

CHAPTER 4

4.0 COMMENT LETTERS FROM FEDERAL AND STATE AGENCIES

Comment Letters from Federal Agencies

USACE Nashville District Comments to TVA IRP DEIS

1. Discussion of cumulative impacts is almost nonexistent. The EIS would benefit from a Cumulative Impact Analysis under the 11 step process from the CEQ Manual: "Considering Cumulative Effects under the National Environmental Policy Act." It is understood this is a programmatic document, but the analysis can be from a commensurate level.
2. There is no Environmental Justice determination under Executive Order 12898. The EO is merely mentioned in a Table. As with cumulative impacts, a full analysis depends on the details, but a Determination at a commensurate level with the rest of the document should be made.
3. Suggest adding a table for comparisons discussed in Chapter 6 for Strategies B, C, and E.
4. Will TVA consider environmental impacts from energy sources where TVA is purchasing from the private sector and use that information in its purchasing decisions?
5. On 19 Oct 2009 USACE provided comments during the scoping period. We understand site specific issues associated with construction and operation of power facilities is not addressed in this programmatic DEIS, but will be addressed in site/action specific evaluations. Therefore, USACE resubmits the following comments to be addressed relative to potential issues related to the USACE Programs and/or Operations in the Tennessee and Cumberland River Basins:
 - Any major changes to commercial navigation traffic patterns on the two rivers that are related to energy production.
 - Cooling water discharges at the Gallatin and Cumberland Steam Plants. Is consideration being given to adding cooling towers in lieu of or in conjunction with the use of river water for cooling? This would become more limiting if climate trends in air and river temperature continue to rise.
 - Corps hydropower operations would still be subject to existing water management plans or these plans would have to be modified, including NEPA coverage, if they are proposed for modification.

rec'd 10/14/10

United States Department of Agriculture



Natural Resources Conservation Service
4407 Bland Road, Suite 117
Raleigh, North Carolina 27609

Michael J. Hinton, ASTC-Easements & WR
Fax: (919) 873-2103
Fax: (919) 873-2156
Email: mike.hinton@nc.usda.gov

September 30, 2010

Mr. Charles P. Nicholson
NEPA Compliance Manager
Tennessee Valley Authority
400 West Summit Hill Drive, WT 11D
Knoxville, TN 37902

Dear Mr. Nicholson:

Thank you for the opportunity to provide comments on the Draft Environmental Impact Statement (EIS) for the Integrated Resource Plan for Tennessee Valley Authority.

The Natural Resources Conservation Service does not have any comments at this time.

If you need additional information, please feel free to contact me at (919) 873-2103. Also, in the future please address all correspondence to Mr. J. B. Martin, Jr., State Conservationist.

Sincerely,

A handwritten signature in black ink, appearing to read "MJH", written over a faint, illegible typed name.

Michael J. Hinton
Assistant State Conservationist for Easements & Water Resources

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United States Department of the Interior

OFFICE OF THE SECRETARY
Office of Environmental Policy and Compliance
Richard B. Russell Federal Building
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Atlanta, Georgia 30303



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9043.1

November 3, 2010

Charles P. Nicholson
National Environmental Policy Act Project Manager
Tennessee Valley Authority
400 West Summit Hill Dr., WT 11D
Knoxville, TN 37902

Re: Comments for the Draft Environmental Impact Statement (DEIS) for Tennessee Valley Authority's (TVA) Integrated Resource Plan

Dear Mr. Nicholson:

The Department of the Interior (Department) has reviewed the Draft Environmental Impact Statement (DEIS) dated September, 2010, for the Tennessee Valley Authority's (TVA) Integrated Resource Plan (IRP). The IRP and its associated DEIS address the demand for electrical power in the TVA service area, the power generation options available for meeting that demand, and the potential environmental and socio-economic impacts of the options. The purpose of the IRP is to evaluate TVA's current portfolio and alternative future portfolios in order to choose a strategy for serving the area's electrical energy needs over the next 20 years.

The region considered in the DEIS includes the Tennessee River watershed and parts of the Cumberland, Mississippi, Green, and Ohio Rivers where TVA power plants are located. This area comprises 202 counties in seven states and approximately 59 million acres. The DEIS considers effects on some resources, such as air quality, beyond the TVA region. The Department offers the following comments.

DEIS Alternatives

The Department appreciates that TVA has formulated alternatives for this DEIS that would reduce the emissions of air pollutants, including greenhouse gases, from its power supply portfolio. To varying degrees, each of the five alternatives described in the DEIS would increase TVA's reliance on renewable energy sources. Encouraging the timely and responsible development of renewable energy, while protecting and enhancing the Nation's water, wildlife, and other natural resources, is one of the Department's highest priorities. The DEIS identifies three of the five alternatives for further consideration: (1) Baseline Plan Resource Portfolio (the "no-action" alternative); (2) Diversity Focused Resource Portfolio (Strategy C), and (3) Energy

Efficiency and Demand Response and Renewable Focused Resource Portfolio (Strategy E). TVA will identify a preferred alternative in the final IRP and EIS.

We note that Strategy E appears to minimize environmental impacts in several important categories, including:

- emissions of sulfur dioxide, nitrogen oxide, mercury, carbon dioxide;
- volume of water used and consumed by thermal generating facilities;
- coal consumption, coal ash production, and related fuel cycle impacts resulting from mining, processing, and transportation;
- nuclear fuel cycle impacts.

Accordingly, we believe Strategy E would likely have the least impacts to resources of concern to the Department. Due to its greater reliance on solar and wind energy, however, Strategy E has the greatest land requirements of the three alternatives selected for further consideration, but all three strategies involve a commitment of several thousand acres of land for new generating facilities. For this reason, we encourage close coordination between TVA and the bureaus of the Department in finalizing the IRP (see comments below on Endangered and Threatened Species), and thereafter in project-specific environmental reviews.

Endangered and Threatened Species

The DEIS does not contain a Biological Assessment with TVA's determination of effects on resources protected under the Endangered Species Act (ESA). All of the alternatives considered would involve constructing new power generation facilities of various types and associated transmission system upgrades within the TVA region, which could affect listed species and designated critical habitats. Anticipated impacts to ESA-protected resources are not specifically addressed in the DEIS; instead, TVA acknowledges the need to consult with the Fish and Wildlife Service during facility siting and review processes (DEIS section 7.2). We appreciate the difficulty of undertaking this task in advance of identifying a preferred alternative and its associated facilities and upgrades; however, we believe some level of consideration of endangered species impacts should inform the selection of a preferred alternative. Therefore, the Department recommends that TVA consider a programmatic ESA consultation with the Fish and Wildlife Service as part of its further evaluation of the alternatives in the final IRP and EIS. A programmatic consultation, even if limited to an evaluation of the preferred alternative, would prepare TVA and the Department for project-specific consultations that would occur as the IRP is implemented. If TVA determines that it lacks sufficient information about the effects of the alternatives on ESA-protected resources at this time to support a general programmatic consultation, we recommend that the final IRP and EIS describe in greater detail when and how programmatic and project-specific consultations would occur in the future.

Specific Comments

Section 4.9; Wildlife Population Trends. The DEIS states that "*Over 30 species of birds breeding in the TVA region are considered to be of conservation concern (USFWS 2008).*" The final EIS should identify these species, and in a corresponding section in Section 7 (Anticipated

Environmental Impacts), describe the potential impacts of implementing the IRP to these species. In addition to breeding birds, this section should also address migratory birds in the TVA region.

Section 4.10; Endangered and Threatened Species. The final EIS should include tables that list the species that compose the following categories that are described in this section:

- “Thirty-seven species of plants, one lichen, and 109 species of animals in the TVA region area are listed under the ESA as endangered or threatened species or formally proposed for such listing by the U.S. Fish and Wildlife Service. An additional 31 species in the TVA region have been identified by the U.S. Fish and Wildlife Service as candidates for listing under the ESA. Several areas across the TVA region are also designated under the ESA as critical habitat essential to the conservation of listed species.”
- “Thirty-seven species listed under the ESA occur in the immediate vicinity of the TVA reservoir system and are potentially affected by its operation.”
- “TVA transmission lines also cross many streams supporting listed aquatic species.”

The final EIS should also identify potential impacts to these species as a result of implementing the IRP.

The scientific name for the pink mucket mussel is given as *Obovaria retusa* -- the correct name is *Lampsilis abrupta*.

The Department appreciates the opportunity to comment on the IRP DEIS. Let me know if you have questions or concerns about our comments. I can be reached on (404) 331-4524 or via email at gregory_hogue@ios.doi.gov.

Sincerely,



Gregory Hogue
Regional Environmental Officer

cc: Jerry Ziewitz - FWS
Mary E. Jennings – FWS
OEPC – WASH



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

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November 8, 2010

Mr. Charles P. Nicholson
NEPA Manager
Tennessee Valley Authority
400 West Summit Hill Drive WT 11C
Knoxville, TN 37902

Subject: EPA NEPA Review Comments on TVA's DEIS for the "Integrated Resource Plan, TVA's Environmental and Energy Future"; General Tennessee Valley (TN, AL, MS, KY, GA, NC, VA); CEQ No. 20100379; ERP No. TVA-E09815-KY

Dear Mr. Nicholson:

The U.S. Environmental Protection Agency (EPA) has reviewed the subject Tennessee Valley Authority (TVA) Draft Environmental Impact Statement (DEIS) in accordance with our responsibilities under Section 102(2)(C) of the National Environmental Policy Act (NEPA) and Section 309 of the Clean Air Act. The IRP provides options (future condition scenarios, alternative planning strategies, and resource planning portfolios) for TVA's future generation of electricity to sustainably supply the Tennessee Valley's projected need for power with a 15% reserve margin.

In the mid-1990s, EPA had provided comments on TVA's last energy planning IRP EIS (*Energy Vision 2020: EV2020*). Once final, the new IRP would supersede the adopted portfolios of EV2020 through 2029. We commend TVA for its overall development of a comprehensive energy plan and EIS and, specifically, for strategic planning that de-emphasizes conventional coal and pursues less polluting power generation strategies. We also appreciate TVA's introduction of the EIS to us in a presentation at our EPA offices in Atlanta on July 13, 2010.

Accompanying the IRP DEIS was a separate Draft IRP document. While we have concentrated on the NEPA review and comment of the DEIS, we have also provided some review comments on the Draft IRP. Our comments are provided for TVA's consideration during its development of the Final EIS (FEIS) and the Final IRP.

Overview

Currently, TVA's 2010 power capacity of 37,000 MW primarily consists of coal-fired and nuclear energy resources. Within the next few years, TVA plans to bring online the 880-MW John Sevier Combined Cycle (CC) plant and the 1,180-MW Unit 2 of the Watts Bar Nuclear Plant. Coal-fired generation capacity would be reduced for all

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IRP strategies, while reliance on other strategies would increase. Although not without impacts, the strategies proposed by TVA would reduce emissions of criteria air pollutants (National Ambient Air Quality Standards: NAAQS), air toxics (Hazardous Air Pollutants: HAPs) and greenhouse gases (GHGs) compared to actual conventional coal strategies.

EPA Expectations

Relative to TVA's future electricity generation, EPA's main concerns center on air quality, water quality/quantity and climate change effects. From our perspective, EPA would support an emphasis on demand-side reductions (increased technological efficiency and conservation incentives) to reduce the need for power; increased development of renewable ("green") power using diverse traditional and emerging generators¹; additional nuclear capacity using state-of-the-art reactor technologies; increased use of natural gas and clean coal fossil fuel technologies²; decommissioning ("layups") and repowering of traditional coal power plants; reduced water consumption technologies and increased waste heat reuse designs; and power purchases (as needed) from sources which minimize environmental impacts while TVA's own capacities from such sources is maximized. These generation strategies could increase customer efficiency/conservation and green power capacity, reduce the volume of air emissions including GHGs such as CO₂ (in terms of CO₂ equivalents: CO₂e) and reuse or sequester generated CO₂; continue to make use of domestic natural gas resources as well as domestic coal resources through clean coal technologies; minimize water consumption required for cooling water and the volume of thermal effluent discharged; minimize the need to transmit electricity and transport feedstocks through strategically locating generators close to users where possible; and other benefits attendant with power industry advances that can be expected over the next 20 years.

Planning Options

TVA considered six conditions (Scenarios 1-6) for future power generation as well as re-considering their current planning approach (Scenario 7). These future condition scenarios are that: 1) the economy recovers dramatically; 2) the environmental focus is a national priority; 3) there will be a prolonged economic malaise; 4) there will be a game-changing technology; 5) there will be a reduced dependence on foreign energy sources; and 6) carbon regulation will create an economic downturn. Of these, we suspect that Scenario 5, and possibly 4, appear the most likely to eventuate. However, based on similarities in capacity expansion plans, TVA paired Scenarios 1 with 4, 2 with 5, and 3 with 6, with 7 being considered somewhat unique. Only Scenarios 1, 2, 3 and 7 were retained after DEIS pairing and examination (pg. 156).

¹ For examples, efficient hydropower generation and development of wind and solar (conventional photovoltaic and solar concentration technologies) and possibly current/wave energy, where appropriate. EPA recognizes that availability of such resources, especially wind and solar, is uneven due to the Tennessee Valley's meteorology and topography.

² For examples, Combined Cycle (CC) and Combined Turbine (CT) technologies for natural gas and Integrated Gasification Combined Cycle (IGCC) technology for clean coal.

Five planning strategy alternatives were also considered: A) limited change in the current resource portfolio; B) baseline plan resource portfolio (No Action); C) diversity focused resource portfolio; D) nuclear focused resource portfolio; E) EEDR (energy efficiency and demand response) and renewables focused portfolio. These were evaluated under the retained Scenarios 1, 2, 3 and 7 (Tables 6-4 to 6-6). Although TVA did not identify a preferred alternative strategy, alternatives A and D were eliminated, while B, C and E were further considered.

For each scenario of a planning strategy alternative, a 20-year resource plan (portfolios) was developed. A total of 35 portfolios were prepared to find an optimum resource option to meet the power generation needs over the 20-year planning period.

EPA agrees with the TVA elimination of a strategy with only limited change (Strategy A), since it would likely not be effective enough over the next 20 years since renewables and other emerging technologies would not be sufficiently emphasized. Similarly, the current baseline plan (Strategy B) would likely also not be adequate but as the No Action Alternative, would be carried forward in the EIS consistent with NEPA. The TVA-eliminated nuclear focused strategy (Strategy D) may also be too oriented toward one generating technology. We further agree that TVA-retained strategy planning action alternatives E and C both have attributes for long-term implementation since they both reduce conventional coal generation and increase renewables, natural gas and nuclear capacities. We note from Tables 6-5 and 6-6 that Strategy E proposes a cumulative reduction of 4,730 MW of fossil fuel layups and elevated capacities for renewables (to 1,157 MW) and EEDR (to 6,043 MW), while Strategy C proposes such elevations at a lower capacity (3,252 MW (layups); 954 MW (renewables); 4,638 MW (EEDR)).³

Air Quality Impacts

Air quality impacts from GHGs, criteria air pollutants and HAPs are addressed in detail in the enclosed *Detailed Comments*. Specific EPA recommendations regarding air quality impacts are provided in this enclosure and are also summarized below.

EPA Recommendations

Our recommendations for the Final IRP and FEIS consist of an overall NEPA recommendation for alternatives (planning options) and several recommendations specific to air quality.

³ The FEIS should disclose the percentage of TVA's grid capacity generated from renewables for Strategies B, C and E. We note that states having adopted a Renewable Portfolio Standard (RPS) require that a range of 8-40% of their electricity be generated by renewable sources. Although there currently is no Federal RPS, EPA would support an aggressive TVA emphasis on renewables for the IRP planning period.

* *Alternatives*: Based on the information provided in the DEIS, EPA prefers elements of alternative planning strategies E and C, with emphasis on E since it maximizes renewable power implementation and a reduction in conventional coal plants under the four scenarios reviewed (and in fact appears to replace capacity lost by coal layoffs with the addition of renewables capacity: pp. S-11, S-12). Strategy C is environmentally attractive by offering a diversified approach to power generation (e.g., includes IGCC in 2025 whereas strategy E does not) which allows for greater flexibility over the planning period and may (in the case of IGCC) continue to utilize domestic coal supplies. As such, EPA supports elements of both strategies that promote greater emphasis on diversity in power generation, renewables, customer efficiency/conservation, and use of cleaner technology for carbon-based resources. We also recommend that the rationale for eliminating Scenarios 4-6 be further discussed in the FEIS.

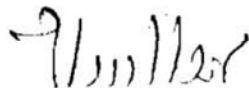
* *Air Quality* – Several recommendations on air quality impacts are detailed in the enclosure. Topics of some of these specific recommendations include: 1) documenting the effects of changing climate on TVA power production; 2) use of CO₂ as a surrogate for emissions reductions for other pollutants; 3) disclosure of the true GHGs emissions associated with nuclear power; 4) acknowledgement of the Council on Environmental Quality's (CEQ) draft guidance on GHGs analyses in NEPA reviews as well as completion of any already relevant assessments; 5) re-evaluation of the literature to ensure accuracy in stated values; 6) consideration of potential HAPs emitted by a TVA facility; 7) discussion of the PM_{2.5} NAAQS regarding attainment, and 8) discussion of types of on-site mitigation at power generation facilities that are in addition to the less-air-pollutant-intensive generation methods.

EPA DEIS Rating

EPA commends TVA for its overall development of a comprehensive energy plan and EIS that de-emphasizes conventional coal and pursues less polluting power generation strategies over the 20-year planning period. However, TVA has not yet identified (pg. 157) an alternative planning strategy in the DEIS, and TVA's power generation approach for the next planning period remains unclear. EPA therefore rates this DEIS as an "EC-2" (Environmental Concerns, with additional information requested) and recommends that strong consideration be given to an alternative similar to planning strategy E, modified to give greater emphasis on diversity in power generation, renewables, customer efficiency/conservation, and use of cleaner technology for carbon-based resources. Regarding our request for additional information, we recommend clarification of air quality information described in the enclosed *Detailed Comments*.

EPA appreciates the opportunity to review this DEIS. Should you have questions on our comments, please contact Chris Hoberg of my staff at 404/562-9619 or hoberg.chris@epa.gov.

Sincerely,

A handwritten signature in black ink, appearing to read "H. Mueller".

Heinz J. Mueller, Chief
NEPA Program Office
Office of Policy and Management

Enclosure: *Detailed Comments*

DETAILED COMMENTS

Air Quality Comments

DRAFT INTEGRATED RESOURCE PLAN (IRP) COMMENTS

1. **Figure 5-2, Key Uncertainties.** While discussed in more detail in the DEIS, we recommend that Figure 5-2 in the Final IRP include, as a key uncertainty, the impact of a changing climate on TVA's ability to provide low-cost reliable energy into the future. For example, how will increasing surface temperature affect summer peak demand (and thus, the prediction of resource needs)?
2. **Page 91, Monte Carlo Simulation.** The document describes the Monte Carlo analysis as having employed only 72 iterations to describe the uncertainty associated with each of the portfolios. A Monte Carlo analysis typically requires a much larger number (usually in the thousands) of iterations to develop a stable distribution of values. What is the basis for limiting this analysis to only 72 iterations?
3. **Section 5.5.2.1 and Appendix A, Air Impact (and the corollary discussion in the DEIS Section 7.6).** We recommend making a stronger argument for using carbon dioxide (CO₂) as a surrogate for emissions reductions for other air pollutants (sulfur dioxide or SO₂, nitrogen oxides or NO_x, and mercury or Hg) in out years. Specifically, it would be helpful to provide additional detail on the underlying assumptions used to estimate emissions in out years. These assumptions are critical to the resulting conclusion that CO₂ can act as a surrogate for emissions reductions for other air pollutants. In addition, it would be helpful to point out that in the IRP Section 5.5.2.1 and Appendix A, the four future "scenarios" are not explicitly displayed (whereas they are in the DEIS, Section 7.6). In other words, the discussion of emission trends in the DEIS shows a more detail view (by breaking out four future "scenarios") than is illustrated in the comparable graphs in the IRP. For the reader, this can cause some confusion, particularly when comparing the CO₂ graphs between the IRP (*i.e.*, Figure A-1) and the DEIS (*i.e.*, 7-6). It is also not clear from the discussion for any pollutant whether the emissions estimated in any year are only direct emissions from sources producing electricity or full life-cycle emissions associated with the production of electricity. An explicit statement to that effect would be helpful. Presumably, they are only direct emissions, although we would encourage TVA to include significant associated indirect emissions as well (*e.g.*, CO₂ emissions associated with processing uranium for nuclear power, criteria pollutant emissions associated with mining, processing, and transporting coal, etc.)
4. **Section 5.5.2.1, Air Impact.** The Final IRP (and FEIS) should explicitly state why this suite of pollutants (SO₂, NO_x, Hg, and CO₂) was selected to represent air pollution issues associated with power generation. The discussion should also

explicitly state why other pollutants (*e.g.*, particulate matter, methane, etc.) are not included in this suite of indicator pollutants.

5. **Figure 7-11, Planning Strategy D.** It is not clear from the discussion whether the CO₂ Footprint in Planning Strategy D includes lifecycle greenhouse gas emissions for nuclear energy. As noted in the DEIS, while nuclear power does not directly emit CO₂, there are life-cycle emissions that can result in CO₂ emissions.⁴ We recommend making an explicit statement in the Final IRP (and FEIS) clarifying the magnitude of the greenhouse gas emissions associated with nuclear power.

DRAFT ENVIRONMENTAL IMPACT STATEMENT (DEIS)

General Comment

Other than the mitigation of environmental impacts garnered through *de facto* regulatory implementation and the selection of less CO₂-intensive generation methods in out years, the DEIS does not discuss any other types of mitigation activities that could be implemented to further reduce environmental impacts (*e.g.*, the use of clean diesel options during construction of projects). We recommend that the FEIS discuss, if only generally, that there is a range of such activities that can and will be considered in the development of any given on-the-ground project.

Climate Change

1. **CEQ Draft Guidance on GHG Analysis within NEPA.** On February 18, 2010, CEQ proposed four steps to modernize and reinvigorate NEPA. In particular, CEQ issued draft guidance for public comment on, among other issues, when and how Federal agencies must consider greenhouse gas emissions and climate change in their proposed actions.⁵ The draft guidance explains how Federal agencies should analyze the environmental impacts of greenhouse gas emissions and climate change when they describe the environmental impacts of a proposed action under NEPA. It provides practical tools for agency reporting, including a presumptive threshold of 25,000 metric tons of carbon dioxide equivalent (CO₂e) emissions from the proposed action to trigger a quantitative analysis, and instructs Federal agencies how to assess the effects of climate change on the proposed action and their design. The draft guidance does not apply to land and resource management actions and does not propose to regulate greenhouse gases.

While this guidance is not yet final (and thus, not required), we recommend that both the Final IRP and FEIS explicitly reference the draft guidance, describe the

⁴ Sovacool, BK. Valuing the Greenhouse Gas Emissions for Nuclear Power: A Critical Survey. *Energy Policy* 36 (2008), 2940-2953.

⁵ <http://www.whitehouse.gov/sites/default/files/microsites/ceq/20100218-nepa-consideration-effects-ghg-draft-guidance.pdf>

elements of the draft guidance, and to the relevant extent, provide the assessments suggested by the guidance. For example, DEIS Section 7.6.2 gives only a cursory evaluation of the impact of climate change on the TVA service area and the ability of the various planning scenarios' to supply reliable energy under changing climatic conditions. Likewise, DEIS Section 4 does not discuss to any appreciable extent the impact of climate change on the affected environment (e.g., the impact of climate change on wildlife population trends in the TVA service area). We recommend providing a more in-depth analysis of these points since they constitute a key uncertainty in the overall planning process.

2. **Page 61.** The first paragraph under Table 4-5 references "non-combustion uses of fossil fuels in industrial processes". It would be useful to provide a parenthetical example of such a use.
3. **Page 169 (Table 7-2).** Does the IGCC with CCS value given for CO₂ emissions (108.0 tons/GWh) represent emissions after CCS or prior to CCS? A clarifying footnote would be helpful.
4. **Section 7.3.1, Coal-New Facilities.** This section should include a description of additional air pollutants (only CO₂ is described).
5. **Page 172.** The first paragraph lists a range of:

12 to 61 tons CO₂e/GWh with an average of 22.2 tons CO₂e/GWh

Sovacool (see footnote 4 above) reports a range of:

1.4 grams of CO₂e per kWh (g CO₂e/kWh) to 288 g CO₂e/kWh, with an average value of 66 g CO₂e/kWh

This correlates to a range of:

1.5 tons CO₂e per GWh (t CO₂e/GWh) to 317 t CO₂e/GWh, with an average of 73 t CO₂e/GWh (assuming one ton = 907,185 g)

We recommend TVA re-evaluate the literature to ensure the accuracy of the stated range of values.

6. **Page 176, last paragraph of Section 7.3.3.** This states that "Spath and Mann (2004) calculated a rate of -452 CO₂-eq/GWh for a 60 MW direct-fired boiler using wood waste". The DEIS does not say what the mass units are for the "-452 value" (grams, tons, etc.).

The Spath and Mann citation⁶ provides a value of -410 g CO₂e/kWh for a 600 MW biomass direct-fired reference case. Is this the value that was meant to be

⁶ <http://www.nrel.gov/docs/fv04osti/32575.pdf>

cited? In any event, given this comment and the prior comment, we recommend TVA review and confirm the various values cited from the literature and explicitly clarify what units are being used in the Draft IRP and DEIS, particularly those used for conversions (*e.g.*, the document should state what type of “tons” – American short tons, metric tonnes, etc. – are used in the documents).

Hazardous Air Pollutants (HAPs)

1. **Section 4.3, Air Quality.** We are pleased to see that this section addresses HAPs. Section 4.3 notes that in 2008, TVA emitted approximately 28 million pounds of TRI pollutants, of which acid gases (including the HAPs hydrochloric and hydrofluoric acid) comprise about 99 percent of emissions. The other 1 percent was made up of heavy metals, many of which are also HAPs.
2. **DEIS Summary (Page S-15) and Section 7.6.1, Air Quality (Page 179).** These sections note, “Under all these alternative strategies, there will likely be a substantial beneficial cumulative impact on regional air quality.” Hazardous air pollutants generally have local impacts, so evaluation of their potential impacts should be considered locally rather than regionally. While regional air quality benefits are important, they should not be used to justify or offset increases in local concentrations of HAPs. When TVA considers the potential impacts of a facility, those evaluations should include the potential impacts of HAPs in the vicinity of the facility.
3. **Chapter 7, Anticipated Environmental Impacts.** This chapter seems to focus on criteria air pollutants and greenhouse gases, with minimal mention of hazardous air pollutants. Given the large emissions of HAPs from TVA facilities, they should be addressed in this chapter for the FEIS.

Criteria Air Pollutants

1. **Page S-13.** This page incorrectly states that the only nonattainment area in the TVA region is a few counties in the eastern part of the state (Chattanooga and Knoxville) for PM_{2.5}. In fact, Knoxville is also currently nonattainment for the 1997 8-hr ozone standard, but has clean data and EPA has proposed redesignation to attainment (comment period ends November 8, 2010).
2. **Section 4.3, page 70.** Same comment as above applies for the discussion regarding ozone in the Knoxville area.
3. **Particulate Matter (pp. 70-73).** The document does not discuss the nonattainment status of the Chattanooga and Knoxville areas for PM_{2.5}.
4. **Page 75.** The discussion on lead does not mention that Bristol, TN has a violating monitor for the 2008 lead standard. That area will be designated nonattainment for lead in the next few days.

Editorial Comments

1. **Page 59.** The last part of the last sentence of the first paragraph is broken away from the remainder of the sentence by an intervening paragraph.
2. **Page 186.** Second paragraph, last sentence, last phrase (after the semicolon) seems to be an incomplete statement.
3. **Page 203, Section 7.7.** First sentence appears to be a mistake (the adoption of an alternative strategy has no environmental impacts). All realistic alternative strategies will have some environmental impacts.
4. **Page S-13.** The table key for this summary table could have defined “EEDR” as the “Energy Efficiency and Demand Response”, as defined in the DEIS-appended Glossary, Acronyms and Abbreviations (pg. 232).
5. **Pages 158-160.** We note that Tables 6-5 and 6-6 (Strategy C and E) use the heading “Fossil Layups” while Table 6-4 (Strategy B) uses “Coal Layups”. Was there an intended difference? Would Strategy C and E also decommission natural gas plants in addition to coal plants?
6. **Page iv.** Tables 6-4 to 6-6 are not listed in the Table of Contents (List of Tables).

Comment Letters from State Agencies

Alabama

TVA CCMS - View Comments

Page 1 of 1

Name: Neil Letson

Comments: Our State Forester (Linda Casey) asked me to submit these comments on behalf of the Alabama Forestry Commission.

- 1) TVA should develop woody biomass capacities to reduce its reliance on fossil fuels. The increased use of biomass fuels will reduce their emissions of CO₂, NO_x, SO₂, and Hg, thus improving compliance with air quality issues and mandates.
- 2) TVA should support professional forest management activities on its own lands to maximize carbon sequestration and use of biomass products to mitigate carbon emissions.
- 3) TVA should provide educational activities and resources to encourage natural resource management, conservation practices that sustain water quality, and energy conservation through strategic urban tree plantings within its regional jurisdiction.
- 4) TVA should support and participate in implementing each Forest Assessment & Resource Strategy within its regional jurisdiction.

Thanks for the opportunity for input. Good luck.

close window

Georgia

Rec'd 10/27/10



OFFICE OF PLANNING AND BUDGET

**Sonny Perdue
Governor**

**Debbie Dlugolenski
Director**

**GEORGIA STATE CLEARINGHOUSE MEMORANDUM
EXECUTIVE ORDER 12372 REVIEW PROCESS**

TO: Charles Nicholson
Tennessee Valley Authority
400 W. Summit Hill Drive, WT 11D
Knoxville, TN 37902

FROM: Barbara Jackson *BJ*
Georgia State Clearinghouse

DATE: 10/22/2010

PROJECT: Draft EIS: Integrated Resource Plan - TVA's Environmental & Energy Future

STATE ID: GA100922003

The applicant/sponsor is advised that DNR's Wildlife Resources Division was included in this review but did not comment within the review period. Should they submit comments within the next two weeks, we will forward to you.

The applicant/sponsor is advised to note important comments from DNR's Historic Preservation Division.

Provided that future coordination is conducted with HPD as requested, the State level review of the above-referenced proposal has been completed, and the proposal found to be consistent with those state or regional goals, policies, plans, fiscal resources, criteria for Developments of Regional Impact (DRI), environmental impacts, federal executive orders, acts and/or rules and regulations with which the state is concerned.

/bj

Enc.: DNR/EPD, Oct. 4, 2010
GEFA, Oct. 4, 2010
DNR/HPD, Oct. 15, 2010

Form NCC
Oct. 2008

A Voicemail Fax

D Remote ID: R page of

**GEORGIA STATE CLEARINGHOUSE MEMORANDUM
EXECUTIVE ORDER 12372 REVIEW PROCESS**

TO: Barbara Jackson
Georgia State Clearinghouse
270 Washington Street, SW, Eighth Floor
Atlanta, Georgia 30334

FROM: MR. F. ALLEN BARNES
GA DNR-EPD DIRECTOR'S OFFICE

APPLICANT: Tennessee Valley Authority

PROJECT: Draft EIS: Integrated Resource Plan - TVA's Environmental & Energy Future

STATE ID: GA100922003

FEDERAL ID:

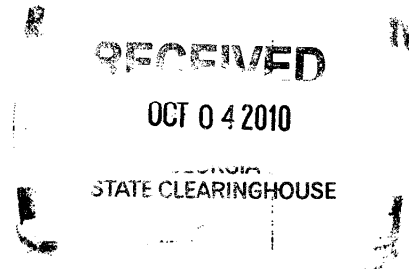
DATE:

- This project is considered to be consistent with those state or regional goals, policies, plans, fiscal resources, criteria for developments of regional impact, environmental impacts, federal executive orders, acts and/or rules and regulations with which this organization is concerned.

This project is not consistent with:

- The goals, plans, policies, or fiscal resources with which this organization is concerned. (Line through inappropriate word or words and prepare a statement that explains the rationale for the inconsistency. (Additional pages may be used for outlining the inconsistencies. Be sure to put the GA State ID number on all pages).
- The criteria for developments of regional impact, federal executive orders, acts and/or rules and regulations administered by your agency. Negative environmental impacts or provision for protection of the environment should be pointed out. (Additional pages may be used for outlining the inconsistencies. Be sure to put the GA State ID number on all pages).
- This project does not impact upon the activities of the organization.

**NOTE: Should you decide to FAX
this form (and any attached pages),
it is not necessary to mail the
originals to us. [770-344-3568]**



Form SC-3
Aug. 2010

**GEORGIA STATE CLEARINGHOUSE MEMORANDUM
EXECUTIVE ORDER 12372 REVIEW PROCESS**

TO: Barbara Jackson
Georgia State Clearinghouse
270 Washington Street, SW, Eighth Floor
Atlanta, Georgia 30334

FROM: MS. JILL STUCKEY
GEORGIA ENVIRONMENTAL FACILITIES AUTHORITY

APPLICANT: Tennessee Valley Authority

PROJECT: Draft EIS: Integrated Resource Plan - TVA's Environmental & Energy Future

STATE ID: GA100922003

FEDERAL ID:

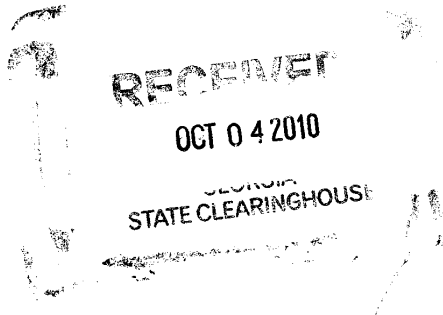
DATE: 10/28/10

- This project is considered to be consistent with those state or regional goals, policies, plans, fiscal resources, criteria for developments of regional impact, environmental impacts, federal executive orders, acts and/or rules and regulations with which this organization is concerned.

This project is not consistent with:

- The goals, plans, policies, or fiscal resources with which this organization is concerned. (Line through inappropriate word or words and prepare a statement that explains the rationale for the inconsistency. (Additional pages may be used for outlining the inconsistencies. Be sure to put the GA State ID number on all pages).
- The criteria for developments of regional impact, federal executive orders, acts and/or rules and regulations administered by your agency. Negative environmental impacts or provision for protection of the environment should be pointed out. (Additional pages may be used for outlining the inconsistencies. Be sure to put the GA State ID number on all pages).
- This project does not impact upon the activities of the organization.

NOTE: Should you decide to FAX this form (and any attached pages), it is not necessary to mail the originals to us. [770-344-3568]



Form SC-3
Aug. 2010



HISTORIC PRESERVATION DIVISION

CHRIS CLARK
COMMISSIONER

DR. DAVID CRASS
DIVISION DIRECTOR

October 15, 2010

Barbara Jackson
Georgia State Clearinghouse
270 Washington Street, SW, Eighth Floor
Atlanta, Georgia 30334

Re: Draft EIS: Integrated Resource Plan – Tennessee Valley Authority’s Environmental & Energy Future Statewide, Georgia GA-100922-003

Dear Ms. Jackson:

The Historic Preservation Division (HPD) has received information concerning the above referenced undertaking. Our comments are offered to assist the Tennessee Valley Authority (TVA) in complying with the provisions of Section 106 of the National Historic Preservation Act of 1966, as amended.

HPD has received the document entitled “Draft Integrated Resource Plan: TVA’s Environmental & Energy Future Environmental Impact Statement.” We look forward to future coordination with TVA on Section 106 compliance for future activities as appropriate.

If we may be of further assistance, please do not hesitate to contact Elizabeth (Betsy) Shirk, Environmental Review Coordinator, at (404) 651-6624.

Sincerely,

A handwritten signature in black ink that reads "Karen Anderson-Cordova" with a stylized flourish at the end.

Karen Anderson-Cordova
Program Manager
Environmental Review & Preservation Planning

KAC/ECS

cc: Charles Nicholson, TVA, IRP@tva.gov

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OCT 15 2010
GEORGIA
STATE CLEARINGHOUSE

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404.656.2840 | FAX 404.657.1368 | WWW.GASHPO.ORG

Kentucky

STEVEN L. BESHEAR
GOVERNOR



LEONARD K. PETERS
SECRETARY

ENERGY AND ENVIRONMENT CABINET

OFFICE OF THE SECRETARY
500 MERO STREET
12TH FLOOR, CAPITAL PLAZA TOWER
FRANKFORT, KY 40601
TELEPHONE: (502) 564-3350
FACSIMILE: (502) 564-3354
www.eec.ky.gov

November 15, 2010

Mr. Charles P. Nicholson
National Environmental Policy Act Project Manager
Tennessee Valley Authority
400 West Summit Hill Dr., WT 11D
Knoxville, TN 37902

RE: Tennessee Valley Authority Integrated Resource Plan Comments

Thank you for providing the Commonwealth of Kentucky, Energy and Environment Cabinet the opportunity to comment on the Tennessee Valley Authority Integrated Resource Plan. The TVA plays an important role in Kentucky's energy industry and economy. The TVA provides 22% of the electricity consumed in Kentucky with large fossil plants and approximately one quarter of Kentucky's hydro resources.

We agree with the plan's emphasis on energy efficiency and demand response and encourage you to aggressively pursue energy efficiency for all classes of customers: residential, commercial and industrial. Efficiency improvements in the industrial sector could be an important factor in maintaining our manufacturing base as energy prices increase.

We also agree with your analysis that biomass and hydropower are important renewable resources for this region. We encourage you to consider repowering Shawnee Unit 10 (slated for idling) with biomass. We also suggest that you consider biomass generation on a distributed basis in your Kentucky service area and that you maximize the potential of hydropower.

Finally, the Energy and Environment Cabinet appreciates your effort to balance energy needs, environmental concerns, and economic development in this plan. Your ability to continue providing affordable electricity in an environmentally responsible way is critical to the economic and social wellbeing of southern Kentucky.

Sincerely yours,


Leonard K. Peters
Secretary

North Carolina



North Carolina
Department of Administration

Beverly Eaves Perdue, Governor

Moses Carey, Jr., Secretary

November 10, 2010

Mr. Charles P. Nicholson
Tennessee Valley Authority
400 West Summit Hill Drive
WT 11D
Knoxville, TN 37902-1401

Dear Mr. Nicholson:

**Re: SCH File # 11-E-0000-0086; DEIS; Integrated Resource Plan (IRP) and programmatic EIS.
View document at <http://www.tva.com/environment/reports/irp>**

The above referenced environmental impact information has been submitted to the State Clearinghouse under the provisions of the National Environmental Policy Act. According to G.S. 113A-10, when a state agency is required to prepare an environmental document under the provisions of federal law, the environmental document meets the provisions of the State Environmental Policy Act. Attached to this letter for your consideration are the comments made by agencies in the course of this review.

If any further environmental review documents are prepared for this project, they should be forwarded to this office for intergovernmental review.

Should you have any questions, please do not hesitate to call.

Sincerely,

A handwritten signature in black ink, appearing to read "Sheila Green".

Sheila Green
State Environmental Review Clearinghouse

Attachments

cc: Region A

Mailing Address:
1301 Mail Service Center
Raleigh, NC 27699-1301

Telephone: (919)807-2425
Fax (919)733-9571
State Courier #51-01-00
e-mail state.clearinghouse@doa.nc.gov

Location Address:
116 West Jones Street
Raleigh, North Carolina

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North Carolina Department of Environment and Natural Resources

Beverly Eaves Perdue
Governor

Dee Freeman
Secretary

MEMORANDUM

TO: Sheila Green
State Clearinghouse

FROM: Melba McGee ✓
Project Review Coordinator

RE: 11-0086 Tennessee Valley Authority Integrated Resource Plan
DEIS

DATE: November 9, 2010

The Department of Environment and Natural Resources has reviewed the proposed project.

Several areas need further clarification as noted in the attached comments. We ask that the applicant work with our commenting agencies to ensure that the division's concerns are adequately addressed prior to finalizing project plans.

Thank you for the opportunity to comment on this project.

Attachments

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North Carolina Department of Environment and Natural Resources
Division of Parks and Recreation

Beverly Eaves Perdue, Governor

Dee Freeman, Secretary

Lewis Ledford, Director

August 12, 2009

MEMORANDUM

TO: Melba McGee, Environmental Coordinator
Office of Legislative and Intergovernmental Affairs

FROM: Amin Davis, Environmental Review Coordinator *AND*
Division of Parks and Recreation

SUBJECT: TVA Integrated Resource Plan & Programmatic Environmental Impact Statement

REFERENCE: Project No. 10-0010

Dear Melba,

The North Carolina Division of Parks and Recreation (DPR) has reviewed the above-referenced project information available for review at <http://www.tva.gov/environment/reports/energyvision2020/>. DPR understands that the Tennessee Valley Authority (TVA) has completed an Integrated Resource Plan (IRP) and Environmental Impact Statement (EIS) as part of its Energy Vision 2020 initiative to identify and select a long-range strategy that will enable TVA to meet the electricity needs of its customers from 1996 to 2020. The EIS evaluates potential environmental consequences of alternative energy strategies to the TVA power service area which comprises 201 counties within a 58 million-acre region; 15 of these counties are situated in North Carolina.

DPR is concerned about the indirect and cumulative adverse impacts of "distant sources" of facility operations associated with Energy Vision 2020 on the recreational resources and ecological integrity of State Parks (SP) and State Natural Areas (SNA) that are owned by the State of North Carolina and managed by DPR. DPR is also concerned about the potential adverse effects these distant sources may have on the recreational visitor experience, human health, climate change, and future DPR land acquisitions.

In addition, the "Seventeen Categories of Natural Areas Appendix" (Part 5 of Technical Document 1 - Comprehensive Affected Environment) does not include the following DPR holdings: Bear Paw SNA, Beech Creek Bog SNA, Elk Knob SP, Gorges SP, Sugar Mountain Bog SNA, and Yellow Mountain SNA. In addition, Grandfather Mountain and Mount Mitchell Registered SNA's are now state parks managed by DPR. Please see attached map for the location of these holdings. DPR respectfully requests that TVA update their records to accurately reflect the current status of these eight holdings.

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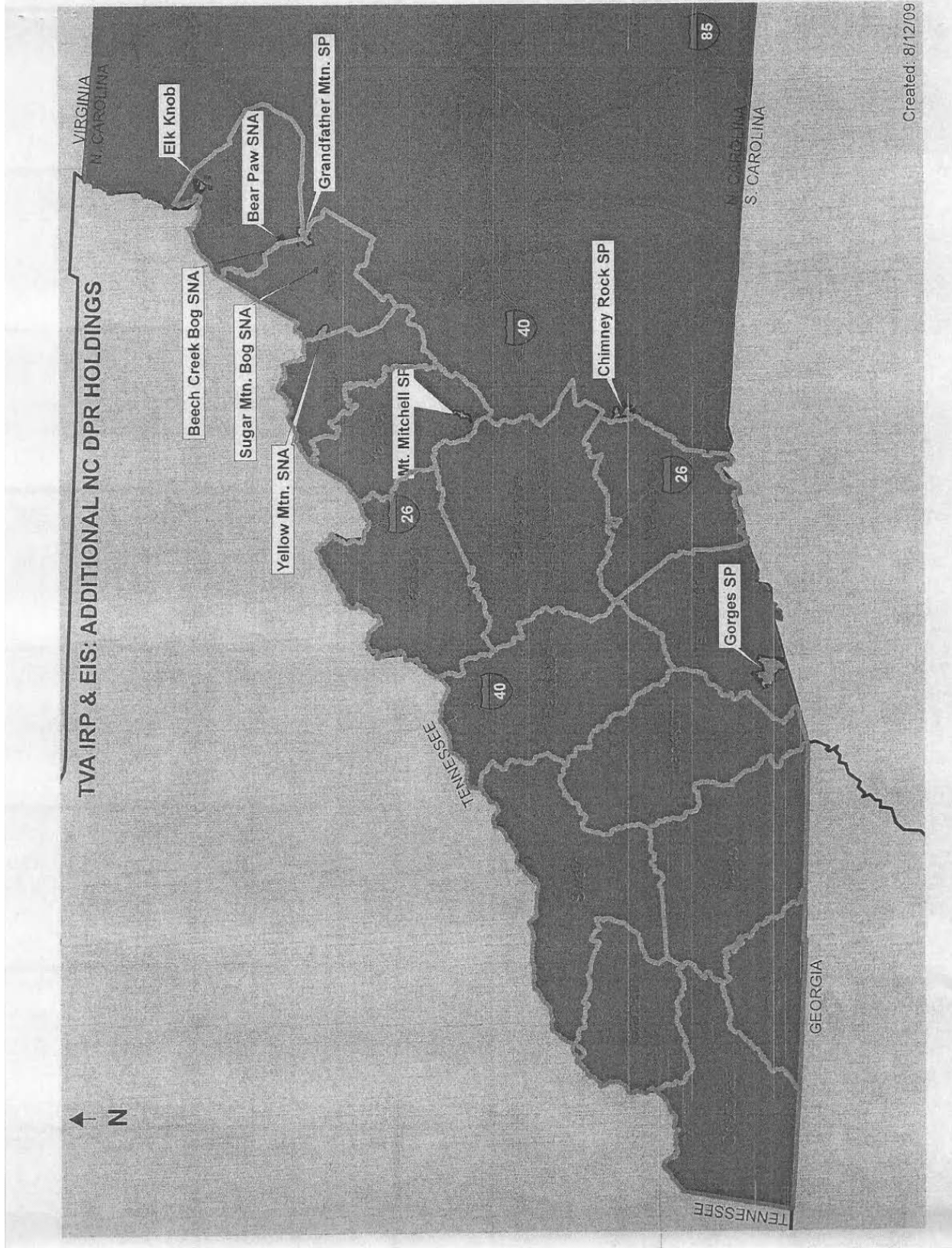
Please let me know if I can provide further information. DPR appreciates the opportunity to comment on this proposed project. If we can be of further assistance, please do not hesitate to contact me at 919-715-7584 or amin.davis@ncdenr.gov.

Attachment: Additional NC DPR Holdings Map

CC via email: Adrienne Wallace, Chimney Rock SP Superintendent
Brian Strong, DPR Natural Resources Section Head
Carol Tingley, DPR Regional Planning Section Head
Jack Bradley, Mount Mitchell SP Superintendent
Larry Trivette, Elk Knob SP Superintendent/ Acting Mount Mitchell SP Superintendent
Linda Pearsall, Natural Heritage Program Director
Marshall Ellis, DPR Mountain Region Biologist
Mike Lambert, DPR Chief of Operations
Steven Pagano, Gorges SP Superintendent
Tom Jackson, DPR West District Superintendent

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Created: 8/12/09



North Carolina Department of Environment and Natural Resources
Division of Water Resources

Beverly Eaves Perdue
Governor

Thomas A. Reeder
Director

Dee Freeman
Secretary

November 3, 2010

MEMORANDUM

FROM: Jim Mead, SEPA Review Coordinator - DWR *Jim Mead*
TO: Melba McGee, Environmental Projects Officer - DENR
SUBJECT: Tennessee Valley Authority Integrated Resource Plan
Draft Environmental Impact Statement
DENR Project No. 11-0086

The Division of Water Resources (DWR) has reviewed the draft EIS for the Tennessee Valley Authority's (TVA) Integrated Resource Plan (IRP). Our comments are as follows:

Our concerns pertain to reservoir levels and any additional impacts on TVA reservoirs in North Carolina that may occur in the future as a result of the strategies selected in the IRP. Likewise we are concerned with flows in rivers downstream of TVA projects in NC that may experience additional impacts as a result of implementation of the IRP.

Section 7.6.3. Water Resources, page 189 of the DEIS states, "All of the alternative strategies result in an increase in the volume of water used and consumed for cooling coal, natural gas, and nuclear facilities." The IRP proposes waiting until a specific project is designed to evaluate its impacts. However, we believe that the impacts which result from the different IRP alternative strategies should be evaluated and displayed in this FEIS.

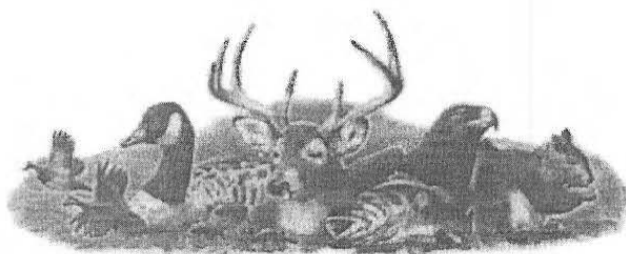
The evaluation of projects and rivers in the North Carolina portion of the TVA system should utilize river basin hydrologic models that are based solely on data that is of public record and open to public review and comments.

We appreciate this opportunity to comment and would be glad to discuss our comments with you or the TVA.

cc: Steve Reed & Tom Fransen, DWR

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☒ North Carolina Wildlife Resources Commission ☒

Gordon Myers, Executive Director

MEMORANDUM

TO: Melba McGee, Environmental Coordinator
Office of Legislative and Intergovernmental Affairs
North Carolina Department of Environment and Natural Resources

FROM: Dave McHenry, Mountain Region Coordinator *D.Mc*
Habitat Conservation Program

DATE: November 1, 2010

SUBJECT: Scoping comments on Tennessee Valley Authority's Integrated Resource Plan and Draft
Environmental Impact Statement
OLIA No. 11-0086

Biologists with the North Carolina Wildlife Resources Commission (Commission) reviewed the Tennessee Valley Authority's (TVA) Integrated Resource Plan (IRP) and draft environmental impact statement (EIS). This document outlines various management and operational directions that TVA may pursue through the year 2020 to provide reliable energy to the Tennessee Valley region while also meeting resource stewardship needs. Our comments are provided under provisions of the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.) and the National Environmental Policy Act (42 U.S.C. 4332 (2)(c)).

As described in the IRP/EIS, TVA operations, primarily coal-fired generation, emit sulfur dioxide, nitrogen-oxides, carbon dioxide, mercury, and other pollutants that contribute to acid deposition, mercury accumulation in aquatic food webs, and possibly accelerated climate change in the Tennessee Valley region and beyond. These impacts are harming or have the potential to harm inland fisheries and wildlife and their uses in North Carolina as follows:

1. Acid deposition is contributing to the decline of high elevation spruce forest that is important habitat for northern flying squirrel (US – Endangered) in the southern Appalachians. This forest type is rare

Mailing Address: Division of Inland Fisheries • 1721 Mail Service Center • Raleigh, NC 27699-1721
Telephone: (919) 707-0220 • **Fax:** (919) 707-0028

and perhaps the second most endangered ecosystem in the region. It is at risk primarily because of the exotic balsam wooly adelgid (*Adelges piceae*), but also due to acid precipitation (NCWRC 2005, and references therein).

2. Acid deposition causes pH suppression in high elevation, southern Appalachian streams that support brook trout. Historical declines of brook trout populations in the region have been extensive due to poor land management practices, but recent losses can be partly attributed to stream acidification (Hudy and Thieling et al. 2008, and references therein). Brook trout are a popular sport fish and a priority species in the management of North Carolina's fisheries (NCWRC 1989).
3. Recent data collected from fish fillets in TVA's Lake Fontana and Lake Santeetlah (non-TVA reservoir) in North Carolina suggest that mercury levels in the Little Tennessee River basin are a risk to human health. Fish consumption advisories were issued in 2008 for walleye in these reservoirs and there is a statewide advisory for the consumption of other fishes that are high in mercury (see www.epi.state.nc.us/epi/fish/current.html). Analyses of samples from other lakes in the western North Carolina region are pending. The Commission recommends that TVA consult with the NC Department of Health and Human Services regarding fish contaminant data it has or is collecting in western North Carolina.
4. The southern Appalachians are the southernmost range of trout in the eastern United States. Brook trout have an upper thermal tolerance threshold of 25.3°C (Harshbarger 1975, and references therein) with optimal growth occurring at 12-16°C (Baldwin 1956, Cormick *et al.* 1972). Trout streams in North Carolina are typically 20.0°C or less with an upper maximum of 22.2°C (Ratledge and Louder 1967). Increased water temperatures from poor land management practices have markedly reduced the extent of brook trout in the southeast (EBTJV 2006). Global climate change could render uninhabitable much of the remaining brook trout streams in the southern Appalachians (Meisner 1990).

Because of these issues, the Commission encourages TVA to pursue more demand-side and renewable source capacity in future management and operations in lieu of fossil fuel based sources, which currently account for about 60 % of capacity. This could be accomplished in part by increasing TVA's integration of customer-based conservation incentives and wind power, nuclear, and solar photovoltaic facilities into future operations. Strategy E in the EIS would utilize the most of these alternatives and thereby achieve the largest reduction in carbon dioxide emissions. The Commission supports incorporating additional emission control technologies, particularly at TVA's four coal-fired nearest to the North Carolina mountains, to reduce acid deposition, mercury accumulation, and other air-related environmental degradation.

The Commission appreciates the opportunity to provide comments regarding effects of TVA's operations on inland fishery and wildlife resources in North Carolina. Please call me at (828) 456-2546 ext. 24 if you have any questions about or need to discuss these comments.

cc: Goudreau, C. - NC Wildlife Resources Commission, Fisheries Management
Wheeler, P. - NC Wildlife Resources Commission, Fisheries Management

Citations:

- Baldwin, N.S. 1956. Food consumption and growth of brook trout at different temperatures. Transactions of the American Fisheries Society 86:323-328.
- Cormick, J.H., K.E.F. Hokansen, B.R. Jones. 1972. Effects of temperature on growth and survival of young trout. Journal of Fisheries Research Board of Canada 29(8):1107-1120.
- EBTJV (Eastern Brook Trout Joint Venture). 2006. Eastern brook trout: status and threats. Prepared by Trout Unlimited, Arlington, Virginia, for the Eastern Brook Trout Joint Venture. 36 p.
- Harshbarger, T.J. 1975. Factors affecting regional trout stream productivity. Pages 11-27 *In*: Southeastern Trout Resource: Ecology and Management Symposium Proceedings. October 24-25, 1975, Blacksburg, Virginia.
- Meisner, J.D. 1990. Effect of climatic warming on the southern margin of the native range of brook trout *Salvelinus fontinalis*. Canadian Journal of Fisheries and Aquatic Sciences. 47:1065-1070.
- NCWRC (North Carolina Wildlife Resources Commission). 1989. Casting the future of trout in North Carolina: A plan for management of North Carolina's trout resources. Division of Boating and Inland Fisheries, North Carolina Wildlife Resources Commission.
- NCWRC (North Carolina Wildlife Resources Commission). 2005. North Carolina wildlife action plan. Raleigh. NC.
- Ratlledge, H.M. and D.E. Louder. 1967. Cold-water stream studies: Federal Aid in Fish Restoration F-13-R. 48 p. N.C. Wildlife Resources Commission, Division of Inland Fisheries, Raleigh.



North Carolina Department of Environment and Natural Resources
Division of Water Quality
Coleen H. Sullins
Director

Beverly Eaves Perdue
Governor

Dee Freeman
Secretary

October 27, 2010

MEMORANDUM

TO: Melba McGee
Department of Environment and Natural Resources

THRU: Jeff Manning, Supervisor *JM*
Basinwide Planning Unit

FROM: Hannah Stallings, SEPA Coordinator *HSS*

SUBJECT: Cherokee, Graham, Swain, Clay, and Union Counties
TVA's Draft EIS – Integrated Resource Plan and Programmatic EIS
DWQ#14324; DENR#11-0086

The Division of Water Quality (DWQ) has reviewed the subject document. The TVA projects in North Carolina are hydro- related (not coal burning facilities). TVA has gone through the FERC relicensing process recently and DWQ gave comments through that process. TVA should take care to reduce emissions from its coal combustion facilities in neighboring states to reduce the potential for atmospheric deposition of pollutants into North Carolina's surface waters. Installation of any electrical transmission projects in North Carolina should use sediment and erosion control best management practices to protect water quality.

Please contact me at 807-6434 if I can be of any further assistance.
Thank you.

Cc: Roger Edwards – ARO

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Integrated Resource Plan

Department of Environment and Natural Resources

Reviewing Office: AKO

INTERGOVERNMENTAL REVIEW - PROJECT COMMENTS

Project Number: 11-0086 Due Date: 11/3/2010

After review of this project it has been determined that the ENR permit(s) and/or approvals indicated may need to be obtained in order for this project to comply with North Carolina Law. Questions regarding these permits should be addressed to the Regional Office indicated on the reverse of the form. All applications, information and guidelines relative to these plans and permits are available from the same Regional Office.

	PERMITS	SPECIAL APPLICATION PROCEDURES or REQUIREMENTS	Normal Process Time (statutory time limit)
<input type="checkbox"/>	Permit to construct & operate wastewater treatment facilities, sewer system extensions & sewer systems not discharging into state surface waters.	Application 90 days before begin construction or award of construction contracts. On-site inspection. Post-application technical conference usual.	30 days (90 days)
<input type="checkbox"/>	NPDES - permit to discharge into surface water and/or permit to operate and construct wastewater facilities discharging into state surface waters.	Application 180 days before begin activity. On-site inspection. Pre-application conference usual. Additionally, obtain permit to construct wastewater treatment facility-granted after NPDES. Reply time, 30 days after receipt of plans or issue of NPDES permit-whichever is later.	90-120 days (N/A)
<input type="checkbox"/>	Water Use Permit	Pre-application technical conference usually necessary	30 days (N/A)
<input type="checkbox"/>	Well Construction Permit	Complete application must be received and permit issued prior to the installation of a well.	7 days (15 days)
<input type="checkbox"/>	Dredge and Fill Permit	Application copy must be served on each adjacent riparian property owner. On-site inspection. Pre-application conference usual. Filling may require Easement to Fill from N.C. Department of Administration and Federal Dredge and Fill Permit.	55 days (90 days)
<input type="checkbox"/>	Permit to construct & operate Air Pollution Abatement facilities and/or Emission Sources as per 15 A NCAC (2Q.0100 thru 2Q.0300)	Application must be submitted and permit received prior to construction and operation of the source. If a permit is required in an area without local zoning, then there are additional requirements and timelines (2Q.0113).	90 days
<input type="checkbox"/>	Permit to construct & operate Transportation Facility as per 15 A NCAC (2D.0800, 2Q.0601)	Application must be submitted at least 90 days prior to construction or modification of the source.	90 days
<input type="checkbox"/>	Any open burning associated with subject proposal must be in compliance with 15 A NCAC 2D.1900		
<input type="checkbox"/>	Demolition or renovations of structures containing asbestos material must be in compliance with 15 A NCAC 20.1110 (a) (1) which requires notification and removal prior to demolition. Contact Asbestos Control Group 919-707-5950.	N/A	60 days (90 days)
<input type="checkbox"/>	Complex Source Permit required under 15 A NCAC 2D.0800		
<input checked="" type="checkbox"/>	The Sedimentation Pollution Control Act of 1973 must be properly addressed for any land disturbing activity. An erosion & sedimentation control plan will be required if one or more acres to be disturbed. Plan filed with proper Regional Office (Land Quality Section) At least 30 days before beginning activity. A fee of \$65 for the first acre or any part of an acre. An express review option is available with additional fees. <i>As needed per project</i>		20 days (30 days)
<input type="checkbox"/>	Sedimentation and erosion control must be addressed in accordance with NCDOT's approved program. Particular attention should be given to design and installation of appropriate perimeter sediment trapping devices as well as stable stormwater conveyances and outlets.		(30 days)
<input type="checkbox"/>	Mining Permit	On-site inspection usual. Surety bond filed with ENR Bond amount varies with type mine and number of acres of affected land. Any acre mined greater than one acre must be permitted. The appropriate bond must be received before the permit can be issued.	30 days (60 days)
<input type="checkbox"/>	North Carolina Burning permit	On-site inspection by N.C. Division Forest Resources if permit exceeds 4 days	1 day (N/A)
<input type="checkbox"/>	Special Ground Clearance Burning Permit - 22 counties in coastal N.C. with organic soils	On-site inspection by N.C. Division Forest Resources required "if more than five acres of ground clearing activities are involved. Inspections should be requested at least ten days before actual burn is planned."	1 day (N/A)
<input type="checkbox"/>	Oil Refining Facilities	N/A	90-120 days (N/A)
<input type="checkbox"/>	Dam Safety Permit	If permit required, application 60 days before begin construction. Applicant must hire N.C. qualified engineer to: prepare plans, inspect construction, certify construction is according to ENR approved plans. May also require permit under mosquito control program. And a 404 permit from Corps of Engineers. An inspection of site is necessary to verify Hazard Classification. A minimum fee of \$200.00 must accompany the application. An additional processing fee based on a percentage of the total project cost will be required upon completion.	30 days (60 days)

PERMITS		SPECIAL APPLICATION PROCEDURES or REQUIREMENTS	Normal Process Time (statutory time limit)
<input type="checkbox"/>	Permit to drill exploratory oil or gas well	File surety bond of \$5,000 with ENR running to State of NC conditional that any well opened by drill operator shall, upon abandonment, be plugged according to ENR rules and regulations.	10 days N/A
<input type="checkbox"/>	Geophysical Exploration Permit	Application filed with ENR at least 10 days prior to issue of permit. Application by letter. No standard application form.	10 days N/A
<input type="checkbox"/>	State Lakes Construction Permit	Application fees based on structure size is charged. Must include descriptions & drawings of structure & proof of ownership of riparian property.	15-20 days N/A
<input type="checkbox"/>	401 Water Quality Certification	N/A	60 days (130 days)
<input type="checkbox"/>	CAMA Permit for MAJOR development	\$250.00 fee must accompany application	55 days (150 days)
<input type="checkbox"/>	CAMA Permit for MINOR development	\$50.00 fee must accompany application	22 days (25 days)
<input type="checkbox"/>	Several geodetic monuments are located in or near the project area. If any monument needs to be moved or destroyed, please notify: N.C. Geodetic Survey, Box 27687 Raleigh, NC 27611		
<input type="checkbox"/>	Abandonment of any wells, if required must be in accordance with Title 15A, Subchapter 2C.0100.		
<input type="checkbox"/>	Notification of the proper regional office is requested if "orphan" underground storage tanks (USTS) are discovered during any excavation operation.		
<input type="checkbox"/>	Compliance with 15A NCAC 2H 1000 (Coastal Stormwater Rules) is required.		45 days (N/A)
<input type="checkbox"/>	Tar Pamlico or Neuse Riparian Buffer Rules required.		
* Other comments (attach additional pages as necessary, being certain to cite comment authority)			

REGIONAL OFFICES

Questions regarding these permits should be addressed to the Regional Office marked below.

Asheville Regional Office
2090 US Highway 70
Swannanoa, NC 28778
(828) 296-4500

Mooresville Regional Office
610 East Center Avenue, Suite 301
Mooresville, NC 28115
(704) 663-1699

Wilmington Regional Office
127 Cardinal Drive Extension
Wilmington, NC 28405
(910) 796-7215

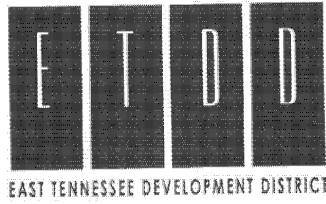
Fayetteville Regional Office
225 North Green Street, Suite 714
Fayetteville, NC 28301-5043
(910) 433-3300

Raleigh Regional Office
3800 Barrett Drive, Suite 101
Raleigh, NC 27609
(919) 791-4200

Winston-Salem Regional Office
585 Waughtown Street
Winston-Salem, NC 27107
(336) 771-5000

Washington Regional Office
943 Washington Square Mall
Washington, NC 27889
(252) 946-6481

Tennessee



*paid
9/27/10*

September 22, 2010

Mr. Charles P. Nicholson
NEPA Compliance Manager
Tennessee Valley Authority
400 West Summit Hill Drive, WT 11D
Knoxville, TN 37902

Dear Mr. Nicholson:

SUBJECT: Result of Regional Review
Tennessee Valley Authority - Draft Environmental Impact Statement (EIS) for the Integrated Resource Plan

The East Tennessee Development District has completed its review of the above mentioned proposal, in its role as a regional clearinghouse to review state and federally-assisted projects.

ETDD review of this proposal has found no conflicts with the plans or programs of the District or other agencies in the region. However, ETDD or other reviewing agencies may wish to comment further at a later time.

We appreciate the opportunity to work with you in coordinating projects in the region.

Sincerely,

Terrence J. Bobrowski
Executive Director
TJB/tc

P.O. Box 249 Alcoa, TN, 37701-0249
Phone: (865)273-6003 Toll Free: (866)683-6003 Fax: (865)273-6010
Web Page: <http://www.discoveret.org/etdd>



September 30, 2010

Rec'd 10/4/10

Charles P. Nicholson, NEPA Compliance Manager
Tennessee Valley Authority
400 West Summit Hill Drive, WT 11D
Knoxville, Tennessee 37902

Re: Environmental Impact Statement For The Integrated Resource Plan For TVA
GNRC #2011-10

Dear Mr. Nicholson :

In accordance with the Project Review Process (approved by the Executive Committee at the April 1995 Executive Board Meeting), the Greater Nashville Regional Council has reviewed the above referenced project.

Our evaluation reveals no conflict with existing or proposed planning activities. We are notifying you that your proposal is deemed acceptable on the basis of information now available to this office, and received final approval by the Executive Committee at our GNRC Annual Meeting on September 28, 2010.

We may wish to comment further at a later time. This letter should be attached to your application. If we can be of further assistance, please do not hesitate to contact us.

Sincerely,

Sam H. Edwards
Executive Director

SHE/pyc



Rec'd 10/15/10



27 Conrad Drive
Suite 150
Jackson, TN 38305-2850
731-668-7112
731-668-6421
swtdd@swtdd.org

Joe W. Barker, Executive Director

Troy Kilzer, Chairman

Tim David Boaz, Vice Chairman

Jerry Gist, Secretary-Treasurer

CHESTER DECATUR HARDEMAN HARDIN HAYWOOD HENDERSON MADISON MCNAIRY

October 8, 2010

Mr. Charles P. Nicholson
NEPA Compliance Manager
Tennessee Valley Authority
400 West Summit Hill Drive, WT 11D
Knoxville, Tennessee 37902

**Subject: DRAFT ENVIRONMENTAL IMPACT STATEMENT (EIS) FOR
 THE INTEGRATED RESOURCE PLAN**

Dear Mr. Nicholson:

The Southwest Tennessee Development District is responding to your request for our agency's assessment of the document referenced above.

We have reviewed the information you sent and find no conflicts with the draft document and any needs, plans, or priorities of our agency.

If you require additional review, please contact Jeff Reece, Environmental Programs Coordinator for SWTDD, at 731-668-6408 or jreece@swtdd.org.

Sincerely,

A handwritten signature in black ink, appearing to read "Joe W. Barker", is written over a printed name and title.

Joe W. Barker
Executive Director
Southwest Tennessee Development District

JWB/jr

Name: Bob Alexander

Tennessee Department of Environment and Conservation, Div. of Water Pollution Control

Comments: Comment on Chapter 4, Affected Environment:

A number of water bodies are listed as "None" under the heading Fish Consumption Advisories in Table 4-9, page 96. For these waters, TDEC has posted Fish Consumption Advisories, per <http://tn.gov/environment/wpc/publications/pdf/fishmercurylevels.pdf>, and shown below:

Clinch River portion of Norris Reservoir
Hiwassee River embayment of Chickamauga Reservoir
South Holston Lake
Watauga Lake
Cherokee Lake
Douglas Lake

Virginia



Rec'd 11/4/10

COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY
Street address: 629 East Main Street, Richmond, Virginia 23219
Mailing address: P.O. Box 1105, Richmond, Virginia 23218
TDD (804) 698-4021
www.deq.virginia.gov

Douglas W. Domenech
Secretary of Natural Resources

David K. Paylor
Director

(804) 698-4000
1-800-592-5482

November 1, 2010

Mr. Charles P. Nicholson
NEPA Compliance Manager
Tennessee Valley Authority
400 West Summit Hill Drive, WT 11D
Knoxville, Tennessee 37902

RE: Draft Programmatic Environmental Impact Statement: Tennessee Valley Authority, Integrated Resource Plan (DEQ 10-137F)

Dear Mr. Nicholson:

The Commonwealth of Virginia has completed its review of the above-referenced draft programmatic environmental impact assessment (PEIS). The Department of Environmental Quality (DEQ) is responsible for coordinating Virginia's review of environmental documents prepared pursuant to the National Environmental Policy Act and responding to appropriate officials on behalf of the Commonwealth. The following agencies, locality and planning district commission joined in this review:

- Department of Environmental Quality
- Department of Game and Inland Fisheries
- Department of Agriculture and Consumer Services
- Department of Conservation and Recreation
- Department of Historic Resources
- Department of Mines, Minerals and Energy
- Mount Rogers Planning District Commission
- Lee County

The State Corporation Commission, Lenowisco Planning District Commission, Cumberland Plateau Planning District Commission, Scott County, Wise County, Russell County, Grayson County, Smyth County, Washington County, City of Bristol and the Town of Abingdon also were invited to comment.

EA: TVA PEIS Integrated Resource Plan
DEQ 10-137F

PROPOSED ACTION

The Tennessee Valley Authority (TVA) has submitted a draft PEIS for review as part of its Integrated Resource Plan. According to TVA, the purpose of the plan is to help TVA achieve environmental sustainability and meet electricity needs during the next 20 years. According to the TVA, planning process steps include developing planning strategies encompassing various approaches TVA can take on issues and future conditions (scenarios) used in evaluating the strategies. Capacity expansion plans (portfolios) are then developed for each combination of strategies and scenarios. The PEIS evaluates three final alternative strategies: 1) the Baseline Plan (No Action alternative); 2) the Diversity Focused Plan and 3) Energy Efficiency-Demand Response and Renewables Focused Plan. Under all of these strategies, coal-fired generation decreases and reliance on renewable resources increases. The strategies add varying amounts of new nuclear and natural gas-fueled generation. Air emissions decrease under all strategies. All alternatives would require the construction of new or upgraded transmission facilities. Renewable generation options are expected to be through power purchase agreements with non-TVA generators. At this time, TVA does not have a preferred alternative strategy.

The primary study area is the combined TVA power service area and the Tennessee River watershed, which consists of 59 million acres. In Virginia, TVA serves Lee and Scott counties and portions of Washington and Wise counties, covering approximately 1,941 square miles. TVA owns a 9 kilowatt solar energy facility in Scott County and a substation and nearly 11 miles of transmission line in Virginia. In addition, the upper half of the South Holston Reservoir extends into Virginia, and TVA manages about 250 acres around the reservoir. According to the PEIS, the locations of most of the future energy-generating facilities are not known. As a result, the PEIS describes general impacts mostly at a regional level.

COMMONWEALTH OF VIRGINIA COMMENTS

1. Water Quality and Wetlands. According the PEIS (page S-15), the potential for water quality impacts would decrease under all alternative scenarios. However, all of the scenarios would increase the volume of water use and consumption (evaporated) for cooling generating plants.

1(a) Agency Jurisdiction. The State Water Control Board promulgates Virginia's water regulations, covering a variety of permits to include Virginia Pollutant Discharge Elimination System Permit, Virginia Pollution Abatement Permit, Surface and Groundwater Withdrawal Permit, and the Virginia Water Protection (VWP) Permit. The VWP Permit is a state permit which governs wetlands, surface water and surface water withdrawals/impoundments. It also serves as § 401 certification of the federal Clean Water Act § 404 permits for dredge and fill activities in waters of the United States. The VWP Permit Program is under the Office of Wetlands and Water Protection/Compliance within the DEQ Division of Water Quality Programs. In addition to central office staff who review and issue VWP permits for transportation and water withdrawal projects, the

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six DEQ regional offices perform permit application reviews and issue permits for the covered activities.

1(b) Agency Comments Pertaining to Future Projects.

Wetland Delineation

The DEQ Office of Wetlands and Water Protection (OWWP) states that a wetland delineation should be conducted to determine the location, extent and type of surface waters present at future project sites. The delineation should be conducted using the 1987 U.S. Corps of Engineers (Corps) Wetlands Delineation Manual, which defines wetlands for the Clean Water Act Section 404 permit program. The improvements should be designed to avoid and minimize impacts to surface waters to the greatest extent practicable.

Application and Permitting Process

If impacts to state waters are proposed, a Joint Permit Application (JPA) should be submitted to the Virginia Marine Resources Commission (VMRC). The DEQ Southwest Regional Office (SWRO) will make the final permit decision regarding potential impacts to state waters.

If unavoidable impacts to wetlands or surface waters are proposed, a Virginia Water Protection (VWP) permit may be required for the proposed project. DEQ provides 401 certification to the Corps' nationwide and general permits. Compensation for unavoidable impacts may also be required.

If the project qualifies for a Nationwide Permit 12 (NWP 12) from the Corps and if the impacts to streams are less than 1500 linear feet, then a VWP permit is not necessary. If (a) stream impacts exceed the thresholds outline above, or (b) the project proposes to permanently impact more than one half (1/2) acre of wetlands, or (c) the project does not qualify for a NWP 12 from the Corps, then a VWP permit may be required from DEQ.

Unavoidable permanent impacts to all wetlands or to streams in excess of three hundred linear feet will require mitigation through the creation, enhancement or preservation of wetlands or streams within the project's watershed, or through the purchase of mitigation bank credits.

DEQ implements its own state laws and regulations regarding activities in surface waters, regardless of the federal laws and regulations that may apply, such as those of the Federal Energy Regulatory Commission (FERC).

For purposes of a VWP permit for surface water withdrawals, the timing of application submittal is important when a FERC license is also being sought. To avoid delays in the VWP permit process, applicants should have clearly a defined project purpose and

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need, alternatives analysis, and infrastructure details at the time of applications such that DEQ staff can determine what if any impacts will occur to beneficial uses.

Applicants seeking a VWP permit for surface water supply involving a reservoir should consider the feasibility of flow release augmentation as a component of the project. Applicants for VWP permits for surface water withdrawals can expect the permit to contain limits on the volume or rate of surface water to be withdrawn and a requirement to pass certain flows downstream to protect beneficial uses.

DEQ coordinates all applications for VWP permits with other state resource agencies and must fully consider comments and recommendations made by those agencies. Applicants should be prepared to address comments made by these agencies, and if a federal license applies, the comments and recommendations made by any federal resource agencies as well. Studies and surveys may be required that are season-dependent. Mitigation of species impacts may be required.

Future projects may have the potential to intercept shallow, localized aquifers during trenching activities, requiring temporary dewatering of the work area. Discharge of any trench water associated with groundwater infiltration should be performed in accordance with National Pollutant Discharge Elimination System (NPDES) permit conditions. The registration statement for 9VAC25-120 (VAG 83) - Petroleum Contaminated Sites, Ground Water Remediation and Hydrostatic Tests is available on the DEQ website at www.deq.virginia.gov/export/sites/default/vpdes/pdf/VAG83RegistrationStatement2008.pdf.

Protection and Mitigation Methods

- Once a final strategy has been developed, any activities requiring instream work should be performed in the dry, utilizing cofferdams, stream diversions and/or working during low flow conditions.
- Heavy equipment should work from uplands to the greatest extent possible and utilize mats and strict erosion and sediment controls for work that must be conducted from within surface waters.
- Caution should be taken to ensure prevention of the release of any oil or fuel from heavy equipment into surface waters.
- All disturbed stream beds should be restored to their original contours prior to redirecting the stream into the work area.
- For larger stream crossings, TVA should address the feasibility of using directional drilling to bore beneath the channels and completely avoid impacts to the stream beds.
- Restore temporary impact areas to their original contours and revegetate with the same or similar species.
- DEQ encourages consideration of off-stream water storage to supplement natural sources in times of low flow, declining aquifer levels, and low precipitation.

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1(c) Agency Recommendations. DEQ has the following recommendations:

- Conduct pre-application coordination with all applicable state agencies, including DEQ (Allen Newman at 276-676-4804) and VMRC (Justin Worrell at 757-247-8063), that may have jurisdiction over the proposed project.
- Conduct wetland delineations at future project sites.
- Contact DEQ SWRO (including Allen Newman, Water Permit Manager, at 276-676-4804) for permit coverage and requirements regarding hydrostatic test discharge water.
- Ensure that environmental documents for site-specific projects include adequate descriptions of wetlands and surface waters within the project area and proposed project site, potential impacts, protection and mitigation methods, coordination with appropriate agencies, and permitting and regulatory requirements, including local requirements, and any other applicable information.

2. Subaqueous Lands.

2(a) Agency Jurisdiction. The Virginia Marine Resources Commission (VMRC) regulates encroachments in, on or over state-owned subaqueous beds as well as tidal wetlands pursuant to § 28.2-1200 through 1400 of the *Code of Virginia*.

The VMRC serves as the clearinghouse for the Joint Permit Application (JPA) used by the:

- Corps for issuing permits pursuant to Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act;
- DEQ for issuance of a VWP permit;
- VMRC for encroachments on or over state-owned subaqueous beds as well as tidal wetlands; and
- local wetlands board for impacts to wetlands.

The VMRC will distribute the completed JPA to the appropriate agencies. Each agency will conduct its review and respond.

2(b) Agency Recommendation. Contact VMRC (Justin Worrell at 757-247-8063) for information on submitting a JPA for future construction projects in Virginia.

3. Erosion and Sediment Control, and Stormwater Management.

3(a) Agency Jurisdiction. The Department of Conservation and Recreation (DCR) Division of Soil and Water Conservation (DSWC) administers the Virginia Erosion and Sediment Control Law and Regulations (VESCL&R) and Virginia Stormwater Management Law and Regulations (VSWML&R).

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3(b) Recommendations.

- Ensure that future site-specific projects are in accordance with the following laws and regulations, as applicable:
 - Virginia Erosion and Sediment Control Law §10.1-563.D;
 - Virginia Erosion and Sediment Control Regulations §4VAC50-30-30 and §4VAC50-30-40;
 - Virginia Stormwater Act §10.1-603.1 *et seq.*;
 - Virginia Stormwater Management Program Permit Regulations §4VAC50 *et seq.*
- Site-specific environmental documents should adequately describe site conditions, potential impacts, protection and mitigation methods, permitting and regulatory requirements, including local requirements, and any other applicable information.

Questions regarding annual erosion and sediment control specifications should be directed to DCR (Larry Gavan at 804-786-4508). Specific questions regarding the VSMP General Permit for Construction Activities requirements should be directed to DCR DSWC (Holly Sepety at 804-225-2613).

4. Air Quality Impacts. The PEIS (page S-15) states that all three alternative strategies will result in significant long-term reductions in total emissions of sulfur dioxide, nitrogen oxides (NOx) and mercury.

4(a) Agency Jurisdiction. DEQ's Division of Air Quality is responsible for carrying out the mandates of the Virginia Air Pollution Control Law, as well as meeting Virginia's federal obligations under the Clean Air Act. The objective is to protect and enhance public health and the environment by controlling present and future sources of air pollution. The division ensures the safety and quality of the air in Virginia by monitoring and analyzing air quality data, regulating sources of air pollution, and working with local, state and federal agencies to plan and implement strategies to protect Virginia's air quality.

4(b) National Ambient Air Quality Standards. The primary goals of the Federal Clean Air Act are the attainment and maintenance of the National Ambient Air Quality Standards (NAAQS) and the prevention of significant deterioration of air quality in areas cleaner than the NAAQS. The NAAQS establish the maximum limits of pollutants that are allowed in the outside ambient air. The Environmental Protection Agency (EPA) requires the submission of a State Implementation Plan (SIP) that includes laws and regulations necessary to enforce the plan and shows how the air pollution concentrations will be reduced to levels at or below these standards (attainment). Once pollution levels are within the standards, the SIP must also demonstrate how the state will maintain the air pollution concentrations at the reduced levels (maintenance).

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The standards have been attained for most pollutants in most areas. However, attainment for the pollutant, ozone, has proven problematic. While ozone is needed at the earth's outer atmospheric layer to protect us from the sun's ultraviolet and other harmful rays, excess concentrations at the surface have an adverse effect on animal and plant life. Ozone is formed by a chemical reaction between volatile organic compounds (VOCs) and NO_x in the presence sunlight. When VOC and NO_x emissions are reduced, ozone is reduced.

4(c) Ozone Attainment Area. According to the DEQ Air Division, the TVA coverage area in Virginia is located in an ozone attainment area.

4(d) Agency Recommendations. Site-specific environmental documents should address the applicable regulatory requirements for air emissions due to the construction and operation of any proposed facility or transmission line, including 9VAC5-50-60 *et seq.* governing fugitive dust emissions; 9VAC5-130 *et seq.* for open burning; and 9VAC5-40-5490 *et seq.* for asphalt paving operations. Permits may be required for any boilers or fuel-burning equipment for any proposed facility.

4(e) Agency Comment. The DEQ Division of Air Program Coordination states that site-specific projects in Virginia are subject to additional review.

5. Solid and Hazardous Wastes and Hazardous Materials. The PEIS (page S-16) states that the largest amounts of solid waste produced by the alternative strategies are coal ash and scrubber waste.

5(a) Agency Jurisdiction. Solid and hazardous wastes in Virginia are regulated by DEQ, the Virginia Waste Management Board and EPA. They administer programs created by the federal Resource Conservation and Recovery Act, Comprehensive Environmental Response Compensation and Liability Act, commonly called Superfund, and the Virginia Waste Management Act. DEQ administers regulations established by the Virginia Waste Management Board and reviews permit applications for completeness and conformance with facility standards and financial assurance requirements. All Virginia localities are required, under the Solid Waste Management Planning Regulations, to identify the strategies they will follow on the management of their solid wastes to include items such as facility siting, long-term (20-year) use, and alternative programs such as materials recycling and composting.

5(b) Agency Comments. The DEQ Waste Division states that the scope of this multi-state project is extensive. For each area in Virginia where any work is to take place, the applicant needs to conduct an environmental investigation on and near the property to identify any solid or hazardous waste sites or issues before work can commence. This investigation should include a search of waste-related databases (table attached).

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5(c) Agency Recommendations.

- For future projects, conduct an environmental investigation on and near the property for each area in Virginia where any work is to take place to identify any solid or hazardous waste sites or issues before work can commence, and include a search of waste-related databases.
- DEQ encourages all projects and facilities to implement pollution prevention principles, including:
 - the reduction, reuse and recycling of all solid wastes generated; and
 - the minimization and proper handling of generated hazardous wastes.
- Site-specific environmental documents should describe how solid waste, hazardous waste and hazardous materials will be managed in accordance with all applicable federal, state and local environmental laws and regulations, including the following state and federal laws and regulations:
 - Virginia Waste Management Act (Code of Virginia Section 10.1-1400 *et seq.*);
 - Virginia Hazardous Waste Management Regulations (VHWMR) (9VAC20-60);
 - Virginia Solid Waste Management Regulations (VSWMR) (9VAC20-80);
 - Virginia Vegetative Waste Management Regulations (9VAC20-101 *et seq.*);
 - Virginia Regulations for the Transportation of Hazardous Materials (9VAC20-110);
 - Resource Conservation and Recovery Act (RCRA) (42 U.S.C. Section 6901 *et seq.*, and the applicable regulations contained in Title 40 of the Code of Federal Regulations); and
 - U.S. Department of Transportation Rules for Transportation of Hazardous materials (49 Code of Federal Regulations Part 107).

Contact the DEQ Waste Division (Paul Kohler at 804-698-4208) for additional information.

6. Natural Heritage Resources.

6(a) Agency Jurisdiction. The mission of DCR is to conserve Virginia's natural and recreational resources. The DCR Division of Natural Heritage's (DNH) mission is conserving Virginia's biodiversity through inventory, protection and stewardship. The Virginia Natural Area Preserves Act, 10.1-209 through 217 of the Code of Virginia, was passed in 1989 and codified DCR's powers and duties related to statewide biological inventory: maintaining a statewide database for conservation planning and project review, land protection for the conservation of biodiversity, and the protection and ecological management of natural heritage resources (the habitats of rare, threatened

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and endangered species, significant natural communities, geologic sites, and other natural features).

6(b) Agency Comment. DCR states that it supports green energy initiatives (renewable resources) with proper siting criteria.

6(c) Agency Findings. According to the information currently in DCR's files:

- There are many natural heritage resources and conservation sites (table attached) within the project area.
- Future projects may either overlie or be adjacent to a karst landscape characterized by sinkholes, caves, disappearing streams and large springs. Discharge of runoff to sinkholes or sinking streams, filling of sinkholes and alteration of cave entrances can lead to surface collapse, flooding, erosion and sedimentation, groundwater contamination and degradation of subterranean habitat for natural heritage resources.

6(d) State Natural Area Preserves. DCR's files do not indicate the presence of any State Natural Area Preserves under the agency's jurisdiction in the TVA service area.

6(e) Threatened and Endangered Plant and Insect Species. Under a Memorandum of Agreement established between the Virginia Department of Agriculture and Consumer Services (VDACS) and DCR, DCR has the authority to report for VDACS on state-listed plant and insect species.

- Listed plant and insect species are included in the attached table of natural heritage resources in the TVA area.
- VDACS states that several federally- and state-listed endangered and threatened plant and insect species are known to occur within the TVA Power Service boundary in Virginia. Suitable habitat to support other listed species also occurs within the TVA boundary.

6(f) Agency Recommendations. DCR and VDACS have the following recommendations:

- Coordinate with DCR DNH to access potential impacts to natural heritage resources as individual projects are identified.
- Since new and updated information is continually added to the Biotics Data System, contact DCR DNH at (804) 786-7951 for site-specific information.
- Continue to evaluate impacts to natural resources regarding development and maintenance planning and implementation.

7. Wildlife Resources.

7(a) Agency Jurisdiction. DGIF, as the Commonwealth's wildlife and freshwater fish management agency, exercises enforcement and regulatory jurisdiction over wildlife

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and freshwater fish, including state or federally listed endangered or threatened species, but excluding listed insects (Virginia Code Title 29.1). DGIF is a consulting agency under the U.S. Fish and Wildlife Coordination Act (16 U.S.C. sections 661 *et seq.*) and provides environmental analysis of projects or permit applications coordinated through DEQ and several other state and federal agencies. DGIF determines likely impacts upon fish and wildlife resources and habitat, and recommends appropriate measures to avoid, reduce or compensate for those impacts.

7(b) Agency Comments.

- Overall, DGIF states that it supports energy plans that hope to reduce reliance on sources of energy resulting in high emissions of air pollutants and other adverse impacts upon the environment. DGIF also supports consideration of renewable energy sources and those that result in a reduction of such impacts.
- The Tennessee Valley in Virginia is known to support a globally significant diversity of species which deserves protection and which should be considered during the development of any energy projects in the region.
- DGIF is willing to assist TVA in the review of energy projects to evaluate impacts upon wildlife, planning for such projects, and integrating the protection of Virginia's natural resources into energy projects.

7(c) Agency Recommendations.

- Closely coordinate and integrate the development of the Integrated Resources Plan with TVA's Natural Resources Plan to ensure that TVA's energy projects meet its goals.
- Ensure that planning for the protection of the natural resources in the Tennessee Valley is part of the energy development planning process.
- Closely coordinate with DGIF to ensure that any new energy projects or significant changes or upgrades to existing energy projects located in Virginia, or which may affect natural resources in Virginia, are protective of the unique wildlife known from the Tennessee Valley.

Contact DGIF (Amy Ewing at 804-367-2211) for assistance and additional information.

8. Historic Architectural Resources.

8(a) Agency Jurisdiction. The Department of Historic Resources (DHR) conducts reviews of projects to determine their effect on historic structures or cultural resources under its jurisdiction. DHR, as the designated State's Historic Preservation Office, ensures that federal actions comply with Section 106 of the National Historic Preservation Act of 1966, as amended, and its implementing regulation at 36 CFR Part 800. The preservation act requires federal agencies to consider the effects of federal projects on properties that are listed or eligible for listing on the National Register of Historic Places. Section 106 also applies if there are any federal involvements, such as

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licenses, permits, approvals or funding. DHR also provides comments to DEQ through the state environmental impact report review process.

8(b) Agency Comment. DHR states that it will respond directly to the TVA.

9. Geologic and Mineral Resources.

9(a) Agency Jurisdiction. The Virginia Department of Mines, Minerals and Energy (DMME), through its six divisions, regulates the mineral industry, provides mineral research and offers advice on wise use of resources. The Department's mission is to enhance the development and conservation of energy and mineral resources in a safe and environmentally sound manner in order to support a more productive economy.

9(b) Agency Comment. DMME states that it will not comment on this project.

Additional information about the geology and mineral resources of Virginia is available on the DMME website at www.dmme.virginia.gov/divisionmineralresources.shtml.

10. Pollution Prevention. DEQ advocates that principles of pollution prevention be used in the planning of construction projects. Effective planning will help to ensure that environmental impacts are minimized. However, pollution prevention techniques also include decisions related to construction materials, design and operational procedures that will facilitate the reduction of wastes at the source. The DEQ Office of Pollution Prevention provides information and technical assistance relating to pollution prevention techniques. If interested, please contact Sharon Baxter at (804) 698-4344.

11. Local and Regional Comments.

11(a) Jurisdiction. In accordance with the Code of Virginia, Section 15.2-4207, planning district commissions encourage and facilitate local government cooperation and state-local cooperation in addressing, on a regional basis, problems of greater than local significance. The cooperation resulting from this is intended to facilitate the recognition and analysis of regional opportunities and take account of regional influences in planning and implementing public policies and services. Planning district commissions promote the orderly and efficient development of the physical, social and economic elements of the districts by planning, and encouraging and assisting localities to plan for the future.

11(b) Comments. The Mount Roger Planning District Commission states that it is in agreement with TVA's conclusions. However, TVA should include more green technology in its plans. A large power company like the TVA needs to create more opportunities to use green power sources, including solar and the recycling of waste material into energy. Lee County has no comment.

The Lenowisco Planning District Commission, Cumberland Plateau Planning District Commission, Scott County, Wise County, Russell County, Grayson County, Smyth

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County, Washington County, City of Bristol and Town of Abingdon did not respond to DEQ's request for comments.

REGULATORY AND COORDINATION NEEDS FOR FUTURE PROJECTS

1. Surface Waters and Wetlands. Conduct pre-application coordination with all applicable state agencies, including DEQ (Allen Newman at 276-676-4804) and VMRC (Justin Worrell at 757-247-8063), that may have jurisdiction over the proposed project. Contact DEQ SWRO (Allen Newman, Water Permit Manager, at 276-676-4804) for permit coverage and requirements regarding hydrostatic test discharge water.

2. Subaqueous Lands. Contact VMRC (Justin Worrell at 757-247-8063) for information on submitting a JPA regarding site-specific projects.

3. Natural Heritage Resources.

- Contact the DCR DNH at (804) 786-7951 for an update on natural heritage information for site-specific projects.
- Coordinate with DCR DNH at (804) 786-7951 to access potential impacts to natural heritage resources as individual projects are identified.

4. Protected Species. Closely coordinate with DGIF (Amy Ewing at 804-367-2211) to ensure that any new energy projects or significant changes or upgrades to existing energy projects located in Virginia, or which may affect natural resources in Virginia, are protective of the unique wildlife known from the Tennessee Valley.

5. Site-Specific Reviews.

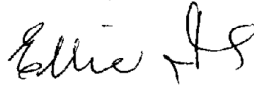
- DEQ encourages TVA to submit site-specific environmental documents as required under the National Environmental Policy Act (NEPA) and the State Corporation Commission's laws and regulations. Other state approvals which may apply to future site-specific projects may not be included in this review. TVA must ensure that future projects in Virginia are constructed and operated in accordance with all applicable federal, state and local laws and regulations.
- Site-specific environmental documents should be submitted to the DEQ Office of Environmental Impact Review (Attention: Ms. Ellie Irons), P.O. Box 1105, Richmond, VA 23218. Please submit one hard copy for DEQ and each affected locality and associated planning district commission as well as 16 compact discs (CDs) with electronic copies or provide a website or FTP site for distribution during a coordinated review.

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CONCLUSION

Thank you for the opportunity to review the PEIS. We look forward to reviewing future, site-specific projects located in Virginia as well as those located outside the Commonwealth with the potential to affect Virginia's environment and natural resources. Detailed comments of reviewing agencies are attached for your review. Please contact me at (804) 698-4325 or Julia Wellman at (804) 698-4326 for clarification of these comments.

Sincerely,



Ellie L. Irons, Manager
Office of Environmental Impact Review

Enclosures

cc: Dave Barrett, Mount Rogers PDC
Glen Skinner, Lenowisco PDC
Jim Baldwin, Cumberland Plateau PDC
Mark K. Reeter, Washington County
Dane Poe, Lee County
Rufus Hood, Scott County
Shannon C. Scott, Wise County
James A. Gillespie, Russell County
Jonathan Sweet, Grayson County
Ediwn Whitmore, Smyth County
James F. Rector, City of Bristol
Greg Kelly, Town of Abingdon

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