

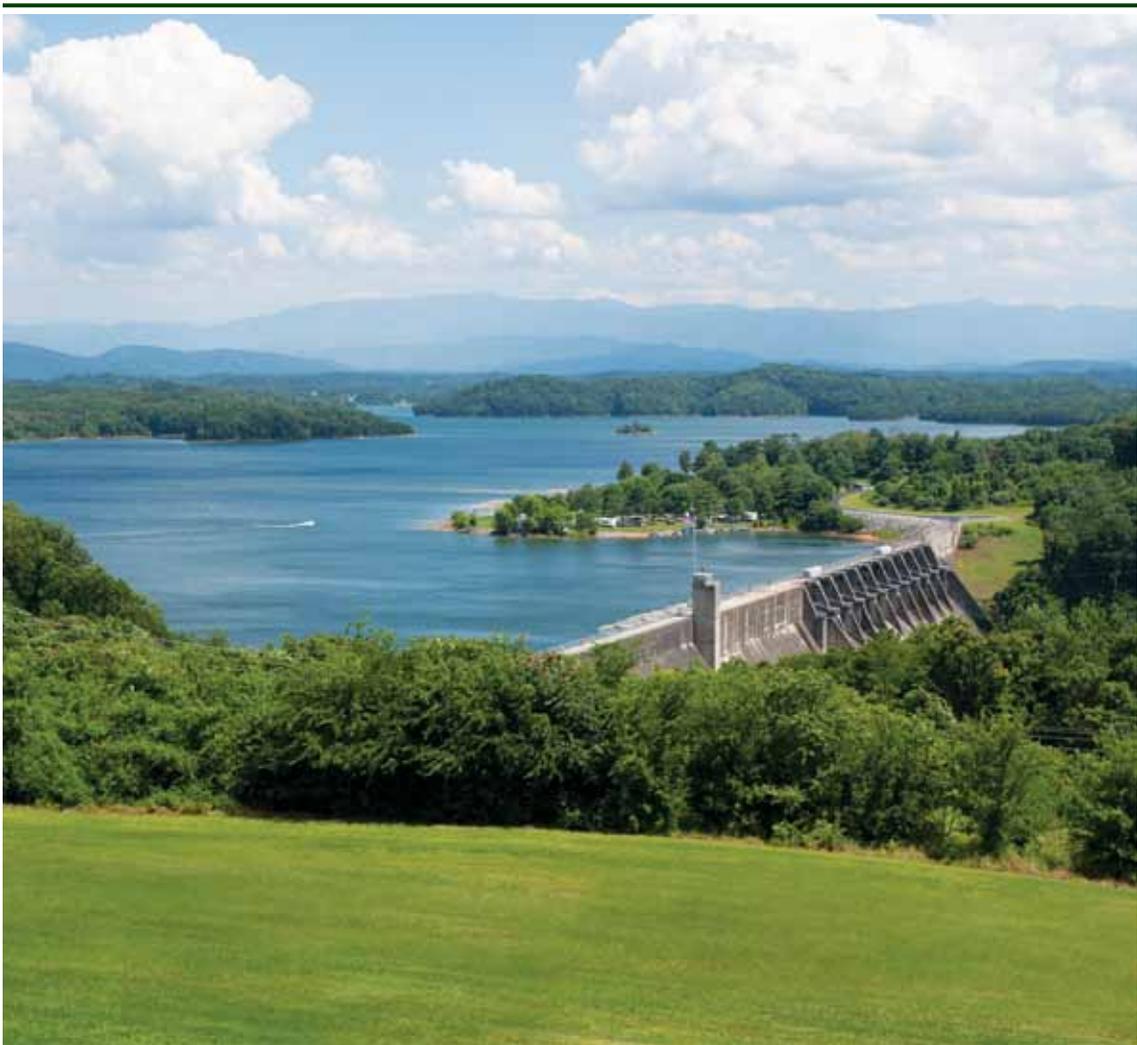
CHAPTER 1

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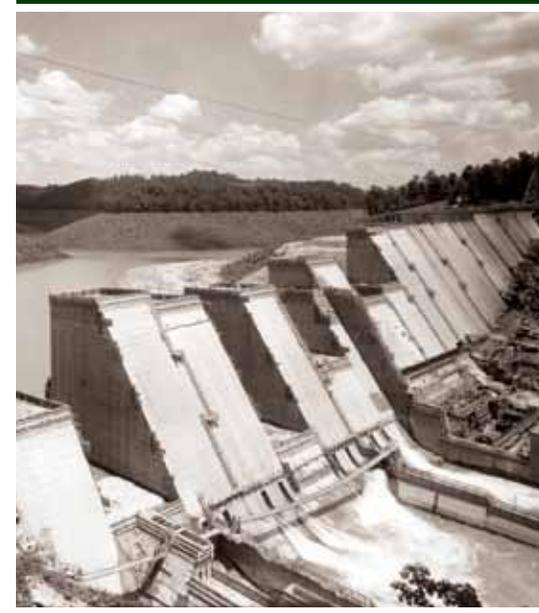
For more than seven decades, the Tennessee Valley Authority has been improving the quality of life in the Tennessee Valley region through its threefold mission of providing affordable and reliable power, promoting sustainable economic development, and operating as a steward of the region’s natural resources. To meet its environmental stewardship mission, TVA has developed a dedicated plan to guide its natural resources management, water resource protection and improvements, and sustainable land use activities over the next 20 years.



1.1 Tennessee Valley Authority History

President Franklin D. Roosevelt needed innovative solutions to lift the nation out of the depths of the Great Depression, and TVA is considered one of his most innovative actions. Roosevelt envisioned TVA as an agency different from any other. He asked Congress to create “a corporation clothed with the power of government but possessed of the flexibility and initiative of a private enterprise.” On May 18, 1933, Congress passed the Tennessee Valley Authority Act. (A copy of the TVA Act is available on the TVA website at www.tva.com/abouttva/pdf/TVA_Act.pdf.)

From its beginning,¹ TVA has held fast to its strategy of integrated resources solutions, even as the issues changed over the years. Each challenge the people of the Tennessee Valley region faced — whether it was the need for power, navigation to transport goods to and from larger markets, flood control, malaria prevention, reforestation, or erosion control — was studied in its broadest context. TVA



operates a system of dams and reservoirs in the Tennessee River Valley for the purposes of flood control, navigation and power production. In addition, TVA's environmental stewardship efforts have historically focused on improving water quality while providing recreational opportunities and a wide range of other public use benefits.



¹ A short TVA history can be found at www.tva.com/abouttva/history.htm.

1.2 Overview of TVA's Vision and Environmental Policy

TVA's renewed vision² — to become one of the nation's leading providers of low cost and cleaner energy by 2020 — will be achieved through acting to meet the region's needs for the future, while improving TVA's core business today. In alignment with TVA's vision, the NRP will focus on proactive stewardship through the protection and enhancement of the region's natural resources. In addition, the NRP will support local and regional economic development as well as ensure compliance with legal and regulatory stewardship requirements.

On May 19, 2008, the TVA board of directors approved the TVA Environmental Policy, which was reviewed and confirmed again in 2010. Its overarching objective is for TVA to engage in proactive environmental

stewardship in a balanced and ecologically sound manner. As shown in the center of Figure 1.1, the Environmental Policy also integrates environmental leadership with all aspects of the TVA mission.

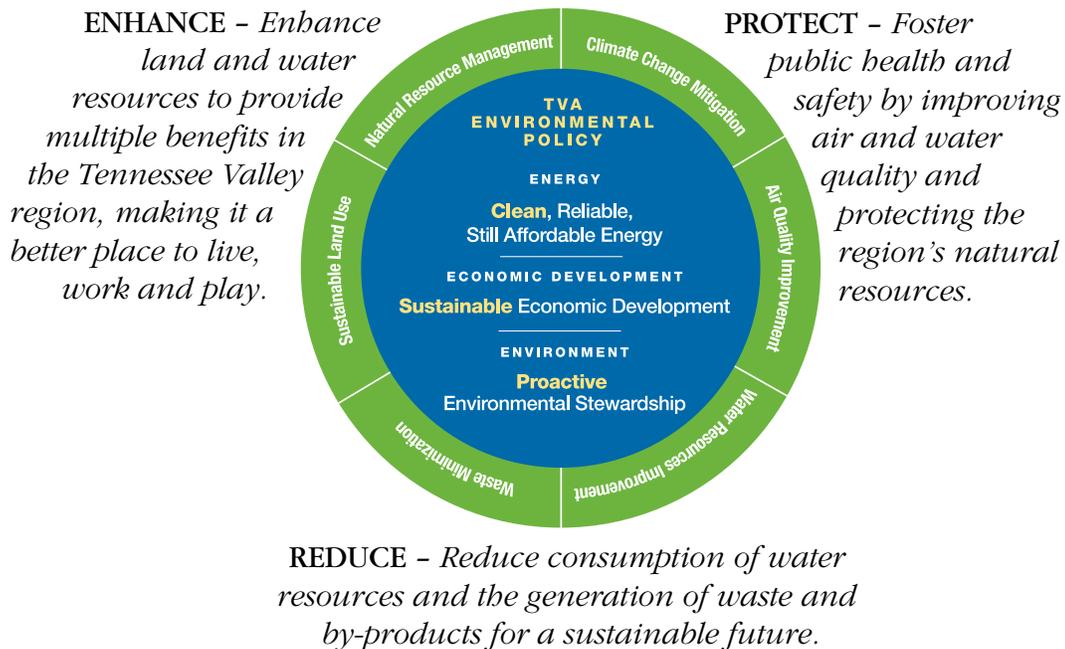


Figure 1.1 Environmental Policy alignment with TVA's mission

² See <http://www.tva.com/abouttva/vision.htm> for additional information on TVA's vision and the supporting strategic priorities.

The Environmental Policy is organized into six strategic objectives that encompass the variety of challenges faced by TVA (see Figure 1.1) tied to energy production and environmental stewardship. The NRP focuses on the execution, in part or in whole, of three Environmental Policy strategic objectives and critical success factors:



Water Resource Protection and Improvement

- Mitigate TVA's impact on aquatic systems while balancing thermal cooling needs with consumptive use
- Integrate the impacts of water quality and quantity into the long-range planning and decision-making process
- Collaborate in community outreach and partnerships through voluntary demonstrations of the efficient use of water resources and protection of water quality



Sustainable Land Use

- Actively manage TVA lands to meet the desired conditions for their purpose as defined in the reservoir land management plans
- Improve reservoir shoreline conditions through collaborative partnership initiatives and balance the multiple uses of the reservoirs in accordance with TVA's Land Policy and Shoreline Management Policy

- Manage TVA lands, mineral rights and shoreline access to better achieve environmental commitments while meeting the needs for recreation, residential access and economic development



Natural Resource Management

- Allow for properly managed, eco-friendly dispersed recreation while balancing the protection of biological, cultural and heritage resources
- Promote ecological diversity and wildlife habitats on TVA lands through partnerships and voluntary initiatives
- Increase the level of environmental quality and management consistency among TVA-managed and leased recreation facilities



1.3 Overview of the Natural Resource Plan

Historically, TVA has taken various approaches to managing the reservoir lands and biological, cultural, recreation and water resources in its care. By establishing the Environmental Policy, TVA created expectations for a more systematic and integrated approach toward managing energy production and environmental stewardship. The Integrated Resource Plan (IRP) and this Natural Resource Plan are implementation plans for TVA's mission as described in the agency's Strategic Plan. The IRP focuses on the power supply portfolio, whereas the NRP

focuses on biological and cultural resources, water resources, recreation, coordinated public engagement, and reservoir lands planning. Figure 1.2 (below) shows how the IRP and NRP deliverables fit together.

In addition, TVA has prepared an environmental impact statement to assess the impact of the NRP and its reasonable alternatives on the environment.³ The EIS:

- Describes the stewardship programs that are ongoing and are being evaluated for future implementation as part of the NRP
- Assesses the potential environmental impacts associated with implementing the various alternatives

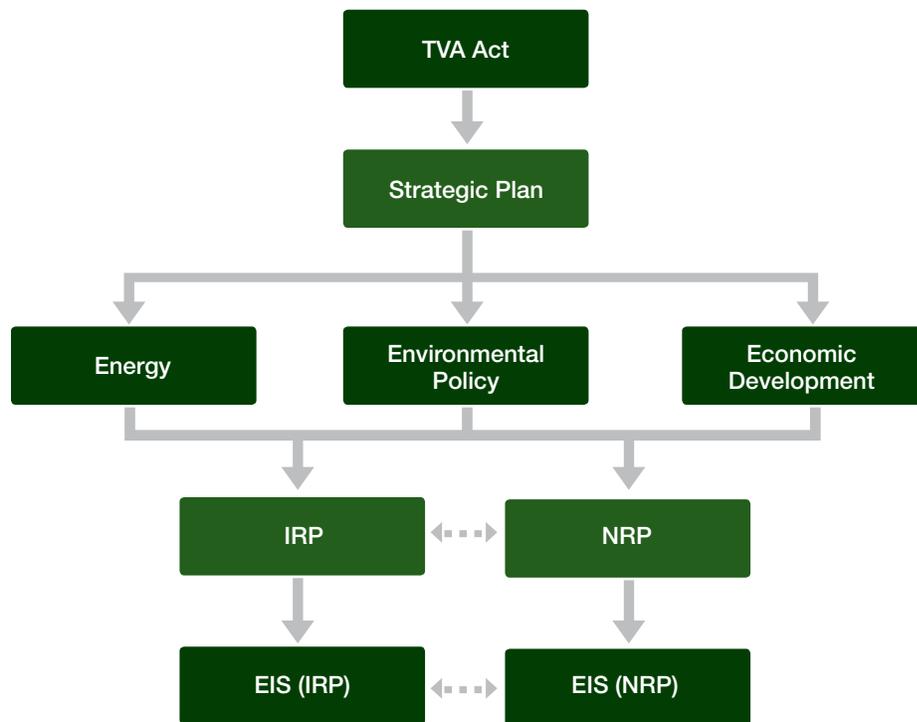


Figure 1.2 IRP-NRP project deliverables framework

³ The EIS is in accordance with 1) the National Environmental Policy Act, 42 USC § 4321 et seq.; 2) the Council on Environmental Quality regulations for implementing the National Environmental Policy Act, 40 CFR Parts 1500-1508; and 3) TVA's procedures for implementing the National Environmental Policy Act.

1.3.1 Resource Areas

The NRP is presented in six resource areas:



The NRP:

- Aligns TVA's stewardship programs and plans with the Environmental Policy
- Provides a strategic plan that:
 - Guides TVA's land and resource management decisions and actions
 - Integrates effective, efficient natural resource stewardship objectives with the goal of optimizing the public use benefits of TVA-managed lands
 - Strikes a balance between the competing and sometimes conflicting resource uses of TVA-managed lands
- Provides TVA staff with a reference manual to guide implementation activities
- Provides clarity and transparency to the public

Figure 1.3 NRP resource areas and supporting objectives

The NRP is designed to integrate the objectives of all of the resource areas, provide optimum public benefit, and balance competing and sometimes conflicting resource uses. These competing uses and external development pressures, coupled with increasing recognition of the importance of preserving nonrenewable resources, underscore the necessity for a consistent approach to the management of federal lands and water resources in the care of TVA.

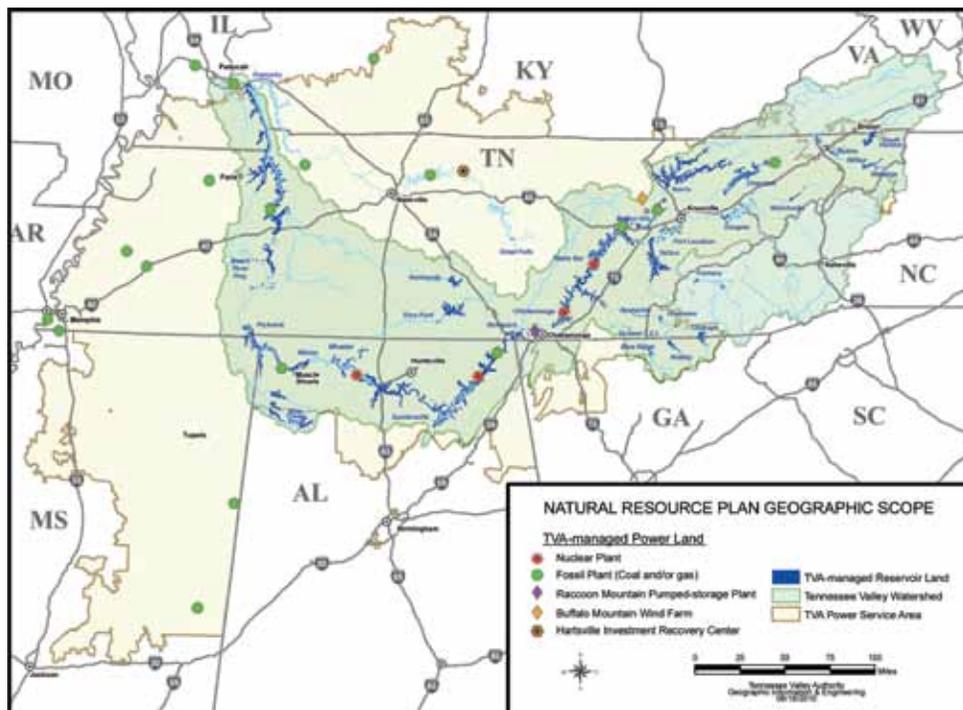
In addition, the NRP aligns with the Obama Administration's establishment of the America's

Great Outdoors Initiative, which promotes and supports innovative community-level efforts to conserve outdoor spaces and to reconnect Americans to the outdoors. The short-term intent of the initiative is to create a national dialogue about conservation and outdoor activities that supports the efforts of private citizens and local communities. As part of the NRP, TVA is identifying programs and goals that are integral to ensuring the appropriate management and protection of natural resources as well as building the necessary relationships and partnerships to effectively implement and manage these resources in the future.

1.3.2 Geographic Scope

The geographic scope of the NRP includes the Tennessee River watershed and TVA lands over which it has direct control within the power service area, with the exception of transmission line corridors. The breadth or reach of each program is highlighted in its respective resource area chapter (Chapters 3 through 8).

The biological resources, cultural resources, and reservoir lands planning components of the NRP focus primarily on the approximately 293,000 acres of TVA-managed reservoir lands. Recreation management focuses on those recreation facilities and programs directly managed by TVA and stream access sites located near TVA-managed reservoirs. The geographic scope for the water resource management component of the NRP includes the entire Tennessee River watershed as shown in Figure 1.4.



- Approximately 293,000 acres of reservoir properties
- 46 reservoirs
- Seven states
- Approximately 11,000 miles of shoreline
- Approximately 650,000 acres of impounded surface water
- Approximately 42,000 miles of tributary streams and rivers
- 11,500 archaeological sites (documented to date)
- 5,320 historic structures identified
- 235 historic sites eligible/potentially eligible for the National Register of Historic Places
- Approximately 800 miles of commercially navigable waterways
- 85 historic structures listed in the National Register of Historic Places
- Nine registered historic districts
- 270 campgrounds and marinas
- Approximately 75 TVA recreation areas
- 81 stream access sites

Figure 1.4 NRP geographic scope



As it relates to power plant properties, the NRP may be applied to the portion of lands located outside the secured area of each site to ensure that plant security requirements and needs are not infringed. These properties will remain power assets, and power generation will remain the primary function.

1.3.3 Out of Scope

The NRP aligns with and builds upon many existing TVA plans and initiatives, most notably TVA's Shoreline Management Policy, Land Policy, and Reservoir Operations Policy.⁴ Items that are considered out of scope in the NRP include, but are not limited to:

- Aquatic plant management
- Mosquito management
- Reservoir release improvements programs
- Shoreline permitting activities

- Land allocations for residential development
- Operation of the reservoir system
- Commercial recreation agreements

These activities have already been addressed through comprehensive public review processes and are the subject of other policies. In addition, TVA is not proposing a mineral rights policy as part of this effort.

1.3.4 Stakeholders

TVA gained valuable insight into the NRP by listening to different perspectives, viewpoints and sometimes-competing objectives. This played a prominent role in defining the direction for TVA's natural resources management effort in the near and long term. TVA actively sought input from the Regional Resource Stewardship Council, peer agencies and the general public.

⁴ Shoreline Management Policy - http://www.tva.gov/river/landandshore/landuse_shore.htm
Reservoir Operations Policy - http://www.tva.gov/environment/reports/ros_eis/
Land Policy - http://www.tva.gov/river/landandshore/land_policy.htm

Regional Resource Stewardship Council Members

Mike Ball, Representative
Alabama House of Representatives, Huntsville, Alabama

Karl W. Dudley, President and CEO
Pickwick Electric Cooperative, Selmer, Tennessee

Jean Kellems Elmore, West Point, Mississippi

Bill Forsyth, Chairman
Murphy Electric Power Board, Murphy, North Carolina

Ronald Fugatt, General Manager
Newport Utilities, Hixson, Tennessee

Michael Goodman, Environmental Manager
Temple-Inland, Waverly, Tennessee

Phil Hazle, Calloway County Elected Jailer
New Concord, Kentucky

Mark Hommrich, President
Volunteer Barge and Transport, Brentwood, Tennessee

Renee V. Hoyos, Executive Director
Tennessee Clean Water Network, Knoxville, Tennessee

Mark Iverson, General Manager
Bowling Green Municipal Utilities, Bowling Green, Kentucky

Mitch Jones, President
Tennessee Marina Association, Knoxville, Tennessee

Avis Kennedy
Army Corps of Engineers (retired), Nashville, Tennessee

George B. Kitchens, General Manager and CEO
Joe Wheeler Electric Membership Corporation
Trinity, Alabama

Tom Littlepage, Chief, Water Management Section
Office of Water Resources, Alabama Department of Economic
and Community Affairs, Montgomery, Alabama

Robert J. Martineau Jr., Commissioner
Tennessee Department of Environment and Conservation
Nashville, Tennessee

John K. Matney, President
The Harbor Company, Bristol, Virginia

W.C. Nelson Jr., President
Nelson Tractor Company, Blairsville, Georgia

Paul Sloan, Tennessee Department of Environment and
Conservation, Nashville, Tennessee

Russell Townsend, Tribal Historic Preservation Officer
Eastern Band of the Cherokee Indians
Cherokee, North Carolina

Deborah K. Woolley, President and CEO
Tennessee Chamber of Commerce and Industry
Nashville, Tennessee

“We need to be responsible stewards of the Tennessee River for this and future generations. The value the river provides to our region – economic, environmental, and recreation – is incalculable, and we must provide our water resources the care and management they deserve. This Natural Resource Plan reflects TVA’s commitment to do that.”

— George Kitchens
General Manager and CEO
Joe Wheeler Electric Membership Corporation

“TVA is the steward to those cultural items that are in the ground, and we have little idea how many there are or what cultural value, versus dollar value, they may possess. We will never know in our lifetimes what that may be. But nevertheless, TVA has a responsibility to take care of those items, and this Natural Resource Plan reflects that responsibility.”

— Russell Townsend
Tribal Historic Preservation Officer
Eastern Band of the Cherokee Indians

“Programs in the Natural Resource Plan, in addition to promoting responsible stewardship, generate significant economic benefits for the Tennessee Valley.”

— Deborah K. Woolley
President and CEO
Tennessee Chamber of Commerce and Industry
Chairwoman, RRSC

“Providing quality recreational facilities is an essential part of the Natural Resource Plan, and in promoting these facilities TVA must work to strengthen its partnerships and collaboration with the many agencies and organizations that serve the citizens of the Tennessee Valley.”

— Robert J. Martineau, Jr.
Commissioner
Tennessee Department of Environment and Conservation

Regional Resource Stewardship Council

As competition for finite resources grows, fulfilling TVA's integrated resource stewardship mission requires increased cooperation with other public agencies and private entities. It is in the interest of TVA and the public to establish a forum to regularly attain advice on stewardship trends, opportunities and challenges. In 1999, TVA established the Regional Resource Stewardship Council to advise TVA on its stewardship activities and the priorities among competing objectives and values. In addition to these responsibilities, the council serves as a stakeholder group and provides input for the development of the NRP. The council was established under the Federal Advisory Committee Act. Its meetings are open to the public, and the proceedings, including names of current and past members, are published at www.tva.com/rrsc.

TVA facilitated discussions among members of the Regional Resource Stewardship Council on the issues they believed were important to a successful NRP. Meetings were held in July 2009, October 2009, March 2010, January 2011, April 2011 and June 2011. The views of council members were collected on the entire range of assumptions and strategies in the NRP. To aid with development of the plan, the RRSC provided the following guiding principles:

1. Managing the river comes with the responsibility, along with the TVA mandated mission on stewardship, to do a first-class job of managing the water, shoreline and natural resources.
2. Continue to invest. The most desirable outcome would be a visible public use benefit garnering public support and maximizing return on investments.
3. Create public awareness of TVA's nonpower accomplishments and current activities.
4. Balance the cost of all programs borne by ratepayers with TVA's low-cost energy mission and economic development.
5. Where possible and appropriate, integrate and leverage cross-program benefits with each other into a "portfolio."
6. Recognize that some activities are part of program implementation – not stand-alone programs.
7. Explore the risks of doing or not doing stewardship activities. (The priority should be protecting nonrenewable resources.)
8. Encourage and incorporate public input into the development of the NRP, allowing for sufficient time and opportunity to comment.
9. Be clear and concise on communicating the NRP with the public.
10. Explain the purpose and process of the NRP and its limitations.
11. The NRP is a living document. Ensure review and revise as needed at appropriate intervals, not to exceed five years.





Peer Agencies

During the development of the NRP, TVA met with several state and federal agencies in the Tennessee Valley to gain additional perspective on the trends, challenges and opportunities associated with natural resources management. These meetings helped to provide key input and insights that were incorporated in the final NRP. An additional goal of these discussions was to begin strengthening the peer network throughout the Tennessee Valley, helping to create a more coordinated and collaborative working environment for future resource management efforts.

TVA met with agencies in all seven states, including:

- U.S. Forest Service
- U.S. National Park Service
- U.S. Fish and Wildlife Service
- U.S. Army Corps of Engineers
- U.S. Environmental Protection Agency
- Alabama Department of Conservation and Natural Resources
- Georgia Department of Natural Resources
- Kentucky Department of Fish and Wildlife Resources
- Kentucky State Nature Preserves Commission
- Mississippi Department of Wildlife, Fisheries, and Parks
- North Carolina Wildlife Resources Commission
- North Carolina Department of Environment and Natural Resources
- Tennessee Wildlife Resources Agency
- Virginia Department of Game and Inland Fisheries
- Virginia Department of Conservation and Recreation

1.4 Development Process

The NRP was developed in four steps:



Figure 1.5 Natural resource planning process



1.4.1 Determine the NRP Scope

Scoping is a procedure that solicits public input to ensure that:

1. Issues are identified early and properly studied
2. Issues of little significance do not consume substantial time and effort
3. The EIS is thorough and balanced
4. Delays caused by an inadequate review are avoided

The National Environmental Policy Act and TVA procedure require that the scoping process commence soon after the decision to prepare an EIS is published. This process provides an early and open process for determining the scope and for identifying the

significant issues related to a proposed action. On June 15, 2009, TVA published a notice of its intent to prepare an EIS and to conduct a comprehensive study, the IRP, of its future energy and environmental stewardship needs. In order to provide a better focus on TVA's stewardship activities, a decision was made in fall 2009 to separate the IRP and NRP, with the IRP focused on future energy needs and the NRP focused on environmental stewardship needs. The notice of intent included the scope of both projects, the IRP and the NRP. Public scoping began with the publication of the notice in the Federal Register in June 2009. Following the decision to separate the IRP and NRP, TVA announced an additional 30-day public comment period for the NRP beginning Oct. 2, 2009. During this scoping period (June - November 2009) TVA held seven public meetings and received more than 600 comments pertaining to stewardship.

2
Develop, Analyze and Evaluate NRP Programs

1.4.2 Develop, Analyze and Evaluate NRP Programs

The NRP defines programs for each resource area based on a set of goals and expected outcomes that align with the Environmental

Policy objectives. TVA analyzed each program based on its qualitative and quantitative benefits, cost and other strategic considerations to see how it would perform or respond given different decision criteria. This evaluation was accomplished by combining the following inputs and perspectives to ensure each program is compared without bias.

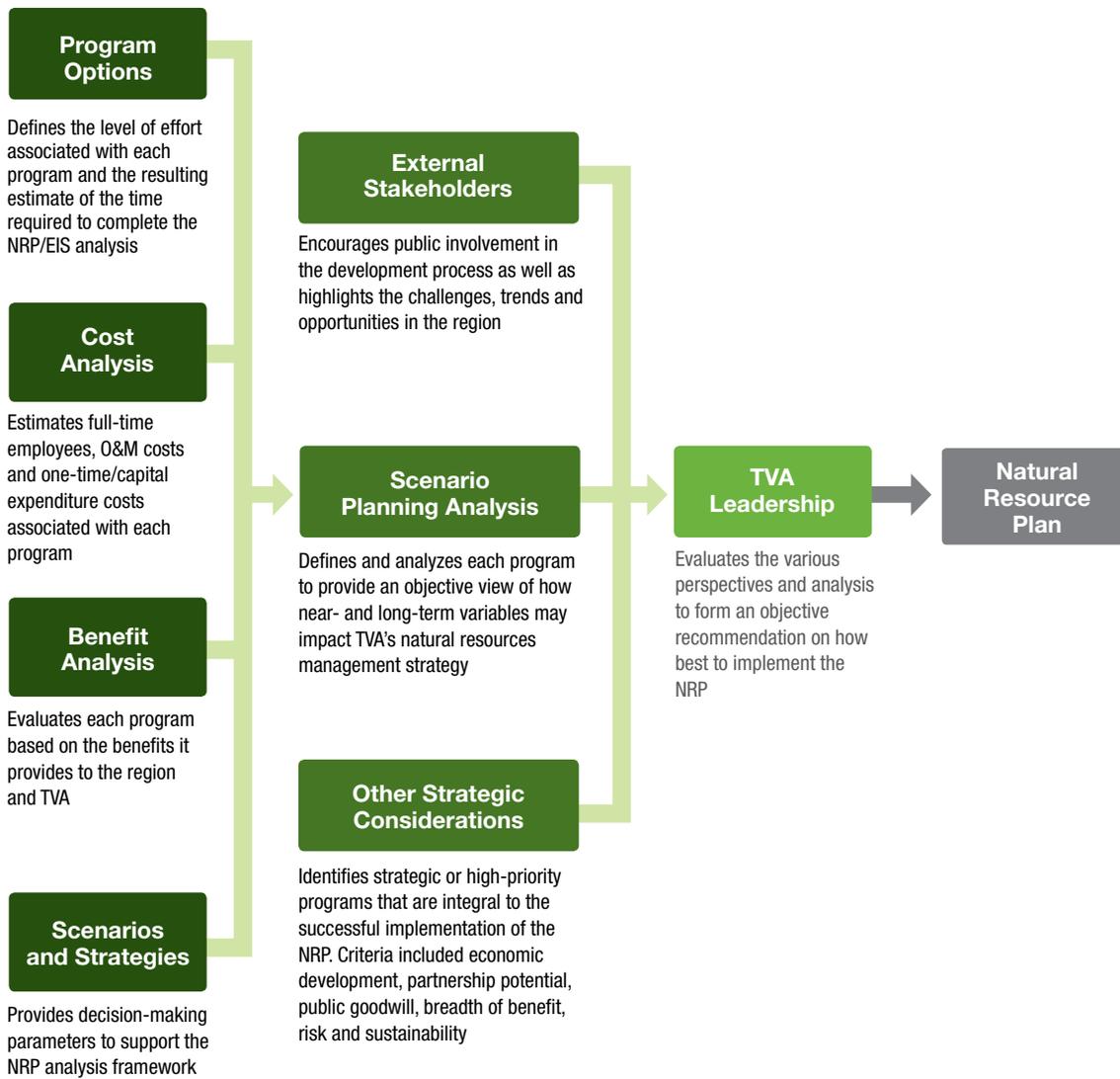


Figure 1.6 Key inputs to the NRP decision-making process

3

Release Draft
NRP/EIS for
Public Comment

1.4.3 Release the Draft NRP and EIS for Public Comment

The draft NRP and EIS were presented to the public for review and comments. As in the preliminary scoping period, TVA encouraged public comments on these documents. Following the release of the NRP in March 2011, TVA held a 45-day comment period. TVA hosted three public meetings across the valley and solicited written comments to collect public input during this period. Substantive comments on the draft NRP and EIS are addressed in the final EIS (see Volume II). More than 225 comments were received during this comment period from state and other federal agencies, organizations and concerned citizens.

4

Finalize and
Issue the NRP

1.4.4 Finalize and Issue the NRP

TVA revised the NRP and EIS after considering public comments and conducting additional analyses. To complete the development process, a 30-day public comment period will be held after the Notice of Availability of the final EIS is published in the Federal Register. Following this, the final NRP will be presented to the TVA board for its consideration and the board's decision will be described and explained in a Record of Decision published in the Federal Register.

1.5 Past TVA Environmental Stewardship Spending

TVA's responsibility for stewardship of the waters and public lands of the Tennessee Valley was established in the TVA Act. From its inception in 1933 through most of the

1950s, TVA received federal appropriations to fund its operations. In 1959, Congress passed legislation that made the TVA power system self-financing. However, TVA continued to receive appropriations to fund its stewardship programs. In addition, TVA's funding for stewardship activities also came from power revenues when benefits to the power system were provided and from nonpower revenues such as agricultural leases, timber sales and recreation user fees.

Programs for which appropriated funding was provided changed over the years. In general, funding was provided for:

Operations and Maintenance Funding

- Daily reservoir operations
- Dam safety
- Navigation
- Reservoir release improvements
- Water resources
- Regional water supply
- River action teams
- Land resources
- Plant and mosquito management
- Shoreline erosion and stabilization
- River basin land
- Land strategy
- Regional natural heritage and cultural resources
- Shoreline management

Capital Funding

- Dam construction and improvement
- Dam safety
- Navigation
- Reservoir release improvements
- River basin land
- Water resources

TVA also received appropriations for economic development, the Environmental Research Center, and the Land Between The Lakes National Recreation Area (LBL), but Congress discontinued appropriations to TVA for economic development after 1997, for the Environmental Research Center after 1998, and

for the Land Between The Lakes after 1999. Land Between The Lakes was transferred to the Department of Agriculture in 2000.

Public Law 105-62, the Energy and Water Development Act of 1998, required TVA to fund nonpower programs that constitute “essential stewardship activities” with power revenues and other funds. The term “essential stewardship activities” was interpreted to include, and be limited to, those types of stewardship activities for which TVA was receiving appropriations at the time the legislation was enacted. At the time the law was passed, TVA was spending approximately \$79 million on these activities.

Since 1999, TVA has continued to support these stewardship activities at comparable levels, funding activities almost entirely from the sale of electricity. In 2010, TVA spent approximately \$65 million on essential stewardship programs and associated capital improvement projects. Of this amount, approximately \$7 million to \$8 million funded programs that are evaluated in the NRP, with the remainder going toward dam safety, navigation and reservoir operations. See the Executive Summary for a chart of historical essential stewardship activity spending.

1.6 Benefits

The NRP provides a number of benefits to the public, to the resources that TVA protects, and to the ratepayers. TVA’s work in natural resource management is a key piece of its integrated business model, and this investment will help it sustain accessible natural resources and recreational sites for the people of the Tennessee Valley in an efficient and effective manner. This in turn translates into low electricity rates, helping keep residents’ cost of living low and quality of life in the Tennessee Valley high.

As more research is conducted and studies estimating the impact of human activity and industry on natural resources become more readily available, the short- and long-term benefits associated with proactive natural resources management become more apparent. The NRP helps TVA to evaluate benefits at both a programmatic and Valleywide level, highlighting the advantages inherent in implementing a strong stewardship culture.

Chapters 3 through 8 of the NRP discuss the expected benefits at a programmatic level. The following sections provide an overall look at the benefits associated with TVA’s natural resources management. As a whole, NRP-related programs are expected to provide a fourfold benefit for every dollar spent.

Public and Economic Benefits

- Higher quality of life
- Access to informal water-based recreation
- Significant access to informal outdoor recreation areas (trails and other day-use areas)
- Protection of nonrenewable resources (cultural, archaeological, threatened/endangered species)
- Expenditures in the Valley by recreational visitors (economic development)
- Marina and recreational boating reservoirs
- Value of reservoir and tailwater fishing
- Flood control

Ratepayer Benefits

- Thermal control of river for generation
- Control of river systems for hydro generation
- Revenue from recreation agreements, agricultural licenses, fees and reimbursables
- Improved water resource management
- Efficiencies gained through program integration
- Collaborative and leveraged partnerships

Figure 1.7 Benefits of natural resources management

1.6.1 Public and Economic Benefits

Sound natural resource management provides significant benefits to the public. Access to and use of outdoor recreation has been shown to correlate to healthier lifestyles and thus a higher quality of life. In addition to ensuring a high quality of life for residents of the Tennessee Valley, programs in the NRP work to protect many of the Valley's nonrenewable resources. These resources include such things as archaeological items and endangered plant and animal species that can never be recovered once they are gone.

The programs in the NRP create a number of positive economic impacts as well. The 80 recreational sites and approximately 293,000 acres of surrounding land and reservoirs operated and managed by TVA attract millions of visitors each year to enjoy the region's natural and water resources. Recreational and boating opportunities are provided by each reservoir, and TVA dams create numerous tailwater fishing sites. In 2008-09, approximately 16.9 million people visited Tennessee state parks (many made possible by TVA's natural resources management), including an estimated 2.3 million visitors to Tennessee Valley historic sites and another 1.3 million visits to archaeological sites annually. These visits generate over \$1.5 billion in total economic output (\$725 million in direct expense and another \$835 million in economic activity throughout the state to enable delivery of products and services) and support over 18,600 jobs in Tennessee alone.¹

1.6.2 Ratepayer Benefits

In addition to the intrinsic value of protecting TVA's natural resources, proper management can create significant costs savings for ratepayers. When the care of the Tennessee River was entrusted to TVA, essential stewardship responsibilities were entrusted with it. The NRP fulfills a number of these responsibilities, and it helps provide the basis for maintaining control of the river.

This responsibility results in a number of benefits for the agency and its ratepayers. Control of the river allows responsible management of the water for thermal control of key generation assets and for hydro generation. Each of these helps reduce power costs. In addition, water conservation and resource management efforts by TVA can also reduce the impacts of water shortages and reduce the need for water development programs that raise the cost for water in the region.²

Finally, the NRP creates a number of efficiencies across stewardship programs. As programs are better integrated, opportunities to increase activities are created. These efficiencies, combined with the proactive approach to partnerships outlined in the NRP, can potentially lead to expanded implementation efforts.

¹ Economic Impacts of Tennessee State Parks, University of Tennessee Institute for Agriculture.

² Economic Benefits of the Tennessee Valley Authority's Natural Resource Plan, Jan. 2011.