

# Blue Ridge Environmental Defense League

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## **RE: Programmatic Environmental Impact Statement-Clinch River Nuclear Site Advanced Nuclear Reactor Technology Park**

Dear Tennessee Valley Authority,

On behalf of Blue Ridge Environmental Defense League, we submit the following comments. We are writing in opposition to construction, operation, and decommissioning of an advanced nuclear reactor technology park at the Clinch River Nuclear (CRN) Site in Oak Ridge, Roane County, Tennessee. We are in favor of the no-action alternative. These written remarks are for the public notice and comment period and will supplement any virtual or oral public hearings.

### **Overview**

The Tennessee Valley Authority (TVA) intends to prepare a Programmatic Environmental Impact Statement (PEIS) to address the potential environmental effects associated with the construction, operation, and decommissioning of an advanced nuclear reactor technology park at the Clinch River Nuclear (CRN) Site in Oak Ridge, Roane County, Tennessee. The park would contain one or more advanced nuclear reactors with a cumulative electrical output not to exceed 800 megawatts electric (MWe). TVA plans to evaluate a variety of alternatives including a no-action alternative.

### **Comments**

#### *A Variety of Negative Environmental and Human Health Impacts*

Resource areas to be addressed in the PEIS include, but are not limited to: Air quality; aquatics; botany; climate change; cultural resources; emergency planning; floodplains; geology and groundwater; hydrothermal; land use; navigation; noise and vibration; radiological safety; soil erosion and surface water; socioeconomics and environmental justice; threatened and endangered species; transportation; visual; waste; water use; wetlands; and wildlife.

*Esse quam videri*

1. Intergovernmental Panel on Climate Change Fifth Assessment Report, <https://www.ipcc.ch/>
2. Advanced nuclear reactors no safer than conventional nuclear plants, says science group, [https://www.reuters.com/article/us-usa-nuclearpower/advanced-nuclear-reactors-no-safer-than-conventional-nuclear-plants-says-science-group-idUSKBN2BA0CP?utm\\_source=Energy+News+Network+daily+email+digests&utm\\_campaign=aa5ec72c58-EMAIL\\_CAMPAIGN\\_2020\\_05\\_11\\_11\\_46\\_COPY\\_01&utm\\_medium=email&utm\\_term=0\\_724b1f01f5-aa5ec72c58-89308088](https://www.reuters.com/article/us-usa-nuclearpower/advanced-nuclear-reactors-no-safer-than-conventional-nuclear-plants-says-science-group-idUSKBN2BA0CP?utm_source=Energy+News+Network+daily+email+digests&utm_campaign=aa5ec72c58-EMAIL_CAMPAIGN_2020_05_11_11_46_COPY_01&utm_medium=email&utm_term=0_724b1f01f5-aa5ec72c58-89308088)

Nuclear waste, the by-product of nuclear reactors will remain hazardous to humans and other living beings for hundreds of thousands of years. Other radioisotopes will remain hazardous for millions of years. Thus, these wastes must be shielded for centuries and isolated from the living environment for hundreds of millenia. Therefore, construction, operation, and decommissioning of an advanced nuclear reactor technology park would have negative effects on all aspects of these environmental concerns, in fact, advanced reactors emit large amounts of radioactive gases which would be another problematic waste stream. Ed Lyman from Union of Concerned Scientists, said money going into advanced nuclear would be better spent on bolstering conventional nuclear plants from the risks of earthquakes and climate change, such as flooding. 2

### *There are No Efficient and Practical Solutions for Nuclear Waste*

The results from a Stanford study show that SMRs and nuclear power in general will not reduce the size of a geologic repository for spent nuclear fuel, nor the associated future dose rates. Rather, SMRs are poised to discharge spent fuel with relatively high concentrations of fissile material, which may pose re-criticality risks in a geologic repository. 3

There is no safe or permanent solution that has been found anywhere in the world and may never be found for the nuclear waste problem. In the U.S. the only identified and flawed high-level radioactive waste deep repository site at Yucca Mountain, Nevada has been canceled. There needs to be an end to the production of nuclear waste and for securing the existing reactor waste in hardened on-site storage. There is no need to spread nuclear and the waste produced by it further with new and better technology available now.

### *Small Modular Reactors and Microreactors Are Not The Future or Cost Effective*

The project should not go into effect, because it relies on the usage and ‘cost effectiveness’ of SMR’s and Microreactors. “Affordable” doesn’t necessarily mean “cost-effective.” According to basic economic principles, the cost per kilowatt-hour of the electricity produced by a small reactor will be higher than that of a large reactor, all other factors being equal. That is because SMRs are penalized by the economies of scale of larger reactors—a principle that drove the past industry trend to build larger and larger plants. 6

#### *Esse quam videri*

3. A Critical Analysis Of The Nuclear Waste Management Consequences For Small Modular Reactors,

<https://fsi.stanford.edu/events/critical-analysis-nuclear-waste-management-consequences-small-modular-reactors>

4. Nuclear Power & Global Warming, Union of Concerned Scientists,

<https://www.ucsusa.org/resources/nuclear-power-global-warming>

5. Global energy demand to plunge this year as a result of the biggest shock since the Second World War, Global Energy Review 2020,

<https://www.iea.org/news/global-energy-demand-to-plunge-this-year-as-a-result-of-the-biggest-shock-since-the-second-world-war>

6. Small Isn't Always Beautiful: Safety, Security, and Cost Concerns about Small Modular Reactors, Union of Concerned Scientists, 2013 report

While dealing with new and advanced reactors such as SMR's and microreactors, designs are not yet finalized and cost claims made by designers are not reliable. Actual costs and maintenance would be far higher. Along with the upfront costs of SMR's, there also has to be maintenance, operational, and labor costs in a safe and secure way. "In addition to imposing a penalty on the capital cost of SMRs, economies of scale would also negatively affect operations and maintenance (O&M) costs (excluding costs for nuclear fuel, which scale proportionately with capacity). Labor costs are a significant fraction of nuclear plant O&M costs, and they do not typically scale linearly with the capacity of the plant: after all, a minimum number of personnel are required to maintain safety and security regardless of the size." 6

### *Nuclear Energy is a Struggling Industry*

Renewables are set to be the only energy source that will grow in 2020, with their share of global electricity generation projected to jump thanks to their priority access to grids and low operating costs. Despite supply chain disruptions that have paused or delayed deployment in several key regions this year, solar PV and wind are on track to help lift renewable electricity generation by 5% in 2020, aided by higher output from hydropower. 4

While TVA continues to finance nuclear power and have it as 42% of all energy generated, several of the 94 U.S. conventional nuclear plants are shutting due to high safety costs and competition from natural gas and wind and solar energy. 2 The nuclear industry is a struggling industry as more and more plants get shut down and retire. Since 2012, six reactors have shut down and there are plans that seven others will close. Shutting these plants down is not a short term trend, while the price of renewables gets cheaper. We believe that nuclear power should not be used at all and, in fact, should be replaced with truly renewable energy and energy efficiency. 5

### *Energy Demands are Decreasing*

A new report released by the International Energy Agency projects that energy demand will fall 6% in 2020 – seven times the decline after the 2008 global financial crisis. In absolute terms, the decline is unprecedented – the equivalent of losing the entire energy demand of India, the world's third largest energy consumer. Advanced economies are expected to see the biggest declines, with demand set to fall by 9% in the United States and by 11% in the European Union. The impact of the crisis on energy demand is heavily dependent on the duration and stringency of measures to curb the spread of the virus. For instance, the IEA found that each month of worldwide lockdown at the levels seen in early April reduces annual global energy demand by about 1.5%. 4

The total demand for energy is decreasing and building a new reactor park does not match the need for energy needed. And with TVA spending \$4 million dollars on this project, it is a risk and wasteful spending of taxpayer and customers money. 7

*Esse quam videri*

7. Yale Environment 360, Industry Meltdown: Is the Era of Nuclear Power Coming to an End?  
<https://e360.yale.edu/features/industry-meltdown-is-era-of-nuclear-power-coming-to-an-end>

**Conclusion**

Blue Ridge Environmental Defense League is in opposition to Tennessee Valley Authority going through with the construction, operation, and decommissioning of an advanced nuclear reactor technology park at the Clinch River Nuclear (CRN) Site in Oak Ridge, Roane County, Tennessee. for the following reasons: A variety of negative environmental and human health impacts, there are no efficient and practical solutions for nuclear waste, small modular reactors and microreactors are not the future or cost effective, nuclear energy is a struggling industry, and energy demands are decreasing.

Submitted Respectfully,  
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