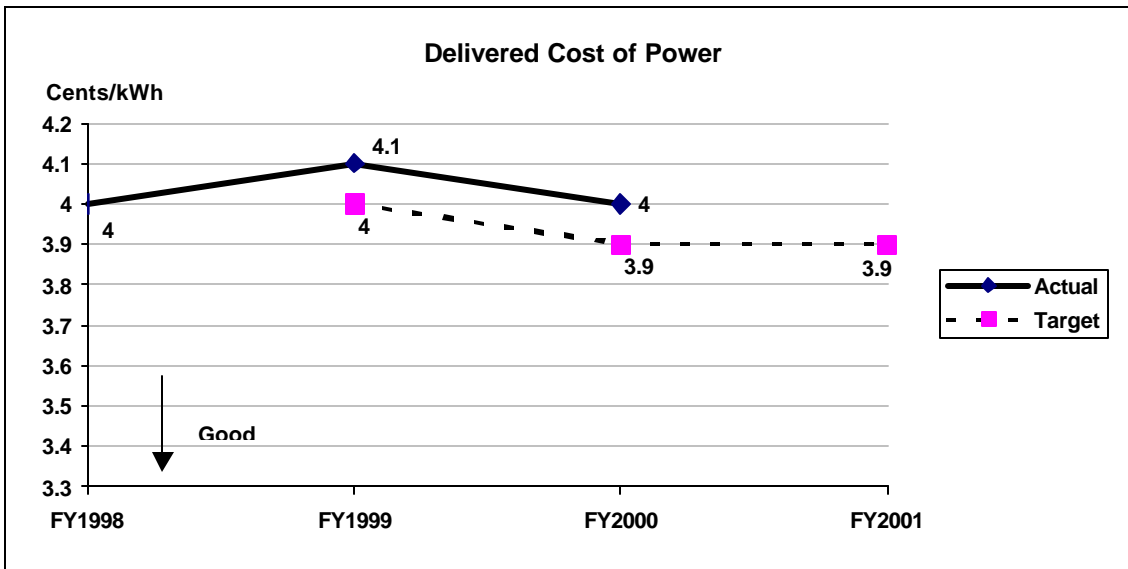
**Performance Goal**

**Delivered Cost of Power**

**TVA Strategy**

Prepare for utility deregulation by reducing TVA's delivered cost of power to 3.4 - 3.5 cents/kWh by 2007.

Description: The cost of electric power is crucial to energy customers who depend on a low-cost, efficient, and dependable source of energy in order to be competitive in their businesses and cost-effective in their household budgets. To determine the cost of providing power to its energy customers, TVA divides its total costs to deliver power (excluding accounting write-offs) by the total amount of power delivered. Over time, reducing its delivered cost of power enables TVA to remain competitive in a potentially deregulated and openly competitive environment. This assures TVA's electricity prices will be competitive with projected market prices.



FY 2000 Target: 3.9 cents/kWh  
FY 2000 Performance: 4.0 cents/kWh

Targeted performance on this goal was not achieved.

Performance Explanation: TVA's total operating costs, including interest, in FY 2000 were \$6.336 billion, \$85 million more than the budget estimate of \$6.251 billion. Total energy sales were 159.6 billion kWh, which compared favorably to the budget of 159.1. TVA's costs and this performance indicator were impacted by over \$100 million when an independent power marketer failed to deliver power to TVA in accordance with its contract.

Actions to Achieve Targets in Future Years: TVA will continue aggressive management of its costs in order to reduce its delivered cost of power over the next several years. TVA pursued litigation against the power marketer for breach of contract. TVA received a settlement from the power marketer during FY 2001.

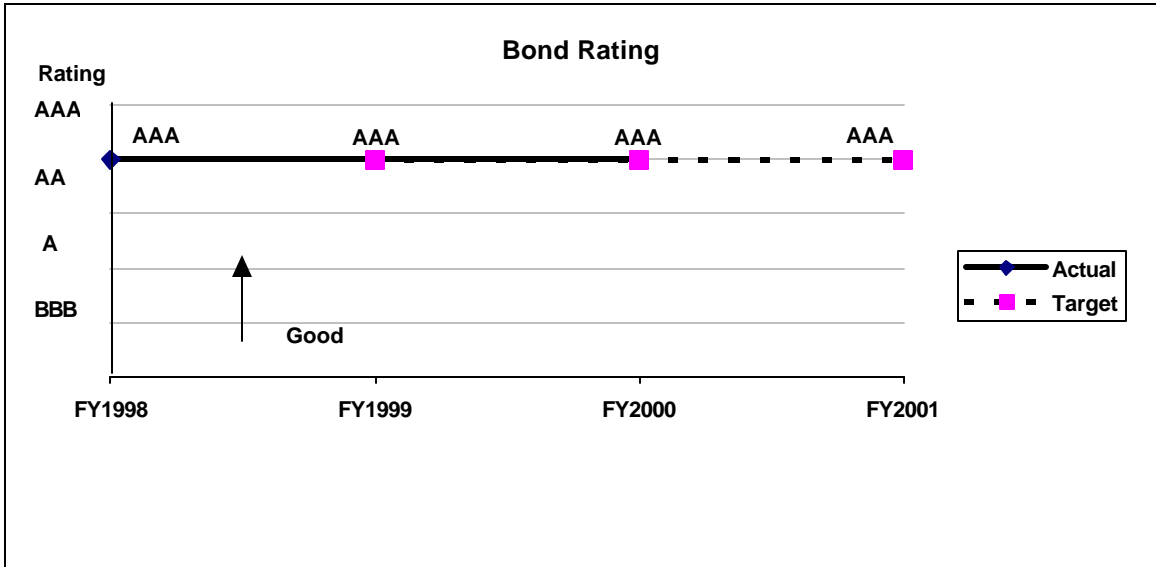
**Performance Goal**

**Bond Rating**

**TVA Strategy**

Maintain investor confidence so that TVA will continue to be competitive and able to meet debt obligations.

Description: While TVA has taken actions to cap its debt, TVA will still need to refinance maturing debt. This performance measure monitors TVA’s success in maintaining its position as an attractive investment, thereby minimizing interest expense which is a major component of TVA’s total cost.



FY 2000 Target: AAA  
FY 2000 Performance: AAA

Targeted performance on this goal was achieved.

Performance Explanation: Independent bond ratings issued by Moody’s Investors Service during FY 2000 documented TVA’s continuing triple-A rating.

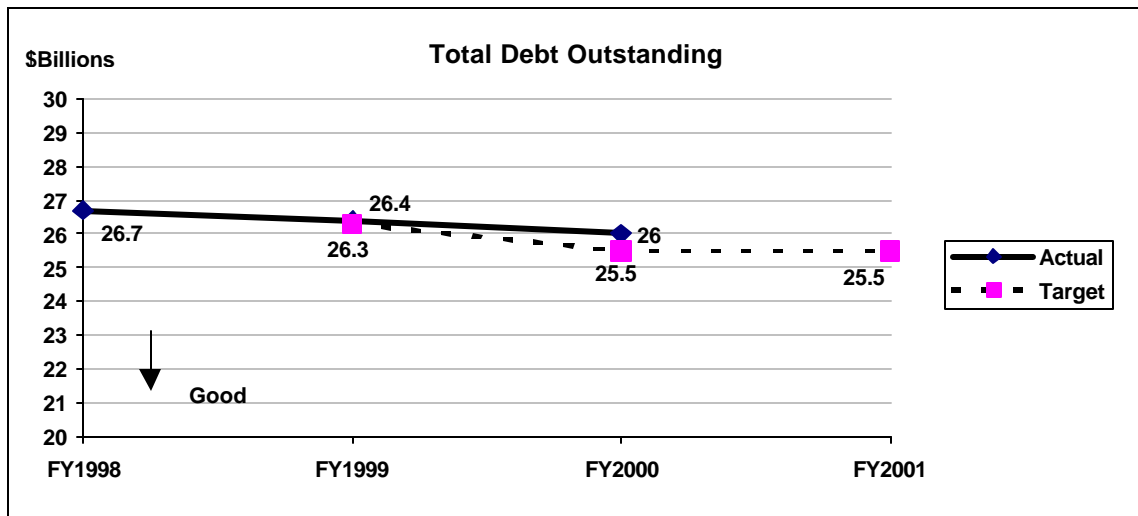
## Performance Goal

## Total Debt Outstanding

### TVA Strategy

Increase agency flexibility by altering the TVA cost structure from the current high fixed-to-variable cost relationship to a structure that is better able to adjust to a volatile marketplace.

Description: TVA has a statutory debt ceiling of \$30 billion, and the TVA Board has established an internal debt limit of \$28 billion. TVA's debt increased in past years to help finance the construction and modification of its nuclear plants and other power system facilities. TVA will be in a better position to meet the projected market price for electricity by reducing its high fixed costs for interest (now about 28% of TVA's total cost of power). With the completion of Watts Bar Unit 1 and other major projects, a continued emphasis on cost control, and expected increases in power sales revenue, TVA began making meaningful debt reductions in 1997. As TVA reduces and manages outstanding debt, thus reducing its interest costs, it will shift its cost structure to one that is better able to adjust to the increased volatility of a future deregulated energy market.



FY 2000 Target: \$25.5 billion  
FY 2000 Performance: \$26.0 billion

Targeted performance on this goal was not achieved.

Performance Explanation: The shortfall in this target reflects less-than-estimated debt reduction in both 1999 and 2000. This resulted from a combination of lower than expected cash generated from operations (primarily due to higher purchased power costs) and higher capital expenditures for new peaking generating capacity and environmental control equipment.

Actions to Achieve Targets in Future Years: While TVA still expects to make significant reductions in its debt over the next several years, the estimated amount has been revised as necessary to ensure that TVA has an adequate supply of reliable power and to meet expected environmental regulations.

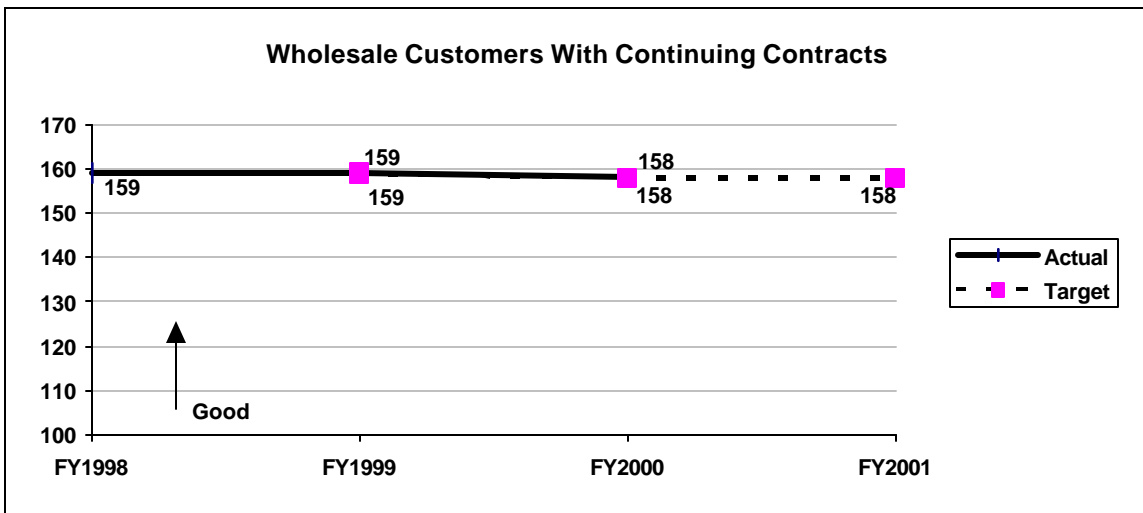
**Performance Goal**

**Wholesale Customers With Continuing Contracts**

**TVA Strategy**

Build stakeholder support and value by developing opportunities for mutual support and partnership.

Description: TVA's existing power contracts with its distributors have rolling 5, 10, or 15-year terms. In order to end its commitment to purchase TVA power, a distributor must give notice either 5, 10, or 15 years (as applicable) prior to the desired contract termination date. In anticipation of utility industry restructuring, many of TVA's customers are seeking a more flexible position from which to respond to competitive challenges. TVA is working to address issues of distributors that want more contract flexibility to meet their needs, while not shifting the cost obligations of these arrangements to other customers. These new contracting alternatives, in combination with TVA's continued emphasis on providing low-cost, reliable power, will help TVA retain its present customer base.



FY 2000 Target: 158  
FY 2000 Performance: 158

Targeted performance on this goal was achieved.

Performance Explanation: In August 2000, Middle Tennessee Electric Membership Corp., one of TVA's power distributor customers, assumed ownership of the Lebanon Electric Department (LED), also a distributor of TVA power. With LED's transfer of ownership, TVA now has 158 distributor customers. At the end of FY 2000, all of TVA's 158 distributors had on-going contracts (none have given TVA notice of intent to terminate their contracts). TVA is continuing to work with distributors to address their needs for contract flexibility and to assure them that TVA will meet their needs for reliable, low cost electricity in the future.

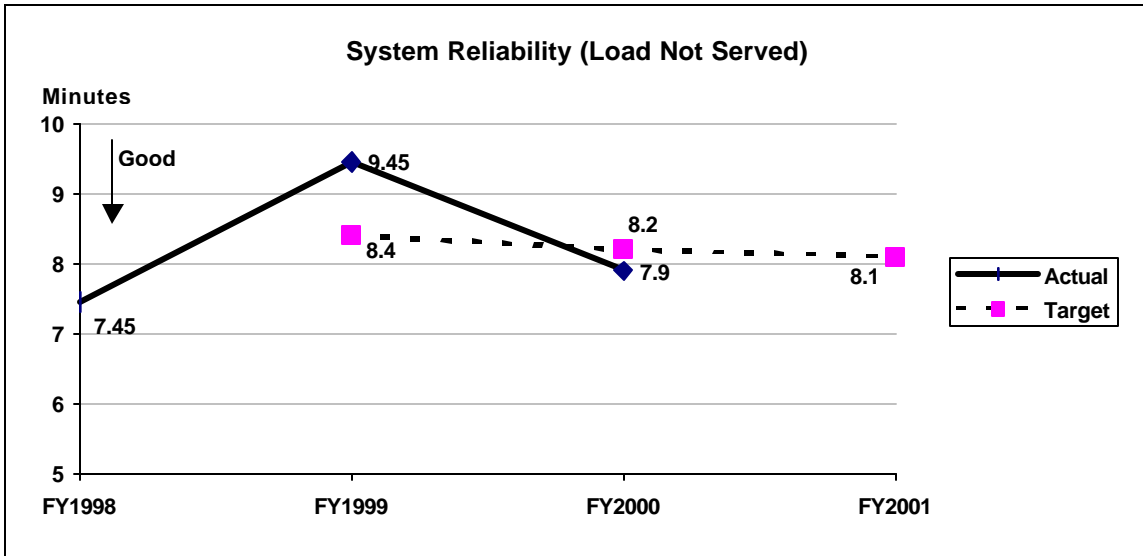
**Performance Goal**

**System Reliability – Load Not Served**

**TVA Strategy**

Ensure that TVA’s electric power generation and transmission system has the capacity to meet customer demand while maintaining required levels of reliability and power quality.

Description: Energy customers require a reliable power supply in order to remain competitive and to maintain consumers’ safety and convenience. Load Not Served (LNS), measures the reliability of TVA’s power supply in terms of minutes the average customer is without power each year.



FY 2000 Target: 8.2 minutes  
FY 2000 Performance: 7.9 minutes

Targeted performance on this goal was achieved.

Performance Explanation: TVA has a detailed maintenance program in which power equipment and transmission lines are routinely inspected and tested. Deteriorated equipment is either repaired or replaced to reduce the chance of equipment failure. Projects are also initiated as needed to reduce the number and length of outages.



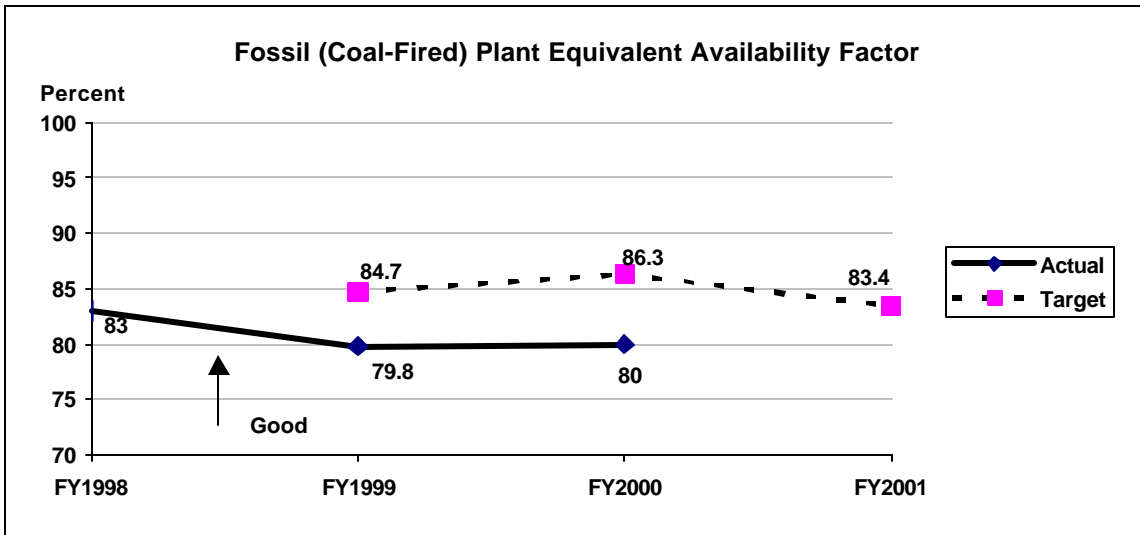
**Performance Goal**

**Fossil (Coal-Fired) Plant  
Equivalent Availability Factor**

**TVA Strategy**

Ensure that TVA’s electric power generation and transmission system has the capacity to meet customer demand while maintaining required levels of reliability and power quality.

Description: All energy customers require an adequate supply of electricity at the lowest price in order to add value to their customers. To ensure that TVA can meet customer demand, TVA’s coal-fired plants must operate at optimum availability, defined as the ratio of the amount of energy that can be provided divided by the maximum amount of energy that could be produced over a given period of time.



FY 2000 Target: 86.3%  
FY 2000 Performance: 80.0%

Targeted performance on this goal was not achieved.

Performance Explanation: System availability was less than target due to unexpected equipment failures at some fossil plants that resulted in unit shutdowns or reduced output.

Actions to Achieve Targets in Future Years: TVA's fossil power organization is focusing on failure prevention as one of its top initiatives for improvement. The overall goal is to minimize the amount of corrective maintenance needed to repair equipment by increasing focus on predictive and preventative measures to prevent failures before they occur. Detailed analyses of all major equipment failures are performed to identify root cause solutions and to ensure that similar problems are detected before failures occur.

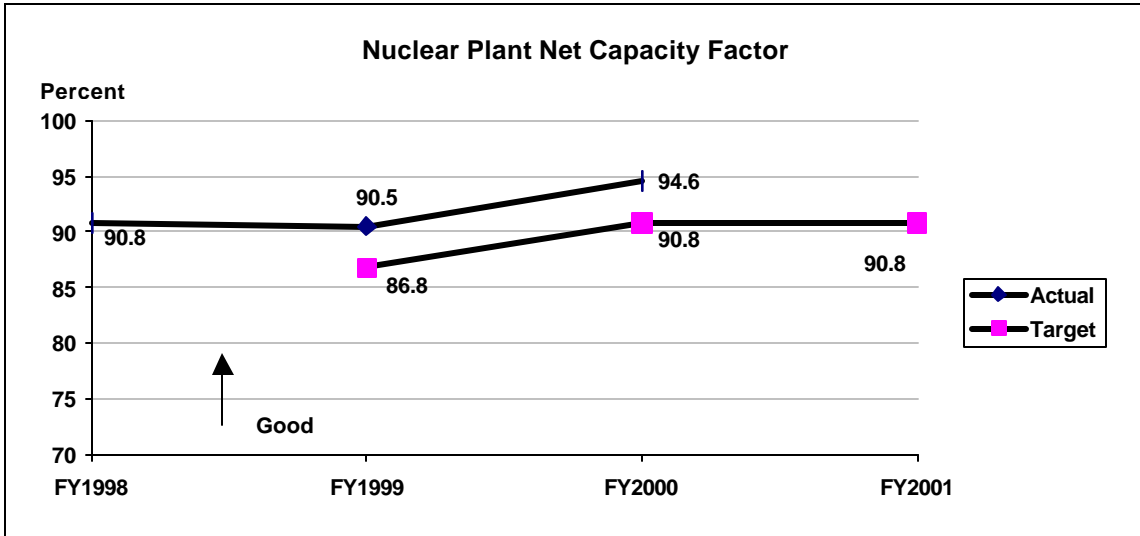
**Performance Goal**

**Nuclear Plant Net Capacity Factor**

**TVA Strategy**

Ensure that TVA’s electric power generation and transmission system has the capacity to meet customer demand while maintaining required levels of reliability and power quality.

Description: To ensure that all nuclear power plants are operating at needed capacity, TVA monitors the “net capacity factor” which is the ratio of the amount of electricity generated divided by the maximum amount of energy that could have been produced by the plant over a specified period of time.



FY 2000 Target: 90.8%  
FY 2000 Performance: 94.6%

Targeted performance on this goal was achieved.

Performance Explanation: TVA nuclear facilities exceeded expectations for availability. In FY 2000, for the fifth year in a row, TVA nuclear plants set a new generation record by producing 46.92 billion kilowatt-hours of electricity. For the fourth time in the history of TVA’s nuclear program, all five of the units operated for 100 consecutive days. During FY 2000, three units continued or completed continuous runs exceeding 450 days. (Brown’s Ferry Unit 3 (548.1 days), Sequoyah Unit 1 (468.7 days), and Watts Bar Unit 1 (512.9 days).

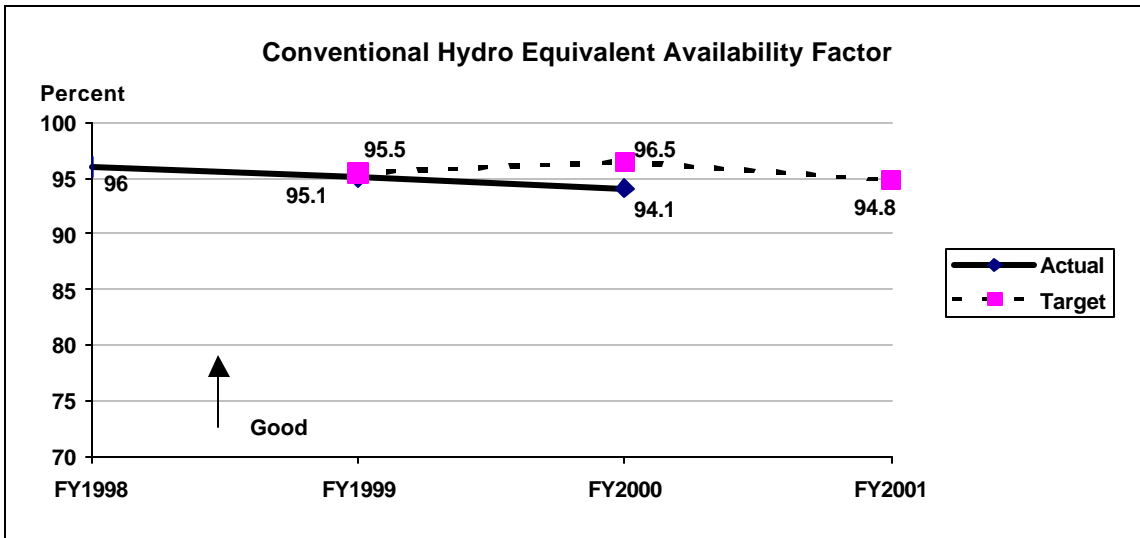
**Performance Goal**

**Conventional Hydro Equivalent Availability Factor**

**TVA Strategy**

Optimize the value of hydro generation subject to flood control, navigation, and water quality constraints.

Description: TVA’s hydroelectric plants work to achieve high performance in plant availability. The hydroelectric plants help to satisfy energy customers’ requirements for reliable, available electric power. Hydro-electric plant availability is calculated as the amount of energy that can be generated divided by the maximum amount of energy that could be produced over a set period of time.



FY 2000 Target: 96.5%  
FY 2000 Performance: 94.1%

Targeted performance on this goal was not achieved.

Performance Explanation: Target was not achieved because the outage schedule was revised to reflect changes in the long-term hydro modernization project and in routine outage schedules. These changes in schedule were finalized shortly before the beginning of FY 2000. It should be noted that although performance did not meet target it was still 5% above industry average.

Actions to Achieve Targets in Future Years: TVA has a long-term hydro-modernization project underway to address reliability and obsolescence issues. This project along with other planned capital and major maintenance projects will address the major contributors for both forced and maintenance outage hours and will result in continuing improvements in this indicator over time. However, there will be some minor target fluctuations (up and down) over the next few years that are based on the number and duration of unit outages scheduled for hydro-modernization and reliability projects each year.

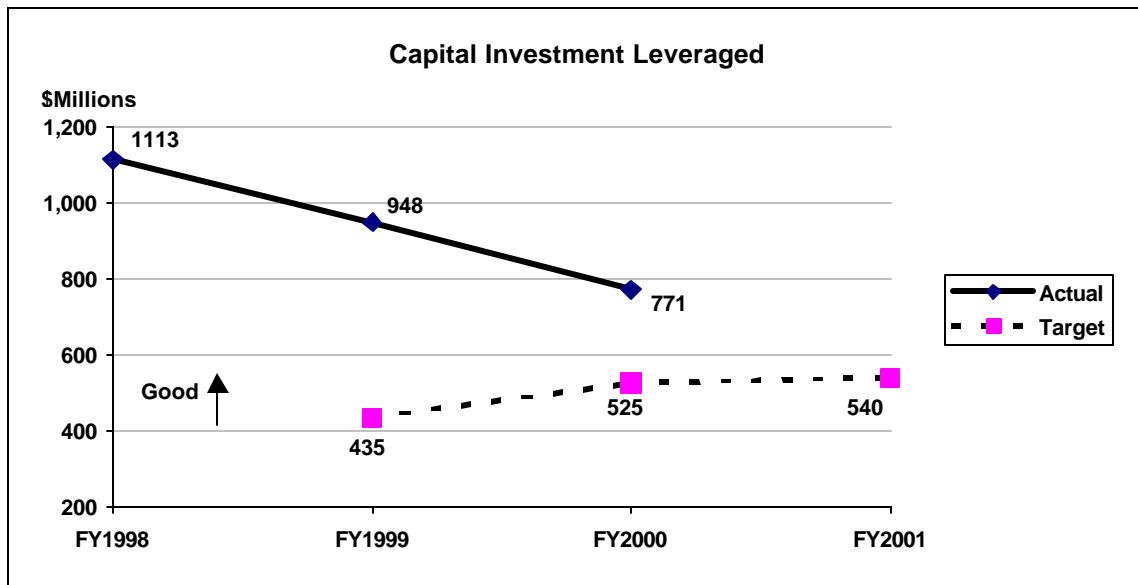
## Performance Goal

## Capital Investment Leveraged

### TVA Strategy

Create and expand opportunities for business and industrial development in the TVA region.

Description: Since 1933, TVA has played a significant role in economic and community development of the Tennessee Valley. Energy customers are interested in the economic development and vitality of their communities resulting from TVA's Economic Development projects, which focus on expanding and attracting industrial and commercial development with low-cost, reliable electric power. In this performance goal, TVA is measuring the capital investment by key public and private partners of projects in which TVA participates. The capital investment supports the generation of commerce in the distributor customer's market areas.



FY 2000 Target: \$525 million

FY 2000 Performance: \$771 million

Targeted performance on this goal was achieved.

Performance Explanation: In addition to the robust economic conditions during the past year, TVA improved its data collection mechanisms. TVA assisted on projects that leveraged almost \$771 million during FY 00. Of the \$246 million leveraged above the original target, almost 92% of that total was contributed by projects from new TVA reporting sources. Targets for future years will be revised to incorporate TVA's improved data collection efforts.

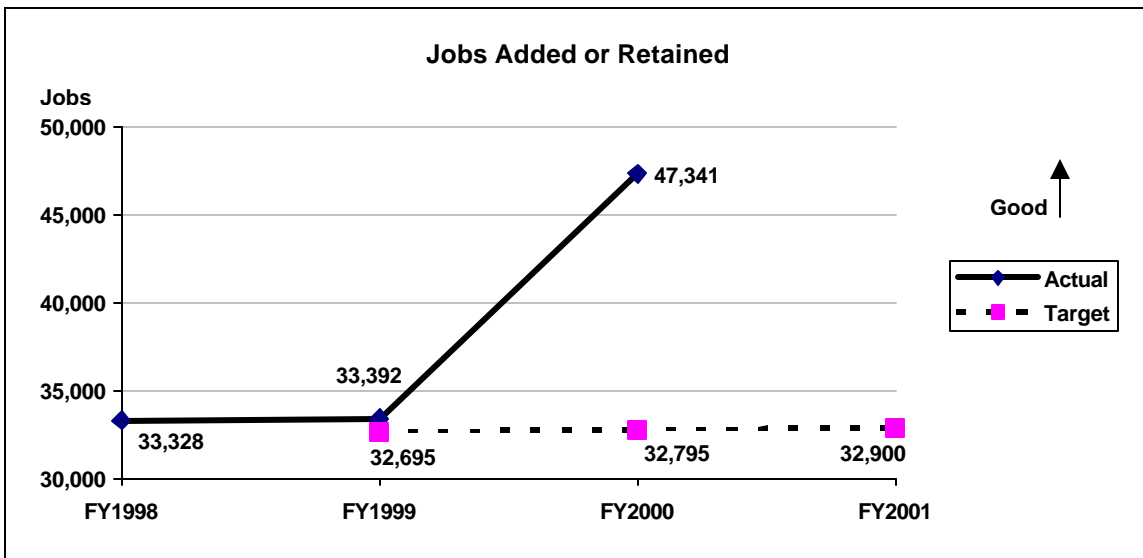
**Performance Goal**

**Jobs Added or Retained**

**TVA Strategy**

Create and expand opportunities for business and industrial development in the TVA region.

Description: Business investment commitments precede growth in employment opportunities. TVA energy customers are interested in TVA’s contribution to the economic development and vitality of their communities as it relates to hiring and jobs created. This performance goal measures the number of jobs added or retained by firms that receive technical or financial assistance from TVA, as well as jobs added or retained with Regional Industrial Development Association (RIDA) assistance. (Note: the title of this indicator was changed from “Jobs Created” to more accurately represent the focus of TVA’s Economic Development efforts in this area.)



FY 2000 Target: 32,795 jobs  
FY 2000 Performance: 47,341 jobs

Targeted performance on this goal was achieved.

Performance Explanation: During FY 2000, TVA substantially exceeded its target of assisting in the creation or retention of 32,795 jobs in the Tennessee Valley. TVA aided projects that added or retained 47,341 jobs during FY 00. In addition to the robust economic conditions during the past year, TVA improved its data collection capacities. New data reporting sources from within TVA accounted for roughly 40% of the numbers achieved over the original target. In addition, the location of major new computer assembly and distribution facilities added unexpected boosts to the totals. Future year targets will be adjusted to reflect the new data reporting sources.

## Appendix A:

### Descriptions of Means to Verify and Validate Values Of Performance Goals

#### Flood Storage Availability

Measurement and Validation: This performance measure is defined as the percent of project days when actual storage availability is  $\geq$  allocated storage. Ten tributary storage projects are included in this measure; in addition, a measure of the composite eastern system is also included. TVA measures reservoir levels at midnight each day for each of the projects. In a 30-day month, each storage project has a maximum of 30 project days when actual reservoir storage can be equal to or greater than the allocated storage. TVA sums the days when storage meets or exceeds the guideline. For example, if all 10 projects and the eastern composite had reservoir storage levels above those required for 20 of the 30 days, monthly performance would be  $240/360=66.7\%$ . Data are reported monthly and are accumulated over the entire year to determine the annual performance on this measure.

#### Discretionary Zone Attainment

Measurement and Validation: The performance measure is defined as the percent of project days actual reservoir storage is within the discretionary operating zone. Projects included in this measure are the 10 tributary storage projects with MOG curves. TVA measures reservoir levels at midnight each day for each of the 10 storage projects. In a 30-day month, each storage project has a maximum of 30 project days when actual reservoir storage can be within the discretionary operating zone. TVA sums the days when storage was within the zone and divides by the total number of project days. For example, if all 10 projects had reservoir levels within the discretionary operating zone for 25 of the 30 days, monthly performance would be  $250/300=83.3\%$ . Data are reported monthly and are accumulated over the entire year to determine the annual performance on this measure.

#### Summer Lake Level Attainment

Measurement and Validation: Lake levels for 10 tributary storage projects are measured at midnight from June 1 to July 31 and checked against August 1 levels specified in the Lake Improvement Plan. There is the potential of maintaining summer lake levels for 61 days at each of the 10 reservoirs (610 days total) per the Lake Improvement Plan. If one reservoir's level missed its target for 10 of the 61 days, the indicator calculation would be  $600/610=98.4\%$ .

#### Dams that Meet Federal Guidelines for Dam Safety

Measurement and Validation: This performance goal tracks TVA's progress in completing required hydrologic and seismic modifications to bring its dams into compliance with modern-day design criteria to pass probable maximum floods or withstand maximum credible earthquakes. A dam is considered in compliance when all work related to meet modern-day design criteria is completed.

#### Days Navigable Waterway is Available from Knoxville to Paducah

Measurement and Validation: This indicator measures instances when any segment of the Tennessee River is closed to navigation traffic. Lock operation and maintenance reports are the source of this information.

### Shipper Savings

Measurement and Validation: Shipper savings is calculated as the product of the tons being shipped on the Tennessee River and the savings per ton attributed to barge transportation. Barge transportation is the cheapest mode for movement of certain commodities, thus barge transportation is compared in the indicator to the next least expensive mode which is generally rail carriage. In the indicator, average savings per ton is estimated by TVA to be \$8.10 (\$1995). This number was a product of a TVA study undertaken for the U. S. Army Corps of Engineers (USACE), Huntington District, in 1995 as a component of their update of the Kentucky Lock study. These modal transportation rates are a combination of survey data and estimates from TVA's Barge Costing Model and the Rebee Rail Costing model. The rates are estimated by component (line haul cost, transfer cost, loading and unloading cost) and do not include any "water compelled" rate effect, that is, what the rail rate would be expected to be without barge competition. Assumptions in the calculation reflect an estimated margin for carrier profit. The data used to estimate total current tonnage transported on the Tennessee River are a combination of river and lock data. The river data is published annually by the USACE Waterborne Commerce Statistical Center (WCSC) in New Orleans, Louisiana, with about a two year lag. The lock data are published by the USACE Water Resources Support Center in Fort Belvoir, Virginia with a two month lag. In the shipper savings indicator TVA navigation economists forecast Tennessee River traffic by year.

### Aeration System Availability

Measurement and Validation: For each of the dams with aeration systems installed, a planned operating schedule is determined. If a system is operable on days it is scheduled for use, it is counted as being available. The number of days that systems are available is divided by the total number of planned operating days to get the percent availability. Data are reported monthly and accumulated throughout the year to determine the annual performance.

### Minimum Flow Achievement

Measurement and Validation: For each of the 16 dams for which minimum flows have been established, TVA develops operating schedules that maintain necessary water flow throughout the year. Flow meters are installed on hydro generation units at the dams and required flow rates are maintained either through use of a small unit when the large unit is not in operation or by pulsing the large unit as needed. TVA monitors the water records provided by each plant to ensure that these flows and these schedules of pulses are met. The number of hours for which minimum flow rates are not met are divided by the total number of hours per year (nominally 8,760) and the resulting percentage is reported monthly and accumulated throughout the year to determine the annual performance.

### Hydrologic Units with Resource Condition Maintained or Improved

Measurement and Validation: TVA periodically assesses water resource conditions of hydrologic units with active water quality improvement efforts. These assessments measure how well waters in these hydrologic units support beneficial uses (fishing, swimming, support of fish and wildlife, water supply) desired by the various stakeholders. Quality of water resources is generally measured using an index of biological integrity which rates fish and aquatic insect populations against a known standard. Other types of measurements, such as presence of bacteria in swimming areas, are used to assess attainment of specific beneficial uses. Hydrologic unit ratings (Good, Fair, or Poor) are updated annually based on current information.

### Reservoirs with Completed Comprehensive Reservoir Land Plans

Measurement and Validation: TVA will report each reservoir land management plan completed when it is published and made available to the public.

#### Critically Eroded Sites Stabilized

Measurement and Validation: TVA identifies specific critically eroding sites to be stabilized each year. Site-specific stabilization approaches will be developed and implemented. Following completion of stabilization activities, sites are monitored and maintained as required to ensure that erosion has been contained.

#### Percent Occupancy at Campgrounds

Measurement and Validation: TVA divides the number of paid camping unit nights by the total number of camping sites available (calculated by multiplying campground capacity by the number of nights the campgrounds are open). Data are reported monthly and are accumulated throughout the year to report the annual performance.

#### Environmental Research Center (ERC) Resource Conservation and Recovery Act (RCRA) Cleanup (Percent Complete)

Measurement and Validation: TVA has developed a plan for achieving cleanup and remediation of the ERC site based on regulator requirements. This indicator tracks completion of these planned cleanup activities. Performance is reported based on the following formula:

ERC Site Cleanup (Percent Complete)= Percent Complete ERC RCRA Corrective Action project (times 0.5) plus Percent of Designated ERC Structures Demolished (times 0.45) plus Percent of Surplus Chemical Disposal (times 0.05).

#### Reportable Environmental Events

Measurement and Validation: Each organization is responsible for reporting occurrences of violations that trigger notifications to, or enforcement actions by, a regulatory agency. Data are reported monthly and accumulated throughout the year to determine annual performance.

#### Delivered Cost of Power

Measurement and Validation: The electric power industry standard for measuring total cost is expressed in cents per kilowatt hours produced. TVA sums its total costs from its income statement and divides them by the total kWh sold.

#### Bond Rating

Measurement and Validation: TVA will report its bond rating as reported by the major bond rating agencies as of the end of September each year.

#### Total Debt Outstanding

Measurement and Validation: TVA will report its outstanding debt at the end of each fiscal year using its standard financial reporting systems and audited financial statements.

#### Wholesale Customers with Continuing Contracts

Measurement and Validation: On the last day of the fiscal year, TVA will identify the number of its distributors that have continuing contracts (that have not provided notice of intent to terminate their contract).



#### System Reliability (Load Not Served)

Measurement and Validation: This indicator shows the amount of time an average customer could expect to be interrupted if its load was constant throughout the year. The calculation uses current billing data to estimate the amount of load which was interrupted, the actual clock time of the interruption as related to TVA problems, the load actually served during the time period being examined, knowledge of load cycles for the customer, and the number of minutes in the interruption period.

The formula is:

$$((\text{LNS in MWh})/(\text{LS} + \text{LNS in MWh})) * \text{the number of minutes in the period.}$$

For example, a 10 MW load is interrupted for 1 hour, resulting in 10 MWh of LNS. If the year long load served is 600,000 MWh, the LNS in minutes is:

$$((10/(10+600,000))*525,600(\text{minutes in a year}))=8.76 \text{ minutes of LNS.}$$

The result is a normalized LNS in minutes that is calculated regardless of the load size.

#### Fossil Plant Equivalent Availability Factor

Measurement and Validation: TVA records the energy that can be provided by each fossil unit and divides it by the product of the unit's capacity and number of hours in the measurement period (nominally 8,760). The availability of all units is combined to determine the annual fossil system equivalent availability factor.

#### Nuclear Plant Net Capacity Factor

Measurement and Validation: TVA records the energy produced by each nuclear plant and divides it by the product of the unit's capacity and number of hours in the measurement period (nominally 8,760). The availability of all units is combined to determine the annual net capacity factor.

#### Conventional Hydro Equivalent Availability Factor

Measurement and Validation: TVA records the energy that can be produced by each hydro unit and divides it by the product of the unit's capacity and number of hours in the measurement period (nominally 8,760). The availability of all units is combined to determine the annual hydro system equivalent availability factor.

#### Capital Investment Leveraged

Measurement and Validation: Data are reported based on agreements reached and commitments made to establish or expand industrial capacity in the Tennessee Valley.

#### Jobs Added and Retained

Measurement and Validation: Data are reported based on announcements of new jobs created/retained by firms that receive technical or financial assistance from TVA, as well as jobs created/retained with Regional Industrial Development Association (RIDA) assistance (Note: Previously this indicator included only one half of the jobs created/retained through RIDAs. The indicator was modified to reflect the increased focus TVA is placing on its business relationships with the RIDAs. Actuals and targets have been restated to include 100% of RIDA jobs created/retained).



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