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Environmental Scoping Comments on TVA's Bellefonte Combined Operating License Application by Sara Barczak, Safe Energy Director Southern Alliance for Clean Energy April 3, 2008, Scottsboro, Alabama

My name is Sara Barczak and I am the safe energy director with Southern Alliance for Clean Energy. We are a regional non-profit organization with members here in Alabama, throughout the TVA region, and across the Southeast who are concerned about the impacts energy choices have on our health, economy and environment. Thank you for holding two public meetings today to address the environmental scoping issues that should be evaluated as the NRC prepares the draft Environmental Impact Statement (EIS).

We have serious concerns about TVA's push to build two new reactors here at the Bellefonte site. The uncertainties associated with new nuclear power plants continue to escalate, putting ratepayers, taxpayers, and the environment at increasing risk. These risks are not adequately addressed in the application.

We know that TVA has better ways to meet the region's increasing demand for energy, protect our water resources, and combat global warming. Investing more resources in the region's wind, solar, and bio-energy industries and promoting energy efficiency measures instead of costly nuclear power would benefit TVA and offer economic development opportunities for the region, without draining our water resources or our pocketbooks. Unfortunately, the Bellefonte application does not adequately address these other energy options. Renewable energy technologies, like bioenergy, solar, and wind, which are not likely to be targeted by terrorists nor have the capacity, in terms of accidents, to kill thousands of people or permanently contaminate large land areas, should not be ignored by TVA. Energy efficiency measures also pose no health or safety risks to the public and the TVA region has significant resources to tap in this arena.

TVA has excellent wind resources within its service area. TVA should be encouraged to invest more in developing this clean, safe energy resource instead of spending billions more dollars on Bellefonte. There is also potential for bioenergy production in Alabama and TVA's service territory. Clean forms of bioenergy represent a 'homegrown' energy source that can provide local jobs to rural areas that would also support farmers and the region's economy, while helping expand clean energy technologies. The use of solar technologies and other clean energy choices were summarily dismissed in the application. The draft EIS must include a more thorough analysis of energy alternatives.

The NRC needs to fully evaluate TVA's need for power along with alternative supply options, including energy efficiency and demand side management measures. TVA has had a history of overestimating capacity needs and the application continues that trend; it fails to show that TVA needs the additional generating capacity by building reactors at Bellefonte. Further, since the price tag for Bellefonte is already sitting at over $4 billion for reactors that were abandoned, we feel that the NRC should consider that investment when comparing it to other energy options such as efficiency and conservation. Where could we have been if $4 billion had been spent on

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energy efficiency rather than the abandoned site?

The high cost of nuclear power plants will likely lead to cost overruns and rate increases; this is not mentioned in the application. The price for new reactors, such as Westinghouse's AP1000 design that TVA intends to use, has skyrocketed. For example, in Florida the cost for new nuclear plants has risen by two to three times the estimates from just one year ago. Utilities in Florida pursuing the same reactor design have stated costs of $6 to $8.5 billion per reactor, nearly tripling their estimates from just one year ago. Further, TVA remains very close to exceeding its congressionally mandated debt ceiling of $30 billion. Yet there was no mention of TVA's debt ceiling in the application. The NRC must evaluate this in the draft EIS.

Water Impacts

Nuclear power plants have a large impact on water quantity and quality. Nuclear power plants release radioactive contaminants and hazardous chemicals into surrounding water resources, contribute greatly to thermal pollution, negatively impact aquatic life, and require enormous volumes of water in order to operate—requiring more water use than other traditional forms of energy production and significantly more water than energy efficiency measures and clean energy technologies such as solar and wind. This reality is not mentioned in the application.

According to TVA's application, the two Bellefonte reactors will withdraw over 71 million gallons of water per day (mgd) from the Tennessee River (via the Guntersville reservoir) and consume, or lose, over 46 mgd, returning only about one third. This represents more water consumption than all public water systems in the Guntersville watershed combined.[1] The plant will be competing with other important water users in Alabama and the region. Yet, the application does not acknowledge the impacts this may have, nor does it ponder the impacts this could have during severe drought conditions, such as we have experienced recently. The NRC needs to address this in the draft EIS.

As the NRC is aware, TVA already operates the two Sequoyah reactors about 10 miles from Chattanooga, the Watts Bar reactor (with plans to build one more), and three reactors at the Browns Ferry plant, which is downstream of Bellefonte, all along the Tennessee River. Nowhere in the application does it discuss the cumulative impact of having possibly nine nuclear reactors operating on one river basin; let alone all of the other facilities in the basin. Nor does it discuss the cumulative impacts to the Chattanooga area that will be within fifty miles of six nuclear reactors. The NRC must address these cumulative impacts to water resource and human health in the draft EIS.

The Tennessee River, upon which Bellefonte is located, is already stressed from a variety of industrial and municipal users. The full extent of this degradation is not discussed in the

[1] TVA, Bellefonte Units 3&4 COLA (Environmental Report), Rev 0, Section 2.3.2.2.4, Tables 2.3-32, 3.3-1, & 2.3-31.

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application. For instance, the NRC should be aware that the Tennessee River Basin as a whole is considered to be the single most biologically diverse river system for aquatic organisms in the United States, and harbors the highest number of imperiled species of any large river basin in North America with 57 fish species and 47 mussel species considered to be "at-risk." Many fish and mussel populations throughout the entire Tennessee River Basin including the middle Tennessee River which encompasses Guntersville Reservoir, site of Bellefonte, are greatly reduced from their historical numbers. The declines cited by fisheries and aquatic invertebrate experts are due to the incremental impacts from dams, urbanization, industrialization, and nuclear power facilities. The application even states that within the Guntersville Reservoir alone, there has been a 44% decline of freshwater fish captured in TVA sampling since 1984 (ER § 2.4.2.4).

Another problem with water discharged from nuclear power plants is its temperature. This water is warmer than the water into which it is discharged, and the resulting "thermal plumes" cause stress on aquatic life, which can include commercially important fish and shellfish. Warmer water temperatures proximate to a nuclear power plant result in conditions that effect the feeding and breeding patterns of various species. For instance, nuclear power plants aggravate the problem of low dissolved oxygen levels through its heated discharge to lakes and rivers. The state of Tennessee voiced concerns to the NRC about this impact on mussel beds downstream from the Sequoyah nuclear plant, which suffered from even lower oxygen levels as it is also downstream from the Watts Bar nuclear plant.[i] What about the impacts even further down stream, such as the Bellefonte location? There is no mention of this in the application.

Global Warming

Nuclear power plants are vulnerable to the effects of heat and drought. Drought conditions forced one of Browns Ferry's reactors to shut down due to high temperatures in the Tennessee River. That plant is downstream of the proposed Bellefonte reactors. Yet there is no discussion in the application of the impacts Bellefonte operation may have on the ability for Browns Ferry to operate. The NRC must evaluate this in the draft EIS.

The predicted effects of global warming in the region, such as summer heat waves or droughts, could negatively impact the ability for the proposed reactors at Bellefonte to generate electricity under those conditions if the Tennessee River is impacted. This deficiency was demonstrated by the 2006 summer heat wave, when nuclear power plants in France, Germany, and across Europe, and in the U.S., had to shut down because the water temperatures were too high. These effects also happened in the TVA region. During the summer of 2006, extreme heat forced TVA to begin interrupting power to some industrial customers for the first time since 2003. TVA also had also been forced to lower levels in its Tennessee River reservoirs to generate power and provide cooling water for plants.[ii] The application has no mention of the predicted impacts of global warming in terms of temperature and drought on the Tennessee River and how that could impact the operation of Bellefonte reactors. The NRC should evaluate these concerns in the draft EIS.

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Lastly, we would like to comment on the difficulty with reviewing the application. Though we appreciate having the resources available on-line, it is a very cumbersome process to do so. Regular citizens and policymakers do not have the time to wade through these thousands of pages that have to be downloaded at times individually. I would guess that many people in this room have not even looked at one page of the application. And I cannot blame them given the frustration it has caused me. Further, the tables and figures and even acronyms have to be downloaded separately even though they are mentioned within the chapters. This is very time consuming. During my review, I also noticed a few errors in the numbering of figures. Where topographic maps were supposed to be, only wind rose maps emerged. Fundamentally, we believe this application is not complete and should never have been accepted by the NRC. It is frustrating that taxpayer dollars have been wasted on this document, and that time and effort on the part of public citizens has also been wasted reviewing this document, since it really does not seem to be complete. We request that the NRC ask TVA to revise and resubmit their application.

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[i] U.S. NRC, Generic Environmental Impact Statement for License Renewal of Nuclear Plants, Final Report, NUREG-1437, May 1996, vol 1. p. 4-23.

[ii] Daniel Cusick and Mary O'Driscoll, E&ENews, ENERGY MARKETS: Soaring temps set demand records in East, force TVA disruptions, 8/1/06.

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