

Volume II

**Final Environmental Impact Statement
for the
Bellefonte Conversion Project**

APPENDICES P AND Q



Tennessee Valley Authority
October 1997

Appendix P ³/₄ Individuals And Agencies Providing Comments

Appendix P
Individuals and Agencies Providing Comments

Individuals and agencies providing written comments are listed below:

Allan Stewart
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Via Richard Hoesly
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Individuals providing comments at the public meeting are listed below:

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Individuals and Agencies Providing Comments

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**Appendix P
Individuals and Agencies Providing Comments**

Also attending the public meeting were:

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Appendix Q
Responses to Public Comments

Comment ID: 11

Name: Heinz J. Mueller

Affiliation: U.S. Environmental Protection Agency

DEIS Section: Executive Summary

Comments: *Editorially, we note that the Executive Summary indicates that up to 3,000 MW (pg. 5) could be generated through plant conversion. However, Table 2 shows a maximum peaking capacity of only 2,895 MW (Combination option). The FEIS should clarify.*

Response: The FEIS has been revised to clarify this issue.

Comment ID: 22

Name: Heinz J. Mueller

Affiliation: U.S. Environmental Protection Agency

DEIS Section: Executive Summary

Comments: *Editorially, it is noted that page 4-94 of the text appears to be inconsistent with page 32 of the Executive Summary since the former indicates 12 acres of wetland losses and the latter lists 20 acres. The FEIS should clarify.*

Response: On page 4-94 of the DEIS, the barge handling facility would impact 4.9 hectares (ha) (12 acres) of wetlands. Construction of docking facilities and dredging for barge access would eliminate 1.7 ha (four acres) of forested wetland islands and 3.2 ha (8 acres) of rooted aquatic bed wetlands. A total of 24 acres of wetlands would be affected. The FEIS Executive Summary will be revised to state 24 acres.

Comment ID: 94

Name: Stephen Smith

Appendix Q
Responses to Public Comments

Affiliation: Tennessee Valley Energy Reform Coalition

DEIS Section: Executive Summary

Comments: *Now then, if TVA, which they again, it's ironic, did not really spend as much time looking at the potential natural gas options. Of all the options that are even mentioned in this thing in the draft EIS, the natural gas options seemed to be the ones that have, if anything, the most potential.*

Response: TVA has selected NGCC as the preferred conversion option.

Comment ID: 10

Name: Heinz J. Mueller

Affiliation: U.S. Environmental Protection Agency

DEIS Section: 1.1

Comments: *...projected need for "...16,600 MW of new capacity between 1998 and 2020." The FEIS should further discuss this project need. In the absence of a Public Service Commission in Alabama, how are these capacity projections reviewed and verified? We also note that one of the alternatives (IGCC/C) would only generate 450 MW as opposed to 2,400 MW to 2,895 MW for the others and the 2,424 MW design capacity for the nuclear facility. It is unclear as to how such an alternative would satisfy a projected need of 16,600 MW by 2020? Conversion to such a low capacity would seem counterproductive.*

Response: TVA projections of power needs are not reviewed or approved by a public utilities commission as is done for other utilities. However, the development of Energy Vision 2020, TVA's Integrated Resource Plan which addressed load forecasting and the need for power in future years, provided for diverse and frequent opportunities for review and input from the public and private sectors. This scrutiny, while dissimilar to the regulatory controls embodied in a PUC type review, provides for a highly effective type of overview and oversight needed for future power system planning.

Load forecasting is driven by four key variables that influence electricity use:

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(1) regional economic growth, (2) the price of electricity, (3) the price of alternative energy sources, and (4) TVA's competitive success. These drivers are discussed in detail in Energy Vision 2020 and are the basis of TVA's projections that 16,500 MW (medium forecast) would be needed by 2020. Energy Vision 2020 presented flexible short-term and long-term plans for meeting future power needs. Both plans involve a diverse mix of technologies and strategies, both supply-side and demand-side, but are firmly founded on the need for wise investment of resources and capital. The reader is referred to Energy Vision 2020, from which this EIS tiers, for more detailed information about load forecasting and the future need for power.

In addition to plans to convert Bellefonte, other supply-side actions included in the short-term action plan are (1) purchase call options - up to 3000 MW, (2) hydro modernization projects - 150 MW, (3) use of renewables - no estimate of MW, and (4) planning for future consideration of advanced turbine systems and energy storage technologies.

The IGCC/C option would not fully convert the existing facilities at Bellefonte to electricity production. The purposes of converting Bellefonte are to make use of assets already constructed at the site, and to deliver power to its customers at the lowest cost commensurate with other corporate goals and obligations. As noted above, Energy Vision 2020 identified a mix of options for expanding capacity to a production level of 16,500 MW by 2020. Energy Vision 2020 committed to further evaluation and planning of each alternative to ensure they were economically attractive and involved low risk to TVA and its customers before implementation.

The IGCC/C option, because of the associated revenue stream provided by the marketing of chemicals produced from synthesis gas as well as natural gas, appears to offer high potential for delivering electricity at a price much lower than conventional fossil fuel powered systems. The IGCC/C option also meets the test of flexibility in its ability to adapt to uncertain load growth, future market conditions, and changes in environmental regulations. While this option does not fully utilize all of the current assets at Bellefonte, it does not preclude the future consideration of additional power production at the site (not under consideration at this time).

Comment ID: 73

Name: Michelle Neal-Conlon

Appendix Q
Responses to Public Comments

Affiliation: Tennessee Valley Energy Reform Coalition

DEIS Section: 1.1

Comments: *I am extremely confused about how TVA can segment the conversion of this plant relative to finishing it as a nuclear power plant.*

Response: The environmental impacts of constructing and operating Bellefonte as a nuclear plant were evaluated and documented in an Environmental Impact Statement issued prior to beginning construction in 1974. The Nuclear Regulatory Commission issued its own EIS in 1974 and issued Environmental Assessments for construction license extensions in 1987 and 1994. Due to the passage of time, TVA in 1993 conducted a staff review of the currency of the information contained in its 1974 EIS and found that the information remained accurate and that conclusions had not changed.

TVA chose not to readdress the construction and operation of Bellefonte as a nuclear plant in the fossil conversion EIS because (1) no environmental issues are outstanding for this implementation pathway, (2) the complete and recent array of NEPA review documentation produced by TVA and NRC continues to remain valid relative to the impacts of the nuclear plant, and (3) the purpose of this EIS is to assess the impacts of alternatives for conversion of the nuclear plant to a fossil plant.

Comment ID: 74

Name: Michelle Neal-Conlon

Affiliation: Tennessee Valley Energy Reform Coalition

DEIS Section: 1.1

Comments: *But it's (the Nuclear Option) still considered a viable option for this plant?*

Response: In 1994, the TVA Board announced that Bellefonte would not be completed as a nuclear plant without a partner. Thus, completion of Bellefonte as a nuclear plant is a viable option if partners are available to share the cost of completion.

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Comment ID: 80

Name: Frank Holms

Affiliation:

DEIS Section: 1.1

Comments: *TVA was already blowing smoke back then to people about why Bellefonte number one didn't go on line in 1983. If we had worked on it from '81 to '83 like we did from '78 to '81, they couldn't have kept us from putting unit one on line.*

Response: Construction activities at Bellefonte were slowed and eventually deferred in 1988 because TVA projected it would not in the foreseeable future need the electricity that would be produced by the two 1200 MW units at this plant. Construction of several other TVA nuclear units was further along at the time the decision to slow construction was made, thereby making Bellefonte the likely choice. Construction at Phipps Bend, Yellow Creek, Hartsville was cancelled before the decision to defer construction at Bellefonte was reached. Energy Vision 2020, issued in December 1995, stated that Bellefonte would not be completed as a nuclear plant without partners.

Comment ID: 81

Name: Frank Holms

Affiliation:

DEIS Section: 1.1

Comments: *I want to ask any representative of TVA here that knows to answer this question for the people that are here. Of that four-and-a-half billion dollars, how much of it was spent out there on the site and on the engineering in Knoxville that went into the site and how much of it has been spent on interest?*

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Response: For the Power Program, TVA follows the practice of capitalizing an allowance for funds used during construction, excluding generating units in a deferred status. TVA ceased capitalizing interest on Bellefonte effective July 1988. At that time, approximately \$1.7 billion interest had been capitalized for Bellefonte.

Comment ID: 82

Name: Frank Holms

Affiliation:

DEIS Section: 1.1

Comments: *Of the four-and-a-half billion dollars, the 8 million people that TVA is here to serve have got invested or going to have to pay for the interest on that maybe for the next 50 years, how much interest has been paid on the loans that went into building Bellefonte to date?*

Response: TVA borrows money for its Power Program as a whole and does not match capital borrowings to specific projects. Over the past 25 years, TVA's average interest rate has ranged from a low in 1972 of 5.9% to a high of 10.4% in 1982. Over the past decade, TVA's average interest rate has declined from 10% to about 7.5%. TVA continues to aggressively manage its debt portfolio to reduce interest expense and passes those savings on to its customers. Also, TVA plans to reduce its debt by 50% over the next 10 years.

Comment ID: 83

Name: Frank Holms

Affiliation:

DEIS Section: 1.1

Comments: *How much of that money (\$4.6 Billion) has been spent on studies? I know for a fact that in 1992 the Board authorized a half a billion dollars for a study on Bellefonte after they had run all the people off that knew anything about it.*

Response: After nuclear plant construction activities at Bellefonte were terminated in 1988, TVA conducted several studies to determine the feasibility and practicality of conversion to fossil fuel. However, the cost of those studies is not included in the 4.5 billion dollars. The total cost of these previous studies, all conducted by independent contractors prior to the issuance of Energy Vision 2020 (TVA's integrated resource plan) in December 1995, was less than \$5 million. Three studies were conducted, focusing primarily on repowering costs and plans, implementation schedules, cash flows and expected operation and maintenance costs. All three studies were based on the assumption that existing Bellefonte equipment would be utilized to the maximum extent economically practical.

The first study report, conducted in 1989 and 1990, addressed conversion to pulverized coal or natural gas fired combined cycle power plants. The second study report, issued in 1994, updated information in the first report and included conversion scenarios for integrated gasification combined cycle (IGCC) and (in lesser detail, because of technical incompatibility) atmospheric fluidized bed combustion. The third study report, issued in late 1994, addressed the cost benefit and technology aspects of producing chemicals, in addition to electricity, for the IGCC conversion option.

In response to public comments received on Energy Vision 2020, the Board authorized an independent engineering assessment to verify the results of the 1994 study of conversion options for Bellefonte. This study is nearing completion with a total expenditure to date of less than \$1 million. The information from this study has been used in the Environmental Impact Statement for the Bellefonte Conversion Project. The report will show that capital cost and market changes during the last few years have improved the viability of natural gas options.

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Comment ID: 103

Name: Stephen Smith

Affiliation: Tennessee Valley Energy Reform Coalition

DEIS Section: 1.1

Comments: *Craven Crowell is thinking about selling stock to finish Bellefonte. Somebody needs to explain to me from TVA how in the world Craven Crowell can unilaterally say that he is going to start his own corporation, sell stock and complete Bellefonte.*

Response: TVA has no specific plans to sell stock for the completion of BLN. The way TVA finances, partner, and signs agreements in the future will certainly be quite different from the way TVA has built and sold power facilities in the past.

Comment ID: 108

Name: Michelle Neal-Conlon

Affiliation: Tennessee Valley Energy Reform Coalition

DEIS Section: 1.1

Comments: *...it is my opinion and our organization's opinion that TVA needs to take no action on this alternative until some of the issues relative to deregulation have been fleshed out...*

Response: TVA recognizes that deregulation will have a profound effect on the electric utility industry nationwide. However, in order to remain competitive and meet projected power needs, TVA must continue to operate as a business and determine where opportunities exist. Delaying decisions to wait on more information on deregulation could jeopardize timely completion of construction programs needed to meet projected power capacity needs.

Comment ID: 110

Name: Michelle Neal-Conlon

Appendix Q
Responses to Public Comments

Affiliation: Tennessee Valley Energy Reform Coalition

DEIS Section: 1.1

Comments: *And the last thing that I do want to comment on is again my belief that it should be TVA's role--and I believe this is part of TVA's charter, unbeknownst to some comments that have been made by TVA employees recently--that they do have a commitment to protecting the environment; that they do have a commitment to promoting such environmentally benign technology as renewable technology as fuel cells.*

Response: Renewable fuels were considered in Chapter 2 of the DEIS. This technology is not currently commercially or economically viable at the scale needed to meet load capabilities identified for the conversion of Bellefonte.

Comment ID: 132

Name: Stephen Smith and Michelle Neal-Conlon

Affiliation: Tennessee Valley Energy Reform Coalition

DEIS Section: 1.1

Comments: *Nuclear Options*

It is misleading that TVA has not been more up front about the negotiations with the Department of Energy (DOE) on the nuclear options for Bellefonte. Apparently these include using MOX (mixed-oxide) fuels and having the reactor generate weapons grade tritium. If these proposals are still on the table, TVA needs to be open about them and include them in any future EIS. TVA's attempt to thwart analyzing this option is based on the so-called fact that an earlier EIS was completed for this option; however, when that EIS was completed TVA was not in discussion with the DOE on partnering and completing this plant to burn mixed-oxide fuel nor the production of weapons grade tritium. There are several issues that need to be discussed regarding this proposal such as how can TVA segment this project under NEPA guidelines, and Why TVA has not indicated to this community that it may become one of the first commercial reactors in the country to burn MOx fuel and produce tritium.

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Response: TVA is not considering the use of mixed-oxide fuels in this EIS. The purpose of this FEIS is to evaluate environmental impacts associated with conversion to fossil fuels. TVA is considering nuclear options with partners. If a nuclear option is chosen, the appropriate level of environmental review will be conducted as necessary in support of the 1974 Bellefonte Nuclear Plant EIS and other reviews completed to support renewal of construction licenses.

Comment ID: 12

Name: Heinz J. Mueller

Affiliation: U.S. Environmental Protection Agency

DEIS Section: 1.2

Comments: *In the event that the nuclear option is selected, a review of the original 1974 EIS on the Bellefonte Nuclear Plant would be needed to determine if significant changes have occurred at Bellefonte. If so, the original EIS would be considered "stale" by CEQ and would likely need upgrading in the form of a Supplemental EIS.*

Response: TVA will perform the appropriate level of NEPA review before a decision to pursue a nuclear option is made. This review would involve a determination of the continuing validity of the 1974 EIS for the BLN plant.

Comment ID: 104

Name: Stephen Smith

Affiliation: Tennessee Valley Energy Reform Coalition

DEIS Section: 1.2

Comments: ** TVA has a memorandum of understanding between the Department of Energy and the Tennessee Valley Authority on looking at MOX fuel options at Bellefonte.*

** Is somebody from TVA going to address the fact there is a memorandum of understanding between the Department of Energy and TVA on looking at*

plutonium production as well as potentially exploring Bellefonte as an option for tritium production.

** You have a memorandum of understanding between the Department of Energy and TVA, you are engaged in discussions with looking at finishing Bellefonte as a nuclear option, possibly using plutonium fuel, and generating nuclear weapons.*

Response:

There are no plans to produce nuclear weapons at Bellefonte. TVA has no agreement or memorandum of understanding with the Department of Energy with regard to the use of mixed oxide fuel at Bellefonte. TVA has no memorandum of understanding with DOE regarding the production of tritium at Bellefonte.

In December 1995, TVA submitted a letter to DOE expressing interest in DOE's tritium production and mixed oxide fuel disposition programs. This letter merely indicated TVA's willingness to evaluate its options in the best interest of ratepayers, but did not constitute a TVA commitment or agreement.

In September 1997, TVA has responded to a Request for Proposals issued June 4, 1997, by the Department of Energy for the acquisition of services to support tritium production. Tritium, a strategic material needed for national defense purposes, would be obtained by irradiating specially designed (and DOE supplied) absorber rods in a commercial light water reactor, followed by tritium extraction at DOE's Savannah River facility. Providing irradiation services to DOE would involve loading and removing absorber assemblies along with fresh and spent nuclear fuel in a normal power production cycle. The superimposition of this program on normal operations would likely involve no significant differences in operation. Tritium is produced as a by-product and monitored during normal power production activities at any nuclear plant.

Should TVA be selected as a provider, DOE would prepare and circulate an EIS before the program was put into effect. TVA would provide irradiation services only if TVA decides it is in the best interest of its customers and after obtaining TVA Board approval. NRC would have to approve an operating license for the operation of Bellefonte.

Tritium and nuclear power production at Bellefonte is outside the scope of the actions addressed in this fossil conversion EIS and consequently, the environmental impacts of these activities are not addressed in this EIS.

Comment ID: 45

Name: Gary Canaday

Affiliation:

DEIS Section: 1.3

Comments: *Nuclear Option -- Back in 1987 Unit 1 was supposed to be 89 percent complete and we were told that it could be on-line within one year if given the go ahead to complete the project. I think it would be totally irresponsible to not complete Unit 1 as a nuclear plant. I can see very few pieces of equipment that would be compatible with a fossil fuel plant. I am not even sure that a fossil fuel plant would be capable of supplying the necessary steam pressures to drive the steam turbine.*

My understanding is that TVA just does not need the power. Unit 1 alone would be capable of delivering 1250 MW of power ...Unit 1 should be completed as designed.

By staying with a nuclear plant, the environmental impact is greatly reduced. There are no sulfur emissions, acid rain, ash, or radioactivity that is inherently in coal, being released to the atmosphere.

I would hope that one of the options is completing only Unit 1. I truly believe that the plant should remain nuclear.

Response: For all fossil conversion options, a significant number of existing Bellefonte assets could be used to reduce the cost of constructing a fossil plant. These items include the steam turbines and condenser systems, natural draft cooling towers, many station auxiliaries such as compressed air and service water, switchyard and transmission systems, and many service and office buildings. These systems and equipment items are significant cost items for a new plant, and their use will offset construction costs. The steam produced from the combustion of fossil fuel will include high pressure steam, which will require additional turbine capacity in order to remove energy prior to using the existing steam turbines.

Both types of plants can be and are operated safely and within applicable regulations for protecting environmental quality.

Conversion of facilities to a fossil plant would introduce new types of sources

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and new areas of the site would be affected. These construction-related impacts are described in Chapter 4 of the EIS and would be greater than if Bellefonte were completed as a nuclear plant.

Comment ID: 46

Name: J. C. Clemons

Affiliation:

DEIS Section: 1.3

Comments: *Nuclear -- I would like to urge TVA to complete Bellefonte and start producing power which will be needed to replace the old part of Widows Creek which is now very old. Our County and this part of the state need the jobs. I would like to see it completed whether by using coal, natural gas, or Nuclear. I understand that Unit one is about 90% complete so why not complete it as Nuclear.*

This plant should be completed even if it required more bonds to be issued.

If this plant is not put to use to produce electricity, it will forever be a monument to the stupidity of a few TVA people in top management.

Response: Construction activities at Bellefonte were slowed and eventually deferred in 1988 because TVA projected it would not in the foreseeable future need the electricity that would be produced by the two 1200 MW units at this plant. Construction of several other TVA nuclear units was further along at the time the decision to slow construction was made, thereby making Bellefonte the likely choice. Construction at Phipps Bend, Yellow Creek, Hartsville was cancelled before the decision to defer construction at Bellefonte was reached. Energy Vision 2020, issued in December 1995, stated that Bellefonte would not be completed as a nuclear plant without partners.

Comment ID: 60

Name: Lynn Leach

Affiliation:

Appendix Q
Responses to Public Comments

DEIS Section: 1.3

Comments: *Who is to say that we won't buy from the state of Iowa or California and how can TVA keep their rates artificially low anymore?*

Response: The deregulation of the utility industry will expand the options now available to industrial and residential electricity users nationwide. However, TVA expects users in the TVA service region and elsewhere to consider TVA's high dependability and level of services, as well as price in selecting an electricity provider. However, there are practical transmission limits imposed on the wheeling of electricity caused by resistance in the line itself, thereby making the purchase of power from producers located in California or other distant places unattractive. After 10 years of stable rates, TVA will increase its rates to achieve a 5.5 percent increase in revenues for use in debt reduction beginning in fiscal year 1998.

Comment ID: 144

Name: James H. Lee

Affiliation: United States Department of the Interior

DEIS Section: 1.3

Comments: *In February 1992, the Department of the Interior (DOI) published in the Federal Register a Preliminary Notice of Adverse Impact on Great Smoky Mountains National Park Under Section 165 (d)(2)(C)(ii) of the Clean Air Act (57FR4465ff., February 5, 1992). The National Park Service had determined through monitoring and research that the air pollution-sensitive resources (air quality related values - AQRVs) at the park, a mandatory Class I area, were being adversely impacted by air pollution from existing sources. Specifically, the impacts were the acid deposition of nitrates, visibility reduction in the form of uniform haze, and vegetation damage (chlorosis and necrosis of pine needles and leaf mottling of deciduous trees and other plants). The Federal Register notice requested the states surrounding the park to not approve any air quality permit applications for new or modified sources until they took appropriate action to reduce, minimize, or eliminate air pollution from existing sources, since such additional permit approval would only exacerbate the problem.*

One result of the notice has been the establishment of the Southern

Appalachian Mountains Initiative (SAMI), whose members include the NPS, TVA, the Forest Service, the Environmental Protection Agency, states, industry, and citizen representatives. SAMI's objectives include assessing the air pollution in the region, its sources, its movement, and its impacts on the Class I national parks and wilderness areas in the region.

A major goal of the organization is to minimize air pollution impacts on the Class I areas. To achieve this goal, one short-term objective agreed to by the participants is to consider energy conservation as a viable alternative to the construction of new power plants in the region. This goal seems to be counter to the objectives of the TVA Energy Vision 2020, which, among other things, identifies the need for 16,600 MW of new generating capacity by 2020 (converting the Bellefonte power plant would add 3,000 MW of new capacity to that goal). The DEIS does not identify energy conservation as an alternative to converting the Bellefonte power plant to a fossil fuel-fired generating station. Was this an oversight, or merely not considered? [In polluted California, for example, the major power companies studied various alternatives, including adding generating capacity and energy conservation, to accommodate the projected future population growth. In essence, they all adopted energy conservation as the preferred alternative, and have not added any significant new generating stations in this decade, even though the population has increased to over 30 million.]

The NPS suggests that the DEIS be revised to add an energy conservation alternative to its list. In addition, appropriate studies should be conducted to determine it's viability as an alternative approach which would result in no increased emissions of air pollutants in an area where there are already adverse impacts from existing sources.

Response:

This EIS relies on and tiers from information contained in Energy Vision 2020, which provides a programmatic umbrella.

Four customer service option "blocks" combining various energy efficiency and load management activities were developed, based on resource cost, impact on rates, the opportunity for all customers to participate, the preservation of long-term customer relationships, and other evaluation criteria.

The DEIS did not identify energy conservation as a conversion alternative since this approach would not meet both of the stated needs for converting the plant's facilities to allow the combustion of fossil fuel, which are to meet future power demands and to utilize existing Bellefonte assets. It would be inappropriate to consider an energy conservation option in this EIS that did not meet both needs for action.

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Comment ID: 49

Name: Randy Eminger and John Paul

Affiliation: The Center for Energy & Economic Development

DEIS Section: 1.4

Comments: *TVA should select the resource alternative which provides the lowest cost power over the life of the plant which factors in fuel availability and price.no environmental reasons to eliminate any of the selected five resource alternatives. In fact, since the proposed plant would displace older less efficient generation and be subject to tighter new source limitations, overall environmental emissions would be reduced and the Bellefonte conversion project should provide a net environmental benefit.*

Response: Comment noted.

Comment ID: 59

Name: Lynn Leach

Affiliation:

DEIS Section: 1.4

Comments: *How many years will it take for TVA to make a profit on this plant?*

Response: TVA has voluntarily capped its borrowing limit and is implementing a 10-year plan to cut its debt in half. The plan includes a 5.5-percent increase in revenues beginning in fiscal year 1998. TVA recognizes the need to reduce its debt to ensure a firm competitive posture for the coming deregulation of the electricity production industry. Funds for new construction will come from partnerships and alliances which provide investment capital for new business ventures. It is not anticipated that new borrowing would be needed, although that cannot be ruled out. All businesses must divert a portion of its income to fund capital improvements. Without this reinvestment in the future, no business would be self-sustaining.

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A decision to proceed with a capital expenditure is based on the degree of risk associated with a project and its expected return on investment. The cost effectiveness of a conversion option would be measured (along with other more complex methods) by commonly accepted investment metrics which incorporate the time value of money, such as Net Present Value (the present value of future cash flows from a project minus the cost of equipment) and Internal Rate of Return (provides information about the "payback" time based on the equipment's useful life).

Preliminary engineering studies are being conducted concurrently with the development of this EIS. The results of those studies are not yet final, but a preliminary ranking of conversion options has been included in the FEIS as Section 2.2.7.

TVA intends to remain a competitive low-cost producer of electricity. TVA decisions on power supply options will be consistent with this goal.

Comment ID:	61
Name:	Cliff Griggs
Affiliation:	
DEIS Section:	1.4
Comments:	<i>They are 27.7 billion in debt. Where are you going to get the money to build this?</i>
Response:	TVA has voluntarily capped its borrowing limit and is implementing a 10-year plan to cut its debt in half. The plan includes a 5.5-percent increase in revenues beginning in fiscal year 1998. TVA recognizes the need to reduce its debt to ensure a firm competitive posture for the coming deregulation of the electricity production industry. Funds for new construction will come from partnerships and alliances which provide investment capital for new business ventures. It is not anticipated that new borrowing would be needed, although that cannot be ruled out.

Comment ID: 63

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Responses to Public Comments

Name: Cliff Griggs

Affiliation:

DEIS Section: 1.4

Comments: *I notice also in here that TVA has just bought some 90 million dollars worth of pollution credits.*

Response: At the 1997 EPA Allowance Auction, TVA purchased 87,000 emission allowances for \$9.7 million as an investment and to replenish our emission allowance "Bank." The purchase was a prudent business practice since the price of allowances is rising and expected to continue to increase. TVA plans to continue to participate in the emission allowance market (buying and selling) as business conditions and deregulation dictate. Since 1992, TVA has purchased 122,000 allowances, but have not used them to offset TVA emissions. We have sold or contracted to sell 125,000 allowances through 1999. TVA currently complies and will continue to comply with the Clean Air Act Amendment of 1990.

Comment ID: 64

Name: Stephen Smith

Affiliation: Tennessee Valley Energy Reform Coalition

DEIS Section: 1.4

Comments: *The draft environmental impact statement does not adequately address the following issues: First, the need for the project.*

Response: The need for the project was adequately addressed in Section 1.4. The primary drivers are the need to meet power requirements while effectively utilizing the Bellefonte assets.

Comment ID: 65

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Name: Stephen Smith

Affiliation: Tennessee Valley Energy Reform Coalition

DEIS Section: 1.4

Comments: *TVA in their outlining the need for power completely failed to mention this lignite plant that TVA now has contracted with over in Mississippi for approximately 440 megawatts.*

Response: Section 1.4.1 of the FEIS has been revised to reflect the agreement regarding the purchase of power from the Mississippi facility.

Comment ID: 66

Name: Stephen Smith

Affiliation: Tennessee Valley Energy Reform Coalition

DEIS Section: 1.4

Comments: *TVA must do a better job in this environmental statement to justify the need and to explore the options which would include conservation efficiency and demand-side management.*

Response: Energy Vision 2020 evaluated and developed a portfolio of supply-side and demand-side energy resource options. Bellefonte conversion is one alternative for a supply-side option. The use of demand-side options to meet energy needs is still planned.

For further information, the reader is referred to Tennessee Valley Authority, Energy Vision 2020, Integrated Resource Plan Environmental Impact Statement, Volumes 1 and 2, TVA, December 21, 1995.

Comment ID: 68

Name: Stephen Smith

Appendix Q
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Affiliation: Tennessee Valley Energy Reform Coalition

DEIS Section: 1.4

Comments: *TVA is looking at building a base-load facility here at the Bellefonte facility without adequately looking at a way to shave the peak.*

Response: Energy Vision 2020 identified the need for additional power, including baseload, which was based on an analysis of the ability of TVA's existing power facilities to meet the projected electricity needs of its customers in the future.

Energy Vision 2020 also considered the actions that end-use customers can take on their side of the electric meter to obtain energy efficiencies and improve their productivity and quality of life. TVA considered over 60 customer service options, which included traditional demand-side management (i.e., energy efficiency and load management), self-generation, beneficial electrification, and rate options. TVA has included the existing and emerging technology and electric rate options into a variety of program packages to meet the changing needs of its customers and the TVA power system.

For further information, the reader is referred to Tennessee Valley Authority, Energy Vision 2020, Integrated Resource Plan Environmental Impact Statement, Volumes 1 and 2, TVA, December 21, 1995.

Comment ID: 70

Name: Stephen Smith

Affiliation: Tennessee Valley Energy Reform Coalition

DEIS Section: 1.4

Comments: *TVA has not--in my opinion and in our group's opinions--adequately looked at the possibility for clean, cost-effective renewable resources as they had agreed to in the Integrated Resource Plan.*

Response: As presented in Energy Vision 2020, TVA anticipates that renewable energy resources will fulfill a portion of the capacity needs in the 1995 - 2020 period. In fact, as committed to in the short-term action plan, TVA is implementing a

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hydroelectric modernization program that will add 150 MW of renewable capacity by 2006. Non-renewable supply-side actions such as the BLN conversion are also needed.

Comment ID: 71

Name: Stephen Smith

Affiliation: Tennessee Valley Energy Reform Coalition

DEIS Section: 1.4

Comments: *TVA has failed in the economic analysis of this plant to truly look at what are the underlying economic motivations for this particular facility.*

Response: Adequate information was presented in Energy Vision 2020 to support the initiation of conversion activities at Bellefonte. The scope of this EIS is to focus on environmental impacts, not a cost comparison study. As stated in the DEIS in section 1.2, TVA has embarked on a study of conversion options to identify which options offer the best investment opportunities and least financial risk. The results of that study will become available at about the same time that the FEIS is being finalized. The completion of these two efforts will allow TVA to make an investment decision based on the best and most timely economic, technical, and environmental information. An economic ranking of conversion options based on the Net Present Value concept has been included in Section 2.2.7 of the FEIS.

Comment ID: 72

Name: Stephen Smith

Affiliation: Tennessee Valley Energy Reform Coalition

DEIS Section: 1.4

Comments: *TVA has not adequately done nor did they adequately address in the Integrated Resource Plan is exploring options for how to write this plant down.*

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Response: TVA considers the existing Bellefonte plant an asset and will look at alternatives to utilize this asset to meet future power needs. The focus of this EIS is to evaluate environmental impacts associated with conversion to fossil fuel technologies.

Since the "no-action" alternative is not to write the plant down, this analysis is not within the scope of the EIS. See Response to Comment ID 129.

Comment ID: 98

Name: Stephen Smith

Affiliation: Tennessee Valley Energy Reform Coalition

DEIS Section: 1.4

Comments: ** I also want to express concern here that TVA has purchased 87 thousand tons of pollution credits for sulfur dioxide at a cost of about 9.7 million dollars.*

** The fact that TVA is buying these pollution credits indicates to me that they are looking at possibly finishing this as a fossil plant with high sulfur emissions and they may be trying to skirt the law by using these, banking these credits and using these credits again to the detriment of the regional air quality, human health, and economic tourism.*

Response: At the 1997 EPA Allowance Auction, TVA purchased 87,000 emission allowances for \$9.7 million as an investment and to replenish our emission allowance "Bank." The purchase was a prudent business practice since the price of allowances is rising and expected to continue to increase. TVA plans to continue to participate in the emission allowance market (buying and selling) as business conditions and deregulation dictate. Since 1992, TVA has purchased 122,000 allowances, but has not used them to offset TVA emissions. We have sold or contracted to sell 125,000 allowances through 1999. TVA currently complies and will continue to comply with the Clean Air Act Amendments of 1990.

Some of these allowances may be used to offset the SO₂ emissions from the different conversion options. Allowances under CAA have to be used in a manner such that the NAAQS are not violated. Thus, the use of these allowances will not be to the detriment of regional air quality, human health, and tourism.

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Comment ID: 116
Name: Alan Qualls
Affiliation:
DEIS Section: 1.4
Comments: *We need Bellefonte. We are going to need it pretty soon.*
Response: Comment noted.

Comment ID: 117
Name: Deon Smith
Affiliation:
DEIS Section: 1.4
Comments: *One of the things I did note about was you didn't use high pressure. If you want to convert that thing to burn fossil fuel, you might use the generator but you are going to change all the pipe, you are going to build a boiler, you have to change all the feed wire. It will probably be cheaper to build a new plant next door.*
Response: The use of fossil fuels will result in the generation of higher pressure and temperature steam than is normally produced in a light water pressurized reactor. In preliminary engineering studies, it has been determined that high pressure turbines and topping turbines would be needed to ensure highest efficiency. These systems will be incorporated into the plant design once a conversion option is selected. Much of the existing piping to and from the existing low pressure steam turbines could be used, but insulated high pressure lines from the HP turbines to the LP turbines would obviously be needed.

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These items will be included in cost estimates. Making judicious use of existing equipment where economically advantageous will result in a cost lower than the cost of a totally separate plant at the Bellefonte site.

Comment ID:	119
Name:	Cliff Griggs
Affiliation:	
DEIS Section:	1.4
Comments:	<i>If they are in that need of power, how come we haven't had any brown outs, how come we haven't had any of these contracts where we could cut some of these industries off. If there is a need for it, why haven't we had those things?</i>
Response:	TVA strives to provide its customers with reliable low cost power. "Brown outs" are symptomatic of system availability problems that TVA avoids. TVA has contracts with several industrial customers to allow interruptable power supplies during periods of especially heavy demand. These contracts provide tools for managing system load (i.e., shaving peaks) without affecting service to other customers. Such contracts are advantageous to large industrial users because they offer lower rates during normal operating circumstances.

Comment ID:	120
Name:	David Baker
Affiliation:	
DEIS Section:	1.4
Comments:	<i>Widows Creek has been brought up several times tonight and something that TVA has got to look at soon is doing away with Widows Creek. It's a very old, decrepit, polluting plant and it's maintenance is just out of hand. And if a new plant could be used to get rid of some of the old obsolete polluting plants, any option would be good.</i>
Response:	Comment noted.

Comment ID: 129

Name: Stephen Smith and Michelle Neal-Conlon

Affiliation: Tennessee Valley Energy Reform Coalition

DEIS Section: 1.4

Comments: *No-Action alternative*

The No-Action alternative in the draft EIS does not adequately address the financial implications of not doing anything to the mothballed Bellefonte plant. A period of longer than ten years needs to be explored in regards to writing-off the \$4.6 billion of non-power producing asset. The possibility of selling the facility to recoup some of the costs was not discussed.

TVA should not make an investment of this magnitude until some of the larger questions about competition and deregulation of the industry has been answered. Because of this very issue, TVA should not complete this plant at this time.

Response: We agree it is likely that a better decision could be made about the merits of using Bellefonte's assets if the larger questions about competition and deregulation of the utility industry were already answered. However, studying alternative uses of those assets now has value. Moreover, it may not be possible to defer making a decision until those larger questions are answered. TVA's Energy Vision 2020 integrated resource plan addressed the potential need for additional energy resources on the TVA system to meet future power demands. Making use of the Bellefonte assets was one of the recommendations in that plan. Future uncertainties were addressed and accounted for in the development of the Energy Vision 2020 plan.

The first part of this comment incorrectly assumes that the No-Action Alternative is selling the Bellefonte assets or canceling the project and writing down the undepreciated value. The No-Action Alternative is to continue to maintain the plant in deferred status as other options are explored, such as a nuclear partnership. See Response to Comment ID 252.

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Comment ID: 133

Name: Stephen Smith and Michelle Neal-Conlon

Affiliation: Tennessee Valley Energy Reform Coalition

DEIS Section: 1.4

Comments: *Conservation and Efficiency*
TVA should invest in conservation, efficiency, and renewables. Until this is accomplished, there is no justification for bringing additional base-load capacity on-line. In fact TVA does a poor job in this document on justifying why it needs additional base-load capacity in the Eastern part of its service territory. There should also be no additional generation acquired until TVA "shaves its peaks." After implementing proper use of Demand Side Management to "shave the peaks," there may be need for natural gas peaking. However, this cannot be determined until cost effective conservation is implemented.

Response: This EIS relies on and tiers from information contained in Energy Vision 2020, which provides a programmatic umbrella. Energy Vision 2020 identified the need for additional power, which was based on an analysis of the ability of TVA's existing power facilities to meet the projected electricity needs of its customers in the future. TVA created an extensive list of generating options to meet new peaking, intermediate, base-load, and storage power supply needs through the year 2020. These included traditional technologies (i.e., coal plants, combustion turbines), as well as potential renewable and advanced combustion facilities. In addition, TVA identified options that would give TVA greater flexibility in its planning. These included purchasing competitively priced power from other suppliers, buying options on future power delivery, and entering business partnering arrangements. Overall, TVA characterized over 100 supply-side resource options based on their performance, cost, and environmental impacts.

Energy Vision 2020 also considered the actions that end-use customers can take on their side of the electric meter to obtain energy efficiencies and improve their productivity and quality of life. TVA considered over 60 customer service options, which included traditional demand-side management (i.e., energy efficiency and load management), self-generation, beneficial electrification, and rate options. TVA has included the existing and emerging technology and electric rate options into a variety of program packages to meet the changing needs of its customers and the TVA power system.

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For further information, the reader is referred to Tennessee Valley Authority, Energy Vision 2020, Integrated Resource Plan Environmental Impact Statement, Volumes 1 and 2, TVA, December 21, 1995.

Comment ID: 251

Name: Stephen Smith

Affiliation: Tennessee Valley Energy Reform Coalition

DEIS Section: 1.4

Comments: *My concern is--and I participated in the Integrated Resource Plan as a member of the review group--is that TVA is yet to justify the need for this power, particularly base-load power.*

Response: Energy Vision 2020 projected a need for additional baseload capacity. TVA has confidence in its load forecasting which is updated periodically.

The flexibility of the portfolio of energy resource options developed in Energy Vision 2020 will allow TVA to respond to changing needs.

Comment ID: 252

Name: Stephen Smith

Affiliation: Tennessee Valley Energy Reform Coalition

DEIS Section: 1.4

Comments: *The need for the project inaccurately addressed costs for the project relative to the no-option alternative about how we could write it down over an extended period of time so it won't impact the rate base in such a profound way needs to be more adequately addressed so that the no-option alternative can be clearly and seriously considered instead of just one or two paragraphs in the proposal.*

Response: TVA's Energy Vision 2020 environmental impact statement (the IRP EIS) addressed the need or benefits of converting Bellefonte to another generating technology and contrasted potential conversion options to canceling the project entirely and writing down the undepreciated value of the project. IRP EIS Volume 2, Technical Document 8, contains a section on "TVA's Nuclear Options" that provides detailed information on the issue raised in this comment (T8.65-T8-79). It was determined that short-term rates would be approximately 45.0 mills/kWh if Bellefonte was converted to combined cycle or to integrated gasification combined cycle. In contrast, short-term rates associated with canceling the Bellefonte units would be approximately 45.5 mills/kWh (T8.74 Figure T8.66, T8.75). This information was derived from a report titled, "TVA's Nuclear Options, A Report on Bellefonte Units 1 and 2, Watts Bar Unit 2, and Browns Ferry Unit 1."

The commentor is correct that writing down Bellefonte over a longer period of time would lessen the potential impact on TVA's rates. TVA has written down other nuclear assets over an 11-year period and it has considered the possibility of using even longer periods to do this (T8.72). If TVA decided to cancel the project, it would certainly explore all feasible ways of lessening potential impacts on its rates base, including longer write down periods. However, the No-Action alternative is not canceling the project as this comment assumes. Rather, the No-Action alternative is to continue to maintain the plant in deferred status as other options are explored, such as a nuclear partnership.

Comment ID: 115

Name: Alan Qualls

Affiliation:

DEIS Section: 1.4.1

Comments: *We are going to require more power generation. I think the power demands right now is increasing at about 2-1/2 percent approximately per year and it's estimated in about the year 2,002 that the power generation from Bellefonte will be a necessity in order to keep supplying our people with the luxuries that we have today.*

Response: Comment noted.

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Comment ID: 84

Name: Michelle Neal-Conlon

Affiliation: Tennessee Valley Energy Reform Coalition

DEIS Section: 1.4.2

Comments: *Cost estimate development for TVA Integrated Resource Plan completing unit one has nuclear as 1.3 to 3.5 billion dollars; and for unit two, 9 to 2.4 billion dollars. A more recent study conducted by NUS Corporation in 1996 determined a completion cost of two Bellefonte units to be 2.88 billion dollars. Now, my confusion is what that addresses. There is mentioned that those statistics were relative to the nuclear option and it's not very clear to me on how any type of economic analysis is derived for some of the other options that's presented in this document.*

Response: Adequate information was presented in Energy Vision 2020 to support the initiation of conversion activities at Bellefonte. As stated in the DEIS in Section 1.2, TVA has embarked on a study of conversion options to identify which options offer the best investment opportunities and least financial risk. The results of that study will become available at about the same time that the FEIS is being finalized. A preliminary ranking of conversion options has been included in the FEIS as Section 2.2.7. The completion of that study and this EIS will allow TVA to make an investment decision based on the best and most timely economic, technical, and environmental information.

Comment ID: 139

Name: Dolores Howard

Affiliation:

DEIS Section: 1.4.2

Comments: *First: in making a judgement of cost vs. benefit, we must learn to distinguish between cost and true cost; benefit and real benefit, short term benefit and long term cost; and who benefits and who pays the cost! For example, if my company downsizes, and we produce more goods, faster, for less cost, make*

more sales because we can drop the price by a penny or two and still give the shareholders a great dividend, pay the CEO another six figure bonus, you might say that is a benefit, providing you are the shareholders, the CEO or the few who kept their jobs. But how will the ones who lost their jobs see this? And what benefit to the asthma patients, to the local health care system, and the environment if this increase means additional air and water pollution? What if some other area suffers strip mines and loss of their natural areas to supply the ore, coal or raw materials that this plant uses to produce more and more goods. How long will the resource last, is this the best use of a limited resource? What of the workers in the small business that go under because of the cheaper increased production of the now big and growing bigger company? And what happens now that more are dependent on this big company for jobs, if the environmental regulations are fewer or tax breaks are bigger in another area, a few years down the road and they pick up and move? All is connected, and all must be considered when doing a cost/benefit study!

We all know that we do not need the additional power here in this area, now or in the near future, so the benefit to the area is nil and the cost is very high. All existing environmental, cultural and recreational resources may potentially and in fact will probably be affected and the health of many. The coal mines to supply fuel, the additional barges to an already crowded waterway, the loss of the recreational potential of that area, the air and water pollution. If you want to avoid these impacts, do not complete any kind of power plant at the Bellefonte Site. Period. It is throwing good money after bad! I suppose this is an appropriate time to say "we told you so." The public gave the same dire predictions concerning the economics of the "nukes" and TVA ignored us then and now has this huge debt, mostly as we predicted, from the "nukes"...better listen this time! We have a much clearer vision, not clouded by delusions of giant utility empire building. We are telling you the truth...again!

Response:

The TVA Board will consider environmental, economic, technical feasibility information before deciding to proceed or not proceed with the proposed action versus an alternative course of action. Conversion cost information, available for release at this time, has been included in Section 2.2.7 of the Final EIS.

The environmental review results contained in the EIS were developed using standards and impact thresholds designed to protect sensitive human and environmental receptors such as asthma sufferers. The EIS concludes that any of the five conversion alternatives could be constructed at Bellefonte with modifications in control technology or fuel quality so as to meet all state and federal regulations governing the quality of the environment. The process of

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acquiring permits to construct and operate a fossil plant at this location is comprehensive and provides several opportunities for public review and input.

The construction of a power plant, either nuclear or fossil, would be permanent. Regulatory or economic incentives at other locations would not result in relocating these facilities. As noted in Section 4.2.12, Socioeconomics, any of the five conversion options create substantial new job opportunities for Jackson County residents during construction and operation.

Comment ID:	142
Name:	Dolores Howard
Affiliation:	
DEIS Section:	1.4.2
Comments:	<p><i>Now the final and very hard to solve problem: What to do with a \$4.6 billion dollar, yet worthless, old, incomplete power plant?</i></p> <p><i>First, and foremost, spend as little money as possible on this white elephant. I can recall how I cringed year after year as TVA handed out multi-million dollar maintenance contracts, feasibility studies as well as bonuses to themselves for such wise? decision making. If we have learned nothing else, we should know that the sooner you cut your losses from bad decisions, the better!</i></p>
Response:	<p>The existing equipment at Bellefonte is a substantial asset for TVA, which can be utilized thus reducing costs of a new facility. The overall strategy is to utilize as much of the existing equipment and infrastructure as practicable and to reduce liabilities.</p>

Comment ID:	149
Name:	James H. Lee
Affiliation:	United States Department of the Interior
DEIS Section:	2.0

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Comments: *In order to protect the resources of the park, the monument, and three refuges, the NPS can only support the "no action" alternative or the Natural Gas Combined Cycle alternative with greater than 1- to-1 NOx offsets, resulting in a net air quality benefit.*

Response: Comment noted.

Comment ID: 58

Name: Lynn Leach

Affiliation:

DEIS Section: 2.1

Comments: *I would like to see a no-option on the Bellefonte plant.*

Response: A No-Action alternative was described in Chapter 2. Conversion options were evaluated relative to the No-Action alternative.

Comment ID: 18

Name: Heinz J. Mueller

Affiliation: U.S. Environmental Protection Agency

DEIS Section: 2.2

Comments: *EPA Alternative Preference - As suggested above, EPA definitely prefers the NGCC option of the action options presented. The IGCC is the preferred coal option, but in light of the NGCC, would not be favored by EPA.*

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Response: TVA has selected Option 2; NGCC as the preferred conversion option for the FEIS. The FEIS has been modified to reflect this.

Comment ID: 138

Name: George G. Martin

Affiliation: U.S. Department of Agriculture

DEIS Section: 2.2

Comments: *Comment on Alternative Development*
Given the magnitude of the potential emissions from the proposed project, we were surprised not to find at least one alternative that utilized a "very clean" level of technology. All of the options seemed to have high emission rates, particularly for NOx. For NOx emissions, the cleanest option was NG (combined cycle natural gas combustion turbine with heat recovery). This alternative calls for nine 245 MW units, each turning out an exhaust containing 50 ppm of NOx. In contrast to this, our review of a similar proposal in the southeast U.S. (250 MW combined cycle natural gas combustion turbine with heat recovery) found an applicant proposing to use a combustion technology that would produce an exhaust containing only 9 ppm of NOx. This seems to indicate that an 80% reduction in NOx emissions is achievable (without tailgas treatment) if there is a will among the ratepayers in your service area to bear the costs of the technology and reduced generating efficiency.

We understand that the Bellefonte project proposes to employ whatever air pollution mitigation is necessary to meet regulatory requirements. However, in an environment where there is clear evidence of natural resource impairment from air pollution, we feel that the project analysis should include at least one alternative that fully examines the costs and benefits of a "very clean" technology. We recommend that such an alternative be included in preparing the Final EIS for Bellefonte.

Response: An underlying objective of the EIS was to consider a broad range of conversion options which involved the use of fossil fuel. This approach allows the use of cleaner fuels or technologies, which of course would result in fewer environmental impacts. The EIS addressed the impacts of five basic

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technology configurations and seven variant configurations involving different fuels and/or operating modes. Given the purpose of the action to convert Bellefonte to a fossil-based plant, the EIS has covered a reasonable range of alternatives.

The concentrations of air pollutants evaluated for options were conservatively derived and encompass the characteristics and performance of much of the power generating equipment commercially available in today's marketplace. Concentrations of NO_x in combustion turbine exhaust are dependent on burner design, operating efficiencies, type of control system, and fuel type. For example, typical uncontrolled NO_x emissions are in the range of 90 to 500 ppm for natural gas and 150 to 700 ppm for distillate fuel and synthesis gas. Design improvements, such as water injection, can reduce these concentrations to 25 to 42 ppm and 42 to 75 ppm for gas and oil/synthesis gas, respectively. Other controls are available for reducing these concentrations even further.

TVA wishes to have flexibility in its operations at Bellefonte and therefore based impact evaluations on an "envelope" of emissions that would allow the use of a wide range of operating conditions and fuel combinations. A nominal NO_x concentration of 50 ppm was selected for all options. This is less than half the emissions "ceiling" set by New Source Performance Standards for combustion turbines. NO_x emissions from newly constructed turbines could be no higher than about 100 ppm (depending on unit efficiency), thus establishing the starting point for determining the appropriate type of control technology. Although the BACT review is "top-down" procedurally (i.e, best controls must be considered first, proceeding to less effective controls only if better controls are technically or economically burdensome), no controls that fail to reduce emissions to 100 ppm would be acceptable.

It is the purpose of the Best Available Control Technology evaluation, required to obtain Prevention of Significant Deterioration air permit from the Alabama Department Environmental Management to initiate construction, to determine the best control considering cost effectiveness and technology constraints. The BACT evaluation will be completed after a conversion option has been selected and will assess the suitability of the full range of available turbine designs, operating scenarios, and tail gas treatment systems available for minimizing NO_x emissions.

Comment ID: 143

Name: Dolores Howard

Affiliation:

DEIS Section: 2.2.1

Comments: *This does seem like the perfect place to do research and development to solve some of the future power production, energy efficiency, problems. Convert it to a center (a Demand Side Management Center) to teach residential and industrial customers and retailers about energy efficiency and conservation. Include a demonstration area of low-cost, low-tech as well as high-tech ways to reduce the use of power. Even large industrial customers can use this kind of information. The folks at Muscle Shoals seem to be doing well, let them help design a program, low key, low budget at first. Take the money you would spend on capital investment for a fossil plant and apply it to the debt. The interest you could save would quickly offset the investment. Stop your stupid say-nothing TV ads (I can hardly tell TVA ads from the Champion Paper Lies!) and start doing real informational ads, about raising rates and reducing the customers bills through efficiency and conservation. It's the way of the future, some pretty big utilities are doing it and quite well in California and New England. Or if all else fails a huge recreational area featuring "cooling tower tours!" Anything is better than more of the same wasteful practices for a power plant we do not need.*

Response: After a comprehensive review, TVA concluded in Energy Vision 2020 that additional capacity would be needed at the current rate of demand growth in the industrial and residential sectors. TVA would not be responsive to nor mindful of its customers needs if this capacity demand was ignored. Even the most optimistic projections of the electricity demand offsets resulting from increased system efficiency and conservation efforts would not substantially change TVA's capacity needs. We appreciate the stated support of TVA's ongoing research programs, many of which are in cooperation with its distributors, to continually seek ways to improve efficiency of electricity delivery and use.

Comment ID: 13

Name: Heinz J. Mueller

Affiliation: U.S. Environmental Protection Agency

DEIS Section: 2.2.2

Comments: *PC - The PC option would utilize the most existing hardware and require a relatively low amount of additional hardware, utilize plentiful domestic coal supplies, would not use or need to store fuel oil on site, and would generate marketable by-products such as gypsum. However, it notably failed initial PSD Class I increment modeling for SOx and also would need large amounts of coal (24,974 tons/day), would require coal storage and coal, is the noisiest option, and would have the most visible plume. It would also require dredging with wetland losses at the docking terminal to accommodate coal barges. Unless SOx emissions are reduced (through use of low-sulfur coal and/or more efficient tail-gas sulfur removal equipment: pg. 4-21) and pass PSD review, this option would not be acceptable environmentally. Even if modified to pass PSD modelling, it may be noted that this option would cumulatively contribute to the permitted emissions of the many other coal plants in the Tennessee Valley.*

Response: Comment noted.

Comment ID: 56

Name: Tom Eldredge

Affiliation: Lehigh University

DEIS Section: 2.2.2

Comments: *Mr. Eldredge wanted to know if we were planning "a flue gas scrubber system without reheat."*

He stated that without doing any calculations, he believed that the proper placement of a heat source inside the natural draft cooling tower would be beneficial. The draft is affected by the buoyancy of the air. The heat source would decrease the density of the air and increase the draft which would improve the cooling tower efficiency.

Response: The EIS has been prepared to cover likely scenarios involving use of coal and/or natural gas at Bellefonte, but detailed engineering has not been performed for any of the options. It is unlikely that this technology is considered commercially ready at this point.

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Comment ID: 109

Name: Michelle Neal-Conlon

Affiliation: Tennessee Valley Energy Reform Coalition

DEIS Section: 2.2.2

Comments: *The other thing is I am very confused as to how committed TVA would be to a natural gas combined cycle option. If you look at this document, all of the other options that are presented, there are time lines given when construction activity would begin. If you look at the natural gas combined cycle option, there are no time lines, none whatsoever.*

Response: A graphic depicting work force population for the NGCC option can be found in Section 2.2.3; Construction and Operation of Natural Gas Combined Cycle Units. The formatting and location of this graphic is consistent with the other 4 options.

Comment ID: 118

Name: Deon Smith

Affiliation:

DEIS Section: 2.2.2

Comments: *When you get it finished, you are going to burn a thousand tons of coal an hour. If you go to Huntsville in the morning, you see that train from Widows Creek. From a practical standpoint, I don't necessarily want to burn a thousand tons of coal an hour but I would sure like to see that plant operated.*

Response: Comment noted.

Comment ID: 14

Name: Heinz J. Mueller

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Affiliation: U.S. Environmental Protection Agency

DEIS Section: 2.2.3

Comments: *NGCC - The NGCC option appears to be the "cleanest" option in terms of emissions. Also, there would be no need for dredging since there would be no coal barges, considerable existing hardware would be utilized, the least amount of new hardware would be needed for conversion, and the least amount of operational noise would be generated. There also would be no storage of chemical by- or co-products on site, although a large volume of backup fuel oil would be stored on site. However, this option would require a natural gas pipeline source with pipeline connection to the site with access to the plant which could induce secondary development impacts (also see "Pipeline Corridors" below). This option appears to be the overall best environmentally.*

Response: Comment noted.

Comment ID: 48

Name: Allan Stewart

Affiliation: PIRA Energy Group

DEIS Section: 2.2.3

Comments: *After reviewing the DEIS statement, I frankly cannot understand why the NGCC option seems so inefficient. I found a reference in the report of new units having efficiencies eclipsing 55%. Is the gas option using convention natural gas (i.e., containing close to 1,000 Btu/scf)? Is the site at high elevation? All the analysis will unduly penalize the natural gas option unless you use a reasonable heat rate (~7,000 btu/kwh (ISO/HHV)). The new "H" series turbines are supposed to have heat rates under 6,000 btu/kwh, and lower installed costs than the "F" type or "G" type units.*

Response: The DEIS refers to a variety of types of combined cycle combustion turbine operations including conventional combustion turbines with 47-51% lower heating value (LHV) efficiencies and G/H technology combustion turbines with 56 - 60% LHV efficiencies. The DEIS states on page 11, and again on page 2-24, that advanced combined cycles yield plant efficiencies greater than

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55%. The average combined cycle LHV efficiencies are shown on page 2-64 as 49%, 53.5%, and 58% for Conventional, "F," and "G/H" combustion turbine technologies, respectively. This data is consistent with published combustion turbine information and with engineering studies made on TVA's behalf.

The natural gas option does use conventional natural gas with a nominal heating value of 1,000 Btu/scf.

The design basis site elevation for Bellefonte is 192 meters (630 feet) above sea level which will derate the performance by less than 2% of the ISO performance, although this is not taken into consideration in the statement in question.

The analyses for the natural gas based combined cycle performance will use a reasonable heat rate. The use of the existing Bellefonte steam turbine(s) would derate the overall plant heat rate slightly because the existing steam turbine will be less efficient than a steam turbine designed specifically for the combined cycle operation. The LHV heat rates calculated from the data used in Table 2.3-9 on page 2-64 range from 5,900 to 7,000 Btu/kWh. These LHV values would be roughly equivalent to 6,500 to 7,700 Btu (HHV)/kWh.

We are aware that the "H" series turbines are reported to have LHV heat rates under 6,000 Btu/kWh and the lowest installed costs for combined cycle available. If the choice to use combined cycle technology at Bellefonte were made, then the ultimate selection of the combined cycle system would be greatly influenced by vendor proposals with price quotes, guaranteed performance, risk mitigation, and schedules for commercial delivery. The DEIS, however, is written to discuss the potential environmental consequences of each option, and must conservatively address the performance of each option.

Comment ID: 15
Name: Heinz J. Mueller
Affiliation: U.S. Environmental Protection Agency
DEIS Section: 2.2.4

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Comments: *IGCC - The IGCC, however, does have notable PM10 emissions compared to other options, requires large coal use (24,000 tons/day) and on-site storage, requires on-site storage of fuel oil for start-up, requires the greatest amount of intake water, results in wetland losses due to dredging for a coal barge terminal, involves flare stack operation, has considerable pollutants associated with its final waste water discharge, has a large discharge volume, has modeled selenium (selenite) discharges that exceed EPA's aquatic life criteria, and needs considerable new hardware (including a large gasifier) for conversion. Compared to the PC option, however, the IGCC option is considered a relatively "clean" form of coal combustion and therefore would be the preferred coal option. Nevertheless, in light of the NGCC option, the IGCC option would not be favored by EPA.*

Response: Comment noted.

Comment ID: 16

Name: Heinz J. Mueller

Affiliation: U.S. Environmental Protection Agency

DEIS Section: 2.2.5

Comments: *IGCC/C - As an IGCC, the IGCC/C option has the same qualities and drawbacks of the IGCC discussed above. In addition, however, it also has various pollutants associated with chemical co-production and on-site storage. It would also involve considerable construction for conversion, but would produce comparatively little power (450 MW) relative to the other conversion options. As such, it could involve secondary impacts since other forms of power generation would presumably be needed to make up the almost 2,000 MW difference (between the Bellefonte nuclear vs. IGCC/C design capacities) to help provide the reported TVA-projected capacity needs of 16,600 MW by 2020. Overall, this option would not be favored by EPA because it would not seem to satisfy the stated power needs and therefore presumably require other additional power production (and their associated impacts) elsewhere.*

Response: In addition to plans to convert Bellefonte, other supply-side actions included in the short-term action plan are (1) purchase call options - up to 3000 MW, (2) hydro modernization projects - 150 MW, (3) use of renewables - no estimate of MW, and (4) planning for future consideration of advanced turbine systems

and energy storage technologies.

The IGCC/C option would not fully convert the existing facilities at Bellefonte to electricity production. The purposes of converting Bellefonte are to make use of assets already constructed at the site, and to deliver power to its customers at the lowest cost commensurate with other corporate goals and obligations. As noted above, Energy Vision 2020 identified a mix of options for expanding capacity to a production level of 16,500 MW by 2020. Energy Vision 2020 committed to further evaluation and planning of each alternative to ensure they were economically attractive and involved low risk to TVA and its customers before implementation.

The IGCC/C option, because of the associated revenue stream provided by the marketing of chemicals produced from synthesis gas, appears to offer high potential for delivering electricity at a price much lower than many conventional fossil fuel powered systems. The IGCC/C option also meets the test of flexibility in its ability to adapt to uncertain load growth, future market conditions, and changes in environmental regulations. While this option does not fully utilize all of the current assets at Bellefonte, it does not preclude the future consideration of additional power production at the site (not under consideration at this time).

Comment ID:	17
Name:	Heinz J. Mueller
Affiliation:	U.S. Environmental Protection Agency
DEIS Section:	2.2.6
Comments:	<i>Combination - ...most flexible since various forms of energy could be used and both power and coproducts would be produced and would still satisfy the power production need. This option would involve the most conversion (coproduce chemicals) and associated construction impacts. Since natural gas is one of the fuels, secondary impacts of a gas pipeline connection would also be required. Since an IGCC/C is also one of the technologies of the options, the above impacts associated with this option would also be relevant. The Combination option would not be favored by EPA since it involves the greatest amount of conversion construction and generate both power plant and chemical co-production impacts. TVA power need projections suggest that power as opposed to coproduction would seem to be a facility priority.</i>

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Response: The most recent projections do show a need for baseload power, although peak power is also needed. Coproduction would allow TVA to deliver this power to its customers at the lowest cost. Thus, while coproduction may not be a direct facility priority, the market demand for coproduct chemicals would allow TVA to deliver power at the lowest cost.

Comment ID: 97

Name: Stephen Smith

Affiliation: Tennessee Valley Energy Reform Coalition

DEIS Section: 2.3

Comments: *I don't think they have adequately addressed the environmental implications of potentially running a natural gas pipe line down. We would like to see some more development in that.*

Response: Given the early stages of planning a pipeline for supplying the needs of the conversion options requiring natural gas, precise routes were not yet developed. In order to assess the environmental impacts of this potentially connected action, three pipeline corridors were identified and impacts evaluated in Section 4.3. New information pertaining to the indirect effects of this action has been added to Section 4.4.

New supplies of natural gas would likely lead to secondary development. Language has been added to the EIS to acknowledge possible impacts due to secondary development induced by the expanded availability of natural gas. New information has been added to Section 4.4, Indirect and Cumulative Effects to qualitatively acknowledge such impacts. As discussed in Section 2.3.1, impacts would be addressed by a subsequent NEPA review by the Federal Energy Regulatory Commission once a conversion option involving natural gas has been selected and specific routes have been identified.

Comment ID: 20

Name: Heinz J. Mueller

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Responses to Public Comments

Affiliation: U.S. Environmental Protection Agency

DEIS Section: 2.3.1

Comments: pg. 2-45. 4-160. ...potential natural gas pipeline corridors...EPA preliminarily prefers Corridor "C" (and possibly "B").

Response: Comment noted.

Comment ID: 47

Name: Paul E. Pratt

Affiliation: Williams Energy Group

DEIS Section: 2.3.1

Comments: *TVA's position on the likely three corridors and subsequent statement that "more specific pipeline routes would be identified for environmental review" raises a question of clarification. Having identified "three likely corridors," would any subsequent, more specific pipeline route be required to be located within one of the "three likely corridors?" While, the DEIS implies that the routing of a potential pipeline would not necessarily be limited to the "three likely corridors" and that in any case further environmental review would be required for a specific pipeline routing, it would be short sighted for TVA to assume that all viable proposed routings would be located within "three likely routes," particularly in the absence of a pipeline proposal process or other significant input from the energy industry. Other economically and environmentally viable pipeline corridors may well exist to fuel the Bellefonte plant.*

Response: The natural gas supply analysis provided in the EIS was not intended to constrain future gas pipeline routes to the confines of the three corridors studied. It is TVA's policy to maintain flexibility with respect to the acquisition of any future of natural gas supplies for Bellefonte in seeking least-cost, long-term fuel supplies. EIS describes impacts and mitigation measures associated with the construction and operation of pipelines along three

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feasible routes on the basis of information currently available to TVA. A site specific environmental review would be conducted by any agency proposing to construct a new pipeline (also required by the Federal Energy Regulatory Commission (FERC) certification process) when and if a new pipeline is planned.

Comment ID: 121

Name: Heinz J. Mueller

Affiliation: U.S. Environmental Protection Agency

DEIS Section: 2.3.1

Comments: *PIPELINE CORRIDORS - Interconnection with a nearby natural gas pipeline is apparently not available at this time and pipeline corridors for a new pipeline from potential nearby sources are undecided. However, we much appreciate that the DEIS considers three potential corridor routes (A, B, C) for a new pipeline to the site as well as some preliminary impacts of this potential action. Two of these originate from larger cities (Corridor "B" from Chattanooga, TN and Corridor "A" from Huntsville, AL), and the third (Corridor "C") from the east. EPA considers such a pipeline a connected action to the NGCC and the Combination options (the NGCC option could in fact not operate without a natural gas source). We agree, however, that such a new pipeline would be under the NEPA responsibility of the Federal Energy Regulatory Commission (FERC); however, there would also need to be a pipeline access interconnection from the potential new pipeline to the plant which would be under the NEPA responsibility of TVA.*

Construction of the potential pipeline would not only have direct impacts associated with its construction and operation, it could also potentially induce secondary impacts such as providing a natural gas supply for additional development in the area. Development is often associated with various forms of pollution such as air and water pollution, soil erosion, wetland loss, habitat loss, biodiversity loss, etc.

We appreciate that additional information was provided for the connected pipeline action. We note that generic impacts and mitigative measures were documented and that actual preliminary impacts of the three potential corridors were included. Considering EPA's wetland mandate, we particularly note from Table 4.3.2-1 (pg. 4-167) that Corridor A would have

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"high" wetland impacts, B with "medium" impacts, and C with "low" impacts. Based on this table, it appears that Corridor "B" might provide the least overall impact since it includes no high-rated impact potential categories and low-or-medium-rated impacts for wetlands, urban development, lack of common ROW, surface water, endangered species, etc. Corridor C also appears reasonable since it includes low-or-medium-rated impact potential for wetlands, surface water, endangered species, cultural resources, etc. but has high urban development and lack of common ROW and would cross steep terrain. Corridor A appears to have the highest overall impact potential. Should the need for a pipeline eventuate, FERC would need to further investigate these and/or other corridors and alignments within these corridors. Impact categories additional to those on Table 4.3.2-1 would include environmental justice considerations within the "urban areas" category.

We note that Table 5 (pg. 23) assigns a temporary "light" negative impact level ("T-") to wetland impacts for the pipeline. It is unclear if this was intended for all three corridors since their impact potentials range from low to high. The FEIS should clarify. Since pipelines placed in forested wetlands would destroy the functional value of such wetlands and therefore be more significant than if placed in herbaceous wetlands, the FEIS should also preliminarily estimate the ratio (or approximate acreages) between forested versus herbaceous wetlands along each corridor.

Response:

TVA agrees that clarification is required. The FEIS has been revised to emphasize that the Table 5 and Table 6 impact summaries are for comparisons between and among the various options relative to each other. These are not for purposes of determining impact significance under NEPA. This is treated in Section 4 of the EIS. As to the pipeline wetland impacts, it was assumed for purposes of developing these tables that a corridor and specific alignment would be developed so as to avoid forested wetlands and that wetland restoration techniques following construction would fully mitigate impacts to herbaceous wetlands. Actual impacts will be evaluated in the environmental analysis required by the Federal Energy Regulatory Commission (FERC) for any new pipeline that is proposed in the future.

Comment ID: 96

Name: Stephen Smith

Affiliation: Tennessee Valley Energy Reform Coalition

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DEIS Section: 2.3.3

Comments: *...our organization would be interested in seeing more development and fleshing out of economics involved with possibly exploring some of the "G and H" type of high efficient combined cycles combustion turbines that could possibly be located at Bellefonte.*

If they were to adequately shave the peak and still found the need to look at peaking units, the only options that we think should be seriously considered are the "G and H" advanced combined cycle combustion turbines.

Response: Equipment specific decisions will be based on the most recent information about cost, performance, and technology risk.

Comment ID: 141

Name: Dolores Howard

Affiliation:

DEIS Section: 2.3.4

Comments: *We prepare for the future energy needs with a new vision, by searching for a perfecting alternative, safe, sustainable energy sources, efficiency technology, and rewarding customer conservation and efficiency. The present method is a dead end, creating ever more demand is unsustainable, and undesirable. The new vision solves old problems and tries to avoid the pitfalls of only considering the benefit of the short-term and the few. We can create as many jobs in research and development, and have more customers for the new technology, than we can ever create and sustain by increasing demand for power and supplying it with more and more of the same old dead end technology and spending debt dollars on pollution credits.*

Response: As identified in Energy Vision 2020, renewable technologies have not been developed for commercial use that would be available in time meeting the project power demands of TVA's customers. Further, the purpose of this project is to convert the Bellefonte assets to a fossil-based plant as a supply-side option.

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Comment ID: 19

Name: Heinz J. Mueller

Affiliation: U.S. Environmental Protection Agency

DEIS Section: 2.3.4

Comments: *In addition, fractional use of biomass fuel with any selected option would also be environmentally favorable since it would reduce landfill wastes, assuming air emissions can be controlled within standards. A consistent biomass source may be difficult to obtain, delivery of non-recyclable, combustible domestic trash from various nearby cities and agricultural wastes/harvests from nearby sites may in time become reliable with proper management. Biomass could perhaps also serve as a standby fuel source for peaking power.*

Response: Comment noted. TVA will continue to evaluate biomass fuels for power production in future projects. At this time, supplies of this fuel in the vicinity of Bellefonte are not sufficient to support its use in connection with a fossil conversion strategy.

Comment ID: 111

Name: Michelle Neal-Conlon

Affiliation: Tennessee Valley Energy Reform Coalition

DEIS Section: 2.3.4

Comments: *There are technologies out there. Solar power is a very viable technology. In fact, a utility in Sacramento moth-balled one of their nuclear power plants and converted it to a solar power plant. There is no reason those type of activities cannot be drawn into economic development initiative not only for TVA but also for the individuals that live and reside here in Scottsboro. And again, TVA has done a very inadequate job at looking at those technologies.*

Response: As identified in Energy Vision 2020, renewable technologies have not been developed for commercial use that would be available in time for meeting the projected power demands of TVA's customers.

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Comment ID: 135

Name: George G. Martin

Affiliation: U.S. Department of Agriculture

DEIS Section: 2.3.7

Comments: *One variation of the IG technology adds an integral chemical manufacturing plant with several potential product lines. The specific effects of each of these product lines was not described, however. In addition, there is the "no action" alternative which would maintain the current situation -- continuing facility maintenance with no foreseeable product or revenue.*

Response: The EIS discusses and describes impacts for representative chemical products. In general, impacts analyses focused on the chemical presenting the greatest environmental or health threat under conservative but realistic conditions, thereby providing a bounding estimate of impacts for the other chemicals. For example, ammonia was chosen for the analysis of acute effects of storage tank rupture since ammonia's toxic endpoint was lowest and ammonia is most volatile of the candidate chemicals. To evaluate the effects of tank explosions, methyl tert butyl ether was chosen because its heat of combustion was highest of the candidate chemicals. It should be noted that chemical emissions from process vents during normal operation would be captured and either recycled or treated to prevent their release to the environment. Environmental impacts would therefore be negligible during normal operation.

Comment ID: 54

Name: Randy Eminger and John Paul

Affiliation: The Center for Energy & Economic Development

DEIS Section: 2.4.2.6

Comments: *Surface water quality impacts are over-rated. The surface water quality impact of the PC coal was rated as an important permanent negative. This rating was given based upon potential discharges from coal pile runoff and gypsum/fly ash disposal. These discharges are subject to strict permit limits on the types of controls which need to be installed and the effluent quality.*

These permit limits are designed to protect the surface water quality for all its uses and assure there are no adverse environmental impacts. Therefore placing an important negative rating disregards these important permit safeguards that will be imposed by the state and EPA. The rating infers a potential for an adverse impact that is highly unlikely.

Response: The five options are compared to the No-Action Alternative and the degree of impacts are expressed only relative to the No-Action Alternative. As stated in the write up under Surface Water: "Waste water generated as a result of power production and operations would be treated to the level needed to meet these limits before discharge. While no problems are expected in the removal of pollutants to the levels required to comply with regulations, the potential for threat to the environment is greater for the larger and more diverse solid and liquid waste streams, such as those commonly associated with PC plants."

Comment ID: 55

Name: Randy Eminger and John Paul

Affiliation: The Center for Energy & Economic Development

DEIS Section: 2.4.2.10

Comments: *Aquatic ecology impacts are over-rated: The aquatic ecology impacts for the coal-based alternatives were given a modest permanent negative rating based upon the potential impact of raw material spills and wastewater discharges. This rating disregards the safeguard controls that will be required to protect against these impacts. The rating infers a potential for an adverse impact that is highly unlikely.*

Response: The modest permanent negative ratings assigned to various coal-based alternatives are expressed only relative to the five options (See Table 2.4-2 and associated Note). These ratings differentiate degrees of impacts among the action alternatives as compared to the No-Action Alternative. TVA believes these ratings are appropriate because they include impacts associated with aquatic habitat disruption caused by barge activities in the area of the barge unloading facility and impacts caused by withdrawal of river water and associated entrainment and impingement of aquatic life, in addition to potential impacts of raw material spills and wastewater discharges, as is discussed in Section 2.4.2.10. The ratings reflect the safeguard controls that will be used to protect against spills and discharge-associated impacts.

Comment ID:	52
Name:	Randy Eminger and John Paul
Affiliation:	The Center for Energy & Economic Development
DEIS Section:	2.4.2.15
Comments:	<p><i>Bellefonte project aesthetics and recreation impacts are over-rated: On the summary table 2.4-2 (pg. 2-101) of the operational impacts of the proposed resource alternatives, the aesthetics and recreational impacts of the coal-based alternatives were rated as an important permanent negative. This rating was given because of the additional barge and truck traffic associated with raw material transport. The rating overstates the project's true impact which should more likely be rated as neutral. Commercial barge traffic has always been an important part of river traffic throughout the US and provided the needed financial support to maintain the river system. The Tennessee River traffic is not running at or near its capacity. The recreational boaters will not be inconvenienced since they likely have several alternatives other than entering the lake through the locks. The EIS should identify the base traffic volume and measure the increased volume associated with the Bellefonte project as a percentage of base traffic and river capacity. It could also provide additional perspective by comparing traffic and congestion at the Gunter'sville Lock to other river lock operations.</i></p> <p><i>The visual impact of additional structures onsite are also neutral. A building or structure should not automatically be assumed as having a negative impact unless it impairs a unique vista that must be protected. The area does not have an unusual vista. Nor does the site have a historic vista of a battlefield or famous geological structure (e.g. Grand Canyon) that attracts visitors to the area. Have local residents complained that additional structures would create a negative impact?</i></p>
Response:	<p>Your comments about the over-rating of aesthetics and recreation impacts are noted. The additional barging of fuel to this site will be noticeable to all lock users and place increased pressure on lock usage. These impacts were described in Section 4.2.13, along with estimates of current and projected lock usage at Gunter'sville and the four downstream locks. Recreational users wishing to pass through the locks will experience periodic delays (the length of delay varies by lock) as a result of the additional barge use. The measure of</p>

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utilization capacity, i.e, the percentage of time which the lock is in use relative to the total time it is available for use, was used to estimate impacts for the five conversion options and to compare projected use with a typical year (1995).

While there are no unique vistas that would be affected by the construction of additional and in some cases, higher structures, TVA believes that the changes associated with the conversion options will be perceived negatively by residents who live nearby and by boaters or recreation users on the river and area roadways.

Comment ID: 148

Name: James H. Lee

Affiliation: United States Department of the Interior

DEIS Section: 3.1

Comments: *In the Affected Environment discussion, consideration should be given to selling or giving away the wood for residential burning as an alternative to open burning. Also, the use of low solvent paints and alternative cleaning solvents should be considered.*

Response: Comment noted. As stated in Section 4.2.5.2, TVA would adopt a hazardous waste minimization policy for the proposed facility which would provide for the substitution of nonhazardous for hazardous materials where feasible.

Comment ID: 137

Name: George G. Martin

Affiliation: U.S. Department of Agriculture

DEIS Section: 3.1.1

Comments: *ITEM 1 -*

Our interest in this proposal arises from its proximity to the Cohutta Wilderness and/or the likelihood that it may have negative impacts on its

wilderness values. Cohutta Wilderness is a Class I area under the PSD provisions of the Clean Air Act. The wilderness resource and aesthetic values of Cohutta that are related to air quality can be grouped into three categories: visibility, aquatic habitats and vegetation. In consideration of these values, we are submitting comments regarding some issues related to: mitigation of predicted adverse impacts, description of the affected environment, atmospheric dispersion modeling and development of alternatives.

Mitigation of Predicted Adverse Impacts

The DEIS discusses several instances where computer modeling of dispersion of the atmospheric pollutants did predict adverse impacts on Cohutta Wilderness. All of the alternatives, except "no action," would impair visibility through creation of visible plumes from time to time. Several other alternatives would have trouble staying within the PSD sulfur increment, both for Class I Areas (Cohutta) and for Class II areas. In most of these cases, the problem was dismissed by assuming: a) The problem would shrink to insignificance when the predictions are redone via the more refined (and less conservative) models required in subsequent air permitting process; and/or b) The problem can be resolved by upgrading the pollution control/combustion technology associated with the alternative.

While it's true that the predicted air pollution problems may be resolved via refined modeling, technological upgrades, purchase of emission offsets or other techniques, there is no guarantee. Some aspects of refined modeling protocols tend to uncover a more difficult situation than originally thought. Also, technological upgrades and emission offsets can be very expensive -- to the point of making mitigation of impacts financially unfeasible.

The Final EIS should discuss the unproven assumptions contained within each alternative and disclose the course of action in the event that the assumption does not hold up.

ITEM 2 -

Description of Affected Environment

The DEIS's conclusion that ambient air quality in the vicinity of the project "is generally good" is based on the fact that data from a nearby monitoring station shows no exceedance of, and very few encroachments on, the National Ambient Air Quality Standards (NAAQS). We don't dispute this conclusion. However, as most of the content of NAAQS is aimed at protecting human health, there is less assurance that they provide adequate protection regarding environmental and natural resource concerns. Indeed, there is evidence that natural resources in the project area are being impaired by air pollution.

The Southern Appalachian Assessment (SAA): Atmospheric Technical Report (SAMAB, 1996) documents that average visibility at Cohutta Wilderness is less than half of the natural value due to the impact of regional haze. The Bellefonte DEIS reports that the current median standard visual range (SVR) at Cohutta is 65 km. While this is true, it should be noted that the natural median SVR is estimated at 155 km. This situation is common throughout the southeast United States and is due, in large part, to nitrogen and sulfur emissions from a variety of sources including electric power generating plants.

That same Technical Report describes the impact of tropospheric ozone on forest and wildland vegetation in the southern Appalachian mountain area. Cohutta Wilderness, and much of the impact area east of the Bellefonte project, is in a zone showing the highest potential for vegetation damage from ozone. Ozone is a secondary air pollutant which derives, in part, from nitrogen emissions. The project would be a large source of nitrogen emissions. Further, ozone is the only one of the NAAQS parameters monitored near the proposed project that showed encroachment on the standard.

Last, information contained in the SAA Aquatic Technical Report and the SAA Atmospheric Technical Report identifies a concern regarding the impact that acid deposition (sulfur & nitrogen) is having on native trout populations in the Cohutta Wilderness and other parts of the SAA area. The Southern Appalachian Assessment compiled a wealth of information regarding the status and trends of natural resources in the Bellefonte project area. We recommend that the DEIS authors review this information and provide relevant summaries in the Final EIS to give a more complete picture of the affected environment in the project area.

ITEM 3 -

Atmospheric Dispersion Modeling

It is acknowledged that the ISC3 and RTDM models may be inappropriate for estimating impacts at distances beyond 50 km from the pollution source. It's further stated that the information gained from using these models to assess impacts at the distant Class I areas is not conclusive. We suggest that such modeling be done according to the Level 2 guidelines of the Interagency Workgroup on Air Quality Models (IWAQM). These protocols are more appropriate than the standard Gaussian dispersion models for work at these longer distances.

An interpretation of the charts provided in Figure 4.2.1-1, "Dispersion Modeling Results," suggests that the model runs were done with the

assumption that the Bellefonte alternatives were the sole source of emissions in/near the impact area. This assumption might be OK for assessment of project impact on NAAQS attainment and Class II area increment consumption, where the greatest impacts lie very close to the source. Such assumption is inappropriate, however, for assessment of increment consumption at the distant Class I areas. All major NOx, SOx and PM sources near the Class I Area are deemed to "consume" increment. These sources will have to be added in future model runs to fully assess how much of the Class I area increment will have been consumed. A review of the maps provided in the SAA Atmospheric Technical Report will show that there are many increment consuming sources of SOx, NOx and PM within the Bellefonte - Cohutta impact area. If increment consumption already appears to be a problem, inclusion of those additional sources can only further diminish hope that the problem will go away.

We understand that running the dispersion models, for all the Bellefonte alternatives, with the appropriate refinements would be a costly proposition. It would be helpful if such analyses were done for the most onerous alternative. In absence of this, however, we recommend that the Final EIS acknowledge that these obstacles lie in the path of the project and disclose the course of action to be followed if these obstacles cannot be overcome.

Response:

ITEM 1

The conservative screening models used to support the Bellefonte EIS were used to bound a set of conditions for each of the options that would allow TVA decisionmakers flexibility in selecting fuels, equipment, and BACT. Clearly, some options, as configured, are not as environmentally acceptable—from an air quality perspective—while others, such as the preferred NGCC option, appear considerably more benign. Nevertheless, the Class I air quality impacts of the selected alternative will be addressed in much greater detail as part of the PSD air permit application process.

ITEM 2

Supplementary information concerning the potential Bellefonte air quality impacts on the natural resources has been added in the Cumulative Impacts of Proposed Action on Air Quality (Section 4.4.2.1). Since each of the proposed Bellefonte alternatives will impact AQRVs, we have included an evaluation of the possible role of emissions on visibility impairment, as well as on soils and stream acidification and injury to vegetation.

This analysis includes information synthesized from the Southern Appalachian Assessment Technical Reports as well as other references. Nitrogen and sulfur emissions that impact AQRVs come from a number of different sources including power generation, mobile sources, residential wood burning, livestock waste management, etc. A discussion of cumulative source impacts of the proposed Bellefonte alternatives on AQRVs has been added in order to give a more complete picture of the affected environment.

ITEM 3

Standard Gaussian models such as ISC3 and RTDM are not well suited for estimating air quality impacts at distances beyond 50 km and that the modeling guideline recommendations developed by the Interagency Workgroup on Air Quality Models (IWAQM) for estimating air quality impacts on distant Class I areas represent a considerable improvement over the standard models for performing such analyses.

The modeling of the Bellefonte conversion options was performed on a limited set of configurations. However, since the purpose of the modeling was to provide a ranking of the relative air quality impacts, a very conservative approach was appropriate. More detailed analyses of Class I increment consumption will be performed as part of the PSD permit application if one of the options is selected for construction. If a PSD permit is prepared, the IWAQM modeling guidelines will be taken into consideration. However, the IWAQM recommendations were developed several years ago and improved models have become available since that time. Consequently, one or more of these newer models for some parts of the analyses may be proposed rather than relying exclusively on the IWAQM recommendations.

Comment ID:	6
Name:	James H. Lee
Affiliation:	U.S. Department of the Interior
DEIS Section:	3.1.2.3
Comments:	<i>As mentioned in the text, permeability is an important factor in the screening of soils that will serve as a buffer for leachate migration; but soil thickness should also be considered. The text states that the soil thickness at Bellefonte ranges from 0.6 to 7 meters and thins northward. The proposed ash storage</i>

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area would lie in the north-northeastern region of the Bellefonte plant (Figure 2.2-1, page 2-16), suggesting soil thicknesses of less than 1 meter. A preliminary investigation should be conducted to verify if the soils are of sufficient thickness to promote enhanced attenuation and prevent leachate migration for ash storage.

Response: A detailed engineering study would be carried out during the final design phase of the project. Currently, there are no state requirements for the storage of fossil plant ash; nonetheless, storage areas will be designed in accordance with good engineering practices in order to protect the groundwater quality.

Comment ID: 122

Name: Joseph R. Castleman

Affiliation: Department of the Army

DEIS Section: 3.1.6

Comments: *Reference Chapter 3.0, page 3-27, Table 3.1.6-2, Plant Name - Fort Payne, Location. The existing location of the recently constructed water intake is at TRM 387.6L.*

Response: The FEIS has been revised to reflect these comments.

Comment ID: 123

Name: Joseph R. Castleman

Affiliation: Department of the Army

DEIS Section: 3.1.6

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Responses to Public Comments

Comments: *Reference Chapter 3.0, pages 3-27 & 28, paragraph 3.1.6.2, Surface Water Supply and Demand. We recommend the last part of this paragraph be revised to read as follows: The Water Works Board of the City of Fort Payne, Alabama, has constructed a new raw water intake pumping station on the Tennessee River at Mile 387.6L with a capacity of 10 million gallons per day to supply additional drinking water.*

Response: The FEIS has been revised to reflect these comments.

Comment ID: 4

Name: James H. Lee

Affiliation: U.S. Department of the Interior

DEIS Section: 3.1.6.3

Comments: *This is a general comment. Specific comments are listed in Comments #5-9.*

The proposed project may adversely affect species listed by the U.S. Fish and Wildlife Service as endangered or threatened. Additional surveys should be carried out to determine the presence or absence of these species and to assist in the determination of potential impacts based on their occurrence.

Response: As indicated in Sections 3.1.10.2 and 3.1.10.3, TVA has been aware of the potential presence of endangered or threatened species in the Tennessee River adjacent to the Bellefonte site. To clarify this issue, TVA conducted a dive survey of potential impact sites in 1995. Results of that survey are presented in Section 3.1.10.2 and Appendix I. Specific comments about the potential and actual presence of listed species in this part of the river are presented in Section 3.1.10.3. As indicated, the sparse mussel community found during the survey does not suggest that any endangered or threatened aquatic mollusks persist adjacent to the Bellefonte site. Aquatic habitat conditions in the reach also are not suitable for the snail darter, the only other federal endangered or threatened aquatic species likely to occur in the general project area.

Comment ID: 5

Name: James H. Lee

Appendix Q
Responses to Public Comments

Affiliation: U.S. Department of the Interior

DEIS Section: 3.1.6.3

Comments: *Page 3-34. Section 3.1.6.3. Table 3.1.6-6. The criteria established by the ADEM for public water supplies (ADEM, June 1996, Table A-3, page A-5) includes a MCL for asbestos of 7 million fibers (longer than 10 micrometers)/liter. Because of the probable occurrence of asbestos on the site (Section 3.1.5, Table 3.1.5-1, page 3-22), the surface water monitoring may need to include this constituent.*

Response: Table 3.1.6-4--Primary Drinking Water Regulations Versus Guntersville Lake Water Quality, and Table 3.1.6-8--Primary Drinking Water Regulations Versus Water Quality in the Bellefonte Vicinity have been revised to include the MCL for asbestos.

Comment ID: 250

Name: Anonymous

Affiliation:

DEIS Section: 3.1.9

Comments: *"I had an individual tell me that the following rare plant is found on the BLN reservation. I was told by the individual that the TVA botanists were aware of this plant. "Spiranthes Odorata: Occurs in damp low places in woodland overstory and on backwater shorelines of the Bellefonte reservation. This is a terrestrial orchid which is sensitive to pollutants particularly airborne."*

Response: TVA botanical staff have reviewed records of field investigations for the site and are not aware of this species occurring at the site. This species is not listed on the Federal or Alabama state list for rare species.

Comment ID: 7

Name: James H. Lee

Appendix Q
Responses to Public Comments

Affiliation: U.S. Department of the Interior

DEIS Section: 3.1.10.3

Comments: *Endangered Species Comments. The document indicates that no listed species are found in terrestrial habitats on the site and we concur. The Anthony's river snail (Atheamia anthoyi) was recently found in the Tennessee River. Because a 1995 TVA survey found the snail 15 miles upstream of the plant site, we recommend a survey be conducted in the river area adjacent to the plant site to determine possible occurrence of the snail.*

Response: As indicated in Section 3.1.10.3, TVA was aware of the potential presence of Anthony's river snail when the mussel survey adjacent to the Bellefonte site was conducted in 1995. No specimens of this species were found at any of the stations examined during that survey, in spite of diver awareness that this snail was present further upstream. Neither TVA or the Alabama Department of Conservation and Natural Resources are aware of any recent records of Anthony's river snail in the Tennessee River downstream from Long Island (TRM 412). On that basis, none of the proposed actions at the Bellefonte site would have any impact on Anthony's river snail.

Comment ID: 8

Name: James H. Lee

Affiliation: U.S. Department of the Interior

DEIS Section: 3.2.7

Comments: *The natural gas pipeline corridors identified in the document may include habitats occupied by listed species. The following species should be added to the species listed in the table and be considered in further project review because data available in the Daphne Field Office indicates their probable occurrence in one or more of the corridor areas.*

Indiana bat (Myotis sodalis)

Green pitcher plant (Sarracenia oreophila)

Alabama hart's tongue fern (Asplenium scolopendrium var. Americana)

Morefield's leather flower (Clematis morefieldii)

Corridor A:

1. *Impacts to the gray bat are a possibility since caves are proximate to the corridor.*
2. *The pink mucket mussel (*Rampsilis abrupta*) is found in the Tennessee River and Shanty Creek.*
3. *The Alabama hart's tongue fern and Morefield's leather flower are likely to occur in the area.*

Corridor B:

1. *Bald eagles are found near the confluence of Crow Creek and the Tennessee River.*
2. *Gray bats may be present.*

Corridor C:

1. *The gray bat and the Indiana bat could be present.*
2. *The bald eagle is found on Coon Creek.*
3. *The green pitcher plant occurs in the area of the corridor.*

Surveys to document the presence/absence and distribution of these listed species are recommended. The results of these surveys should be provided to the Daphne Field Office for review. Should any of these listed species be found in the project area, then the Tennessee Valley Authority (TVA) should initiate Section 7 Endangered Species Act consultation.

Response:

The Indiana bat, green pitcher plant, Alabama hart's tongue fern, and Morefield's leather flower have been added to Table 3.2-1. We appreciate the additional information on listed species potentially occurring along the three pipeline corridors.

As described in Section 2.3.1.1, the three pipeline corridors evaluated in the EIS are speculative and were selected to evaluate the range of potential impacts from pipeline construction and operation. No field surveys have been conducted to document the occurrence of listed species along these corridors, and such field surveys are premature at this time. If TVA selects one of the two conversion options requiring a natural gas pipeline, field surveys will then be conducted along proposed pipeline corridors. Such a pipeline, regardless of whether it is constructed and/or operated by TVA, an existing natural gas supplier, or another entity, would be considered a federal action in that it would require TVA, U.S. Army Corps of Engineers, and/or Federal Energy Regulatory Commission (FERC) approval. Section 7 Endangered Species Act consultation, as appropriate, would be carried out at that time.

An environmental review would be conducted by the FERC before approving the construction of new natural gas pipeline and associated facilities.

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Comment ID: 3

Name: James H. Lee

Affiliation: U.S. Department of the Interior

DEIS Section: 4.2.1

Comments: *We suggest that the proposed and the existing monitoring requirements for particulate material be used to verify the attainment of these standards in the modeling exercises.*

Response: Since the printing of the DEIS, EPA has promulgated new standards. The FEIS has been revised to address these new standards in Chapters 3 and 4.

Comment ID: 29

Name: Heinz J. Mueller

Affiliation: U.S. Environmental Protection Agency

DEIS Section: 4.2.1

Comments: *AIR QUALITY AND HUMAN HEALTH - A best available control technology (BACT) analysis, air quality analysis, and additional impact analysis would be required as part of the PSD application process. Use of either of the five conversion alternatives would also require the Bellefonte facility to obtain a Title V operating permit. Depending on the alternative selected by TVA, applicability of New Source Performance Standards (NSPS) under 40 CFR Part 60 will be triggered. Also, maximum achievable control technology (MACT) requirements under 40 CFR Part 63 would need to be evaluated for applicability for those alternatives involving a chemical plant. Future MACT standards could also be applicable to electric steam generating units and combustion units.*

We note, however, that no thresholds apparently exist for certain listed pollutants (e.g., formaldehyde, acetaldehyde: Table 4.2.1-10b). The FEIS

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should discuss these pollutants relative to modeled levels and potential impacts. Also, for future EIS reference, should a pollutant fail screening, additional analysis would be appropriate, i.e., risk assessment analysis for direct pathways (inhalation) and preferably indirect pathways (agricultural).

Although mercury passed the screening models for toxic air pollutants, we suggest that any possible further limitation of mercury pollution in air emissions and water discharges to levels further below the threshold/standard should be seriously considered by TVA. Also relevant to mercury, the apparent data gap on Table 4.2.1-10a (pg. 4-27) for elemental mercury modeling for the one-hour concentration for the PC option should be discussed in the FEIS.

For the IGCC options (IGCC, IGCC/C, Combination), substantiated assurances should be provided that dioxins and furans would not be generated during combustion. The FEIS should clarify.

Response:

Comments regarding BACT, Title V, NSPS, and possible MACT requirements are noted.

Tables 4.2.1-10a and 4.2.1-10b of the Bellefonte EIS have been revised to reflect updated hazardous air pollutant emissions estimates for the various Bellefonte repowering alternatives. The comment regarding possible future risk assessment analysis is noted.

Information has been included in Table 4.2.1-10a for elemental mercury, selenium, benzene, benzo (a) pyrene, formaldehyde, and acetaldehyde from the PC Option. A revised (higher) estimate for hydrogen fluoride has been included.

Although stationary fuel combustion sources are suspected of being a major source of dioxin and furan emissions, we are unaware of any reliable dioxin and furan emissions factors for IGCC. We suspect that the quantitative significance of stationary fuel combustion is due to the application of miniscule theoretical emission rates to large quantities of fuel.

Comment ID: 43

Name: John F. Ramey

Affiliation: U.S. Department of Agriculture

DEIS Section: 4.2.1

Comments: *We are concerned if any of the proposed alternatives which burns fossil fuels are implemented then there is a high likelihood that one or more air quality related values (AQRV) at the Joyce Kilmer/Slickrock Wilderness will have an adverse impact. We are requesting Joyce Kilmer/Slickrock be included in an AQRV analysis if your Agency desires to proceed with a Prevention of Significant Deterioration (PSD) application.*

We encourage your Agency to have a pre-application meeting with our Air Resource Specialist, as well as the Air Resource Specialist for the Cohutta and Sipsey Wilderness, and the air quality regulatory agency for Alabama. At the meeting our Air Resource Specialist will provide greater details on what pollutants are of concern, and which AQRVs are likely to be impacted by the proposed facility.

Nevertheless, we believe the emissions proposed are significant and could impact the AQRV's at the Wilderness. At this time, we would not recommend the use of Gaussian dispersion models. Instead, your agency should follow the Interagency Workgroup on Air Quality Models (IWAQM) Level 2 guidelines to evaluate oxides of nitrogen and sulfur dioxide emissions on visibility and acidic deposition impacts to terrestrial and aquatic AQRV's. Implementation of most of the alternatives could also lead to increases in ground-level ozone. Modeling of ozone increases can be a challenge, but we would recommend the use of the UMAV with the point source in grid (PIG) option. Another option in modeling would be to consider using the models and episode days selected by the Southern Appalachian Mountain Initiative (SAMI). The SAMI effort is proceeding and they may have a tool which could be used for PSD purposes.

Response: We agree that the impacts on AQRVs in Class I areas should be a part of the PSD permit if a decision is made to proceed with any of the fossil-fuel alternatives described in the Bellefonte repowering DEIS. We also agree that discussions about AQRV details should take place with the Federal Land Managers (FLM) prior to performing the PSD analyses.

We also agree that the IWAQM Level 2 guidance is a useful starting point for discussions on the details of evaluating AQRV impacts in Class I areas. Other models, however, have become available since the development of this guidance and may be more appropriate for some parts of the analyses. Similarly, we agree that the UAM-V model with the plume-in-grid (PIG) treatment may be useful for evaluating potential ozone impacts but other models should be considered as possible alternatives. These details will be

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discussed with the States and FLMS prior to initiating any PSD analyses for Bellefonte.

Comment ID:	50
Name:	Randy Eminger and John Paul
Affiliation:	The Center for Energy & Economic Development
DEIS Section:	4.2.1
Comments:	<i>The draft EIS may underestimate the environmental emissions from resource alternative #2- 2,406 MW natural gas combined cycle plant. The environmental emissions calculations for the natural gas combined cycle plant alternative are based upon burning 472 mmscf/day of natural gas to reach the full unit output of 2,406 MW. This use is based upon use of a "F" class gas turbine with an assumed combined cycle heat rate efficiency of 53.5 percent (6,378 Btu/kWh) with supplemental duct firing to reach peak output which would reduce the efficiency to 8,419 Btu/kWh. The assumed combined cycle heat rate efficiency before the adjustment for supplemental duct firing is far better than the efficiencies experienced by existing combined cycle plants using the "F" class machines. Energy Ventures Analysis in its review of actual heat rate efficiencies of modern combined cycle plants found that the average energy efficiency for the most recent units was only 42.1 percent (8,090 Btu/kWh). This level showed technological improvements versus the average efficiency of 38.5 percent (8,856 Btu/kWh) average for all combined cycle plants.</i>
Response:	The NGCC efficiency of 53.5% used to calculate fuel usage and estimate emissions was based on information for "F" class combustion turbine technology from several vendors. This reflects a fully developed and state-of-the-art steam cycle design. These higher efficiencies are projected due to recent combined cycle design improvements associated with "F" class and later technologies. TVA intends to utilize the most efficient systems commercially available. Recent literature reports efficiencies for "G" and "H" natural gas fired systems approaching 60 percent. A Best Available Control Technology evaluation is required for the Prevention of Significant Deterioration air permit for construction. That evaluation does not consider efficiency per se' in control technology selection.

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Comment ID: 79

Name: Stephen Smith and Michelle Neal-Conlon

Affiliation: Tennessee Valley Energy Reform Coalition

DEIS Section: 4.2.1

Comments: *Smith -- Neither of the explored options truly adequately addresses the air impacts. Again as was mentioned earlier and I will expound a little bit more, it appears that EPA has proposed new standards for both particulate matter and ozone.*

The problem with this is that with these new standards, chances are the metropolitan area of Chattanooga is going to be non-attainment for the ozone and particulate matter. If they are, indeed, non-attainment and TVA plans to load the atmosphere with additional emissions from Bellefonte, they have not adequately addressed the impacts on the regional air shed and this would cause significant, both human health, environmental health, and economic hardship on the Chattanooga community.

TVA needs to take a step back and adequately address the impact of ozone and particulate matter from a fossil fuel conversion at Bellefonte both for the current regs. and for the potential regs. that may be promulgated and enacted in the near future.

Neal-Conlon -- None of these studies relative to air quality were conducted addressing proposed revisions in the Clean Air Act.

Response: Since the printing of the DEIS, EPA has promulgated new standards. Chapters 3 and 4 of the FEIS have been revised to address these new standards for ozone and particulate matter.

Comment ID: 88

Name: Stephen Smith

Affiliation: Tennessee Valley Energy Reform Coalition

DEIS Section: 4.2.1

- Comments:**
- * TVA has failed to adequately address the air impacts of both sulfur dioxide and nitrous oxide which is a precursor for ozone on impacts on the Great Smoky Mountain National Park in particular and other class one areas generally.*
 - * TVA has failed to admit that the significant sulfur dioxide emissions and nitrous oxide emissions, particularly from the coal options, would have what I consider an absolute unacceptable impact on the Great Smoky Mountain National Park. I have talked to air quality scientists at the national park within the Department of Interior and they expressed great concerns about the potential fossil fuel options, particularly the coal options, at Bellefonte and how it would bring additional loading of both sulfur and nitrogen.*
 - * The Great Smoky Mountain National Park right now, the soils in the Great Smoky National Park has experienced what's called nitrogen saturation. There is so much nitrogen raining out of the sky into the park that the soils are so filled with nitrogen that this nitrogen now runs off in the streams and causes the pH or the acidity of the streams in the Great Smoky Mountain National Park to drop.*
 - * There is also great concern about the sulfur loading that is happening because again in the presence of moisture, sulfur dioxide converts to sulfuric acid and then is an acid precipitation or acid rain that falls in the park. And this is a grave concern because there are significant impacts in the water quality, particularly in the higher elevations in the park and because the soils there cannot buffer the acidity.*
 - * TVA hasn't taken the time to really communicate with the Department of Interior and the people at the Great Smoky Mountain National Park about these impacts and has failed to adequately include in this particular document the impacts on that both environmentally and economically. I don't think there is any discussion of economic impact.*
 - * One additional negative impact from sulfur dioxide is the fact it is the precursor that leads to visibility problems and the Great Smoky Mountain National Park has significant visibility problems. When people come up to the higher elevations and take a look at the beautiful vistas and they are unable to do that because the visibility in the summer months can be down as low as 12 miles. That's all you can see is out all for 12 miles when the normal visibility in the Great Smoky Mountain National Park should be close to 90 to 100 miles. That is a significant deterioration and that is due to sulfur emissions,*

primarily from plants to the west and the southwest; and this particular plant would add additional loading to that.

Response:

Supplementary information concerning potential Bellefonte air quality impacts on natural resources has been added in the Cumulative Impacts of Proposed Action on Air Quality (Section 4.4.2.1). Since each of the proposed Bellefonte re-powering alternatives will emit regulatorily significant quantities of compounds that could impact AQRVs, an evaluation of the possible role of these emissions on visibility impairment, as well as soils and stream acidification and injury to vegetation has been included.

Other additions to Section 4.4.2.1 include a discussion on visual range in the southern Appalachians and consider the changes in visibility patterns and trends due to point source and mobile emissions, regional population increases, and meteorological conditions. Since particulate sulfate, nitrogen dioxide, and to a lesser extent, particulate nitrate contribute to regional haze, projected SO₂ and NO_x emissions from the selected Bellefonte conversion alternative will contribute to regional haze. If the construction and operation of the selected Bellefonte alternative results in the retirement of older, less-controlled facilities, an improvement in visibility conditions could be expected.

The section now includes a discussion on the effects of the sulfate and acid deposition to sensitive watersheds, including soil acidification, cation leaching, and surface water acidification, as well as a discussion of evidence of episodic acidification by nitrogen saturation. This section also addresses the combined role of ozone and moisture on foliar injury symptoms reported for ozone-sensitive forest species.

Nitrogen and sulfur emissions that impact AQRVs come from a number of different sources including electric power generation, mobile sources, residential wood burning, livestock waste management, etc., and we have added a discussion of cumulative source impacts and a consideration of the proposed Bellefonte conversion alternatives on AQRVs in order to give a more comprehensive picture of the affected environment.

In regards to the potential impacts of the various Bellefonte conversion options on Class I areas including the Great Smoky Mountains National Park, modeling assessments suggest that the proposed Bellefonte PC and PFBC options, as configured, will have difficulty meeting the Class I sulfur dioxide (SO₂) increment for the Great Smoky Mountains National Park and Cohutta Wilderness Class I areas. If relevant to the selected conversion alternative, this issue will be addressed as part of the PSD air permit application process.

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Comment ID: 100

Name: Stephen Smith

Affiliation: Tennessee Valley Energy Reform Coalition

DEIS Section: 4.2.1

Comments: *TVA does a woefully inadequate job of addressing concerns about CO2.*

Response: The discussion of these potential impacts is contained in Cumulative Impacts on Global Warming (Section 4.4.2.3).

Comment ID: 130

Name: Stephen Smith and Michelle Neal-Conlon

Affiliation: Tennessee Valley Energy Reform Coalition

DEIS Section: 4.2.1

Comments: *Emissions (Air Quality)*

There are concerns that emissions (especially SO2 and NOX) from the plant would cause non-compliance with air pollution standards. This is especially true with Chattanooga, Tennessee which is fairly close to the Bellefonte plant.

Additionally, the Environmental Protection Agency (EPA) is promulgating new standards for ozone and particulate matter emissions. The draft EIS does not address the impacts of the proposed options on these new standards. The environmental, economic, and human health impacts of these emissions need to be better studied.

Finally, there are concerns about the impact of more emissions on The Great Smoky Mountain National Park. There is already evidence of nitrogen

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saturation into the soils and high stream acidification. Many of the Bellefonte proposals could exacerbate this problem. Relative to the IGCC option, it is indicated the sulfur removal of 99.5% if possible; TVA should indicate regarding "utilization of 24,800 tons per day of Illinois No. 6 coal," what the impact of the 0.5 % is.

Because of the potential to exceed the standards for Class 1 SO₂ increments in the Great Smoky Mountains National Park, TVA should abandon PC and PFBC options. Although there is discussion on how long it would take a plume to travel to this area, any continued additional air impact to the National Park is undesirable.

Nitrogen Oxides continue to be a concern as well. Emissions relative to the PC option are almost double of any other option and would have a significant impact on the production of O₃. Ozone-like damage has been observed on 90 different species of plants, and the Smokies has the highest monitored levels of nitrogen deposition of anywhere in the United States and one of the highest levels of sulfur.

During the public hearing TVA dismissed the likelihood of revisions to the Clean Air Act relevant to ozone and PM. With the discussion of these revisions in the document, TVA should explore the economic and environmental repercussions of these revisions.

The document concludes that from an emissions minimization perspective, the most desirable option is NGCC and the least desirable is PC. Also, in terms of acidifying emissions per megawatt of production, the most desirable option is NGCC and the least desirable is PC.

Response:

The intentionally conservative screening models used to support the Bellefonte EIS suggest that the proposed PC and PFBC options, as configured, may have trouble meeting the Class I sulfur dioxide increment. In each case, however, where difficulty was noted, strategies were identified which would reduce impacts to maintain attainment of NAAQS or to avoid exceeding PSD increments. The modeling of the Bellefonte conversion options was performed on a limited set of configurations. The purpose of this modeling was to provide a ranking of the relative air quality impacts and to allow the TVA decisionmakers flexibility in selecting, fuels, equipment, and BACT. This issue, if relevant to the selected option, will be addressed as part of the PSD air permit application process.

Supplementary information concerning the potential Bellefonte air quality impacts on natural resources has been added in the Cumulative Impacts of

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Proposed Action on Air Quality (Section 4.4.2.1). Since each of the proposed Bellefonte options and variants will impact AQRVs, an evaluation of the possible role of emissions on visibility impairment, as well as on soils and stream acidification and injury to vegetation has been included. This section now includes a discussion on the effects of the sulfate and acid deposition to sensitive watersheds, including soil acidification, cation leaching, and surface water acidification, as well as a discussion of evidence of episodic acidification by nitrogen saturation and the possible combined role of ozone and moisture on foliar injury symptoms for ozone-sensitive species.

Since the printing of the DEIS, EPA has promulgated new standards. Chapters 3 and 4 of the FEIS have been revised to address these new standards for ozone and particulate matter. In addition, the NGCC conversion option has been selected as the preferred conversion alternative for the FEIS.

Comment ID: 134

Name: John H. Yancy

Affiliation: United States Department of Agriculture

DEIS Section: 4.2.1

Comments: *We noted that the analysis considered the effect the proposal's air emissions would have on visibility and consumption of Class I area PSD increments at Sipsy Wilderness.*

There are two other Class I areas, managed by the USDA Forest Service, located within the potential impact area of the Bellefonte project. I have reviewed the comments of the Forest Supervisors responsible for those Class I areas and share their concerns.

My only request is that you continue to consider the impacts this project will have on the Sipsy Class I area as you complete the environmental analysis and the PSD air permit application processes.

Response: Comment noted.

Comment ID: 136

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Name: George G. Martin

Affiliation: U.S. Department of Agriculture

DEIS Section: 4.2.1

Comments: *We did not find estimates of total annual emissions for the various alternatives described in the DEIS. Therefore, we calculated estimates based on the limited information available and assuming that each alternative would operate at full capacity 365 days per year. We found that the PC (pulverized coal) option would emit SO_x, NO_x and PM Pollutants at rates (tons per year) of 26,000 tpy, 39,000 tpy and 2900 tpy; respectively. For the NG option, SO_x, NO_x and PM emissions would be 85 tpy, 10,000 tpy and 1200 tpy; respectively. For the IG option, SO_x, NO_x and PM emissions would be 6,300 tpy, 21,000 tpy and 1350 tpy; respectively. These are some very large numbers and we ask you to let us know if you find them in error.*

Response: The estimated SO₂, NO_x and PM₁₀ emission rates (in grams per second) for the various alternatives are provided in Table 4.2.1-2. To convert these to tons per year, multiply grams per second by 34.762.

Comment ID: 145

Name: James H. Lee

Affiliation: United States Department of the Interior

DEIS Section: 4.2.1

Comments: *The DEIS does not state the magnitude of impact the emissions from the different alternatives would have at several DOI units, including Great Smoky Mountains National Park and Russell Cave National Monument (a Class II area), both administered by the NPS and three Class II National Wildlife Refuges, Blowing Wind Cave, Fern Cave, and Wheeler, which are administered by the Fish and Wildlife Service (FWS). The final EIS should state the impacts to the sulfur dioxide (SO₂), PM-10, and nitrogen dioxide (NO₂) Class I and Class II increments at those areas. The final EIS also needs to quantify the impacts to the AQRVs, including acid deposition of sulfates and nitrates, impacts to visibility in the form of uniform haze, and formation of ozone (O₃) at the park and the monument, and the three refuges.*

Response: Modeling assessments suggest that the proposed Bellefonte PC and PFBC options, as configured, will have difficulty meeting the Class I SO₂ increment for the Cohutta Wilderness and the Great Smoky Mountains National Park. If relevant, this issue will be addressed as part of the PSD air permit application process.

Analyses indicated that the PFBC variant of the PC option and the IGCC option would exceed the 24-hour SO₂ PSD Class II increment and the distillate oil variant of the Combination option would exceed the PM Class II increment near the plant. Although the extent of the maximally impacted area varies somewhat due to differing source configurations, it is limited to a small area—on the order of one square kilometers or less—on elevated terrain (250 meters above the plant site) 3.3 kilometers east of the proposed plant site. The predicted impacts decline quickly beyond this area. Therefore, although not specifically estimated, the impact of the proposed Bellefonte conversion options on the Russell Cave National Monument, the Blowing Wind Cave National Gray Bat Sanctuary, Fern Cave Potential National Natural Landmark, or the Wheeler National Wildlife Refuge, would be substantially less than the Class II increments.

Additional information about AQRVs have been added concerning the potential impact of the proposed Bellefonte conversion alternatives in the Cumulative Impacts of Proposed Action on Air Quality (Section 4.4.2.1).

Comment ID: 146

Name: James H. Lee

Affiliation: United States Department of the Interior

DEIS Section: 4.2.1

Comments: *The air quality modeling analysis in the DEIS indicates SO₂ and NO₂ PSD Class II increment exceedances near the Bellefonte site, which is indicative of the impacts expected at the wildlife refuges and the national monument. Under certain conditions, Class I increments could be exceeded at both the Cohutta Wilderness and Great Smoky Mountains National Park Class I areas, as well. In addition, visibility impacts, including plume blight, are predicted at the Cohutta Wilderness.*

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Response: Modeling analyses indicated that the PFBC variant of the PC option and the IGCC option would exceed the 24-hour SO₂ PSD Class II increment and the distillate oil variant of the Combination option would exceed the PM Class II increment near the plant. The maximally impacted area varies somewhat because of source configuration differences but is limited to a very small area—one square kilometer or less—on elevated terrain (250 meters above the plant site) 3.3 kilometers east of the proposed plant site. The predicted maximum concentration falls off quickly beyond this area and therefore these maximum impacts are not indicative of the impacts predicted at the more distant wildlife refuges or the national monument.

Comment ID: 147

Name: James H. Lee

Affiliation: United States Department of the Interior

DEIS Section: 4.2.1

Comments: *Other than the "no action" alternative, the remaining five alternatives could result in impacts to the park, monument and refuges. One alternative not discussed in the DEIS is offsets. SAMI is investigating offsets as one of the adverse conditions experienced at Great Smoky Mountains National Park caused by emissions from older existing sources. Ozone Transport Assessment Group (OTAG) modeling has also demonstrated that ozone formation in this region of the country is nitrogen oxides (NO_x) limited, and the NO_x emissions from this project will exacerbate the formation of ozone. By obtaining offsets from existing TVA power plants near the park (either by shutting down old inefficient units or adding controls to them), the Bellefonte conversion project would greatly reduce its impacts to the park and mitigate some of the impacts to the refuges and monument.*

Response: Comment noted.

Comment ID: 31

Name: Heinz J. Mueller

Affiliation: U.S. Environmental Protection Agency

DEIS Section: 4.2.4

Comments: *HAZARDOUS AND SOLID WASTES - It should be emphasized, however, that on-site storage drums must be properly labelled (date, type, etc.) pursuant to appropriate EPA and state laws, regulations and requirements. Additionally, any storage beyond 90 days would require a State of Alabama (with EPA oversight) RCRA storage permit. Consideration should be given to direct transport to an appropriate off-site disposal site to minimize the transportation and handling of hazardous wastes and the attendant possibility of accidents.*

Response: As stated in the DEIS, the TVA Hazardous Waste Storage Facility (HWSF) in Muscle Shoals would be responsible for arranging for disposal at a permitted disposal facility off site. Hazardous wastes will be stored onsite temporarily, prior to shipment to the TVA permitted HWSF, which has a storage capacity of 720 55-gallon equivalent containers. In addition, Bellefonte would be classified as a small quantity generator, and 40 CFR 262.34(d) states, "a generator who generates greater than 100 kilograms and less than 1000 kilograms of hazardous waste in a calendar month may accumulate hazardous waste onsite for 180 days or less without a permit or without having interim status..." Consideration will be given to the direct transport to an appropriate off-site disposal facility when environmentally and economically feasible. TVA will often directly ship hazardous waste to an ERAL-approved (Environmental Restricted Awards List) disposal site when the sites can combine loads or one site has a full load to ship. Per TVA environmental policy, the disposal of all TVA hazardous waste shall be coordinated through the HWSF in Muscle Shoals. The off-site disposal sites used by Bellefonte shall be listed on TVA's ERAL.

Comment ID: 34

Name: Heinz J. Mueller

Affiliation: U.S. Environmental Protection Agency

DEIS Section: 4.2.5

Comments: *Page 3-20 addresses asbestos solid wastes. Continued coordination is recommended with the state regarding appropriate disposal of asbestos-containing waste products (insulation board, gaskets, etc.). Will any asbestos insulation be removed during proposed conversion? Appropriate removal and*

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disposal methods would need to be followed and addressed in the FEIS.

Response: There is a small possibility that asbestos removal may be required during conversion. As stated in section 4.2.18, TVA has an industrial hygiene program included in its Site Safety and Health Plan a comprehensive health and safety document required of all work projects. Asbestos removal procedures would be followed for any asbestos removal work conducted in the course of conversion.

Comment ID: 35
Name: Heinz J. Mueller
Affiliation: U.S. Environmental Protection Agency
DEIS Section: 4.2.5
Comments: *We strongly support the concept of the statement on page 4-51 that "TVA would adopt a hazardous waste minimization policy for the proposed facility, among other things substituting nonhazardous for hazardous materials whenever feasible."*
Response: Comment noted.

Comment ID: 26
Name: Heinz J. Mueller
Affiliation: U.S. Environmental Protection Agency
DEIS Section: 4.2.6
Comments: *Plant surface water withdrawal requirements should continue to be coordinated with the COE and State of Alabama (pg. 5-2).*
Response: Comment noted. TVA would coordinate with State and Federal agencies as appropriate.

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Comment ID: 24

Name: Heinz J. Mueller

Affiliation: U.S. Environmental Protection Agency

DEIS Section: 4.2.6

Comments: *SURFACE WATER - For all options, it appears that a temperature 316(a) variance to the National Pollutant Discharge Elimination System (NPDES) permit would be needed. The current Alabama (ADEM) NPDES permit allows a maximum in-stream temperature of 30C, which is exceeded by ambient upstream temperatures for an average of 8.5 days per year in July-August (recorded max. of 32.2C). The FEIS should discuss the preliminary or final comments that have been received from ADEM regarding the need for such a variance or permit modification. We note that the maximum allowable ADEM temperature rise of +2.8C is not predicted to be exceeded (Table 4.2.6-8).*

Response: TVA has requested a 316(a) temperature variance from the Alabama Department of Environmental Management. No comments on the DEIS were received from ADEM.

Comment ID: 25

Name: Heinz J. Mueller

Affiliation: U.S. Environmental Protection Agency

DEIS Section: 4.2.6

Comments: *Table 4.2.10-4b (pg. 4-91) depicts estimated discharge volumes by contaminant, by option. We note an apparent data gap for mercury under the PC option. The FEIS should clarify.*

Response: This comment is noted and the referenced table has been revised to include the estimated discharge mercury concentration for the PC option.

Comment ID: 28

Name: Heinz J. Mueller

Affiliation: U.S. Environmental Protection Agency

DEIS Section: 4.2.6

Comments: *The new or modified stormwater NPDES permit administered under the authority of the State of Alabama (with EPA oversight) should address stormwater runoff from such storage for all sources and all outfalls. However, if on-site karstic areas do exist or are created, site runoff should not be routed to any karstic features such as sinkholes. We recommend that such on-site features be filled with soils that will allow slow infiltration of any incidental drainage.*

Response: A detailed engineering study would be conducted in the design phase of the project. These issues would be appropriately addressed in that study.

Comment ID: 32

Name: Heinz J. Mueller

Affiliation: U.S. Environmental Protection Agency

DEIS Section: 4.2.6

Comments: *On-site fuel storage is planned for all alternatives, including large quantities (25 million gallons). Incidental spills should be minimized through monitoring and employee training and supplier assurances. Appropriate leak detection systems for above-ground and any underground storage tanks should be instituted. In the event leaks are detected, appropriate regulatory agencies must be notified within the required timeframe and appropriate remedial measures implemented. We note that a spill prevention control and countermeasure (SPCC) plan is currently in place.*

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Response: On-site fuel storage is planned for all alternatives except PC. Once the decision is made as to alternative fuel(s), the plant will be designed to incorporate the appropriate spill protection system. This system will meet the requirements of 40 CFR 112. The existing SPCC Plan will be amended to incorporate these changes as required by the regulations. Appropriate agencies will be notified within the required time frame in the event of leaks and remedial measures implemented.

Comment ID: 33

Name: Heinz J. Mueller

Affiliation: U.S. Environmental Protection Agency

DEIS Section: 4.2.6

Comments: *On-site storage of coal, petroleum coke and chemical co- and by-products may need to include liners and monitoring of leachate. The state (with EPA oversight) NPDES permit would need to address various point-source runoff such as coal pile runoff. The existing NPDES permit would need, at the discretion of the state, to be modified or a new one applied for if the converted plant would be considered a new facility. Impacts to water and air quality should also be minimized through, for example, source reduction methods such as the use of silos for coal storage.*

Response: The existing NPDES permit would be modified or a new one applied for if the converted plant would be considered a new or modified facility. Storage areas were evaluated to determine the need of liners. These areas were identified in sections 4.2.4.2 and 4.2.6.2. Preliminary designs do not include the use of silos for coal storage. TVA may consider their use later.

Comment ID: 77

Name: Michelle Neal-Conlon

Affiliation: Tennessee Valley Energy Reform Coalition

DEIS Section: 4.2.7

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Comments: *Relative to impacts on floodplains and floodways, I am very concerned about -- I believe it is probably at least option one and maybe option three and four that could potentially place some beds that would house fly ash and gypsum in a floodplain area...there is an extensive amount of flooding in this area.*

Response: In accordance with the requirements of Executive Order 11988, an evaluation of the impacts of locating facilities or other use areas in the 100-year floodplain was conducted (see Section 4.2.7). Only one option (pulverized coal) involved the use of land at an elevation below the 500-year floodplain. The selection of areas identified for gypsum and ash storage was based on an evaluation of alternatives (Appendix M) which concluded that the areas were the only practicable alternatives on the Bellefonte site. There is no record of extensive or frequent flooding in the areas identified. The water elevation in Gunterville Lake (and Town Creek which borders the proposed storage areas) is well controlled by TVA in accordance with multi-use reservoir objectives and rarely encroaches into areas above the 100-year flood elevation.

Gypsum and ash storage areas would be constructed with dykes higher than the 500-year elevation and would not be subject to inundation even if flooding on the river were to occur. The flood storage capacity removed by isolating the two areas from the river through dyking is extremely small (270 acre feet).

Comment ID: 27

Name: Heinz J. Mueller

Affiliation: U.S. Environmental Protection Agency

DEIS Section: 4.2.8.1

Comments: *GROUNDWATER - The potential for groundwater contamination, however, exists from several sources during construction and operation. These include general construction activities, coal pile storage, chemical by- and co-product storage, fuel oil storage, various incidental spills during operation, etc. As such, appropriate liners (double plastic, clay or as required or approved) should be used and monitored as appropriate to protect against groundwater contamination.*

Response: Groundwater protection measures will be implemented in accordance with ADEM regulations during construction and operation of the plant.

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Comment ID: 38

Name: Heinz J. Mueller

Affiliation: U.S. Environmental Protection Agency

DEIS Section: 4.2.9

Comments: *TERRESTRIAL ECOLOGY - We note that 900 acres of the 1,600 acre site are currently developed and would be additionally developed to various degrees with the proposed project. What are the long-range plans for the site in terms of potential development? Is any portion of the site dedicated to mitigation or preserved in perpetuity (via the original 1974 EIS or otherwise)?*

Response: The site is currently classified as an industrial site and TVA plans to utilize this asset. No portion of the site is dedicated to mitigation or preservation in perpetuity.

Comment ID: 21

Name: Heinz J. Mueller

Affiliation: U.S. Environmental Protection Agency

DEIS Section: 4.2.11

Comments: *WETLANDS - page 4-94 indicates that TVA expects a total of 12 acres of wetlands to be lost - four acres of forested wetlands and eight acres of rooted aquatic vegetation. EPA considers such wetlands valuable with losses difficult to compensate. Unavoidable wetland losses should be mitigated in the same watershed as the project with proper in-kind compensation such as wetland restoration, enhancement and/or creation. Coordination with the U.S. Army Corps of Engineers (COE) and EPA should be continued. The FEIS should update progress in this regard.*

Response: At the printing of this FEIS, further coordination with the U. S. Army Corps of Engineers has not been required. Prior to construction, TVA would coordinate with the U. S. Army Corps of Engineers as appropriate to ensure compliance

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with Section 404 of the CWA.

Comment ID: 23

Name: Heinz J. Mueller

Affiliation: U.S. Environmental Protection Agency

DEIS Section: 4.2.11

Comments: *pg. 4-83. As such, it would appear that the predicted 12- or 20-acre wetland losses are avoidable consistent with 404(b)(1) guidelines because NGCC Option would not impact wetlands.*

Response: The preferred alternative for the FEIS is the NGCC Option, which avoids impacts to wetlands. However, regardless of the conversion option chosen, TVA would meet requirements of the CWA, which offer mitigation options to offset wetland impacts of a project for which there is no practicable alternative. Pursuant to EPA's regulations, an alternative is practicable when it is available and capable of being done after taking into account the cost, existing technology and logistics in light of overall project purposes.

Comment ID: 62

Name: Cliff Griggs

Affiliation:

DEIS Section: 4.2.12

Comments: *What is it going to do to the people of this area and to the tourism in this area?*

Response: As discussed in Section 4.2.12.1, under any of the action alternatives, there would be some temporary increase in population in the area during construction, largely in Jackson County. Numbers of persons and expected residential locations are discussed in this section. The size of the increase varies widely among the alternatives. As a result of this population increase, there may be some important impacts on the housing market, including increases in mobile homes in the area and increased demand for apartments

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and sleeping rooms. Community services, especially fire protection and schools, may experience some temporary strain. As discussed in Section 4.2.12.2, the long-term impacts on population, housing, and community services due to operations will be smaller.

Some strains on the local transportation network (Section 4.2.13) may occur, both during construction and during operation. No important impacts are expected as a result of changes in land use (Section 4.2.14). However, there would be some visual/aesthetic and recreational impacts, as discussed in Section 4.2.15. Visual/aesthetic impacts would be related largely to the addition of some new stacks and the vapor plumes associated with these stacks and to flaring. Recreational impacts would primarily affect lake recreationists, due to increased barge traffic. Increased noise may also impact some residents (Section 4.2.17). In addition, various impacts, generally light to moderate, on the natural environment will be felt as impacts by some residents (Sections 4.2.1 through 4.2.11). There is also some risk to health and safety due to potential for accidents at the plant site (Section 4.2.18).

As noted throughout the FEIS, TVA will adhere to all regulations and laws pertaining to this project and will take all reasonable steps to avoid, minimize, or mitigate these impacts.

Comment ID:	124
Name:	Joseph R. Castleman
Affiliation:	Department of the Army
DEIS Section:	4.2.13
Comments:	<i>Reference Chapter 4.0, page 4-113, Figure 4.2.13-1. The legend on this chart has the shading of the Tennessee River Valley and the TVA Service area reversed. Also, the Pride Terminal is presently operating under the name Black Eagle Minerals, L. C.</i>
Response:	The FEIS has been revised to reflect these comments.

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Comment ID: 44

Name: F. Lawrence Oaks

Affiliation: State of Alabama

DEIS Section: 4.2.16

Comments: *We agree with the archaeological portion of the document that no significant sites will be impacted with the possible exception of 1 Ja 302 and that if impact is scheduled for this site, consultation with our office will take place. Regarding the historic structures within the community of Bellefonte, our earlier approval was some time ago and for this reason we request an update on the conditions of the structures associated with Bellefonte. Please forward photographs and written descriptions for each structure identified.*

Response: Further investigation was conducted and it was determined that no structures remain at the old town of Bellefonte; they have been removed by the owner in the intervening years. The FEIS has been revised to state that no structures will be impacted that are eligible for the National Register of Historic Places.

Comment ID: 36

Name: Heinz J. Mueller

Affiliation: U.S. Environmental Protection Agency

DEIS Section: 4.2.17

Comments: *NOISE - We note that both the Ldn (=DNL) and Leq metrics were used. Since it was assumed (pg. 4-131) that construction noise would not occur at night, the use of Leq would be appropriate for construction noise assessments.*

** The averaged time period should have been assigned to the Leq metric (e.g., 1 hr (Leq1); 12 hr (Leq12), other).*

** Use of DNL for operational noise is appropriate since the power plant would be operating continuously and would affect residences.*

** The TVA use of 75 dB Leq as a threshold for a startle-effect may be reasonable; however, this is dependent upon the individual receptor and the*

ambient noise level (i.e., the threshold could be considerably less for some and more for others).

** An "assumed" ambient level of 50-55 dB DNL and use of 50 dB DNL for comparisons against plant noise contributions should be substantiated (i.e., were any ambient measurements made at the four ambient noise stations selected?). Given that 50 dB DNL was used as the ambient and +3 dB DNL and greater was used to determine significant increases, the accuracy of the ambient is important in determining if predicted increases are significant.*

** A conversion from 50-55 dB DNL to an Leq value should also have been provided to establish a baseline (ambient) for presented Leq data. We assume it would be less than 50 dB Leq due to the DNL 10 dB nighttime penalty.*

** The use of Leq for the flare stack noise may be inappropriate since we assume that such noise is a short-term single event. Such measurements should be instantaneous measurements (dB) rather than an average (Leq or Ldn), since averaging tends to level out the peak noise levels of interest. However, if flare stack noise is of a one-hour duration or more, use of Leq(1) would be appropriate.*

** The use of 65 dB DNL threshold for traffic noise results is somewhat unusual. Typically, the Federal Highway Administration (FHWA) predicts traffic noise levels in the form of Leq (formerly also L10) as opposed to DNL. The noise abatement criteria levels considered important for potential mitigation are those approaching or exceeding 67 dB Leq(1) for residences and 72 dB Leq(1) for businesses.*

** We assume that presented modeling results are resultant noise levels attributable to the plant at a given ambient level, i.e., are not only plant contributions that would still need to be added to ambient to obtain resultant levels. The FEIS should clarify.*

** We note the discussion (pg. 4-127) regarding the above-mentioned FICON conclusion to consider +1.5 db DNL as a significant noise increase in areas of 65 db DNL or greater and +3 db DNL for areas less than 65 db DNL. We believe this to be an accurate interpretation. We also note the DEIS reference to a previous EPA comment letter on an unrelated TVA EIS in which EPA cited a +2.5 db DNL increase as being significant. Our reference in that letter should have been +1.5 db DNL as opposed to the cited +2.5 db DNL increase.*

The DEIS suggests that TVA provide warning before these events to reduce startle effects for residents. However, no commitment was made in the noise

section (pg. 4-131) or the mitigation section (pg. 4-194); therefore, the FEIS should commit to such mitigation and the proposed method(s) of notification. In addition, approximate frequencies of occurrence per a given timeframe (week, month or year) should also be estimated. What startle-effects are expected for the heron rookery at 76-77 dB Leq? Are there any relevant studies in the literature? Also in regard to construction, the FEIS should indicate the expected lengths of time for construction by option.

However, as suggested above, no commitments for implementation of such construction or operation measures are included. While we understand that some of these measures would only apply for certain options and that no preferred option has been identified, we believe the FEIS should conceptually commit to the implementation of project noise mitigation and, to the extent feasible, to specific mitigative measures (e.g., no nighttime construction, advance public notification of intrusive single-event noises, source reduction technologies, etc.).

We also note that no mitigative measures were listed for certain predicted impacts, specifically noise impacts to residences along the highways expected to be used for truck delivery/return traffic. Such traffic should be limited to daytime hours, be enumerated (number of trips in and out per day, week or month), possible alternate routes to distribute the impacts, comparison of predicted noise levels against FHWA noise abatement criteria (see above), and possible mitigation for residences affected. However, traffic increases would be due to project activities. Coordination with the FHWA/ALDOT is suggested. Possibilities include earthen vegetated berms and installation of central air conditioning for low-income housing (if relevant) so that windows could be closed during the summertime. Residences located within the designated impact radius of the plant (e.g., 5 miles) should be so considered. It should be noted that selection of options with low delivery traffic and a smaller workforce (e.g., NGCC option) would reduce noise impacts at the source.

Response:

As described in Section 3.1.17 of the DEIS, ambient sound levels were measured by TVA at Bellefonte in the fall of 1995, the winter of 1995-1996, and the summer of 1996 at four locations. The Ldn values of these four locations ranged from 50 to 55 Ldn, which are typical of an idled plant in a semi-rural area. These four locations were inside the fence line of Bellefonte. These are not the four locations used in the impact analyses to estimate off-site impacts. No measured data are available for these off-site impact receptor sites. However, TVA believes that an assumed 50 Ldn value for these off-site areas is reasonable because off-site and on-site noise conditions appear to be consistent across the area. Moreover, the use of a 50 Ldn value provides a

conservatively low baseline estimate which would tend to overstate plant construction and operational impacts rather than understate them.

As to the conversion from Ldn to Leq, this was done on page 4-131 of the DEIS where a parenthetical phrase stated that the 50 to 55 Ldn values would approximate 50 dBA during daylight hours. To more accurately communicate this, the FEIS will state that the assumed daytime baseline noise level is 50 dBA Leq (8).

The flare noises typically last one hour or less. For modeling purposes, it was assumed that they would last one hour and therefore the Leq metric was used. The Ldn metric was used for traffic noise because car and truck traffic will be spread out over long periods of time given the long construction schedules and the overlap with the operational activities which usually tends to have traffic peaks associated with shift changes.

EPA's assumption is correct although the data presented in Table 4.2.17-4 show only incremental impacts. The FEIS will clarify this by stating that all data are resultant and Table 4.2.17-4 will be changed from incremental to resultant estimates.

TVA has revised the FEIS to reflect the 1.5 dBA change. This, in turn, will affect what TVA has defined as substantive increase, namely a 2.0 dBA increase (which we now define as detectable but not significantly adverse). This threshold change was made throughout the section.

The construction periods are listed in Section 2.2 in various charts for each option. The text has been revised in the noise impact section to show the duration for each option (which ranges from 5 years for the IGCC/C to 10 years for the Combination). Mitigation will be conducted as described below.

To meet the need to both (1) maintain flexibility for the plant design and operation and to provide sufficient latitude for the construction contractor and (2) to make a commitment to avoid (or reduce to the extent practicable) adverse noise impacts, TVA will commit to the following actions, which have been included in greater detail in Section 4.5 of the Final EIS.

1. Once plans for construction have been developed, a noise assessment will be conducted to determine measures for mitigating any offsite noise impacts that exceed the 65 Ldn level (the threshold of significance used in the impacts evaluation).

2. All residents near the plant will be notified of steam cleanouts to reduce the

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"startle effect" of such events.

3. TVA will periodically conduct noise monitoring to assess impacts and to help design any additional mitigation measures needed.

Comment ID:	51
Name:	Randy Eminger and John Paul
Affiliation:	The Center for Energy & Economic Development
DEIS Section:	4.3
Comments:	<i>Compressor station emissions should be included in evaluations of the environmental impact of resource alternative #2: The proposed Bellefonte project alternative #2 requires additional gas pipelines to be built. Since these pipelines would not be constructed unless the Bellefonte project is built as a gas fired station, its environmental emissions should be included in the evaluation and modeling of the environmental impacts for alternative #2. Most environmental emissions associated with the pipeline are from the operation of a compressor station. The estimated emissions for the gas turbine compressor are quantified on pg. 4-161 and show that it would qualify as a major source. However, the location, permitting and potential impact of those emissions are not modeled or discussed in the document.</i>
Response:	Due to the preliminary nature of pipeline and compressor station design, the locations and types of compressors are unknown. The emission data listed in the EIS are typical for natural gas pipeline compressor stations for pipelines of this magnitude. When, and if, a new natural gas pipeline is required to supply Bellefonte, ambient air quality impacts will be evaluated based on more precise emission estimates and the location of any new gas fired compressor stations. This work will be required as part of an EA or EIS that would be required to comply with Federal Energy Regulatory Commission (FERC) pipeline certification. Regardless of compressor station location, size, and type, such sources are subject to permitting reviews by the applicable state agency(s) which ensure ambient air quality standards are not exceeded.

Comment ID: 41

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Name: Heinz J. Mueller

Affiliation: U.S. Environmental Protection Agency

DEIS Section: 4.4

Comments: *Induced impacts of the proposed plant conversion should be addressed in the FEIS. Induced impacts are primarily associated with the fact that additional power would be available which in turn may expedite or induce development, which often will result in additional pollution. Conversion to the NGCC or Combination option would result in construction and operation of a natural gas pipeline which might also result in secondary development impacts due to gas availability. The FEIS should acknowledge such induced impacts.*

Response: It is not likely that the production of electrical power in or near Bellefonte, given prices remain stable, would induce secondary development since development in that area is not currently constrained by the availability of electrical power. A fully adequate supply is now available to users in the Scottsboro area from TVA's transmission system. Consequently, it would not be expected that induced growth would result from the Bellefonte's conversion to fossil fuel.

New supplies of natural gas, on the other hand, could likely lead to secondary development. The EIS has been revised to acknowledge possible impacts due to secondary development induced by the expanded availability of natural gas. New information has been added to Section 4.4, Indirect and Cumulative Effects to qualitatively acknowledge such impacts. As discussed in Section 2.3.1, impacts would be addressed by a subsequent NEPA review once a conversion option involving natural gas had been selected and specific routes had been identified.

Comment ID: 131

Name: Stephen Smith and Michelle Neal-Conlon

Affiliation: Tennessee Valley Energy Reform Coalition

DEIS Section: 4.4

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Comments: *Global Climate Change*
In addition to the impact on regional air quality, the issue of global climate change (GCC) has been completely ignored in the EIS. TVA is the largest single emitter of CO2 in the country. I would like to see TVA become more aggressive about reducing its emissions - not bringing more on-line. Investing in Bellefonte as a fossil fuel alternative can only continue to add to the impacts of GCC. TVA's commitment to be a Climate Change Partner is suspect with this endeavor.

Response: Global climate change was addressed in Section 4.4.2.3.

Comment ID: 39

Name: Heinz J. Mueller

Affiliation: U.S. Environmental Protection Agency

DEIS Section: 4.4.2

Comments: *CUMULATIVE IMPACTS - All impacts (direct, indirect, secondary, induced, etc.) should be addressed in a CIA.*

We suggest that the FEIS document the major kinds of impacts that can be expected from these facilities and relate them to Bellefonte impacts. Any qualitative/quantitative information regarding the impacts of these nearby facilities (air quality, noise, discharges, etc.) would also be useful to the CIA.

The FEIS should also document existing area facilities in the same manner as discussed above. Special emphasis should be placed on any other power plants located in the area or region and their fuel source.

Response: Comment noted. Additional information has been included in the FEIS to address the cumulative effects on surface water.

Comment ID: 40

Name: Heinz J. Mueller

Affiliation: U.S. Environmental Protection Agency

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DEIS Section: 4.4.2

Comments: *It is unclear from Table 4.4.2-2a and 4.4.2-2b as to why the IGCC option would generate more SO₂ emissions than the PC option. Specifically, we note that the percent of the SO₂ standard generated by the IGCC option is 51.8% for a 24-hour period (vs. 47.3% for PC) and 61.9% for a 3-hour period (vs. 60.5% for PC). This appears inconsistent with the statement on page 4-174 in this section stating that "[q]uantitatively, SO₂ emissions from the PC Option and PFBC variant emit more than four times as much SO₂ as any other option or variant and, consequently, would have the greatest potential environmental impact on SO₂ ambient air quality and secondary pollution related to SO₂." The table values should therefore be verified. We would expect that the coal gasification technology would produce less SO₂ than the PC technology (unless the above values are possibly due to the greater proposed capacity of the IGCC option (2,720 MW for IGCC vs. 2,400 MW for PC) or possibly the relative stack heights). The FEIS should clarify.*

Response: We believe you may have inadvertently misinterpreted Tables 4.4.2-2a and 4.4.2-2b. In order to assess the potential "worst-case" impacts of the proposed Bellefonte repowering alternatives on cumulative air quality impacts we added the "worst-case" modeled maximum concentration to the "worst-case" observations from 1990-1991 PSD monitoring. Since the maximum modeled concentrations of various pollutants are dependent, to a large degree, on plant configuration (e.g. stack height, plume rise) the differences you note are due to differences in configuration and not to emission rates.

Comment ID: 76

Name: Michelle Neal-Conlon

Affiliation: Tennessee Valley Energy Reform Coalition

DEIS Section: 4.4.2

Comments: *Relative to the water quality impacts that these conversion options provide us, I am very, very concerned about TVA's complicit activity to file for permits to continue to degrade water quality not only relative to options that we have here but from other options that are considered throughout the TVA service area.*

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It doesn't bother TVA one bit to consider going after a permit that would allow for them to increase the thermal pollution that would occur with some of the conversion options that we have here as well as potential wetland impacts that could occur within the construction process.

Response: Section 4.4.2 has been revised to include an evaluation of cumulative effects of discharges on water quality downstream of the proposed discharges.

Section 4.2.6 of the EIS evaluates the impacts of construction and operation of each option on surface water quality. The Cornell Mixing Zone Expert System (CORMIX) was used to evaluate the thermal impact of the proposed options. In the summary section of Surface Water Temperature, the conclusion was reached that "regardless of which option is chosen, the impact on maximum surface water temperature is very slight. The maximum temperature rise would be well below the Alabama limit of 2.8°C.

The Clean Water Act has provisions for the mitigation of wetlands that would be lost in the construction process of 4 of the 5 options. TVA would comply with appropriate State and Federal regulations and mitigate to offset impacts to wetlands as necessary. However, please note that the Preferred Option, NGCC would not impact wetlands.

Comment ID: 114

Name: Michelle Neal-Conlon

Affiliation: Tennessee Valley Energy Reform Coalition

DEIS Section: 4.4.2

Comments: *Again I'll mention that TVA emits more than 110 million tons of carbon dioxide, one hundred million tons per year. That's more than any other utility in the United States. They are continuing to look at options to emit more CO2 into the atmosphere. Again, I think there is a responsibility on we as American's part to show and to at least show by example on how we need to proceed into a more global economy; and when we are out there burning more CO2 than any other country in the world, I think it's setting a very bad precedence for our very existence on this planet.*

Response: Global climate change was addressed in Section 4.4.2.3.

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Responses to Public Comments

Comment ID: 113

Name: Michelle Neal-Conlon

Affiliation: Tennessee Valley Energy Reform Coalition

DEIS Section: 4.4.2

Comments: *"This is TVA's statement on cumulative impacts on global warming and global climate change. This is how much credibility TVA has given this issue. Let me read this. The limited understanding of global climate change suggests that in order to protect human health and welfare in the environment, the emission of green house gases should be stabilized "at a level that would prevent dangerous interference with the climate system." Now there has been some reference made to some of the weather activities that have happened recently and I just want people to see, This is how serious TVA is about environmental stewardship. They give one sentence and one page and maybe two other sentences to this issue and it's just inadequate.*

Response: Section 4.2.1 assesses the impacts of each conversion option on the environment. The reader is referred to section 4.4.2.1, Cumulative Impacts of Proposed Action on Air Quality for further analyses and evaluation of these options on global warming.

Comment ID: 30

Name: Heinz J. Mueller

Affiliation: U.S. Environmental Protection Agency

DEIS Section: 4.4.2.3

Comments: *GLOBAL CLIMATE CHANGE - A discussion on climate change impacts was not noticed in the air quality section (pg. 4-6) or as a separate section of the DEIS. The FEIS should address this topic and include information such as the tons per year (TPY) contributions of greenhouse gases for each option, particularly the selected preferred alternative. Source reduction methods should also be explored and commitments made as feasible. The 1994 EPA EIS on the Polk Power Station (Tampa Electric Company) near Tampa,*

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Florida may be useful in developing this FEIS section. Additional EPA guidance is also available.

Response: Global climate change was addressed in Section 4.4.2.3. Some of the Bellefonte conversion options emit considerably less carbon dioxide than others and these differences will be considered, along with other factors, in making the conversion selection. The preferred NGCC alternative emits considerably less carbon dioxide per MW than the all but one of the other fossil-fuel alternatives. The Polk Power Station EIS was considered in developing this section.

Comment ID: 101

Name: Stephen Smith

Affiliation: Tennessee Valley Energy Reform Coalition

DEIS Section: 4.4.2.3

Comments: *The United States is going into global climate change negotiations here in a few months in Japan and yet TVA, the federal government's largest utility, is now proposing to burn more fossil fuels in light of a global climate change environment and doesn't even address that in the draft of your environmental impact statement.*

Response: Section 4.2.1 assesses the impacts of each conversion option on the environment. Some of the Bellefonte conversion options emit considerably less carbon dioxide than others and these differences will be considered, along with other factors, in making the conversion selection. The preferred NGCC alternative emits considerably less carbon dioxide per MW than all but one of the other fossil-fuel alternatives. The reader is referred to section 4.4.2.1, Cumulative Impacts of Proposed Action on Air Quality for further analyses and evaluation of these options on global warming.

Comment ID: 102

Name: Stephen Smith and Michelle Neal-Conlon

Affiliation: Tennessee Valley Energy Reform Coalition

DEIS Section: 4.4.2.3

Comments: *Smith -- TVA is going to be asked to be more pro-active on global climate change and converting Bellefonte to a fossil fuel plant makes no sense.*

Neal-Conlon -- Pulling out this document again, I want to tell you how again how inadequate it is relative to some of the issues that we are facing in our environment today. This is TVA's statement on cumulative impacts on global warming and global climate change. This is how much credibility TVA has given this issue.

Response: Global climate change was addressed in Section 4.4.2.3. Additional information about global climate change and greenhouse gas emissions is contained in Energy Vision 2020 Chapter 9, page 9.24 and Volume Two, Technical Document 1, page T1.70.

Comment ID: 37

Name: Heinz J. Mueller

Affiliation: U.S. Environmental Protection Agency

DEIS Section: 4.9

Comments: *ENVIRONMENTAL JUSTICE (EJ) - Tables 4.9-1 and 4.9-2 provide U.S. Census data (percent non-whites vs. whites) and population percentages below the poverty line. Although the text provides general demographic comparisons of non-whites in nearby cities versus the county, the actual percentage of non-whites for Jackson County and the State of Alabama were apparently not stated in this section. The FEIS should provide the Jackson County and State of Alabama percentages of non-white populations and compare them against local census data percentages.*

Tables 4.9-1 and 4.9-2 present census "division" data and city data. While these are important and helpful to the EJ analysis, are any census data more specific to the plant site and a reasonable radius thereof (e.g., 5-mile radius) available? The FEIS should clarify. If not, the most specific census section(s) should be used and compared to the larger section(s) in which it is (they are) located, and then compared to the county and state. If percentages are similar, disproportionate impacts may not be a concern, unless pockets of

minority and/or low-income populations are noted within the block group. If minorities and/or low-income groups are substantively more represented than whites, EJ impacts may exist and should be further reviewed and mitigated.

In this case, there appear to be concentrations of non-whites ("larger than the county average;" pg. 4-202) in the nearby cities of Hollywood, Scottsboro and Pisgah as well as more distant cities (Stevenson). We also note that 39% of the minority population of Jackson County resides in the Scottsboro census division, suggesting that this is a minority area.

Table 4.9-2 presents poverty line percentages by selected cities within Jackson County. Again, a comparison of more site-specific census data (if available) against state percentages should be pursued in the FEIS. It may be noted that based on a draft EPA Region 4 document entitled "Draft Environmental justice Protocol," low income is defined as earnings of \$15,000 or less for a family of four.

Given that there at least are pockets of minorities in the vicinity of the site at higher percentages than the county (state?), TVA project coordination with these populations is advised. If not already initiated, we suggest thorough discussions with community leaders for the affected populations (non-white as well as white) to honestly discuss the expected project impacts (which should be minimized through commitments or implementation of mitigative measures) and to respond to public concerns. Such dialogue should occur in the affected neighborhood to facilitate access and attendance. The number of affected population and minority/low-income population should be determined. It should also be determined if the affected public, after full understanding of the proposed project, consider themselves as impacted or disproportionately impacted. Employment of affected inhabitants and TVA sponsoring of coursework leading toward possible employment for plant construction or operation may also be important (we note from page 4-204 that "[m]inorities would have equal access to all jobs"). Dialogue should continue with these groups to further inform them of TVA's selection of a preferred option and the associated predicted impacts, changes in project design, monitoring results during proposed operation, and health effects.

Response:

State of Alabama data have been added to Table 4.9-1 so that state demographic comparisons can be made. A new table, 4.9-3, has been added to provide data on minority and low-income populations near the plant site at the smallest available geographic level (block groups). In addition, a discussion of these data has been added to Section 4.9. No disproportionate impacts have been identified. Concentrations of low-income and minority populations in such areas as Scottsboro are far enough away from the site that they would

Appendix Q
Responses to Public Comments

experience no disproportionate impacts. If actions are taken to implement any of the action alternatives, we will work with the local communities to mitigate negative impacts. This would include establishment of local communications channels and would involve all segments of the community, including low-income and minority residents.

Comment ID: 125
Name: Joseph R. Castleman
Affiliation: Department of the Army
DEIS Section: Appendix O
Comments: *Reference Appendix O, page 0-10, paragraph 4.1, Relevant Statutes and Regulations. The proper cite for Section 10 is 33 USC 403.*

Reference Appendix O, page 0-10, paragraph 4.2, Required Permits. We recommend that the following parenthetical statement be added: (In the past TVA has not been required to obtain Section 10 permits for water use facilities constructed in the Tennessee River Basin. However, TVA remains subject to obtaining Section 404 permits when such activities require the discharge of dredged or fill material in waters of the U. S.)

Reference Appendix O, page 0-10 & 11, paragraph 4.3, Applicability. We recommend that portions of this paragraph be rewritten as follows: Alabama does not...However, permits are required from the U. S. Army Corps of Engineers under authority of Section 10 of the River and Harbor Act of 1899 and Section 404 of the Clean Water Act for the construction of water use facilities such as water intake and outfall structures and barge terminal facilities.

The following analyses...

** Application and supporting documentation should be combined with Section 404 permit, if required.*

** COE would issue public...(obstructions to navigation) application are processed together.*

Reference Appendix O, page O-12, 13, paragraph 6.3, Applicability. We recommend that portions of this paragraph be rewritten as follows: Construction activities that result in the discharge of dredged or fill material in waters of the U. S. including wetlands are subject to regulations. A permit would be required only if construction affected these waters. A wetlands...is more than 3 acres, an individual...between 1 and 3 acres.

Generally, applicants...cannot practically avoid waters of the U. S., that the project minimized impacts to these waters, and that...to offset losses. Typical compensatory mitigation for wetland losses requires...disturbed.

The following analyses...

** COE would issue...(obstructions to navigation) application are processed together.*

Response:

The FEIS has been revised to reflect these comments. However, TVA would not be required to obtain a permit under Section 10 of the Rivers and Harbor Act.