

**BEFORE THE NORTH CAROLINA UTILITIES COMMISSION
DOCKET NO. E-100, SUB 111**

FILED
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Clerk's Office
North Carolina Utilities Commission

In the Matter of:)
Rulemaking Proceeding to Consider)
Revisions to Commission Rule R8-60 on)
Integrated Resource Planning)

COMMENTS

NCSEA'S COMMENTS

The North Carolina Sustainable Energy Association ("NCSEA") submits these comments pursuant to the *Order Requesting Comments Regarding Rule R8-60 Amendments* issued by the North Carolina Utilities Commission ("Commission") issued in this docket on 29 September 2014. In the Commission's order, it directed interested parties to address at least four specific questions about the integrated resource plan ("IRP") annual updates. Below, NCSEA first presents a general comment; thereafter, NCSEA provides specific responses to each of the Commission's four questions.

GENERAL COMMENTS

I. Finding A More Efficient, Less Resource-Intensive Path Forward

NCSEA is sensitive to how resource-intensive the annual IRP proceedings – both the full IRP and the annual update proceedings – have become for all of the parties involved, including the Commission. We collectively seem to have returned to where we were about 15 years ago, when the Commission "noted . . . the dissatisfaction of the parties with the [then-]current [IRP] process and the suggestions, including suggestions from the Public Staff's witness, to streamline the [IRP] process." *Order Adopting Revised Rules*, p. 5, Commission Docket No. E-100, Sub 78A (29 April 1998). NCSEA believes

we can learn from the past and revise how IRPs are developed to make the IRP process significantly less taxing from a resource perspective.

By highlighting what has not worked especially well, the past can illuminate a promising, heretofore untraveled, path forward. In 1988, the Commission directed that full IRPs be filed every three years, supplemented by annual reports in years 2 and 3. *Order Adopting Rules*, Appendix A, p. 4, Commission Docket No. E-100, Sub 54 (8 December 1988). For a number of reasons, the every-three-years model did not work very well in practice. Real and anticipated marketplace changes (*e.g.*, the potential for a restructured market) prompted the Commission to consider moving from a triennial IRP filing to the annual process we have in place today. Specifically, in 1997, the Commission indicated that it was

considering eliminating the current requirements that utilities file an Integrated Resource Plan every three years plus annual updates and short-term action plans and is considering a requirement that the utilities file one plan each year in sufficient detail to allow the Commission to meet its responsibilities under G.S. 62-110.1(c) and G.S. 62-2(3a). The Commission also seeks a more streamlined process of evaluation and review of utility plans by other parties.

Order Requesting Comments and Proposed Rules, p. 5, Commission Docket No. E-100, Sub 78 (16 September 1997). Ultimately, the Commission did move to our current annual filing process, but this annual process has not proved to be the answer to our collective desire for a “streamlined process.” Where the triennial reporting of the early 1990s was, perhaps, too infrequent to permit the Commission to keep current its statutory analysis and plan for the long-range needs for expansion of facilities for the generation of electricity in North Carolina, the essentially annual IRP filings under the current process are, perhaps, proving to be too frequent. The past, thus, illuminates a possible path

forward: With neither a triennial proceeding nor an annual proceeding proving workable, we should explore moving to a “truer” biennial process.

NCSEA is interested in finding a “truer” biennial path forward that gives NCSEA and other non-governmental intervening parties a more formal opportunity to engage with the utilities as they develop full biennial IRPs and, at the same time, greatly reduces or eliminates the need for the annual updates. Right now, NCSEA believes intervenors have little to no defined procedure for engaging with the utilities at the front-end of IRP development; as a result, intervenors choose to engage with the utilities in the only formal way they can – at the tail-end of the IRP development process, once the IRPs and annual updates have been filed with the Commission. NCSEA believes that Commission creation of a defined “formal” procedure for front-end engagement in development of the utilities’ full biennial IRPs could reduce, if not eliminate, the current intensity of the tail-end engagement, particularly in the annual update years. As set forth in more detail below, NCSEA recommends that the Commission create a North Carolina Generation Planning Collaborative/Generation Advisory Group modelled on the current, well-functioning North Carolina Transmission Planning Collaborative/Transmission Advisory Group.

RESPONSES TO COMMISSION’S SPECIFIC QUESTIONS

1. Whether the Public Staff should be the only party expressly allowed to file comments and recommendations about the annual reports?

No.

There are practical and legal reasons for answering in the negative. First, a number of parties, including the Public Staff, convened on 21 November 2014 to discuss

the four questions posed by the Commission in its 29 September 2014 order. Based on the discussion that occurred at the parties' 21 November 2014 meeting, NCSEA understands that the Public Staff is not advocating for an exclusive ability to engage in any annual update proceedings. The Public Staff is the only party that has a clear statutory duty to assist to the Commission in formulating an analysis and plan for the long-range needs for expansion of facilities for the generation of electricity in North Carolina, *see* N.C. Gen. Stat. § 62-15(d)(5), yet even the Public Staff sees the value in having multiple stakeholders file comments and recommendations about any annual reports. N.C. Gen. Stat. §62-2(a) contains a number of policies that the Commission must balance as it regulates electric utilities; "energy planning" for a "least cost mix" is only one of these policies, *see* N.C. Gen. Stat. § 62-2(a)(3a), but it is the policy that the Public Staff primarily focuses on as it advocates on behalf of the using and consuming public in IRP proceedings. The other policies must be considered also as the Commission develops its analysis and plan. Permitting multiple stakeholders to engage in any annual update proceeding helps to ensure that the Commission is as fully informed as possible as it balances the State's multiple policies in the development of a long-range plan. Practically speaking, even though intervenor engagement may make any annual update proceeding less streamlined, NCSEA believes it nonetheless serves the public interest by assisting the Commission in fully considering and balancing the multiple State policies set out in N.C. Gen. Stat. § 62-2(a).

Second, even if the Commission concludes that limiting engagement to the Public Staff would better serve the public interest, a legal question arises: Does the Commission have the authority to limit participation to the Public Staff? While the controlling statute

may not provide a clear and unambiguous answer to this question, NCSEA believes the statute evidences the legislature's intent that the Commission develop its analysis and plan through an inclusive procedure rather than an exclusive procedure. N.C. Gen. Stat. § 62-110.1(c) seems to provide for development of a long-range generation plan via an inclusive process. For example, subsection (c) provides that, in the Commission's development of the plan – which has traditionally been based overwhelmingly on the utilities' full biennial IRPs and annual updates – the Commission shall confer not only with the electric utilities, but also with commissions in neighboring states and other government agencies having relevant information. Subsection (c) also indicates that the Attorney General may, "insofar as practicable," attend or be represented at any formal conference conducted by the Commission in developing a plan for the future requirements of electricity for North Carolina. Because IRP proceedings – including the current annual update proceedings – likely constitute "formal conferences" under the law,¹ any limitation of formal participation to the Public Staff (*i.e.*, any exclusion of the Attorney General) may well be unlawful. Regardless, even if – strictly speaking – barring

¹ The IRP proceeding has been likened to a legislative hearing, which one could reasonably view to fall within the category of formal conference. The North Carolina Court of Appeals has opined:

General Statutes section 62-110.1(c) makes it clear that the only purpose of a least-cost planning proceeding is to assist the Utilities Commission in "develop[ing], publiciz[ing], and keep[ing] current an analysis of the long-range needs for expansion of facilities for the generation of electricity in North Carolina." . . . *[W]e believe that the least-cost planning proceeding should bear a much closer resemblance to a legislative hearing, wherein a legislative committee gathers facts and opinions so that informed decisions may be made at a later time.*"

State ex. rel. Utilities Comm. v. N.C. Electric Membership Corp., 105 N.C. App. 136, 143-44, 412 S.E.2d 166, 170 (1992) (emphasis added).

the participation of the Attorney General and other intervenors is lawful, such a bar would run counter to the statutory indications that the Commission develop its analysis and plan via an inclusive rather than exclusive process.

2. *Whether the Commission should be required to make a finding of necessity before a public witness and/or evidentiary hearing is scheduled?*

No.

With regard to *public witness* hearings, the parties briefly discussed at their 21 November 2014 meeting whether N.C. Gen. Stat. § 62-110.1(c) requires public witness hearings in connection with IRP proceedings. The parties noted during the meeting that N.C. Gen. Stat. § 62-110.1(c) contains the following sentence: “In the course of making the analysis and developing the plan, the Commission shall conduct one or more public hearings.” Several parties, including NCSEA, asserted that this sentence made a finding of necessity moot with regard to scheduling a public witness hearing because such a hearing was required by statute. Another party pointed out that the statutorily-referenced analysis and plan, for which a public hearing is required, is distinct from (even though related to) a given IRP proceeding. This party emphasized that the Commission’s last published report of its analysis and plan itself recognizes that the utilities’ IRPs are merely one input in developing an analysis and plan:

Much of the information contained in this report is based on reports to the Commission by the electric utilities regarding their analyses and plans for meeting demand for electricity in their respective service areas. It also reflects information from other records and files of the Commission.

NCUC 2013 Annual Report Regarding Long Range Needs for Expansion of Electric Generation Facilities in NC, p. 1, Commission Docket No. E-100, Sub 137 (11 December 2013) (emphasis added). This language appears to corroborate that the

“analysis and plan” referenced in the statute is something distinct from (and broader in scope than) any IRP proceeding. As such, it could apparently be argued that the public hearing requirement in the statute pertains to the “analysis and plan” and not to any IRP proceeding. While conceding that the statute is less than crystal clear, NCSEA believes current Commission Rule R8-60(j) memorializes a Commission determination that the public hearing requirement in the statute does pertain to the IRP proceeding. In connection with Commission review of the utilities’ IRPs, Rule R8-60(j) provides that “[o]ne or more public hearings to receive testimony from the public, *as required by law*, shall be set at a time and place designated by the Commission.” (Emphasis added). That the law requires one or more public hearings in connection with an IRP proceeding appears to be a longstanding Commission interpretation of the statute.² NCSEA sees no reason to disturb this longstanding interpretation at this time. Because the Commission construes the law to require a public hearing in connection with any IRP proceeding, requiring the making of a necessity finding before scheduling a public hearing would be superfluous and would only create unnecessary, additional work for the Commission.

With regard to scheduling an *evidentiary* hearing, the Commission currently has discretion to schedule such a hearing or not in any IRP proceeding. *See* Commission Rule R8-60(j). NCSEA believes the discretionary standard is sufficient and should remain in place.

² *See Order Adopting Revised Rules*, Appendix A, p. 2, Commission Docket No. E-100, Sub 78A (29 April 1998) (adopting the current language); *see also Order Adopting Rules*, Appendix A, p. 5, Commission Docket No. E-100, Sub 54 (8 December 1988).

3. *Whether there are categories of information or particular subjects that are not necessary for inclusion in the annual reports?*

N.C. Gen. Stat. §62-110.1(c) provides in pertinent part that the Commission “shall develop . . . and *keep current* an analysis of the long-range needs for expansion of facilities for the generation of electricity in North Carolina.” (Emphasis added). The statute also requires the Commission to submit an annual report of “its analysis and plan, the progress to date in carrying out such plan, and the program of the Commission for the ensuing year in connection with such plan.” *Id.*

These provisions appear to suggest that under current law, so long as the full biennial IRPs have not materially changed, the Commission could keep its analysis current and comply with the statutory requirements by directing electric utilities to file “bare bones” annual updates that detail the utilities’ “progress to date in carrying out [their full IRP] plan[s]” filed the year before.³ To fashion an amendment to current Commission Rule R8-60 that would require such a “bare bones” report, the Commission could harken back to former Commission Rule R8-59 – specifically, to the version of Rule R8-59 promulgated by the Commission in 1988:

³ NCSEA is aware that each of the investor-owned utilities files IRPs or annual updates in adjacent states as well as in North Carolina and so the extent to which filing a “bare bones” annual update is more efficient may well depend on whether the adjacent states are willing to make accommodating changes to their filing requirements. NCSEA is also aware that the Public Staff would like to continue receiving, on an annual basis, certain information that might not be included in a “bare bones” annual update. Obviously, these parties will provide their own comments and the Commission will have to balance the various parties’ interests and weigh the trade-offs of requiring more or less information in the annual updates.

Rule R8-59. Short-Term Action Plan.

Each utility shall prepare an annual short-term action plan which discusses those specific actions currently being taken by the utility to implement its least cost integrated resource plan. The utility's short-term action plan shall contain a summary of the resource options or programs contained in its current least cost integrated resource plan and for which specific actions must be taken by the utility within the next two to three years. For each resource option or program, the summary shall include:

- (a) The objective of the resource option or program;
- (b) Criteria for measuring progress toward the objective;
- (c) The implementation schedule for the program over the next two to three years; and
- (d) Actual progress toward the objective to date.

Order Adopting Rules, Appendix A, p. 10, Commission Docket No. E-100, Sub 54 (8 December 1988).

It should be noted, however, that the “bare bones” approach suggested above will only work where the full biennial IRPs have not materially changed. Where the utilities’ IRPs have changed significantly or materially, the Commission – in order to keep current its analysis and plan on a year-to-year basis – will have to require a more substantive filing. Where a utility IRP has materially changed, the Commission will need to be apprised of the particulars via a utility filing that is, in substance, more akin to a full biennial IRP. The Commission would need such particular information to fulfill the statutory mandate that it “keep current” its analysis and plan of long-range needs. To account for the situation where a full biennial IRP has materially changed, an amendment to the current Commission Rule R8-60 could be fashioned requiring, in substance, a filing more akin to a full IRP. In considering how to structure such an amendment, the Commission could harken back to former Commission Rule R8-60 – specifically, to the

version of Rule R8-60 promulgated by the Commission in 1988 and providing in pertinent part:

Rule R8-60. Annual Report of Updates to Least Cost Integrated Resource Plans.

Every electrical public utility shall furnish the Commission with an annual report containing a fifteen-year forecast of loads and generating capability. *An updated report shall be filed within thirty (30) days after any significant revision of the forecast*, and there shall be at least one report filed annually.

Order Adopting Rules, Appendix A, p. 11, Commission Docket No. E-100, Sub 54 (8 December 1988) (emphasis added). The Commission could model a revised rule on the italicized language.

It should also be noted that, while the proposals above may well streamline the utilities' process for *generating* their off-year IRP filings, adoption of these proposals will not in and of itself reduce the tail-end resource intensity of the current annual update proceeding for the following reason: Intervenors would still have little to no defined procedure for engaging with the utilities at the front-end of the IRP development process and would therefore likely continue to engage with the utilities in the only place they can formally engage – at the tail-end of the process, once the annual updates have been filed with the Commission.

4. Whether there are procedures or methods that should be adopted to achieve more stakeholder involvement in the annual reports prior to the reports being filed with the Commission?

Yes.

As set out above in the General Comments section, NCSEA believes that Commission creation of a defined “formal” procedure for front-end intervenor engagement in development of the utilities’ full biennial IRPs could reduce, if not eliminate, the current intensity of the tail-end engagement, particularly in the annual update years. NCSEA recommends that the Commission create a North Carolina Generation Planning Collaborative/Generation Advisory Group modelled, primarily, on the current, well-functioning North Carolina Transmission Planning Collaborative/Transmission Advisory Group and, secondarily, on the Tennessee Valley Authority’s (“TVA”) IRP scoping and working group processes.

The problem faced by the Commission – which appears to have prompted it to ask its fourth question – is not a new problem. Eighteen years ago, when stakeholders faced the same problem, the Attorney General made the following suggestion:

The Commission should consider ways to streamline the IRP review process while still encouraging effective participation of all interested parties. The Attorney General recommends a procedure where all interested parties participate in Prefiling Planning Conferences. At these conferences, the parties should be able to reach a consensus on: (1) identifying those areas where all parties are in substantial agreement; (2) identifying those areas which, although subject to some disagreement, may be handled by means of comments to the Commission and without the need of the presentation of evidence and the taking of testimony; and (3) identify those areas which will require the presentation of evidence and testimony.

Reply Comments of the Attorney General, p. 7, Commission Docket No. E-100, Sub 78 (23 August 1996). NCSEA does not believe a prefilings planning conference is an aggressive enough measure to resolve the problem and reduce the resource intensity of the proceedings. Because such a conference appears to presuppose that a utility IRP or update has already been drafted for filing, such a conference alone is unlikely to reduce intervenors' tail-end engagement. As the Attorney General's comments noted, such a prefilings conference does not really hold out the promise of completely eliminating the need for discovery and intervenor comments; instead, a prefilings conference aims merely to identify areas of agreement and disagreement.

Instead of a prefilings planning conference, NCSEA believes the Commission should pursue development and implementation of an early-engagement stakeholder process akin to the existing North Carolina Transmission Planning Collaborative/Transmission Advisory Group process. North Carolina's investor-owned utilities already participate in a transmission planning collaborative that, together with the TVA process (see below), could serve as a template for creation of a Generation Planning Collaborative/Generation Advisory Group. As the Public Staff noted in its IRP comments last year:

In 2004, the Commission instituted a collaborative process involving transmission stakeholders in order to obtain information on any specific transmission-related issues that currently existed or were likely to arise in the future. The result of this collaborative process was the development of the North Carolina Transmission Planning Collaborative (NCTPC) involving DEP, DEC, NCEMC, Electricities, and others to address transmission issues facing North Carolina. The NCTPC provides stakeholders with opportunities to participate in the transmission planning process, preserves the integrity of the existing planning processes, expands the transmission planning process to include analyses of increasing access to supply resources inside and outside DEP's and DEC's control areas, and develops a single coordinated transmission plan for the participants.

The NCTPC has an agreement with PJM to share planning data and PJM routinely participates in meetings of the NCTPC. The aim of the NCTPC is to create an integrated long-term transmission expansion plan that will result in a reliable and cost effective transmission system. A Transmission Advisory Group (TAG) provides advice and recommendations to the load serving entities for incorporation into the coordinated transmission expansion plan for North Carolina. The TAG membership is open to all parties interested in the development of the NCTPC.

Comments of the Public Staff, pp. 33-34, Commission Docket No. E-100, Sub 137 (11 April 2014) (public version). **Exhibits A and B** attached hereto consist of a document outlining the scope of the Transmission Advisory Group⁴ and an example of an advisory group meeting agenda. NCSEA supports creation of a similar process, together with a similar advisory group, for generation planning in the State.

NCSEA believes such a generation planning collaborative and advisory group could afford the various parties a happy medium for several reasons. First, such a collaborative/advisory group mechanism is a known quantity that has proven workable in North Carolina. General information about the transmission planning collaborative/advisory group is available at <http://www.nctpc.net/nctpc/home.jsp> (accessed on 25 November 2014). Second, this mechanism would preserve the utilities' ultimate control over the form and substance of their full biennial IRP filings (the utilities currently retain control over the transmission planning content in their IRPs even though they participate in the transmission planning collaborative/advisory group process). Third, such a mechanism would afford intervenors the opportunity to formally engage with the utilities at the front-end of their planning process. *Compare Exhibit A* at pp. 1-2 (noting that, in the analogous transmission advisory group, the advisory group

⁴ The document attached as **Exhibit A** is available online at http://www.nctpc.net/nctpc/document/TAG/Scope/TAG_Scope.pdf (accessed on 25 November 2014).

participants have “responsibilities” that include but are not limited to “[p]roviding timely input on the annual study scope elements” and “[p]roposing and selecting the enhanced transmission access projects for evaluation”). Fourth, such a mechanism could, like the Transmission Advisory Group, involve the moderating influences of both (a) an independent third-party consultant (currently Rich Wydoka) to chair the advisory group meetings, *see Exhibit A* at p. 3, and (b) Commission staff (*e.g.*, Kim Jones)⁵ and the Public Staff.

Fifth, NCSEA believes such a mechanism would address the Public Staff’s desire for constructive change. Last year, the Public Staff commented as follows:

Given the current IRP process and modeling used in North Carolina, the selection of appropriate scenarios by the utilities is critical. If the scenarios analyzed and presented in the filed IRPs do not cover most or all of the major sources of risks, the IRPs will not provide sufficient information to enable the Commission to consider the prudence of major capacity additions or portfolios of resources. One method to improve this process would be to provide an opportunity for stakeholders to have input prior to the development of the plans. Some utilities, such as TVA, include a stakeholder review process that allows opportunities for additional input.

Comments of the Public Staff, p. 71, Commission Docket No. E-100, Sub 137 (11 April 2014) (public version). NCSEA has received generally positive feedback regarding TVA’s stakeholder review process, but at least one stakeholder at the 21 November 2014 meeting indicated that TVA was subject to such a different regulatory regime that replication of the TVA process for North Carolina’s investor-owned utilities was not a

⁵ NCSEA notes that, just as the Commission participates directly in the transmission planning process via the Transmission Advisory Group, the Commission could directly participate in a generation planning collaborative via a generation advisory group. Direct Commission participation would be consistent with the spirit of N.C. Gen. Stat. § 62-110.1(c)’s authorization of the Commission to directly “participate as it deems useful in any joint boards[.]”

viable option.⁶ Nonetheless, aspects of the TVA process could be considered for incorporation into a North Carolina generation planning collaborative/generation advisory group.

Sixth, and finally, NCSEA believes that it is only via development and implementation of this kind of robust mechanism for front-end intervenor engagement in the IRP development process that the stakeholders are likely to find consensus support for eliminating (or drastically scaling down) the annual update filings.

a. Conditional NCSEA Support for Legislative Change

Currently, N.C. Gen. Stat. § 62-110.1(c) directs that “[e]ach year, the Commission shall submit to the Governor and to the appropriate committees of the

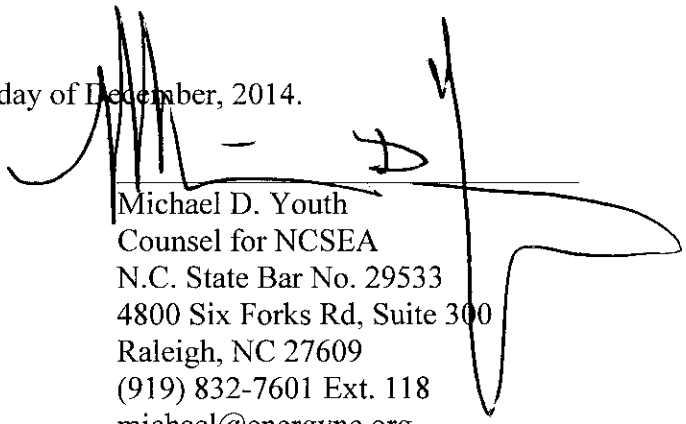
⁶ A very general description of the TVA process can be found in a recent TVA Scoping Report for its 2015 IRP. A copy of the Scoping Report is attached as **Exhibit C**. The report contains a section that begins on page 3 and is titled “The IRP Development Process.” The first paragraph of this section provides (the italicized language is the key language):

The goal of the IRP is to provide a “no-regrets” plan to meet future energy and capacity needs while supporting TVA’s overall mission of low cost reliable power, environmental stewardship, and economic development. TVA is using a scenario planning approach to develop an IRP that will perform well under a range of possible future conditions. The major steps in this approach include identifying the future need for power, developing scenarios and strategies, determining potential supply-side and demand-side resource options, developing portfolios associated with the strategies, and ranking the strategies and portfolios. *Comments received during the IRP public scoping period and during subsequent public briefings are being considered during the development of the IRP. TVA is also considering comments from individuals on the IRP Working Group that is meeting regularly throughout the development of the IRP. The 18 members of the Working Group represent the Department of Energy, state energy offices, distributors of TVA power, academia, and non-governmental organizations including industry groups and environmental organizations.*

General Assembly a report of its analysis and plan, the progress to date in carrying out such plan, and the program of the Commission for the ensuing year in connection with such plan.” (Emphasis added). It appears as though this statutory requirement may be the basis for requiring an IRP filing of some sort from each investor-owned utility each year.⁷ In the event a robust stakeholder process could be enshrined, NCSEA would be supportive of a Commission recommendation that N.C. Gen. Stat. § 62-110.1(c) be amended to clarify that the mandatory report be biennial in nature. In other words, if the Commission orders development and implementation of a process substantially in line with the proposal above, and at the same time recommends that the General Assembly amend N.C. Gen. Stat. §62-110.1(c) to eliminate the *annual* reporting requirement, NCSEA would be in a position to support the Commission’s recommendation at the legislature. If such a statutory amendment were enacted, the Commission could then consider whether it was in the public interest to dispense with the even-year update filings all together.

⁷ The Commission seems to have concluded long ago that the statute does not require a full IRP proceeding each year. Thus, for example, in 1988, while operating under essentially the same statutory language as exists at present, the Commission felt comfortable foregoing full IRPs every year and instead indicated that “[t]he utilities should anticipate filing [least cost integrated resource] plans approximately every two (2) or three (3) years.” *Order Adopting Rules*, Appendix A, p. 4, Commission Docket No. E-100, Sub 54 (8 December 1988). However, the Commission did still require the utilities to file *something* each year – a full IRP with a short-term action plan in year 1 and an annual update with a short-term action plan in years 2 and 3. *Id.* at pp. 10-12. Presumably, these filings were required to enable the Commission to create its annual report.

Respectfully submitted, this the 8th day of December, 2014.

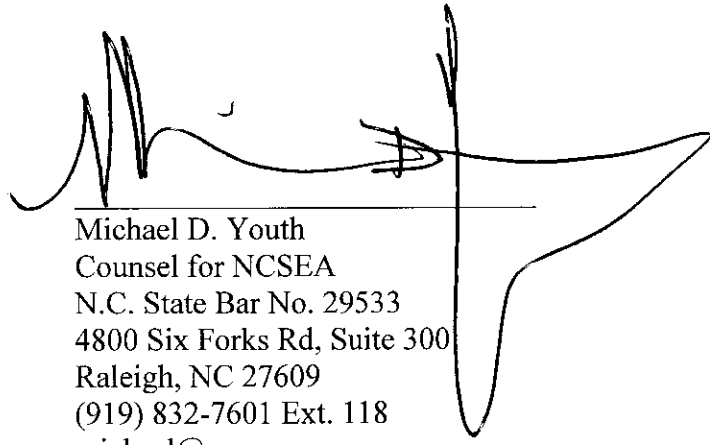


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CERTIFICATE OF SERVICE

I hereby certify that all persons on the docket service list have been served true and accurate copies of the foregoing Comments, together with any attachments, by hand delivery, first class mail deposited in the U.S. mail, postage pre-paid, or by email transmission with the party's consent.

This the 8th day of December, 2014.



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EXHIBIT A



North Carolina Transmission Planning Collaborative

Transmission Advisory Group

Scope

Purpose

The Transmission Advisory Group (TAG) is formed from the North Carolina Load Serving Entities' Transmission Planning Participation Agreement ("Agreement") among the following Participants: Duke Energy Carolinas, LLC, Progress Energy Carolinas, Inc., North Carolina Electric Membership Corporation, and Electricities of North Carolina, Inc. The purpose of the TAG is to provide a structure whereby interested parties can participate in the NCTPC Process.

Responsibilities

In general, the TAG is responsible for working with the NCTPC Participants to develop a transmission planning process that results in a single coordinated transmission plan which reliably and efficiently meets the needs of the electric consumers within the service territory of the NCTPC Participants (portions of North Carolina and South Carolina).

The specific responsibilities of the TAG participants include:

1. Adherence to the intent of the FERC Standards of Conduct requirements in all discussions.
2. Participation in the TAG meetings in a constructive and professional manner.
3. Assisting in the development of the TAG annual work plan and activity schedule.
4. Providing timely input on the annual study scope elements of both the Reliability Planning as well as the Enhanced Transmission Access Planning Process which includes the following:
 - a. Study Assumptions, Criteria and Methodology
 - b. Case Development and Technical Analysis

- c. Problem Identification, Assessment and Development of Solutions
(including proposing alternative solutions for evaluation)
 - d. Comparison and Selection of the Preferred Transmission Plan
 - e. Transmission Plan Study Results Report.
- 5. Proposing and selecting the enhanced transmission access projects for evaluation.
 - 6. Providing advice and recommendations to the Oversight Steering Committee of the NCTPC Participants on the NCTPC Process.

Membership and Participation

The TAG is open to the public and any individual may be a TAG participant. Any TAG participant can register on the NCTPC website to receive email notifications directed at the TAG (www.nctpc.org/nctpc).

In order for a TAG participant to participate in the TAG Sector Voting Process, the TAG participant must have registered through the application process on the NCTPC website (www.nctpc.org/nctpc) with the ITP at least two weeks prior to the first meeting at which the TAG participant intends to vote. Such web-based registration will require the TAG participant to provide the following information to the ITP: name, home or business address, place of employment (if any), email address (if any), and telephone number. The registration form will require the TAG participant to indicate whether the TAG participant is registering as an “Individual” or as an agent or employee of a “TAG Sector Entity.” If the TAG participant registers as an agent, member, or employee of a TAG Sector Entity, s/he must identify such TAG Sector Entity. An individual TAG participant may register as an agent, member, or employee of more than one TAG Sector Entity.

A TAG Sector Entity may be any organized group (e.g., corporation, partnership, association, trust, agency, government body, etc.) but can not be an individual person. A TAG Sector Entity may be a member of only one TAG Sector. A TAG Sector Entity and its affiliates or member organizations all may register as separate TAG Sector Entities, as long as such affiliates or member organizations meet the definition of TAG Sector Entity.

A TAG Sector Entity should elect to be a member of one of the following TAG Sectors: Cooperative LSEs that serve load in the NCTPC footprint; Municipal LSEs that serve load in the NCTPC footprint; Investor-Owned LSEs that serve load in the NCTPC footprint; Transmission Providers/Transmission Owners that are not LSEs in the NCTPC footprint; Transmission Customers (a customer taking Transmission Service from at least one Transmission Provider in the NCPTPC); Generator Interconnection Customers (a customer taking FERC- or state-jurisdictional generator interconnection service from at least one of the Transmission Providers in the NCTPC); Eligible Customers and Ancillary Service Providers (includes developers; ancillary service providers; power marketers not currently taking transmission service); and General Public. An Individual is only eligible to join the General Public Sector.

Meeting Procedures

Meeting Chair

The independent third-party consultant will chair the TAG meetings and serve as a facilitator for the group by working to bring consensus within the group. In addition, the duties of the independent third-party consultant include:

1. Developing mechanisms to solicit and obtain the input of all interested parties related to transmission planning options.
2. Taking all reasonable action to ensure that no marketing / brokering organizations receive preferential treatment or achieve competitive advantage through the distribution of any transmission-related information in the TAG.
3. Ensuring that confidentiality of information and Standards of Conduct requirements are being adhered to within the TAG process.
4. Ensuring that TAG meeting notes are taken and meeting highlights are posted for the information of the participants after all TAG meetings.

Meetings

Meetings of the TAG shall be open to anyone interested in the development of a coordinated transmission plan across the respective service territories of the Participants in North Carolina. There are no restrictions on the number of people attending TAG meetings from any organization. The TAG generally meets four times a year. All TAG meeting notices and agendas will be posted on the NCTPC Website and distributed through the TAG participant email distribution list. The location of TAG meetings will be determined by the OSC. Conference call dial-in technology will be available for meetings upon request.

Quorum

There are no quorum requirements for TAG meetings.

TAG Sector Voting

In attempting to resolve issues, the goal is for the TAG to develop consensus solutions. However, in the event consensus cannot be reached, the TAG Sector Voting Process will be conducted. Only TAG Sector Entity representatives attending the meeting (either physically present or participating via phone) will be allowed to participate in the TAG Sector Voting Process. The independent third-party will provide notices to the TAG participants in advance of the TAG meeting that specific votes will be taken during the TAG meeting. A single person may represent more than one TAG participant provided that that person has been pre-registered as an agent, member, or employee of more than one TAG Sector Entity. No voting by proxy is permitted.

Only one individual TAG participant that has registered as an agent or employee of a TAG Sector Entity may vote on behalf of a particular TAG Sector Entity with regard to any particular vote. An individual TAG participant may vote on behalf of more than one TAG Sector Entity, if authorized to do so. Questions to be voted on will be answerable with a Yes or No.

If a vote is to be taken, each TAG Sector that has at least one TAG Sector Entity representative, or at least one Individual or TAG Sector Entity representative in the case

of the General Public Sector, present will receive a Sector Vote with a worth of 1.00. A Sector Vote is divisible. The vote of each TAG participant eligible to vote in a Sector Vote is not divisible. The vote of each TAG participant in a TAG Sector will be multiplied by 1.00 divided by the total number of TAG participants voting in such Sector to determine how the Sector Vote with a total worth of 1.00 will be allocated between "Sector Yes Votes" and "Sector No Votes." That is, each Sector Vote will be allocated such that the Sector Yes Vote(s) and Sector No Vote(s) totals 1.00. The Sector Yes Vote and Sector No Vote for each TAG Sector will then each be weighted by multiplying each of them by 1.00 divided by the number of TAG Sectors participating in the relevant vote. The results will be called "Weighted Sector Yes Vote" and "Weighted Sector No Vote." The winning position will be the larger of the Weighted Sector Yes Vote and Weighted Sector No Vote. Attachment 1 contains an example of the TAG Sector Voting Process.

During each transmission planning cycle, the TAG participants will propose the enhanced transmission access studies that will be performed during that particular planning cycle. Study scenarios that are of an inter-regional nature will be identified during this process and the organization that is responsible for requesting such studies will be directed to forward their study request to the Southeast Inter-Regional Participation Process since the study would have to be evaluated within that forum.

For the remaining study scenarios that impact the NCTPC region, the TAG Sector Entity representatives will select a maximum of five scenarios that will be studied within the current NCTPC planning cycle. The TAG Sector Voting Process will be utilized for selecting for up to five scenarios that the TAG participants would like to be studied within the NCTPC planning cycle. However, if a particular TAG participant wants the NCTPC to evaluate a scenario that was not chosen by the TAG Voting Members, then that participant's organization can request to have the NCTPC conduct the study. The NCTPC will evaluate this request and will conduct the study if the study can be reasonably accommodated, however the cost of conducting this additional study will be allocated to that specific organization.

It is anticipated that all parties will abide by the decisions of the OSC. However, any NCTPC Participant or TAG participant may request that the North Carolina Utilities Commission Public

Staff ("Public Staff") render a nonbinding opinion with regard to any disputed decision of the OSC and any decision of the investor-owned utility superseding a decision by the OSC ("Disputed Decision"). Should the parties be unable to resolve the Disputed Decision through such facilitation by the Public Staff, any NCTPC Participant may seek review of the Disputed Decision by any regulatory or judicial body with jurisdiction over the subject matter of the Disputed Decision.

Meeting Protocol

In the absence of specific provisions in this document, the TAG shall conduct its meetings guided by the most recent edition of *Robert's Rules of Order, Newly Revised*.

Data and Information Release Protocol

TAG participants can request data and information that would allow them to replicate the NCTPC planning studies while ensuring that CEII and other confidential data is protected. The ITP is tasked with ensuring that no marketing/brokering organizations receive preferential treatment or achieve competitive advantage through the distribution of any transmission-related information in the TAG. The ITP ensures that the confidentiality of information principles reflected in Order No. 890 as well as any Standards of Conduct or Code of Conduct requirements are being adhered to within the TAG process, to the extent applicable and/or necessary.

If a TAG participant seeks non-CEII Confidential Information, s/he must formally request the data from the ITP through the application process on the NCTPC website (www.nctpc.org/nctpc) and demonstrate that s/he:

1. Is a representative of a TAG Sector Entity that has signed the SERC Confidentiality Agreement or is an Individual that has signed the SERC Confidentiality Agreement.
2. Is listed on the TAG Sector Entity's TAG Confidentiality Agreement as a representative of a TAG Sector Entity or is an Individual that has signed the TAG Confidentiality Agreement.

If a TAG participant seeks CEII, s/he must formally request the data from the ITP through the application process on the NCTPC website (www.nctpc.org/nctpc) and demonstrate that s/he has:

1. Is a representative of a TAG Sector Entity that has signed the SERC Confidentiality Agreement or is an Individual that has signed the SERC Confidentiality Agreement.
2. Is listed on the TAG Sector Entity's TAG Confidentiality Agreement as a representative of a TAG Sector Entity or is an Individual that has signed the TAG Confidentiality Agreement.

The NCTPC ITP will process the above requests, approve/deny the request, and if approved, provide the data to the TAG participant.

ATTACHMENT 1

TAG Sector Voting Process Example

The example below illustrates the TAG Sector Voting Process. For purposes of explaining the example, we assume that the General Public (GP) Sector has 10 Individuals present. In addition to the 10 Individuals, there are 17 other TAG Sector Entities present, spread across four TAG Sectors (Cooperative LSEs (Coop LSE); Municipal LSEs (Muni LSE); Investor-Owned LSEs (IOU LSE); and Transmission Customers (TC)). These 17 TAG Sector Entities may each have several TAG participants present but only one may vote in one sector. Each Individual and TAG Sector Entity casts their vote, which vote is then weighted based on the number of persons/entities voting in the TAG Sector of which they are a member. E.g., since one Coop LSE is present, it is entitled to the full 1.00 Sector Vote (*see* Column 4); eight Muni LSEs are present so each of their votes is worth $1.00/8$ or .125 (*see* Columns 3 and 4). These weighted Sector Yes Votes and Sector No Votes are summed as shown in Columns 4 and 5. As the final step, the votes are weighted again, based on the number of TAG Sectors present. With five TAG Sectors present, each Sector Yes Vote and Sector No Vote is multiplied by $1.00/5 = .20$. The weighted total is reported in columns 6 and 7. In the example, the No votes have won .53 to .47.

Column	1	2	3	4	5	6	7
Sector	No. of Voters	Yes Votes	No Votes	Sector Yes Vote	Sector No Vote	Weighted Sector Yes	Weighted Sector No Vote
Coop LSE	6	6	0	1.00	0	.20	0
Muni LSE	8	2	6	.25	.75	.05	.15
IOU LSE	2	1	1	.50	.50	.10	.10
TP/TO	0	0	0	0	0	0	0
TCs	1	0	1	0	1.00	0	.20
GICs	0	0	0	0	0	0	0
ECs	0	0	0	0	0	0	0
GP	10	6	4	.60	.40	.12	.08
Total Vote						0.47	0.53

EXHIBIT B

Transmission Advisory Group (TAG)
Agenda
December 15, 2014
North Carolina Electric Membership Corporation Office
3400 Sumner Boulevard
Raleigh, North Carolina
1:30 PM EDT

1. Administrative Items

- Introductions
- Review meeting agenda, protocol and logistics
- Additional agenda items

2. FERC Order No. 1000 - Rule on Transmission Planning and Cost Allocation

- Receive an update on Order 1000 compliance activities as it relates to the NCTPC

3. 2014 Collaborative Plan Report

- Receive a presentation on the draft 2014 Collaborative Plan Report and discuss the study results

4. Joint Inter-Regional Study Activities

- Receive a report on the 2014 joint inter-regional NCTPC-PJM-MISO study work and related activities

5. 2015 Study Scope

- Discuss ideas and concepts for the 2015 study scope

6. Operations Reliability Coordination Agreement (ORCA)

- Receive a progress report on the ORCA activities related to the integration of Entergy into MISO

7. Regional Studies Update

- Receive an update on various regional study activities

8. 2014 and 2015 TAG Work Plan

- Receive an update on the 2014 TAG work plan
- Review and discuss the proposed 2015 TAG work plan

9. TAG Open Forum

- Discuss any items relevant to the NCTPC Process

EXHIBIT C



2015 INTEGRATED RESOURCE PLAN

Programmatic Environmental Impact Statement

Scoping Report

June 2014

Tennessee Valley Authority

Integrated Resource Plan

For more information on the
Environmental Impact Statement,
contact:

Charles P. Nicholson
Manager, NEPA Compliance
Tennessee Valley Authority
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Knoxville, TN 37902
(865) 632-3582
IRP@tva.gov

For general information on the
Integrated Resource Plan, contact:

Gary S. Brinkworth
IRP Project Manager
Tennessee Valley Authority
1101 Market St., MR 3K
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(423) 751-2193
gsbrinkworth@tva.gov

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1. Introduction

In April 2011, the Tennessee Valley Authority (TVA) completed the *Integrated Resource Plan—TVA's Environmental and Energy Future* and associated final programmatic environmental impact statement (PEIS). These documents, developed with extensive public involvement, described how TVA will meet the demand for electricity in its service territory over the next 20 years. The resulting recommended planning direction includes increased use of energy efficiency and demand response, renewable energy, nuclear energy, gas-fired generation and energy storage, as well as decreased coal-fired generation.

Since the completion of the 2011 Integrated Resource Plan (IRP), several significant changes, both industry-wide and TVA-specific, have led TVA to update the IRP ahead of the 5-year cycle identified in the 2011 IRP. As required by the National Environmental Policy Act (NEPA), TVA is preparing a supplemental PEIS in association with the IRP. See Appendix A for more information on NEPA. NEPA regulations require an early and open process for deciding what should be discussed in an EIS – the scope of the document. The scoping process involves requesting comments from the interested public, organizations, and agencies and using the comments to help identify the issues and alternatives that should be addressed in the EIS. Scoping is not required for a supplemental EIS. However, TVA decided to do this to further enhance opportunities for public input. This report summarizes the input that TVA received during the scoping process, describes the IRP development process, and defines the scope of the IRP and its associated PEIS.

The purpose of this effort is to evaluate TVA's current strategy and alternative strategies for meeting the future electrical energy needs of the TVA region. Like other utilities, TVA develops power supply plans. This planning process includes forecasting the demand for energy and determining how this demand will be met through the utilization of existing and new energy resources. TVA last completed an IRP in 2011 and expects to continue to implement the 2011 IRP during the development of the updated IRP and associated supplemental PEIS. Once completed, the updated IRP will replace the 2011 IRP. The IRP development process is described in more detail below.

2. Geographic Scope

The geographic area covered by this study is generally the Tennessee River watershed and TVA's power service area (Figure 1). It also includes TVA's Paradise and Shawnee Fossil Plants which are outside this primary area. The geographic area includes all of Tennessee and parts of Alabama, Georgia, Kentucky, Mississippi, North Carolina, and Virginia. It includes 201 counties and about 90,000 square miles. Due to the nature of some resources (e.g., air quality) affected by the operation of TVA's power system, the geographic scope of some analyses extends beyond the TVA region.

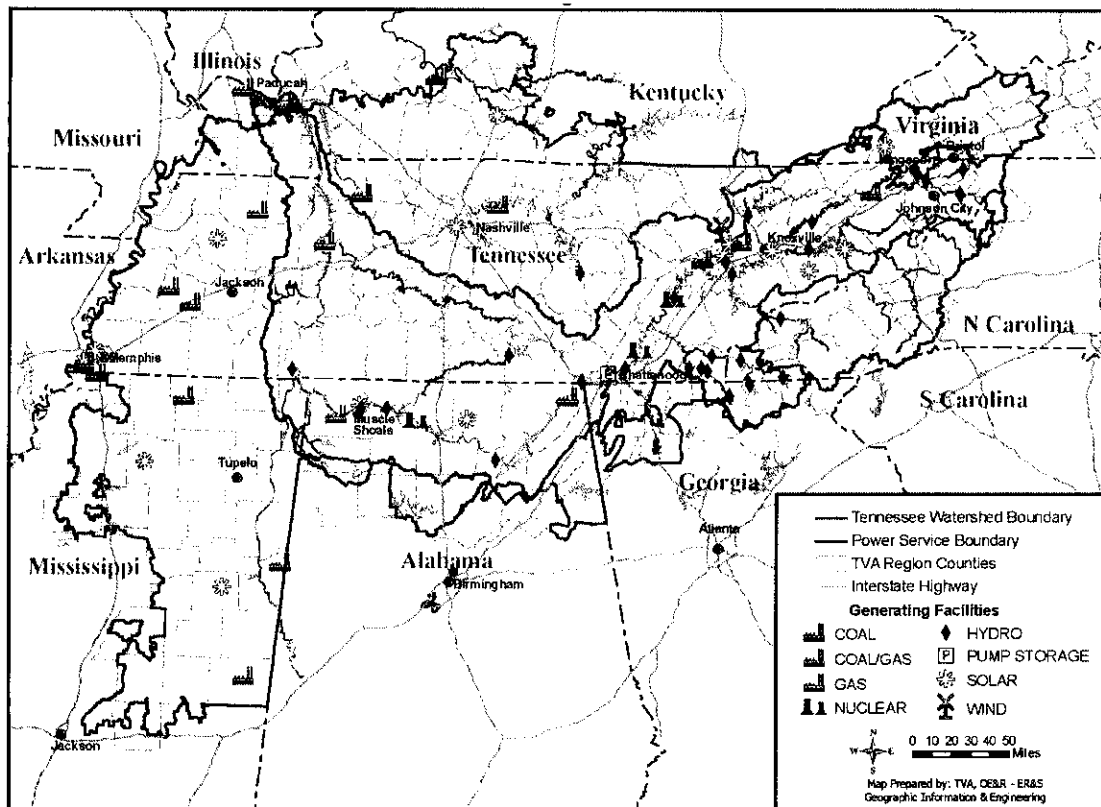


Figure 1. The TVA region and TVA generating facilities.

3. The TVA Power System

TVA operates the nation's largest public power system, producing 4 percent of all the electricity in the nation. TVA provides electricity to most of Tennessee and parts of Alabama, Georgia, Kentucky, Mississippi, North Carolina, and Virginia. It serves about 9 million people in this seven-state region through 155 local power companies (municipal utilities and rural electric cooperatives) and 57 directly served large industries and federal facilities. The TVA Act requires the TVA power system to be self-supporting (i.e., TVA receives no tax dollars), operate on a nonprofit basis, and sell power at rates as low as are feasible.

Dependable capacity on the TVA power system is about 37,000 megawatts. TVA generates most of this with 3 nuclear plants, 10 coal-fired plants, 14 natural gas-fired plants, 29 hydroelectric dams, a pumped-storage facility, a methane-gas cofiring facility, and several small solar photovoltaic facilities. A portion of delivered power is provided through long-term power purchase agreements. During the 2013 fiscal year (October 2012–September 2013), 43 percent of the power supply from TVA-operated facilities was from coal, 36 percent from nuclear, 12 percent from hydroelectric, 9 percent from natural gas, and less than 1 percent from non-hydro renewable energy resources. The proportion of generation by natural gas has increased in recent years and the proportion generated by coal has decreased.

Under agreements with the U.S. Environmental Protection Agency, the States of Alabama, Kentucky, Tennessee and North Carolina, and three non-governmental organizations, TVA committed to retiring 18 of its coal fired units in a phased manner through 2017. The agreements also require TVA to decide whether to retire or add sulfur dioxide emission controls at its Allen Fossil Plant. Because of the long lead time required to construct the emission controls, this decision must be made soon. The agreements also require TVA to either add sulfur dioxide and nitrogen oxide emission controls, retire, or convert two of the units at its Shawnee Fossil Plant. At its November 2013 meeting, the TVA Board of Directors decided to retire eight additional coal-fired units. The retirements total over half of TVA's 2010 coal generating capacity. TVA is currently constructing the 1,100-MW Watts Bar Nuclear Plant Unit 2, with a targeted December 2015 completion date, and the approximately 1,000-MW natural gas-fired combined cycle plant at its Paradise Fossil Plant site scheduled for completion in 2017.

TVA has long-term power purchase agreements for about 2,800 MW of generating capacity. About 1540 MW of this capacity is from wind energy, primarily from windfarms in the Midwest and Great Plains; 440 MW is from a lignite coal-fired plant in Mississippi, and 720 MW is from natural gas-fired plants in Alabama. The remaining power purchase agreements are for power generated by relatively small (generally less than 5 MW) landfill gas and solar generating facilities. The power generation supplied by power purchases comprised 11.4 percent of TVA's total power supply in fiscal year 2013.

TVA transmits the electricity from its generating facilities over 15,900 miles of transmission lines. TVA has power interchange agreements with adjacent utilities and purchases and sells power on an economic basis almost daily.

4. The IRP Development Process

The goal of the IRP is to provide a "no-regrets" plan to meet future energy and capacity needs while supporting TVA's overall mission of low cost reliable power, environmental stewardship, and economic development. TVA is using a scenario planning approach to develop an IRP that will perform well under a range of possible future conditions. The major steps in this approach include identifying the future need for power, developing scenarios and strategies, determining potential supply-side and demand-side resource options, developing portfolios associated with the strategies, and ranking the strategies and portfolios. Comments received during the IRP public scoping period and during subsequent public briefings are being considered during the development of the IRP. TVA is also considering comments from individuals on the IRP Working Group that is meeting regularly throughout the development of the IRP. The 18 members of the Working Group represent the Department of Energy, state energy offices, distributors of TVA power, academia, and non-governmental organizations including industry groups and environmental organizations.

The future need for power is based on forecasts of the demand for power over the next 20 years and the ability of TVA's existing energy resources, including generating facilities and energy efficiency and demand response programs, to meet this need. Power demand is forecast for both peak load (the maximum amount of power used at a given point in time) and net system energy (the amount of power used over a specified time period).

Integrated Resource Plan

Scenarios are portrayals of possible “worlds” that TVA may encounter in the future and are based on key uncertainties outside of TVA’s control. Each scenario defines ranges of values for a set of factors including economic growth, inflation, fuel prices, demand growth, development of distributed generation, and environmental regulations. For each scenario, these interrelated factors represent a plausible future but are not intended to be a prediction of the future. A robust plan will perform well across the range of scenarios. TVA currently anticipates developing five scenarios. These include the current outlook, scenarios with high and very low economic growth, a scenario with highly regulated carbon emissions, and a scenario with very high levels of distributed generation penetration and national energy efficiency adoption.

Strategies define sets of business options under TVA’s control. These business options are assumptions about energy resources TVA could use such as the amount of energy efficiency and demand response; renewable energy, energy storage, nuclear, coal, and natural gas-fired capacity additions; reliance on purchased power; and the required transmission infrastructure. TVA is currently evaluating six strategies. These include:

1. The current strategy (planning direction) identified by the 2011 IRP as refined by subsequent refinements by the TVA Board of Directors
2. A traditional least cost planning strategy
3. A strategy with a lower carbon emissions target
4. A strategy relying on purchased power to meet most new capacity needs
5. A strategy with an annual target for energy efficiency, and
6. A strategy relying on renewable energy targets.

The strategies will comprise the alternatives in the EIS with the current strategy representing the No Action Alternative.

Energy resources considered in the IRP process will include both conventional and advanced technology nuclear and coal-fired power plants; natural gas-fired power plants; hydroelectric, wind, solar, and biomass-fired renewable resources; energy efficiency, demand response, and end-use/distributed generation options; energy storage facilities; and power purchase agreements. Many of these energy resources will be considered in various configurations with different capacities or other characteristics. The selection of individual energy resources from these categories will be based on the technological viability and maturity of the resources, their life-cycle cost, and policy considerations. Additional considerations include the duty cycle of the resources (i.e., base load, intermediate, or peaking) and whether the availability of the resource can be reliably scheduled. Each of the resources selected for consideration will be characterized by several criteria such as capacity, capital cost, fixed and variable costs, fuel data, heat rate, and pollutant emission rates. TVA’s existing energy resources will generally be assumed to continue operating throughout the planning cycle, subject to scheduled retirement dates and the expiration of power purchase agreements. Power plants currently under construction, notably Watts Bar Nuclear Plant Unit 2 and the Paradise combined cycle gas-fired plant, will be assumed to start operating on their scheduled completion dates.

The power demand forecasts, along with the attributes of the scenarios, strategies, and energy resources are then used by a capacity planning model that determines a 20-year resource plan or portfolio for each combination of scenario and strategy. Each of these

portfolios is optimized by the model to find the combination of resource options that meets projected requirements with the lowest net present value of revenue requirements while meeting energy balance, reserve, operational, environmental, and other requirements. The portfolios are then evaluated using an hourly production costing program with stochastic analyses to determine detailed revenue requirements and short-term system average costs factoring in uncertainty. Additional metrics including financial risk and environmental and economic impacts are also being developed to score the portfolios.

7. The Programmatic Environmental Impact Statement

The purpose and need for TVA's integrated resource planning effort is to evaluate TVA's current portfolio and alternative future portfolios of energy resource options in order to meet the future electrical energy needs of the TVA region. The result of this evaluation will be an updated IRP.

The PEIS will supplement the Final PEIS issued in March 2011 in association with the 2011 IRP. The PEIS will likely evaluate six alternatives. The alternative Strategy R – Recommended Planning Direction selected for implementation in the 2011 IRP Record of Decision, as refined by subsequent decisions by the TVA Board of Directors, will be the No-Action Alternative in the new PEIS. The action alternatives will be the newly developed strategies. As described above, these alternative strategies will likely include a traditional least cost planning strategy, a strategy with a lower carbon emissions target, a strategy relying on purchased power to meet most new capacity needs, a strategy with an annual energy target for energy efficiency and demand response with renewable energy and gas-fired generation as secondary options, and a strategy relying on renewable energy targets with energy efficiency and demand response and gas-fired generation as secondary options. Each of the alternative strategies will consist of a set of portfolios that define the generating capacity additions and retirements and the energy efficiency and demand response efforts for each year of the planning cycle. The portfolios will align with the planning scenarios described above.

The EIS is programmatic and will evaluate the long-term environmental consequences of implementing each alternative strategy. It will not evaluate the site-specific environmental consequences of subsequent individual actions to implement the resulting plan, such as the construction and operation of new generating facilities or implementation of new long-term power purchase agreements. These types of implementing actions will be the subject of individual environmental reviews that will tier from the PEIS. Following is an overview of the contents of the PEIS:

Chapter 1: Introduction—describes the purpose and need for the IRP PEIS, the decision to be made, history of the TVA power system, an overview of integrated resource planning, and the scoping process and public involvement.

Chapter 2: TVA's Resource Planning Process—describes the integrated resource planning process, evaluation metrics, the power needs assessment, and scenario and strategy development.

Chapter 3: Existing Power System—describes TVA customers, sales, and power exchanges; TVA-owned generating facilities; purchased power; energy efficiency and demand response programs; and the transmission system.

Integrated Resource Plan

Chapter 4: Existing Environment—describes aspects of the natural, cultural, and socioeconomic environment potentially affected by the alternative actions. This information will be an update of the existing environment information presented in the 2011 PEIS.

Chapter 5: Energy Resources Options—describes supply-side (e.g., generating facilities) and demand-side (e.g., energy efficiency, demand response, customer-owned distributed generation) resources potentially comprising the power portfolios. These descriptions will include performance and environmental characteristics of the resources, such as heat rates, fuel consumption rates, thermal cooling requirements, emissions rates, waste generation rates, water consumption rates, and land requirements.

Chapter 6: Alternatives/Strategies—describes the alternative/strategy development process, the alternatives/strategies addressed in the PEIS, and a comparison of the alternatives/strategies.

Chapter 7: Environmental Consequences—describes the anticipated environmental effects of implementing each alternative/strategy over the 20-year planning cycle.

The remaining chapters and appendices will contain supporting information such as the lists of literature cited, PEIS preparers, PEIS recipients, a glossary, and an index.

8. Project Schedule

Drafts of the IRP and associated PEIS are scheduled to be issued for public review and comment in late 2014. The comment period will last at least 45 days and TVA will hold public meetings to discuss and receive comments on the draft IRP and PEIS during the comment period. The final IRP and PEIS are scheduled to be issued in spring 2015.

9. Public Involvement

TVA began a 33-day public scoping process for the IRP and associated PEIS with the issuance of media releases, newspaper advertisements, a notice on the project website <http://www.tva.com/environment/reports/irp/index.htm>, and by notices sent to participants in the development of the 2011 IRP. The IRP website materials included background information, a form for submitting scoping comments, addresses for submitting comments by mail, email, or fax, and information on public scoping meetings. The Notice of Intent to prepare the PEIS was published in the Federal Register on October 31, 2013. The scoping period closed on November 22, 2013.

TVA held public scoping meetings on October 24 in Knoxville, Tennessee, and on November 6 in Memphis, Tennessee. Both scoping meetings were simultaneously broadcast on the internet in webinar format. About 45 people attended the scoping meetings in person and about 50 participated by webinar. Attendees included members of the general public, representatives from state agencies and local governments, TVA power distributors, non-governmental organizations, and other special interest groups. TVA personnel introduced the project and answered questions about the planning

process, the EIS, the TVA power system, potential energy resources, and environmental topics.

TVA established an IRP Working Group consisting of individuals who will serve as a source of information and coordination throughout the IRP process. The 18 members represent state agencies, the Department of Energy, TVA distributors, industrial groups, academia, and non-governmental organizations. These members are expected to represent their constituencies and report to them the working of the IRP process, as well as give input to TVA on the process. The first IRP Working Group meeting was held during the scoping period and the group will meet on a monthly to bimonthly throughout the IRP development process. Additional information about the IRP Working Group is available at www.tva.gov/irp.

TVA received a total of 1156 individual scoping comments. About 20 scoping meeting attendees submitted comments during the meetings. Thirty email comments were received from individuals and organizations and an additional 73 comments were submitted through the TVA website. About 96 percent of the comments were from individuals, with the remainder from organizations (19), businesses (21), and state and Federal agencies (3). Most of the comments from individuals were form letters and emails submitted in response to campaigns. The majority of these, 979, were submitted through a Sierra Club/Tennessee Environmental Council campaign. About 50 comment forms were submitted through a campaign initiated by Mississippi-based entities associated with mining coal and generating electricity from coal. Scoping comments were received from all seven states in the TVA region, with the majority (78 percent) from Tennessee. Comments were also received from seven states outside the TVA region.

10. Overview of Scoping Comments

The 1029 form letters and emails advocated different approaches for TVA's future energy supply. The Sierra Club/Tennessee Environmental Council campaign form emails were submitted shortly after the November 2013 meeting of the TVA Board of Directors. These comments thanked TVA for the coal plant retirement decision made at the Board meeting. They also urged TVA to prioritize the use of solar and wind energy, increase energy efficiency efforts, and to work to reduce the local economic impacts of coal plant retirements. The coal campaign form letters, as well as several similar comments from businesses, industry organizations, and individuals, supported the continued use of coal. These comments cited the abundance and stable cost of coal, the high capacity factor of coal plants, the local and regional employment provided by the use of coal, and coal's contribution to low and stable rates. Some of these comments also questioned the economic analysis of the November 2013 coal plant retirement decision.

Energy Resources

Many comments addressed the energy resources to be considered in the IRP. These comments are summarized by type of energy resource.

Integrated Resource Plan

General

- Fully and fairly evaluate all potential energy resources.
- Nuclear, coal, and to a lesser extent natural gas are the only viable long-term options for secure, reliable, and cost effective electric power for the TVA region.

Coal

- Continue to reduce and/or eliminate coal-fired generation. The environmental impacts of coal-fired generation, including air, water, and groundwater pollution, greenhouse gas emissions, and those from mining coal are too high.
- Continue the use of coal-fired generation. Coal is an abundant and low cost fuel and coal plants provide reliable baseload power with a high capacity factor. Coal is an important component of local and regional economies and contributes to low and stable rates.
- Prioritize advanced clean-coal generation such as the Kemper integrated gasification combined cycle plant with carbon capture and storage in Mississippi.

Natural Gas

- Continue to increase the use of gas-fired generation. Gas supplies are abundant, the region has good pipeline network access, and gas prices are forecast to be relatively stable for many years.
- Increased use of gas-fired generation is risky due to the poorly known environmental impacts of hydraulic fracturing, high methane leakage rates, likely increased environmental regulation of gas production, competition from natural gas exports, and high historic price volatility.
- The quick-start ability of gas turbines makes gas important in integrating greatly increased intermittent renewable generation.
- Consider long-term supply contracts for natural gas such as those recently approved or under consideration in other states.
- Construct a natural gas-fired plant on the Bellefonte site.
- Consider the low-cost method of increasing capacity at existing and future gas plants by installing turbine inlet chilling.

Nuclear

- The environmental and financial risks of nuclear power are too great for it to be an acceptable source of electricity.
- Increase the use of nuclear power as it is a safe, reliable source of power with very low greenhouse gas emissions.
- Retire Browns Ferry Nuclear Plant Unit 1 as it has never operated properly or safely and costs a disproportionate amount for operations and maintenance and Nuclear Regulatory Commission oversight.
- Use a more orderly and sensible manner to increase nuclear generation. The Watts Bar Nuclear Plant Unit 2 project has been very poorly executed.
- Consider molten salt thorium-fueled reactors and traveling wave reactors. Both of these advance designs offer numerous benefits over current reactors.

Hydroelectric

- Install hydroelectric generating units on all suitable non-power dams in the region.
- Accelerate the program to upgrade existing TVA hydroelectric turbines.
- Encourage non-traditional hydroelectric generation such as run-of-river turbines.

Renewable Energy

General

- Increase the use of renewable energy sources.
- Establish a target for the amount of renewable energy used comparable to a renewable portfolio standard. Suggested amounts for renewable generation, not including existing hydroelectric generation, ranged from 5 to 20 %.
- Provide long-term predictability for TVA's renewable energy purchasing programs. The recent year-to-year changes in these programs have hindered the development of the region's renewable energy industry, particularly for the solar energy industry.
- TVA limits the use of solar and other forms of renewable energy by claiming they are too expensive. This cost analysis does not consider the full costs, including externalities, of other types of generation, such as the costs of impacts from coal mining, air and water pollution, greenhouse gas emissions, and disposals of spent fuel and ash. Consideration of these costs would make much renewable generation appear much more economical.

Solar

- Do not build solar facilities on prime farmland or other undeveloped sites. Instead emphasize brownfield sites, rooftops, parking lots, and other areas with minimal environmental impact.
- Remove the cap on purchases of power from residential solar installations. If a homeowner is willing to pay for a solar installation, they should not be prevented from installing it.
- Consider prioritizing solar farms of 100–500 kilowatts, along with streamlined financing and distributor approval processes for these facilities. These facilities could be developed by small farmers to generate income. Their total generating capacity in a few years could be 2–3 gigawatts.
- Reorganize the solar program to provide project financing through a micro-investment program or consider a step-down incentive program such as that used by Xcel in Colorado.
- Promote the development of 100-kilowatt solar photovoltaic facilities with connected thermal storage and backup generation systems for round-the-clock dispatchable generation.
- Make land available at TVA's abandoned nuclear plant sites and at retiring coal plants for solar facilities.
- Promote utility scale solar farms which are less expensive than distributed small installations and can avoid affecting local distributors.

Integrated Resource Plan

Biomass

- Do not use power generated from biomass sourced from forests.
- Increase generation using biogas from municipal solid waste and waste water facilities.
- Do not use power generated from energy crops grown on land suitable for food production or where forest was cleared for the purpose of growing energy crops.
- Consider hemp as an energy crop for use in biomass plants or for co-firing with coal. Much of the TVA region is suitable for growing hemp and its cultivation would have local economic benefits.

Wind

- Windfarms are not cost-effective, are eyesores, and unnecessarily kill wildlife.
- Develop wind power in a manner that does not harm wildlife.

Energy Efficiency and Demand Response

- Increase TVA's energy efficiency efforts.
- Consider a wider range of energy efficiency targets, from the current level of 0.3 % of sales to the 1 % being achieved by 14 states, and up to the 2–3 % goals of some of TVA's peer utilities.
- The TVA home energy audit program is cost-effective and should be expanded to reach more households.
- TVA was a national leader in its 1977–1988 energy conservation programs. Expand energy efficiency efforts to reassert national leadership and reduce reliance on polluting power sources.
- Utilize targeted public-private partnerships, such as Nexus Energy Center in Alabama, to leverage costs and strengths for implementing energy efficiency programs.

Energy Storage

- Increase the use of energy storage. Energy storage benefits include voltage support of reactive power and ramping and smoothing power flow.
- Consider battery energy storage to better integrate distributed renewable generation.
- With a large electric vehicle plant in Tennessee, prepare to use repurposed lithium batteries from vehicles for energy storage.
- Develop new pumped storage or other industrial-scale energy storage for more economically meeting peak loads and integrating renewable generation.
- Consider electric thermal storage for residential and commercial heating applications.

Combined Heat and Power / Waste Heat and Power

- Both combined heat and power and waste heat and power generation have enormous potential for low- and zero-emissions generation in the TVA region. Several of these facilities, in aggregate, can generate as much electricity as a coal or nuclear plant.
- Address barriers to the use of combined heat and power and waste heat and power generation including discriminatory standby rates and burdensome

interconnection standards. Consider providing up-front financial assistance and long-term power purchase agreements.

Purchased Power

- Evaluate the purchase of power from existing power plants with lower emissions or through power purchase agreements with such facilities as alternatives to building new generation or to replace inefficient and polluting coal units.

IRP Analysis Process

In addition to the above comments on energy resources, several comments addressed aspects of the IRP analysis process. These comments are summarized below and grouped according to whether they are most relevant to the scenarios, the strategies, or other aspects of the analysis process.

Scenarios

- Incorporate the effects of anticipated climate change into the scenarios, particularly on energy demand and the effects of altered water temperatures and rainfall patterns affect hydroelectric generation and cooling of thermoelectric plants.
- Consider an option based on compliance with existing environmental regulations and no regulation of carbon emissions.
- Incorporate a price on carbon emissions into the modeling. For example, use Synapse Energy Economics' 2013 mid-case forecast for the base case and then run analyses using the low and high cases.
- In retrospect, TVA's 2011 forecasts for total energy demand and peak demand were too high. Evaluate both flat and declining demand forecasts.
- Many parameters used in the scenarios in the 2011 IRP were artificially constrained. These included power demand forecasts, end user energy efficiency and generation, loss of energy intensive manufacturing, and completion of Watts Bar Nuclear Plant Unit 2 regardless of cost. Do not repeat these problems in this new IRP process.
- Fully and fairly evaluate future natural gas prices, including the effects of increased environmental regulation of gas production and export of large volumes of natural gas.
- Fully and fairly evaluate the impact of current and anticipated environmental regulations on electrical generation.

Strategies

- Analyze a strategy with the maximum conceivable amount of renewable energy generation and energy efficiency and conservation.
- Consider a strategy that phases out all use of fossil fuels.
- Evaluate transmission grid upgrades that could maintain reliable service without building new generation to replace retiring or delayed generating units.
- Establish annual targets for increased energy efficiency and demand response, such as a 1% per year reduction in energy demand.

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- Address a rapid transition to increased distributed generation, with reduced need for centralized generation, in one or more of the strategies.

Evaluation Techniques

- Assess the full potential and value of renewable energy resources without imposing artificial constraints and using current cost projections. The Value of Solar approaches being used by some other utilities are good models for this approach.
- Model all resources without constraints on the removal of existing resources from consideration if such removal produced a lower cost portfolio.
- Allow the portfolio model to select discrete amounts of renewable energy and energy efficiency and demand response resources instead of modeling them as defined model inputs.
- Improve the linkage between the alternative strategies and decisions about individual generating units and/or other energy resources by including detailed unit/resource-specific information and detailed discussion of how these decisions will be made.
- Conduct a detailed analysis of the socioeconomic consequences of the strategies, including impacts on local communities and governments.
- Assess the full health and environmental aspects, including external costs, of all generation sources.
- Incorporate a full risk analysis of the use of nuclear energy, including liability costs, a Fukushima-like accident, a new waste confidence regulation, and other aspects of long-term spent fuel storage.

Appendices

Appendix A The National Environmental Policy Act and Environmental Impact Statement Process

Authority

Wholly owned by the U.S. Government, TVA was established by Congress in 1933 primarily to foster the social welfare of residents in the Tennessee Valley region and promote the wise use of the region's natural resources.

The evaluation will be performed within the framework of the National Environmental Policy Act (NEPA) 42 USC §§ 4321 et seq., Council on Environmental Quality (CEQ) regulations for implementing the procedural provisions of NEPA 40 CFR Parts 1500-1508, and TVA's environmental review procedures.

National Environmental Policy Act

NEPA requires Federal agencies to consider the impact of their proposed actions on the environment before making any decisions. If an action is expected to have a significant impact on the environment, the agency proposing the action must develop a study for public and agency review. This study is an analysis of the potential impacts to the natural and human environment from the proposed action as well as from a range of reasonable alternatives. This study is called an Environmental Impact Statement (EIS). The CEQ regulations require Federal agencies to make environmental review documents, comments, and responses a part of their administrative record.

Environmental Impact Statement Process

As soon as possible after the decision to prepare an EIS is made, the Federal agency (TVA) prepares and makes available a Notice of Intent (NOI) to Prepare an EIS. This notice briefly describes the proposed action, reasonable alternatives, and probable environmental issues to be addressed in the EIS. The NOI also describes the scoping process for the particular project, and where and when public scoping meetings will be held. Normally there is a public input period of 30 days from the date of publication of the NOI in the *Federal Register*. Scoping is not required as part of supplemental EIS processes. TVA has prepared this Scoping Document to summarize the public input and comments that it received on the proposed action, the alternatives to be evaluated, and environmental and other major issues relevant to the project.

After scoping is completed and TVA considers the comments it received, a Draft EIS is prepared. Notification of the availability of the completed Draft EIS is sent to interested individuals, groups, and federal, state, and local agencies. The document is transmitted to the U.S. Environmental Protection Agency (EPA) which publishes a notice of its availability in the *Federal Register*.

The Draft EIS public comment period begins with the publication of the notice of availability by EPA in the *Federal Register* and lasts at least 45 days. Comments can be submitted in writing via the mail or through the internet. During this public comment period, the agency may hold public meetings as another means for the public to provide

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comments on the Draft EIS and to learn more about the proposed action. Notice of public meetings is distributed through appropriate media and direct mailings.

At the close of the Draft EIS public comment period, the agency considers and responds to the comments it received in the Final EIS and incorporates any required changes in the Final EIS. Notification of the availability of the completed Final EIS is sent to those who received the Draft EIS or submitted comments on the Draft EIS. It is also transmitted to EPA who publishes a notice of its availability in the *Federal Register*.

The agency makes the decision on the proposed action no sooner than 30 days after the notice of availability of the Final EIS is published in the *Federal Register*. This decision is based on the anticipated environmental impacts, as documented in the EIS, along with cost, schedule, technological and other considerations. The agency then issues a Record of Decision (ROD). The ROD normally includes: (1) what the decision was; (2) the rationale for the decision; (3) what alternatives were considered; (4) which alternative was considered environmentally preferable; and (5) any associated mitigation measures and monitoring, and enforcement requirements.