

# Blue Ridge Environmental Defense League

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May 15, 2017

Kristine Svinicki, Chairman  
U.S. Nuclear Regulatory Commission  
Washington, DC 20555-0001

**RE: Tennessee Valley Authority; Clinch River Nuclear Site; Early Site Permit Application  
Docket No. 52-047, NRC-2016-0119, 2017-07501**

Dear Chairman Svinicki:

On behalf of the Blue Ridge Environmental Defense League and our members in Tennessee and five other southeastern states, I write to provide scoping comments on the environmental impact statement for the proposed early site permit at Clinch River.

## Background

On April 13, 2017, the U.S. Nuclear Regulatory Commission published in the Federal Register (82 FR 17885) its intent to prepare an EIS for the Tennessee Valley Authority's early site permit for the Clinch River Nuclear Site, located in Roane County, Tennessee, about 25 miles from Knoxville. TVA's request identified the Clinch River site as suitable for two or more so-called small modular reactors, experimental nuclear power plants which range from 50 megawatts to 300 megawatts, about one-third the power of conventional nuclear power plants.

## Scoping Comments

In its Environmental Report for this project (ML16144A085), TVA attempts to justify its site permit on the basis of global warming and energy security. The application states:

In 2009, Executive Order (EO) 13514 was issued on *Federal Leadership in Environmental, Energy, and Economic Performance*. EO 13514 directed all Federal Agencies to reduce their greenhouse gas (GHG) emissions by 28% by 2020 (Reference 1-1). This was followed by EO 13693 (March 2015), *Planning for Federal Sustainability in the Next Decade* (Reference 1-2), which called for further reduction of Federal facility GHG emissions to 40 percent by 2025, and identified SMRs as one of the "alternative energy" options for meeting clean energy goals.

In 2013, Executive Order (EO) 13636 was issued on *Improving Critical Infrastructure Cybersecurity and Presidential Policy Directive (PPD) 21 on Critical Infrastructure Security and Resilience* (Reference 1-3). EO 13636 and PPD-21 are designed to strengthen the security and resilience of critical infrastructure against evolving threats and hazards.<sup>1</sup>

However, neither of these goals is advanced by the siting of two or more modular reactors at the Clinch River Nuclear Site.

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<sup>1</sup> Clinch River Nuclear Site Early Site Permit Application, Part 3, Environmental Report, page 1-2

## *Global Warming*

Executive Order 13514, titled "Federal Leadership in Environmental, Energy, and Economic Performance," was issued on October 5, 2009. The public policy advanced by the President's Order was:

[I]ncrease energy efficiency; measure, report, and reduce their greenhouse gas emissions from direct and indirect activities; conserve and protect water resources through efficiency, reuse, and stormwater management; eliminate waste, recycle, and prevent pollution; leverage agency acquisitions to foster markets for sustainable technologies and environmentally preferable materials, products, and services; design, construct, maintain, and operate high performance sustainable buildings in sustainable locations; strengthen the vitality and livability of the communities in which Federal facilities are located; and inform Federal employees about and involve them in the achievement of these goals.<sup>2</sup>

The United States is the world's largest energy consumer; the federal government is the nation's single largest energy user; the Department of Defense is the biggest energy user in the federal government; and the leading use of energy in the Defense Department is...jet fuel. In other words, energy use in the most energy-intensive federal agency is used principally to fly or drive heavy equipment over long distances. A modular nuke at Clinch River would not have any impact here.

Moreover, the general trend in energy use by the federal government has been downward for the last four decades, and is now in steep decline. According to the Federal Energy Management Program, "this accomplishment is directly attributed federal employees making the choice for efficiency and striving to reduce operating costs." The tools employed by federal agencies are: training, technical assistance and energy performance contracts. Not nuclear power.

A subsequent executive order, EO 13693 "Planning for Federal Sustainability in the Next Decade," was issued on March 19, 2015. This order revoked EO 13514 but reiterated the overall policy: "It therefore continues to be the policy of the United States that agencies shall increase efficiency and improve their environmental performance." EO 13693 also set specific targets for cleaner energy sources with interim goals, the end points to be achieved by 2025 for building-electric energy and thermal energy.

Two broad energy categories are defined in EO 13693: Renewable and alternative. They are not the same. According to the order, *alternative energy*<sup>3</sup> includes small modular nuclear reactors. The order's definition of *renewable energy*<sup>4</sup> does not include small modular reactors. The

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<sup>2</sup> Federal Register Vol. 74, No. 194, Page 52117, October 8, 2009

<sup>3</sup> "alternative energy" means energy generated from technologies and approaches that advance renewable heat sources, including biomass, solar thermal, geothermal, waste heat, and renewable combined heat and power processes; combined heat and power; small modular nuclear reactor technologies; fuel cell energy systems; and energy generation, where active capture and storage of carbon dioxide emissions associated with that energy generation is verified." EO 13693, Section 19(c)

<sup>4</sup> "renewable electric energy" means energy produced by solar, wind, biomass, landfill gas, ocean (including tidal, wave, current, and thermal), geothermal, geothermal heat pumps, microturbines, municipal solid waste, or new hydroelectric generation capacity achieved from increased efficiency or additions of new capacity at an existing hydroelectric project." EO 13693, Section 19(v)

differences are significant when applied to the ten-year sustainability goals set by Section 3 of the order.<sup>5</sup> Section 3(b) of the order is specific to *building electric energy and thermal energy* which shall be provided by renewable electric energy and alternative energy, "not less than 25 percent by fiscal year 2025." However, Section 3(c) states that the percentage of *building electric energy* to be provided by renewable electric energy is to be "not less than 30 percent by fiscal year 2025."

Clearly, the Executive Order contemplates *alternative* energy sources to be heat sources, such as nuclear and other thermoelectric power plants. The *renewable* sources, directed to be used solely for electrical generation, are largely solar, wind, wave, heat pumps and hydroelectric. The order provides TVA with little justification for so-called small modular reactors, particularly within the eight-year window remaining between now and 2025.

### *Critical Infrastructure*

Executive Order 13636, "Improving Critical Infrastructure Cybersecurity," was issued February 12, 2013.<sup>6</sup> The order cites "cyber intrusions into critical infrastructure" which "demonstrate the need for improved cybersecurity." The order states:

Sec. 9. Identification of Critical Infrastructure at Greatest Risk. (a) Within 150 days of the date of this order, the Secretary shall use a risk-based approach to identify critical infrastructure where a cybersecurity incident could reasonably result in catastrophic regional or national effects on public health or safety, economic security, or national security.

TVA's application states that "SMR deployment will demonstrate that the technology is capable of incrementally supplying...power that is less vulnerable to disruption to facilities owned by federal agencies."<sup>7</sup> The NRC cannot take lightly the prospect of another experimental nuclear reactor design's impact on electric power infrastructure in light of the evolving threats and the energy economics of the 21<sup>st</sup> Century. SMR passive cooling systems do not have active backup systems. The weaker containment of SMRs has a greater chance of damage from hydrogen explosions. Underground siting increases risk during flooding. And multiple SMRs present higher risk from reduced support staff or safety equipment. The risks from these reactors are precisely the catastrophic regional or national effects on public health or safety and economic security which EO 13636 seeks to prevent.

In conclusion, the Commission should reject TVA's proposal for modular nukes.

Respectfully,



Louis A. Zeller, Executive Director

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<sup>5</sup> Sec. 3. *Sustainability Goals for Agencies*, In implementing the policy set forth in section 1 of this order and to achieve the goals of section 2 of this order, the head of each agency shall, where life-cycle cost-effective, beginning in fiscal year 2016, unless otherwise specified:

<sup>6</sup> Federal Register, Vol. 78, No. 33, February 19, 2013

<sup>7</sup> Clinch River Nuclear Site Early Site Permit Application, Part 3, Environmental Report, page 1-1