

2008 TVA Environmental Policy

Draft for public review



April 3, 2008

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Message from the CEO

Stewardship of the Tennessee Valley

At the Tennessee Valley Authority, we have long been aware of the impact that our activities have on the environment, and we have worked in partnership with others to further the region's environmental quality by improving our stewardship.

Through this partnership, we have contributed to the progress of the regional economy by meeting the ever-increasing demand for electricity while reducing emissions from our power plants. Yet, we recognize that greater challenges lie ahead to meet higher standards for cleaner air and to ensure that the finite water and land resources under our stewardship are available for future generations.

The demand for electricity in the TVA service region is forecast to grow about 2 percent which is higher than the national average of 1.3 percent. We are actively increasing our efforts in energy efficiency to reduce unnecessary growth. But that still leaves the big challenge of improving our environmental stewardship while meeting the demand for more power and keeping the cost of electricity as low as practical. In some cases, we will be able to strengthen our stewardship without affecting rates. However, other decisions, such as expanding low-carbon generation capacity, would most likely put upward pressure on power rates.

TVA aspires to be a more proactive environmental partner for the region that is our home. To help integrate environmental leadership into our planning and decision-making, we are revising our environmental policy, which dates to 2001. The proposed new policy sets out guiding principles and identifies the areas where TVA will be more proactive. The revised policy is presented here in draft form for public comment. In a spirit of partnership, we are asking for your participation and

feedback as we seek to make our policy a successful guide for TVA in the years ahead.

As the electricity provider for a region of nearly nine million people and the steward of the nation's fifth-largest river system and more than 290,000 acres of public lands, we aspire to provide cleaner and still-affordable electricity, to continue sustainable economic development and to provide environmental leadership in partnership with our neighbors. Please take time to review our proposed policy and let us know how we can improve it. Our goal is to adopt an environmental policy that helps TVA make decisions and take actions that contribute to a better environment today and for the future.

The TVA Board

CHAIRMAN WILLIAM B. SANSOM of Knoxville, Tennessee, is chairman and chief executive officer of The H.T. Hackney Co. and has held that position since 1983. Hackney is a diversified company involved in wholesale grocery, gas and oil, and furniture manufacturing. His term on the TVA Board expires in 2009.

Committees: Finance, Strategy & Rates; Operations, Environment & Safety.

DENNIS BOTTORFF of Nashville, Tennessee, serves as chairman and partner of Council Ventures, a venture capital firm. He was chairman of AmSouth Bancorporation until his retirement in 2001 and previously was chief executive officer of First American Bank. His term on the TVA Board expires in 2011.

Committees: Corporate Governance; Finance, Strategy & Rates; Human Resources.

DON DEPRIEST of Columbus, Mississippi, is chairman of a venture capital firm headquartered in Alexandria, Virginia. The firm has founded or invested in such companies as American Telecasting, now merged with Sprint. His Charisma Communications Corp. was a pioneer in the cellular phone business. He previously chaired the Columbus, Mississippi, Utilities Commission. His term on the TVA Board expires in 2009. Committees: Corporate Governance; Audit & Ethics; Community Relations.

MIKE DUNCAN of Inez, Kentucky, is chairman, chief executive officer and director of Community Holding Co.; chairman, CEO and director of Inez Deposit Bank; and chairman of the Republican National Committee. He is a director of the regional Center for Rural Development. His term on the TVA Board expires in 2011. Committees: Audit & Ethics; Community Relations.

THOMAS GILLILAND of Blairsville, Georgia, is the retired executive vice president, general counsel and secretary of United Community Banks, Inc., a holding company with \$8 billion in assets. He is a former partner of the Hurt, Richardson, Garner, Todd & Cadenhead law firm in Atlanta and has been on the boards of several businesses, including the Atlanta Hospital Hospitality House and Decatur-DeKalb YMCA. His term on the TVA Board expires in 2011.

SKILA HARRIS of Washington, D.C., is a native of Bowling Green, Kentucky, and served as a full-time TVA director from November 1999 through March 2006. She previously held positions in the U.S. Department of Energy, the White House and energy-management and engineering-consulting firms. Her term on the TVA Board expires in 2008. Committees: Operations, Environment & Safety; Human Resources.

HOWARD THRAILKILL of Huntsville, Alabama, recently retired as president and chief operating officer of Adtran, Inc., in Huntsville, which supplies equipment for telecommunications service providers and corporate end-users. Previously, he was president and chief executive officer of the firm Floating Point Systems. His term on the TVA Board expires in 2010. Committees: Operations, Environment & Safety; Human Resources.

TVA Environmental Policy Fact Sheet

- *Why has TVA reviewed its environmental policy?*

After approval of the 2007 TVA Strategic Plan, the TVA Board's Operations, Environment and Safety Committee proposed that TVA develop an environmental policy. This overarching environmental policy will provide high-level direction that guides TVA's strategic business planning, and therefore will reflect the agency's integrated position and direction across the multiple dimensions of its environmental activities.

- *What environmental issues have changed since the last policy was formulated in 2001?*

Since the formulation of the last policy in 2001, TVA is faced with additional, more stringent environmental regulations and complex issues. Perhaps most significant has been the climate-change issue and its challenges of sustaining an affordable and reliable energy supply in a carbon-constrained world. Across all dimensions (i.e., climate, air, water, waste, land use and natural resources) there is a growing recognition of the environmental and economic need to ensure sustainability of valley resources to fulfill the TVA mission. The environmental policy creates a framework to integrate and direct progress in these areas with our strategic planning and operational decisions.

- *What are the key dimensions of the draft environmental policy?*

TVA deals with a multitude of environmental issues. TVA's 2007 Strategic Plan recognizes that additional environmental regulation addressing a wide array of environmental issues could come into force in the future. In addition, TVA recognizes that the Tennessee Valley's land and water resources are finite, and pressures on these resources will increase. To address these varied environmental issues, they were organized into six environmental dimensions to foster an

integrated approach to policy development. These dimensions are climate-change mitigation, air quality improvement, water resources improvement, waste minimization, sustainable land use and natural-resource management.

- *How will the draft environmental policy be implemented?*

TVA's Environmental Management System (EMS) will be an important tool for managing the implementation of the new environmental policy. The TVA EMS is a set of processes that have been in place since 2002 and are used to standardize best practices and to improve and measure environmental performance. Additionally, the use of performance measures will provide a yardstick to track results to ensure that goals are achieved.

- *How can I receive a copy of the draft environmental policy?*

The 2008 Corporate Environmental Policy can be downloaded from our Web site at www.tva.com. For a printed copy, contact Environmental Stewardship & Policy, WT11, Tennessee Valley Authority, 400 West Summit Hill Dr., Knoxville, TN 37902.

How can I comment on the draft environmental policy?

You can visit our Web site at www.tva.com, send written comments to Environmental Stewardship & Policy, WT 11, Tennessee Valley Authority, 400 West Summit Hill Dr., Knoxville, TN 37902, or send comments to tmhouseholder@tva.com.

Chapter 1 Environmental Policy

1.1 THE CHANGING ENVIRONMENTAL LANDSCAPE

TVA has a long history of strong commitment to leadership in environmental stewardship. In 1936, the TVA Board of Directors produced a report to Congress on the unified development of the Tennessee River system. The report presented a vision for the integrated management of the Tennessee River system with TVA's economic and energy production activities. A core belief put forth then – and every bit as true today – was that improving and sustaining the quality of life of Tennessee Valley residents depended on the wise management and conservation of the Valley's resources and that those resources were inextricably linked to the economic vitality of the region. This core belief became the model for efforts throughout the world of how to integrate energy, economic and stewardship activities. In 2001 TVA adopted an updated environmental policy reflecting the core environmental needs at that time, and reiterated the need to balance sustainable development of the Valley's natural resources with supplying reliable, affordable power and improving the environmental performance of TVA's operations.

Since the formulation of the 2001 policy, which is available at www.tva.gov/environment/policy.htm, TVA is facing additional and more stringent environmental regulations and challenges. Perhaps most significant has been the growing awareness and urgency of mitigating climate change in a carbon-constrained world while sustaining a reliable and affordable energy supply. However, across all dimensions (climate, air, water, waste, land use and natural resources) there is a growing recognition of the environmental

and economic need for an increased emphasis on sustainability in order to most effectively meet all dimensions of the TVA mission. In the 2007 TVA Strategic Plan, about half of the identified strategic objectives and critical success factors relate directly to TVA's environmental stewardship activities and policy-making. Following the release of the 2007 Strategic Plan, the TVA Board asked for the development of an integrated environmental policy that would update the previous policy set in 2001. This report is the draft public presentation of the updated TVA environmental policy and reflects TVA's integrated position and objectives across the multiple dimensions of its environmental activities.

1.2 ENVIRONMENTAL POLICY

TVA's overarching environmental policy is to provide cleaner, reliable and still-affordable energy, support sustainable economic growth in the Tennessee Valley and engage in proactive environmental stewardship while managing TVA's water, land and natural resources for multiple uses in a balanced and ecologically sound manner. In this context the environmental policy directly aligns with the overall three-part TVA mission of Energy, Economic Development, and Environment, and as shown in the center of Exhibit 1, accents and integrates environmental leadership into all aspects of the TVA mission.

Exhibit 1. Overall environmental policy alignment with TVA’s mission



Cleaner, reliable, and still-affordable energy – TVA has an enduring responsibility to deliver reliable and affordable power to the residents and businesses in the Tennessee Valley. Over the years we have also made investments to comply with environmental regulations in an efficient and affordable manner. As we look ahead, we recognize the challenge to achieve continuous improvements to make our overall generation portfolio “cleaner” while still meeting our commitments to reliable and affordable energy supply.

Sustainable economic development – Growth is an important component of maintaining the economic vitality of the Tennessee Valley, and TVA is committed

to continued leadership in achieving this important element of our mission. Increasingly, however, we recognize that unplanned growth can place great demands on all of our resources and lead to outcomes that can erode the quality of life within the Tennessee Valley. We believe the solution lies in working together with public and private stakeholders to achieve “sustainable” community and economic growth in harmony with TVA’s environmental stewardship activities.

Proactive environmental stewardship – As already noted, environmental stewardship has been a core element of TVA’s mission and contributions to the Valley since its inception. Looking forward, we see the nature and the magnitude of the environmental challenges growing larger and requiring increasing innovation and leadership to find practical, effective and affordable answers. To meet the environmental challenges of the 21st century and beyond, we all must be proactive in our commitment to work together to anticipate, avoid when possible and then mitigate the “footprint” we all impose upon the environment. This policy outlines both the direction TVA will take to increase its ongoing stewardship of the environment through the actions within its direct control and the role TVA can play to support the actions of others in preserving our environment.

1.3 ENVIRONMENTAL DIMENSIONS AND STRATEGIC OBJECTIVES

The outside ring of Exhibit 1 illustrates the broad scope of TVA’s environmental responsibility. Specifically, TVA’s scope of responsibility covers climate changes, air quality, water resources, waste management, sustainable land use, and natural resource management. Each of these areas involves complex sets of challenges and demands that we cannot possibly fully describe within this overall policy statement. However, the goals of the policy are to describe the strategic objectives and

direction we intend to pursue as summarized below, and subsequently in Chapter 3, and to outline the critical success factors for each of these six environmental areas:

Climate change mitigation. TVA will continue to reduce its carbon-emissions intensity by supporting a full slate of reliable, affordable, lower-CO₂ energy supply opportunities and promoting energy efficiency, in collaboration with stakeholders.

Air quality improvement. TVA will continue its industry-leading efforts to further reduce sulfur-dioxide, nitrogen-oxide, mercury and particulate emissions and engage regional and national stakeholders in developing better ways to understand, monitor, and improve regional air quality.

Water resources improvement. TVA will actively promote reservoir and stream-water quality, reduce the impact of its operations and leverage alliances with local and regional stakeholders to promote water conservation.

Waste minimization. TVA will drive increased sustainability in existing compliance programs and waste management practices by focusing on waste reduction at the source, minimizing waste generation, and increasing recycling efforts to reduce environmental impacts.

Sustainable land use. TVA will strive to maintain the lands under its management in good environmental health to balance multiple uses and will improve its decision making in regard to land acquisition, development and disposal to support sustainable development.

Natural resources management. TVA will demonstrate leadership in ecologically sound natural resource management and increase the share of resources meeting the desired environmental conditions for sustainable recreation, ecological diversity and cultural resource protection.

* * *

In addition to formulating strategic objectives for each of the above environmental dimensions separately, TVA also recognizes that actions taken in any one area can have both positive and, on occasion, negative implications for other areas. For example, energy efficiency can have positive effects across multiple dimensions. Other actions, such as installing scrubbers for example, improve air quality but can add to waste disposal challenges. Thus in approaching the development of this overall policy we used a number of integrating techniques and methodologies to help identify and better understand these areas of overlap. In particular, the assessment of carbon abatement proved to be a very useful integrating assessment because it touched on virtually every supply option for power. The carbon abatement assessment also assisted in identifying the relative economics and impact of demand management options, offsets, and non-power sector opportunities. Chapter 3 provides additional detail on the carbon assessment framework and how it helps to integrate across multiple dimensions. Chapter 4 reiterates TVA's commitments.

Chapter 2 Policy Development and Stakeholder Involvement

2.1 POLICY DEVELOPMENT

The development of the updated environmental policy followed four phases: The first phase identified key focus areas and established an overarching framework for the policy. The investigations performed in the second phase analyzed market forces and established a range of possible regulatory outcomes, highlighting the potential impacts of both on TVA. The third phase used this context to define a series of strategic objectives and identified the critical success factors necessary to meet those objectives. The fourth phase is currently underway and involves the review and incorporation of public comments. TVA is committed to listening to the thoughts of the constituents it serves. Therefore, the policy will be available for comment for a 30-day period. Thereafter, TVA will then review the comments and incorporate public input before presenting the final policy for the board's approval.

2.2 STAKEHOLDER INVOLVEMENT

TVA has a long history of building successful relationships with stakeholders within the Tennessee Valley and across the United States and is committed to leveraging and expanding this partnership base moving forward. The development of the TVA Environmental Policy reinforced the need to understand and respond to the expectations of our stakeholders. In drafting this policy, TVA facilitated a series of one-on-one meetings, group working sessions and conference calls with many external stakeholders. Information from these interactions was used to help identify an initial set of stakeholder priorities.

The major classes of stakeholders interviewed included the following:

- Congressional members and staff
- State and local officials from the Tennessee Valley
- Tennessee Valley Public Power Association members and key distributors
- Tennessee Valley Industrial Committee members
- State and local government associations
- Federal agencies
- Non-government organizations and advocacy groups

The stakeholders highlighted TVA's strengths and encouraged TVA to build on these when formulating its revised environmental policy and implementation strategies. The major strengths articulated were as follows:

- TVA has a history of providing a reliable, low-cost energy supply.
- TVA has a proven track record with clean hydroelectric and nuclear generation.
- TVA is uniquely positioned to help shape solutions to emerging environmental challenges at the regional and national levels due to its federal status.
- TVA has broad commitment and support for its economic development and environmental stewardship activities.

Stakeholders also identified a number of areas for consideration and improvement moving forward. Recurring cautionary themes included the following:

- TVA's legacy of low-cost power should not be put at risk.
- TVA has significant greenhouse gas emissions and should manage its exposure to potential emerging regulation.

- TVA should determine the long-term, least-cost approach to meet environmental challenges and then find creative ways to meet or modify any constraints (e.g., debt ceiling restrictions on capital).
- TVA should explore options to better leverage its research capabilities, federal agency status and government relationships to address challenges facing the Valley

TVA’s evaluation of stakeholder suggestions and feedback to date revealed four emerging themes TVA should emphasize from the stakeholders’ perspective: proactive leadership, continuing focus on partnerships, increased coordination and open commitment to specific targets.

- **Leadership.** TVA must take a leadership position in areas of its core competency such as nuclear power and hydroelectric power.
- **Partnerships.** TVA should expand partnership opportunities with key constituents, such as local, federal and state institutions, in key focus areas.
- **Coordination.** TVA should leverage its credibility and position as a federal agency to foster coordination among multiple parties to achieve common goals.
- **Commitment.** TVA should clearly articulate its environmental commitment, preferred strategies for least-cost solutions and associated performance metrics.

* * *

The environmental policy itself is not intended to serve as TVA’s response to future environmental regulations, nor is it intended to set a specific regulatory forecast for planning purposes. Rather, the policy establishes an overarching framework and guiding principles for future strategy development. The Board of Directors will

periodically review and update the environmental policy to respond to significant market and regulatory changes and ensure alignment with TVA's strategic priorities.

Chapter 3 Environmental Dimensions

TVA deals with a multitude of environmental issues. To address these varied environmental issues in an integrated manner while characterizing and balancing trade-offs, the draft environmental policy is organized into six environmental dimensions. These dimensions are climate-change mitigation, air quality improvement, water resources improvement, waste minimization, sustainable land use and natural-resource management.

3.1. CLIMATE CHANGE MITIGATION

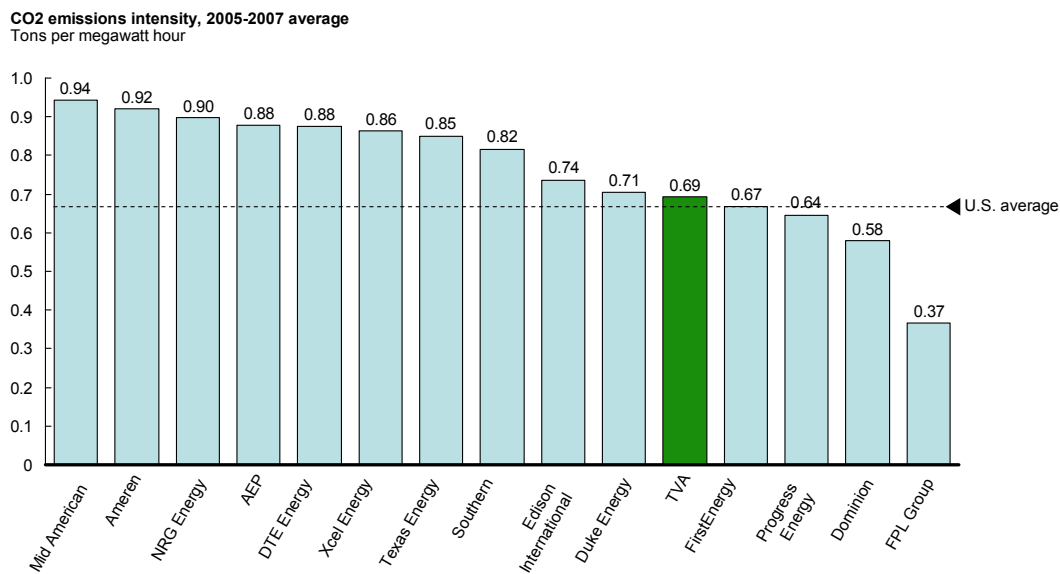
TVA will continue to reduce its carbon-emissions intensity by supporting a full slate of reliable, affordable, and lower-CO₂ energy supply opportunities and energy efficiency, in collaboration with stakeholders.

Over the past decade, the impact of man-made greenhouse gas (GHG) emissions has been the focus of much scientific, business and policy debate in the United States and abroad. Carbon dioxide (CO₂), a greenhouse gas that originates primarily from fossil-fuel combustion for electricity generation, transportation and industrial processes, accounts for more than 80 percent of the nation’s total GHG emissions. Forty percent of the nation’s CO₂ emissions today can be directly attributed to electricity generation.

TVA is among the largest emitters in the United States on an absolute basis due to the size of its fossil generation portfolio. However, about 40 percent of TVA’s generation comes from nuclear and hydropower. TVA’s generating portfolio emissions “intensity” (tons of CO₂ -per-megawatt-hour) is slightly above the national average, and considerably better than those of other neighboring utilities,

as shown in Exhibit 2. Legislation has been introduced in the U.S. Congress requiring reductions of CO₂ emissions that, if enacted, could result in significant additional costs for TVA.

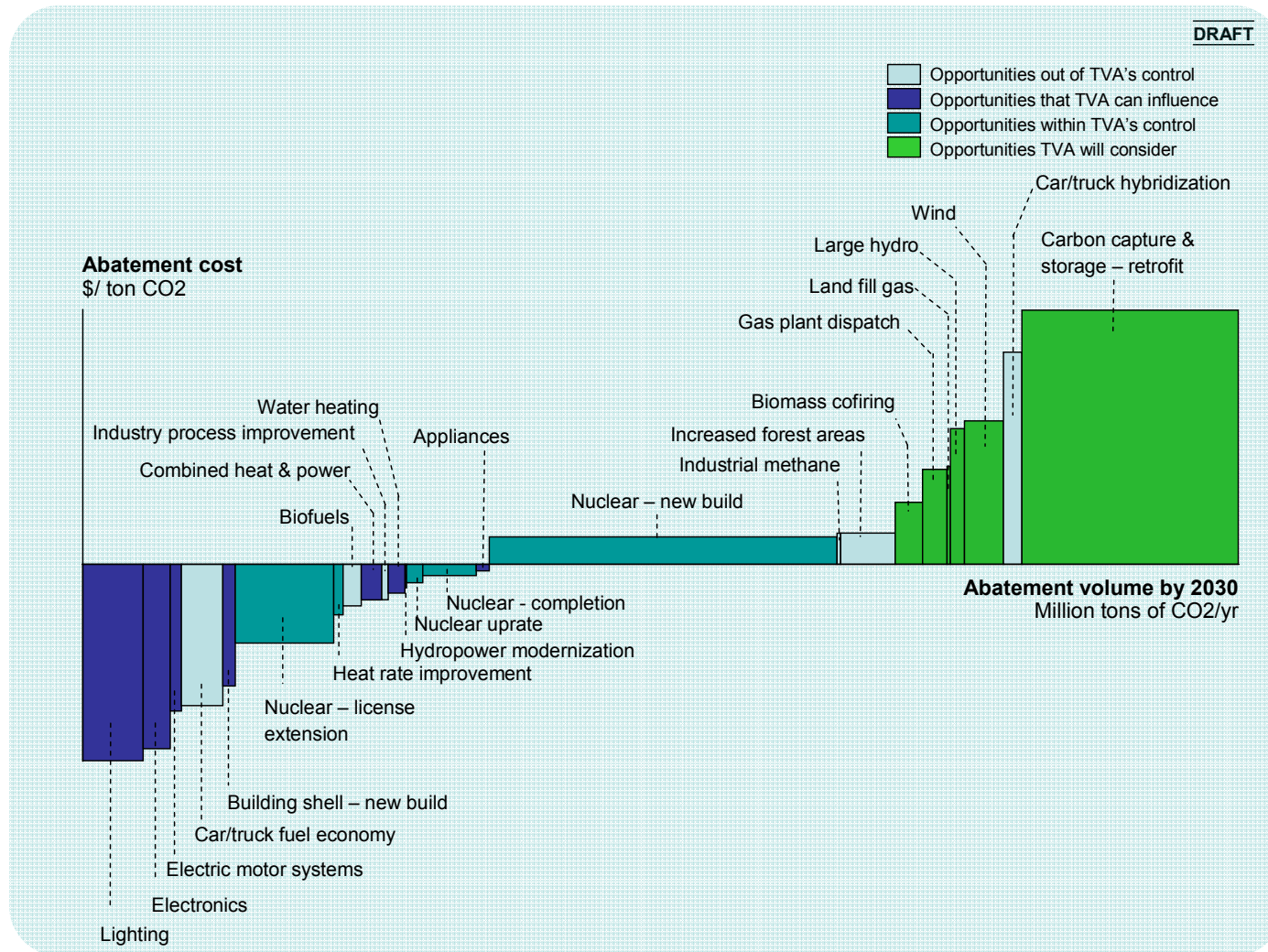
Exhibit 2. CO₂ emissions intensity of top 15 emitters in the U.S. power sector, 2005-2007 average.



Source: Energy Velocity

To respond to this issue, TVA has undertaken a study of the opportunities to reduce GHG emissions in the Valley. In order to understand the cost-effectiveness of TVA’s available actions relative to others within the Valley economy, TVA has created a comprehensive catalog of the specific opportunities to reduce GHGs and estimated the corresponding volumes and relative costs associated with each. Preliminary output from this analysis is depicted in Exhibit 3.

Exhibit 3. Tennessee Valley’s carbon abatement opportunities for 2030.



The *abatement curve* visualized in Exhibit 3 illustrates the range of actions the Valley can take to reduce GHG emissions including non-CO₂ gases. Each bar denotes a single type of opportunity to reduce carbon emissions or increase carbon absorption. The width of the bar represents the total net annual emissions reduction that would result from pursuing the opportunity. The height of the bar highlights the cost of pursuing each option relative to the costs that would have been incurred otherwise if the business-as-usual course is maintained. Sequencing the options from least cost to highest cost helps provide a sense of the relative priority of the abatement measures and can be used to identify the least-cost approach to achieving any targeted level of emissions reduction.

The shape of the curve warrants explanation to aid interpretation. The costs associated with each measure can be positive or negative. A “negative cost” implies that pursuing the related option will result in a net savings over the lifecycle of the opportunity relative to what would have been incurred in the business-as-usual case. These savings are frequently the result of reduced energy costs associated with improved energy efficiency. The positive cost options require an incremental expense to abate emissions above and beyond the business-as-usual case.

While this figure remains illustrative, the shape of the curve and the relative ordering of the abatement options correspond to real underlying data. In calculating these data, TVA has performed a rigorous analysis using a consistent financial treatment (specifically, a levelized cost approach employing standard assumptions such as a common 7 percent discount rate). The costs depicted include all incremental capital, maintenance and operating costs required to achieve the stated impact over the lifecycle of the opportunity. Any additional policy costs required to capture an opportunity are incremental to the figures shown. The calculation

methodology employed is consistent with approaches recommended by the Department of Energy.

Five key insights have emerged from this analysis of critical relevance to TVA's environmental policy:

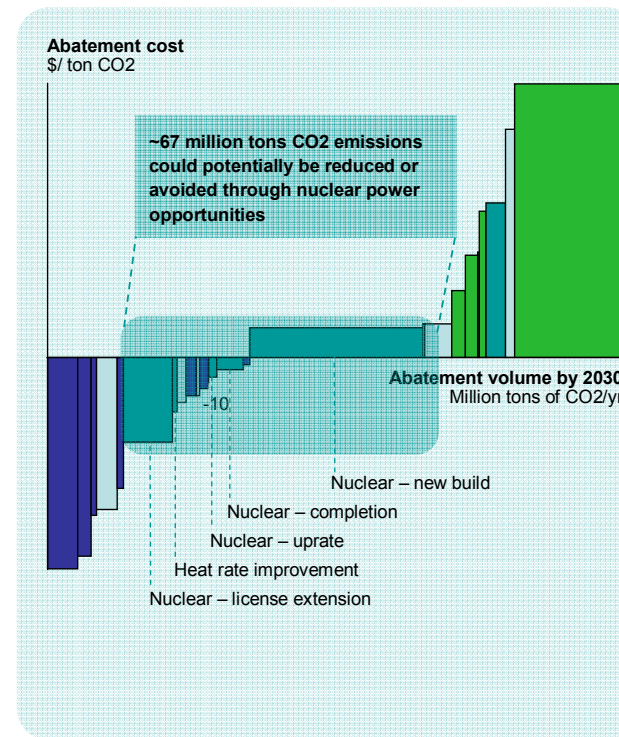
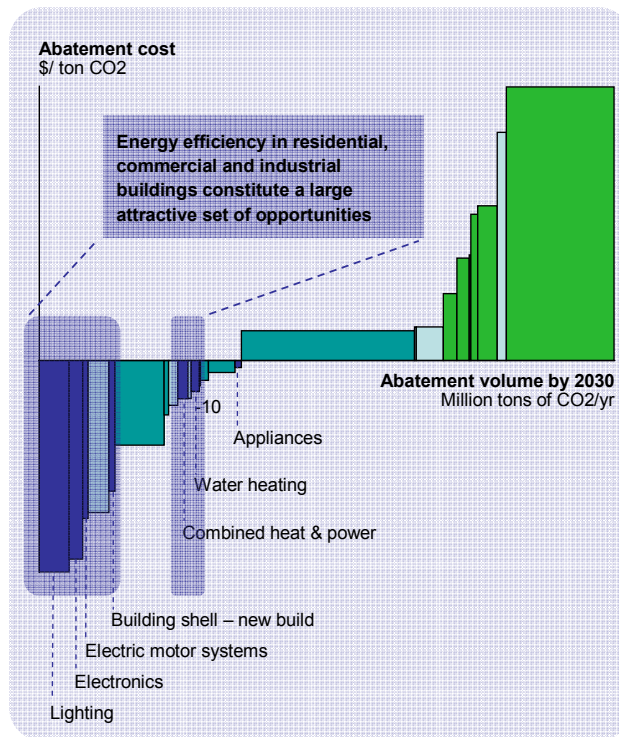
- ***Significant negative-cost energy efficiency potential exists within the Valley.*** Over 35 megatons of GHG reductions could be achieved through energy efficiency (Exhibit 4a). Pursuing this potential could reduce total energy consumption, minimize exposure to carbon regulations, and reduce the need for capacity expansion in the Valley – all of which will help reduce future costs. Capturing this opportunity will require close collaboration with distributors, customers, regulators and other stakeholders to overcome persistent barriers of technology, education and capital requirements that slow adoption.
- ***Nuclear power can provide significant abatement potential at modest incremental cost.*** License extensions, improvements to existing plants, reactivations and new plant construction offer low-cost means to reduce the carbon intensity of TVA's generation fleet (Exhibit 4b). Together they constitute the largest opportunity to reduce GHG emissions in the Valley through 2030, offering over 65 megatons of annual CO₂ reduction at costs of less than \$25 per ton.

Exhibit 4a: Potential opportunities to reduce emissions through energy efficiency

Exhibit 4b: TVA's current and planned initiatives to reduce carbon emissions

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- Opportunities out of TVA's control
- Opportunities that TVA can influence
- Opportunities within TVA's control
- Opportunities TVA will consider



- ***A limited supply of low-cost renewable energy exists within the Valley to support carbon and clean energy objectives.*** Analysis revealed only 4 TWh (equal to 4,000 megawatt hours, or approximately 2 percent of projected total load) of additional traditional renewable capacity at incremental costs less than \$50/MWh. This potential was concentrated in hydroelectric unit upgrades, selective co-firing of biomass in existing boilers and development of economically attractive wind resources. Dedicated biomass, additional wind and solar photovoltaic technologies were among the options requiring a premium greater than \$50/MWh above current average cost generation
- ***Coal generation remains a critical resource to meet TVA’s mission to deliver low-cost power.*** Analysis of the abatement options revealed that replacement of TVA’s coal plants by lower-CO₂-emitting sources such as nuclear and natural gas generation is a relatively expensive way to reduce the Valley’s carbon footprint. The estimated costs exceed \$50 per ton of carbon abated. Additionally, a review of carbon capture and storage technology suggested that the option is still more than a decade away from large-scale commercial viability, and that retrofits to existing plants even after the technology is proven are unlikely to be viable at costs less than \$80 per ton or higher.
- ***Modern transmission and distribution grid technologies can help support the transition to a lower-carbon energy supply.*** The implementation of technologies such as Smart Grid can support energy efficiency, combined heat and power applications, and select renewables deployment. Implementing these improvements will require close collaboration with TVA’s distributors, customers and other business partners.

* * *

Given the potential for legislation that will require TVA to find ways to reduce greenhouse gas emissions – particularly carbon emissions – we must position TVA to address the challenge of operating in a carbon-constrained world. Specifically, TVA will continue to reduce the carbon intensity of its generating system and take advantage of lower-CO₂-emitting energy sources consistent with maintaining an reliable and affordable energy supply. We will pursue this objective in three ways: first, by seeking to reduce load growth through greater energy efficiency and demand-side management; second, by pursuing low-CO₂ energy-supply projects; third, by reducing power-system losses through upgrades to the transmission system and optimization of existing generation sources.

3.2 AIR QUALITY IMPROVEMENT

TVA will continue industry-leading efforts to further reduce sulfur-dioxide, nitrogen-oxide, mercury and particulate emissions and engage regional and national stakeholders to develop better ways to understand, monitor and improve regional air quality.

TVA is a regional leader in the installation and operation of air-emission-control equipment through an aggressive program that has invested more than \$4.8 billion. This investment has reduced TVA's sulfur-dioxide emissions by about 80 percent since 1977, and lowered nitrogen-oxide emissions during the summer ozone season by 81 percent since 1995. As a co-benefit of these controls, mercury emissions also have been reduced. TVA's effort and those of others have resulted in continued air quality improvement across the region. These improvements are important to the quality of life and economic sustainability in the Valley. The fundamentals of TVA's program focus on complying with air-pollution control requirements,

considering air-quality impacts on urban and environmentally sensitive areas and supporting stakeholder interests. TVA's clean-air program is based on a strategy of self-compliance that involves the installation of controls on fossil plants to achieve tangible air quality and health benefits for Valley citizens with a limited use of the allowance markets.

For details on TVA's historical and near-term air quality performance and investment, please visit www.tva.gov/environment/air/ and www.tva.gov/environment/reports/envreports/.

Despite these successes, work remains. EPA's Clean Air Interstate Rule, new more restrictive National Ambient Air Quality Standards, and future mercury and regional haze requirements will ensure that regional air quality continues to improve. In the ongoing effort to help improve regional air quality, TVA will continue to reduce its sulfur-dioxide, nitrogen-oxide, mercury and particulate emissions. We will pursue this objective by investing in assets that will measurably reduce emissions from fossil-fired plants and thereby improve air quality. It is possible that, if energy efficiency efforts yield results greater than forecast, we will have an opportunity to retire the higher-emitting fossil plants. In addition, TVA will continue to engage regional and national stakeholders to develop better ways to understand, monitor and improve regional air quality.

3.3 WATER RESOURCES IMPROVEMENT

TVA will actively promote reservoir and stream-water quality, reduce the impact of its operations and leverage alliances with local and regional stakeholders to promote water conservation.

TVA operates the Tennessee River system to provide a wide range of public benefits: year-round navigation, flood-damage reduction, affordable electricity, improved water quality, water supply and recreation.

In 2004, the TVA Board approved a new policy that was based on the result of TVA's Reservoir Operations Study (ROS). It maintains TVA's ability to meet fundamental responsibilities for flood control, commercial navigation and power production while protecting water quality and accommodating the increased demands created by recreational and residential growth. It shifts the focus of TVA's reservoir operations from achieving specific summer pool elevations on TVA-managed reservoirs to managing the flow of water throughout the river system. For more information, please see www.tva.gov/environment/reports/ros_eis/.

TVA pursues its progressive management of water-quality and water-quantity impacts through the permitting of activities on and around TVA reservoirs; the collection, maintenance and distribution of water-quality information; targeted water-quality-improvement initiatives; and strategies to manage increased water demand. Details on TVA's water-quality activities are available at www.tva.gov/environment/water/.

The increasing demand for water due to residential, commercial and industrial growth requires a focus on resource conservation and improvement in the Tennessee Valley region. In addition, the impact of chronic rainfall deficits and/or infrastructure issues can result in low water flows, which can potentially lead to future constraints on power operations. Rapid growth coupled with availability challenges further amplifies the importance of balancing resource-management activities for multiple, and often competing, uses across the Valley.

As a result of these challenges and with a desire to lead by example, TVA will demonstrate an efficient use of water in its operations, collaborate with and coordinate internal and external stakeholders to protect and improve water quality, and focus on maintaining an in-depth knowledge of changing conditions in the river system. At the same time, TVA will continue to improve river-system operations to balance diverse demands. TVA will continue to operate in compliance with its Reservoir Operations Policy and all state and federal laws.

3.4 WASTE MINIMIZATION

TVA will drive increased sustainability in existing compliance programs and waste management practices by focusing on waste reduction at the source, minimizing waste generation and increasing recycling efforts to reduce environmental impacts.

TVA manages an array of different wastes, including municipal solid waste, wastewater, hazardous waste, low- and high-level nuclear waste, other regulated wastes (e.g., asbestos and polychlorinated biphenyls [PCBs]), scrap metal and coal-combustion products, which include fly ash, bottom ash and gypsum. One of TVA's strengths is its agency-wide waste management system and the day-to-day implementation of this system at the various facilities by trained environmental personnel. These employees help integrate waste-management expertise at the core level of TVA to minimize TVA's impact on Valley resources.

TVA has a strong focus on the use of coal-combustion products, which comprise TVA's single largest waste stream. Approximately 43 percent of its coal-combustion products are recycled. Similarly, TVA recycles the majority of its electronic waste and scrap metal. While focusing on compliance with waste

requirements, TVA uses a team approach to seek out and implement waste-minimization opportunities. TVA also recognizes the challenges of developing long-term solutions for the management of high-level nuclear waste given the focus on using nuclear generation to provide an increasing share of future generation supply requirements. TVA has been collaborating with others to identify sustainable solutions for better management of nuclear waste. More information on TVA's waste management activities and past performance is available at www.tva.gov/environment/reports/envreports/.

TVA will further reduce its waste footprint for all its facilities and waste streams, including coal-combustion products, hazardous wastes, municipal solid wastes, office recyclables, other wastes (asbestos, PCBs), radioactive wastes and wastewater (including thermal discharges). In this effort, TVA will augment its existing compliance programs and waste management practices by focusing on waste reduction at the source (in part through improved procurement), minimizing waste generation, and increasing recycling efforts (especially of municipal waste).

3.5 SUSTAINABLE LAND USE

TVA will strive to maintain the lands under its management in good environmental health to balance multiple uses and will improve its decision making in regard to land acquisition, development and disposal to support sustainable development.

TVA manages public lands for multiple benefits, including economic development, conservation and recreation. TVA is the steward of 293,000 acres of public land and 11,000 miles of shoreline in the Valley along the Tennessee River. In addition, TVA manages 293,000 acres of flowage easement rights, 258,000 acres of

transmission rights-of-way, 35,000 acres of facility properties, and 159,000 acres of mineral holdings.

When deciding the proper uses of TVA-managed lands and shoreline or acquiring properties for its operations, TVA ensures compliance with appropriate laws and regulations and considers the effects of these activities on the environment.

Section 26a of the TVA Act gives TVA permitting jurisdiction over proposed construction in and along the Tennessee River and its tributaries. Under Section-26a, TVA considers obstructions affecting navigation, flood control and TVA-managed public lands. In 1999, the TVA Board approved the Shoreline Management Policy (SMP), which governs residential development along the shorelines of TVA reservoirs. In September 2003, the board approved and codified regulations implementing the provisions of the SMP.

TVA's Land Policy was approved by the board of directors on November 30, 2006. This policy governs TVA's retention, disposal and planning interests on reservoir lands. Accordingly, TVA strives to manage its resources in conjunction with the agency's integrated reservoir operations to provide and enhance public use and economic growth in the Valley. Details of TVA's land management activities and existing policies are available at www.tva.gov/environment/land/.

Increasing growth within the region necessitates a balance of resource conservation, sustainable economic development, and eco-friendly recreation. To demonstrate and promote best practices in sustainable land use, TVA will have to lead by example. TVA will maintain the public lands under its management in good environmental health to support and balance multiple uses among diverse stakeholder expectations. TVA will also improve its decision making regarding the acquisition, development, and disposal of its managed lands and mineral rights in order to achieve sustainable

development in the Tennessee Valley. This effort will require that TVA use its Land Policy and Shoreline Management Policy to manage and balance multiple land uses and use its environmental decision-making process to minimize environmental liabilities and impacts and ensure compliance.

3.6 NATURAL RESOURCES MANAGEMENT

TVA will demonstrate leadership in ecologically sound natural resources management and increase the share of resources meeting the desired environmental conditions for sustainable recreation, ecological diversity and cultural resource protection.

TVA strives to manage and preserve natural resources while providing for recreational opportunities across the Valley. TVA has set aside more than 181,000 acres of public land for natural resources management, which includes the enhancement of wildlife habitat. TVA also oversees and manages an additional 50,000 acres for sensitive resources. The use of these lands includes restrictions on activities that might endanger significant cultural or natural features. TVA manages about 60 percent of these lands while the rest is managed by other public agencies.

TVA has more archaeological sites per acre under its management than any other public agency. Over 10,000 archeological sites have been identified on TVA-managed lands. Since 1976, TVA has maintained a database on rare plants and animals, caves and other environmentally sensitive resources in the 80,000-square-mile TVA service area. The database is shared with federal and state agencies.

In its approach to natural resources management, TVA will demonstrate regional and national leadership through the ecologically sound management of natural

resources and increase the proportion of TVA-managed resources that meet the desired environmental conditions of sustainable recreation, ecological diversity and cultural resource protection. To support this objective, TVA will pursue collaboration, integration and partnership to increase the efficiency and improve the service delivery of its resource-management activities, while also reducing the impact of human uses on the environment.

STRATEGIC OBJECTIVES AND CRITICAL SUCCESS FACTORS

TVA commits to complying with laws and regulations, assessing the effects of its operations on the environment and operating with a goal of continuous improvement across the organization. TVA sets the following strategic objectives across the six critical environmental dimensions.

Climate change mitigation

TVA will continue to reduce its carbon-emissions intensity by supporting a full slate of reliable, affordable, and lower-CO₂ energy supply opportunities and energy efficiency, in collaboration with stakeholders.

- Targeting load-growth reduction through economically attractive energy efficiency and demand-side management to help offset new fossil-based generation needs or to enable earlier retirement of existing fossil plants.
- Pursuing lower-CO₂ generation projects, including nuclear, affordable renewables and combined heat and power, and factoring in a “cost of carbon” into future planning of integrated supply and demand options.
- Improving efficiency of the existing generation and transmission network through upgrades and operational change.
- Identifying, quantifying and prioritizing other regional opportunities for CO₂ avoidance, reduction and sequestration.
- Promoting public education and outreach, effective partnerships and coordination with stakeholders to capture regional climate change mitigation opportunities.
- Leveraging technical and practical experience as a sound basis for decision-making on climate-change-related issues.

Air quality improvement

TVA will continue industry-leading efforts to further reduce sulfur-dioxide, nitrogen-oxide, mercury and particulate emissions and engage regional and national stakeholders to develop better ways to understand, monitor and improve regional air quality.

- Reducing emissions across the system through installing scrubbers and selective catalytic reduction controls on over 80 percent of our coal capacity by 2018 (or in the next 10 years).
- Prioritizing air quality improvement as one of the main criteria in future capacity-planning decisions.
- Continuing to improve and leverage in-house expertise in air-quality control technology and modeling.
- Exchanging expertise and best practices in air-quality modeling and monitoring with other agencies and peers.

Water resources improvement

TVA will actively promote reservoir and stream-water quality, reduce the impact of its operations, and leverage alliances with local and regional stakeholders to promote water conservation.

- Operating in compliance with the Reservoir Operations Policy and maintaining infrastructure for safe operation.
- Protecting and improving water quality while demonstrating the efficient use of water in our operations.
- Working in coordination with internal and external stakeholders to protect and improve water quality.
- Maintaining an in-depth knowledge of river system conditions and continuous improvement of river-system operations.

- Integrating the impacts of water quality and quantity in project evaluation, long-term planning and decision-making.
- Promoting the integration of energy efficiency and water conservation in community planning and building construction.
- Actively engaging in community outreach and demonstrations for the efficient use of water resources.

Waste minimization

TVA will drive increased sustainability in existing compliance programs and waste management practices by focusing on waste reduction at the source, minimizing waste generation and increasing recycling to reduce environmental impacts.

- Developing a long-term coal-combustion product management plan with a focus on use of alternative technologies to provide long-term benefits.
- Developing procurement practices that encourage source reduction.
- Pursuing operational practices that minimize waste generation and improving recycling of wastes from all facilities.
- Minimizing the generation of low-level nuclear waste and contributing to efforts by industry groups and federal agencies to formulate innovative and sustainable solutions for the management of high-level nuclear waste.
- Managing the risks associated with continuing use of PCB-containing equipment.

Sustainable land use

TVA will strive to maintain the lands under its management in good environmental health to balance multiple uses and will improve its decision making in regard to land acquisition, development and disposal to support sustainable development.

- Developing and updating reservoir land management plans.

- Ensuring that TVA-managed lands, mineral rights and shoreline used for economic development, residential access and recreation are meeting the environmental commitments.
- Using its Land Policy and Shoreline Management Policy to manage and balance multiple land uses.
- Using integrated decision making to minimize environmental liabilities and impacts and ensure compliance.

Natural resources management

TVA will demonstrate leadership in ecologically sound natural resource management and increase the share of resources meeting the desired environmental conditions for sustainable recreation, ecological diversity and cultural resource protection.

- Protecting and managing threatened and endangered species and cultural resources on TVA lands and waters.
- Providing education on the benefits of reducing the environmental impacts of recreational activities on natural resources.
- Providing diverse and distributed recreation while minimizing the impacts on natural and cultural resources.
- Pursuing collaboration and partnerships to improve the efficiency and delivery of resource management activities.

Chapter 4 Commitments

4.1 COMMITMENTS TO OUR CUSTOMERS

In collaboration with our 159 distributors, TVA is committed to providing low-cost, reliable service to more than 8.8 million residents and businesses and 62 directly served large industrial customers in the seven states of the Tennessee Valley. This commitment will be maintained while TVA simultaneously strives for sustainability and continuous improvements in performance across all aspects of its operations. TVA's new environmental policy, in accordance with the 2007 TVA Strategic Plan, emphasizes three topics that are important from its customers' perspective: maintaining affordable rates, expanding collaboration outreach and education, and furthering the Valley's quality of life.

Affordable rates

- TVA will strive to manage potential future rate increases due to new generation and transmission construction by collaborating with distributors and customers to pursue lower-cost energy efficiency and load management options that can partially offset the need for capacity additions.
- For large commercial and industrial customers, TVA will continue to focus on rates as a principal measure of affordability and competitiveness when promoting cost-effective energy efficiency and load management programs.
- For residential and small commercial customers, TVA will emphasize total bill reduction by focusing on the combined impact of rate and consumption.

Collaboration, outreach and education

- TVA will increase its focus on customer education and outreach to inform Valley residents on key issues, including energy efficiency and renewables, water conservation, and natural-resources protection and preservation.
- TVA will collaborate with distributors and directly served customers to implement enabling technologies for clean energy and energy efficiency solutions.

Quality of life

- TVA will promote improved quality of life and sustainable regional economic development with an emphasis on clean-technology deployment including potential incentives for clean-technology industries in the Valley.
- TVA will proactively improve air quality and continue to promote the sustainable management of land, water and natural resources.
- TVA will provide for the expansion of ecologically friendly recreation options within the Valley.

4.2 OVERALL COMMITMENT FRAMEWORK

TVA's proposed new environmental policy seeks to integrate and specifically link a broad set of environmental challenges and proposed strategies to the three-part TVA mission of affordable, reliable energy, economic development and environmental stewardship. As illustrated in Exhibit 5, the large circles represent the three central elements of the TVA mission, while the intersections of the circles highlight the integrated aspects of pursuing cleaner energy, promoting sustainable growth, and providing proactive stewardship. When taken together, all of these

aspects align with the central aspiration of enhancing the overall quality of life within the Tennessee Valley region.

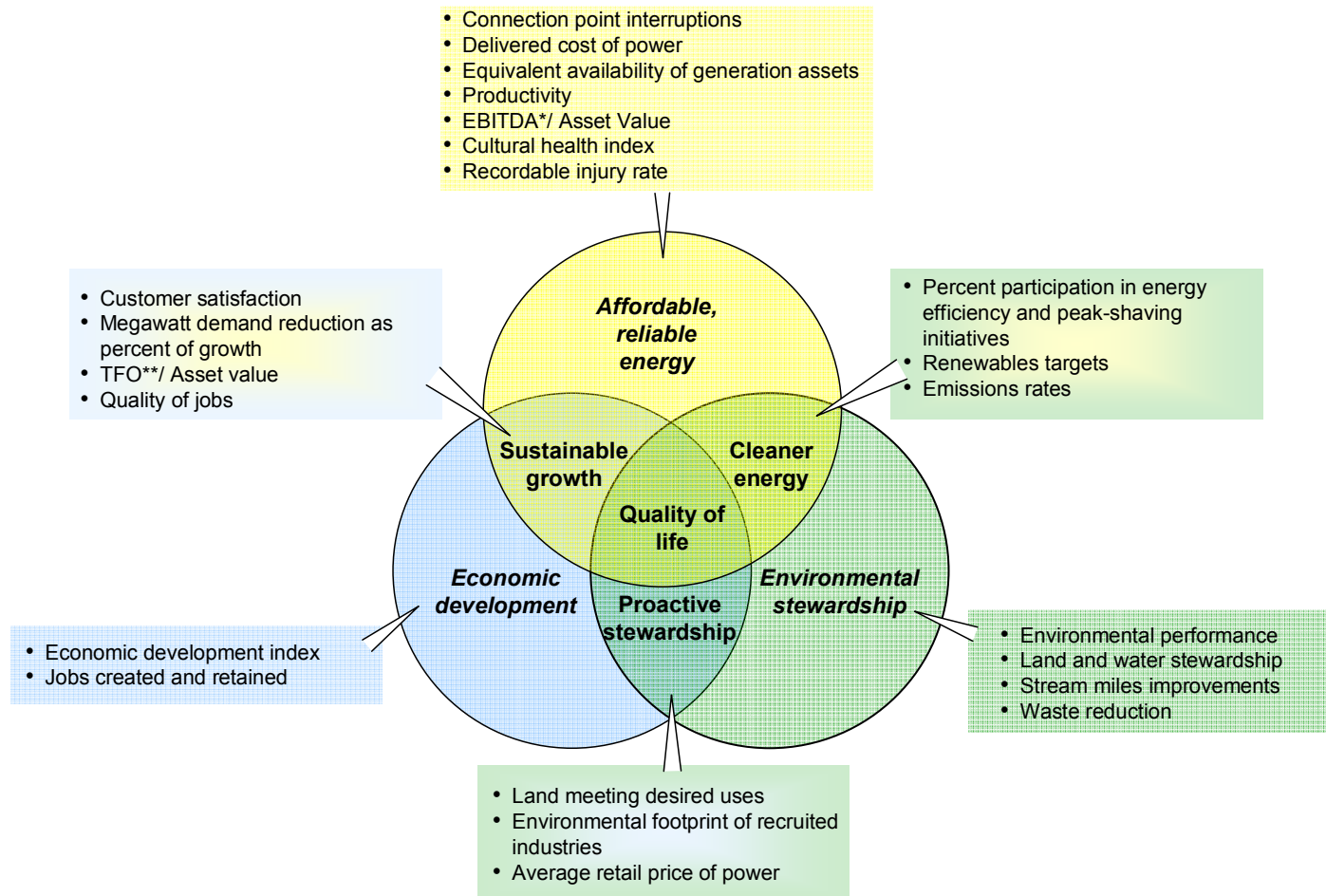
4.3 PERFORMANCE INDICATORS

TVA has an established set of metrics to monitor how well its performance fulfills the three core elements of the TVA mission highlighted in the 2007 Strategic Plan that outlines the policy-level direction for TVA. Examples of these metrics are shown in Exhibit 5 in the rectangular boxes. They include important metrics such as delivered cost of power, economic development index and environmental performance. Following the 30-day public comment period, TVA will formulate a comprehensive set of performance metrics to monitor the successful translation of the TVA Environmental Policy into specific strategies and their successful implementation. TVA will implement these metrics in an integrated approach to improve its environmental performance and close the gap between the current and desired environmental states in the following areas:

Cleaner Energy measures would capture the improvements achieved in reducing the emissions of the overall production of energy, and also the wise use of that energy.

Sustainable Economic Development measures would capture how TVA's economic development efforts work within existing community infrastructure to help facilitate economic gain for the Valley population while ensuring and promoting a sustainable environment.

Exhibit 5. Aligning TVA’s mission with environmental commitments and performance measures



* EBITDA – Earnings Before Taxes, Interest, Depreciation and Amortization

** TFO – Total Financial Obligations

Sustainable growth. Beyond providing reliable and affordable energy, TVA's role in sustainable growth is a supporting role to the public and private sector initiatives of identifying and cultivating new businesses as well as helping existing businesses to prosper. However, there are important steps that TVA can take to enhance this important support role related to education, contributing to fact-based assessments of sustainable resource utilization, and ongoing general support of the attraction and development of sustainable-related jobs.

Proactive stewardship. TVA plays a leadership role in community involvement, education initiatives, and advancing and disseminating best practices related to water and land stewardship.

Chapter 5 Next Steps

TVA has released this draft report to Valley stakeholders for comment from April 4 through May 4, 2008. Comments can be submitted through TVA's Web site at www.tva.com or mailed to Environmental Stewardship & Policy, Tennessee Valley Authority, 400 West Summit Hill Dr., Knoxville, TN 37902. TVA will review and incorporate comments into a final policy document that will be voted on by the TVA Board of Directors.