PMBelCOL PEmails

From: BelCol Resource
Sent: Tuesday, June 30, 2009 1:38 PM
To: PMBelCOL PEmails
Cc: Hood, Mallecia
Subject: FW: COE-1
Attachments: ER_FIG08_04_04.pdf; BLN COE-1 Information Need Response.doc; ER_FIG08_01_01.pdf; ER_FIG08_01_02.pdf

note: zip files extracted to allow the document to be processed. no other changes made.

From: Hood, Mallecia
Sent: Friday, June 26, 2009 2:07 PM
To: 'Fudge, Tammy R LRN'
Cc: PMBelCOL PEmails
Subject: FW: COE-1

The applicant provided additional info to assist you with the information in the ER. This is one of six email.

Thanks
Mallecia

From: Spink, Thomas E [mailto:tespink@tva.gov]
Sent: Friday, June 26, 2009 1:50 PM
To: Hood, Mallecia
Subject: COE-1

Thomas E. Spink
Licensing Project Manager
Nuclear Generation Development
1101 Market Street, LP 5A
Chattanooga, TN 37402
423-751-7062; FAX (423) 751-6509

Hearing Identifier: Bellefonte_COL_Public_EX
Email Number: 1594

Mail Envelope Properties (5A7F273F3E481245BC055B36939D3463252C248DEE)

Subject: FW: COE-1
Sent Date: 6/30/2009 1:38:26 PM
Received Date: 6/30/2009 1:38:28 PM
From: BelCol Resource

Created By: BelCol.Resource@nrc.gov

Recipients:
"Hood, Mallecia" <Mallecia.Hood@nrc.gov>
Tracking Status: None
"PMBelCOL PEmails" <PMBelCOL.PEmails@nrc.gov>
Tracking Status: None

Post Office: HQCLSTR01.nrc.gov

Files	**Size**	**Date & Time**
MESSAGE	697	6/30/2009 1:38:28 PM
ER_FIG08_04_04.pdf	905490	
BLN COE-1 Information Need Response.doc	48122	
ER_FIG08_01_01.pdf	187841	
ER_FIG08_01_02.pdf	145764	

Options
Priority: Standard
Return Notification: No
Reply Requested: No
Sensitivity: Normal
Expiration Date:
Recipients Received:

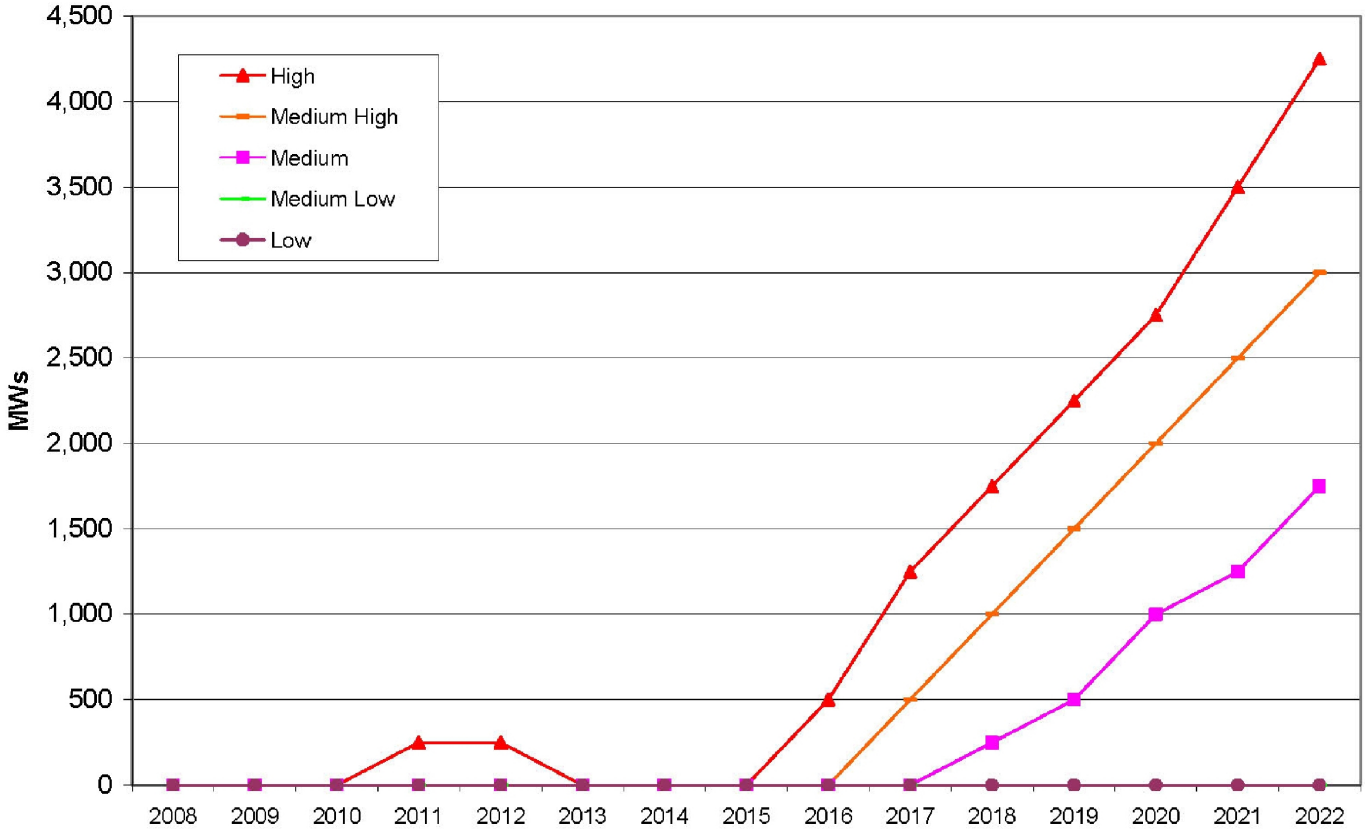

FIGURE 8.4-4
Need for Baseload Capacity

U.S. Army Corps of Engineers Information Needs – June 2009

Preparation for Bellefonte Units 3 and 4 Corps of Engineers Site Visit, July 8-10, 2009

COE INFORMATION NEED: COE-1

Provide an SME that can discuss the purpose and need for the BLN 3 and 4 project. The discussion should include a definition of the regional area where additional base-load electrical generation capacity is needed and identify the amount (megawatts) of baseload power needed.

BLN RESPONSE:

TVA (the Applicant) identified a need for additional generation capacity in the 2010 – 2020 time frame (see Chapter 8, Need for Power). TVA submitted a Combined License Application to preserve the option of nuclear generation to meet this need. TVA is the only power provider in the TVA service area.

Chapter 8 of the Bellefonte Nuclear Plant Units 3 and 4 (BLN) Environmental Report addresses the Need for Power. TVA is applying for a combined license (COL) to construct and operate Bellefonte Nuclear Plant, Units 3 and 4 (BLN). These units would be operated as baseload units with a net electrical rating of 1117 MW each.

Section 8.1, Description of the Power System, defines the regional area where additional baseload electrical generation capacity is needed and includes Figure 8.1-1 (Geographical and Political Boundaries of the TVA Power Service Area) and Figure 8.1-2 (Electrical Transfer Capabilities between TVA and Neighboring Utilities). The section also provides a discussion on TVA customers and includes Table 8.1-1 (breakdown of customers by type), Table 8.2-9 (annual electricity usage in kWh in 2005 for residential, commercial, and industrial customers), and Table 8.1-2 (percentage of electricity TVA supplies to each state within its service area).

Section 8.2 discusses Power Demand, including its methodology for determining power and energy requirements.

> "The TVA conducted a comprehensive review of demand for power, power supply and need for power in its Integrated Resource Plan, Energy Vision 2020 EIS (TVA 1995) which evaluated a suite of options addressing these issues out through the year 2020…"

In response to NRC Request for Additional Information (RAI) 8.0-1, TVA provided a brief description of the process by which TVA develops and updates its IRP and by which it reviews the forecasts for power and energy requirements, factors affecting growth of demand, power supply, and its assessment of need for power that are included in the ER:

> "TVA's resource planning process (Integrated Resource Plan [IRP]) results in a least-cost, robust portfolio plan that identifies the long- and short-term actions TVA anticipates undertaking to meet future demand for peak and energy needs and to achieve its objectives. This is an annual, iterative process that operates under the umbrella of the TVA Act, Strategic Plan, and other overall policy decisions, financial goals, and objectives.

First, the projected need for power is determined, which is based on detailed load forecasts and reserve criteria. Both supply-side and demand-side options are considered consistent with overall evaluation criteria. Traditional technologies, along with a broad spectrum of renewable and customer options, are included in this mix of potential expansion alternatives. These options and strategies are considered under a macro future "world" that is approved by executives. Different future scenarios are also evaluated to test the robustness of the portfolio plan along with sensitivity risk analyses.

Line organizations develop inputs, assumptions, and forecasts and collaborate with the planning organization based on identified input parameters. The planning organization develops the least-cost expansion portfolio using state-of-the-art planning tools and screens results for further portfolio analysis.

Detailed fuel-burn and dispatch plans are produced along with the accompanying fuel plans and financial impacts, including any rate, debt, cash flow, and other financial results. These rate impacts feed back into the iterative process as price response inputs into the load forecast for the next resource planning cycle. TVA executives review and approve the portfolios and assumptions."

Section 8.3 addresses Power Supply.

"TVA's existing and planned power supply consists of fossil, nuclear, hydro, gas, non-hydro renewable resources, cogeneration, and new resources yet to be determined. Planned power supplies include resources under contract and projects specifically approved by TVA as future capacity additions or uprates; they do not include projects under consideration, but not yet approved, such as the addition of Bellefonte Nuclear Plant, Units 3 and 4 (BLN). Table 8.3-1 illustrates the capacity plan for the summers and winters of 2008 – 2022 for the expected (medium) load forecast. Differences between the summer and winter capacities of the resources are primarily due to differences in seasonal ambient air temperatures and to capacity additions. No retirements, deratings or redesignations of existing TVA owned resources is anticipated…"

"Changes in capacity of TVA-owned resources are included in Table 8.3-1 and specifically listed in Table 8.3-2. The capacity additions consist principally of the completion of Watts Bar Unit 2 and the modernization of TVA hydro units. Reductions in capacity are associated with expiration or other changes in power and interruptible contracts."\

Section 8.4, Assessment of Need for Power, discusses TVA's method of assessing the need for power and reviews the need for power in the TVA service area. A discussion of the total need for power of any type (baseload, intermediate, peaking) is provided, followed by a forecast of how much of the total need should be baseload capacity (page 8.4-2).

"TVA determined how much of the total capacity need in Figure 8.4-3 should be baseload generation based on an assessment of energy needs. The total expected generation of existing and planned capacity resources, Table 8.3-1, is compared to the forecast net system requirements, Figure 8.2-5, to forecast the amount of energy surplus or deficit for each year of the planning period. If there is an energy deficit, then some of the additional capacity needs should be met with baseload resources. The amount of baseload capacity needed is determined by comparing the existing and planned resources (Table 8.3-1) to the average load. Figure 8.4-4 illustrates the deficit in baseload capacity by load forecast by year. In those

years with a balanced energy supply or an energy surplus, the deficit is shown as zero. Figure 8.4-4 shows that baseload need under the medium load forecast begins in 2018 and grows to 1750 MWs by 2022. Except for a short term need in 2011 – 2012 under the high load forecast, baseload need begins in 2016 under the high forecast and 2017 under the medium high forecast, and is greater than 2,000 MWs by 2019 and 2020 respectively. Information in Tables 8.4-3, 8.4-4 and 8.4-5 provides data prescribed in NUREG-1555, Tables 8.4-1 and 8.4-2."

"The total output of a nuclear unit with the size and expected capacity factor of the proposed AP1000 unit is needed by 2020 under the medium load forecast, 2018 under the medium-high load forecast, and 2016 under the high load forecast."

ATTACHMENTS:

BLN ER Figure 8.1-1 Geographical and Political Boundaries of the TVA Power Service Area

BLN ER Figure 8.1-2 Electrical Transfer Capabilities between TVA and Neighboring Utilities

BLN ER Figure 8.4-4 Need for Baseload Capacity

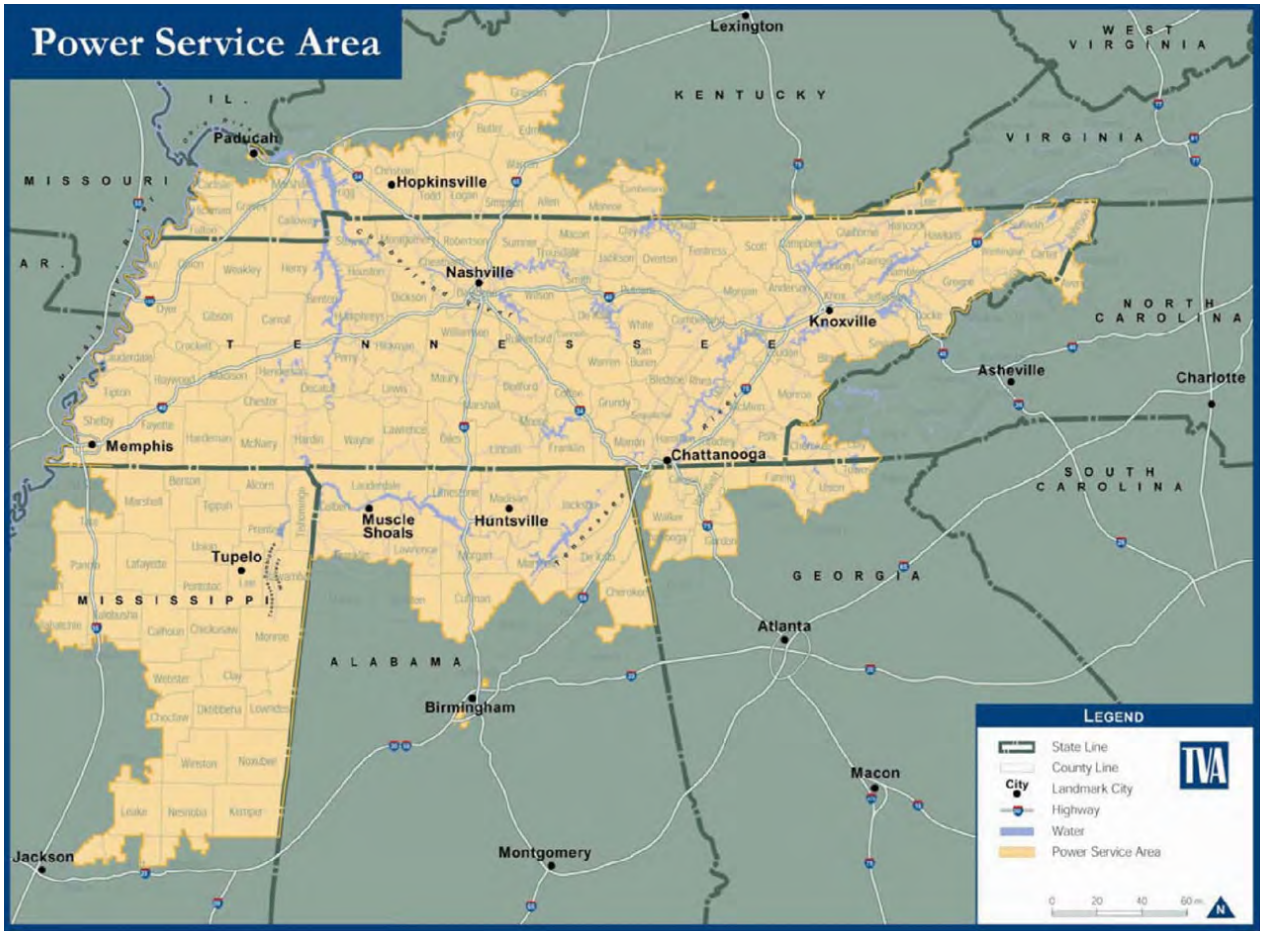

FIGURE 8.1-1
Geographical and Political Boundaries of the TVA Power Service Area

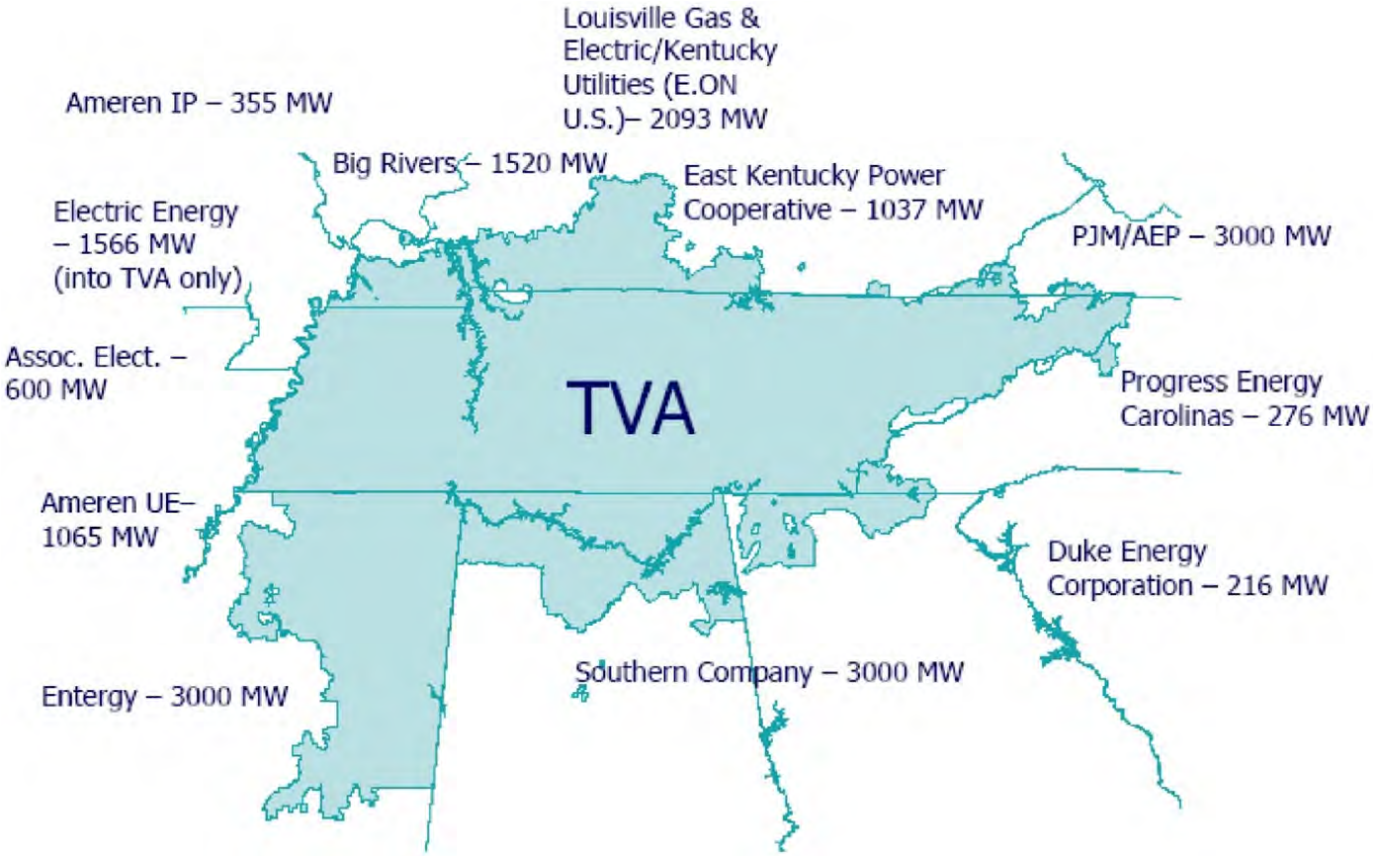

FIGURE 8.1-2
Electrical Transfer Capabilities between TVA and Neighboring Utilities