



Rani L. Franovich
Principal Consultant and Expert Witness
Nuclear ROSE Consulting, LLC
Rani@NuclearROSELLC.com

October 26, 2023

Senators of the LR 178 Special Committee
Nebraska Unicameral Legislature
State Capital Room 1507
1445 K St, Lincoln, NE 68508

Re: LR 178 – SUPPORT

Dear Senators:

I write to express my support for the proposed Interim study to create a Select Committee to examine the feasibility of constructing and operating small modular nuclear reactors to generate electric power in Nebraska. As a former staff member of the US Nuclear Regulatory Commission (NRC) for 30 years and a qualified, experienced inspector, I possess expert knowledge of commercial reactor safety. Since the inception of commercial nuclear power in 1958, no fatality has been attributed to radiation exposure from power generation in the US.

In addition to its exceptional safety record, nuclear energy provides clean, reliable baseload electricity. In its Draft Generic Environmental Impact Statement (EIS) for Advanced Nuclear Reactors (ANRs)¹, the NRC estimated greenhouse gas emissions during plant operation. Sources include commuting plant workers, fuel and waste transportation, or running equipment (e.g., emergency diesel generators),² not facility operations to generate electricity.

The NRC also explained that nuclear energy provides power generation and other benefits:

Need for Power

The Atomic Energy Act requires the social and environmental consequences of the civilian use of nuclear materials be weighed against the benefits that their use would provide. Historically, the primary benefit of nuclear power generation projects has been to provide electrical power to the grid... ANRs may also provide power to the grid, and... some ANRs may be built for other purposes (e.g., to generate process heat, to desalinate water, or as a research and demonstration project).³

¹ <https://www.nrc.gov/docs/ML2122/ML21222A044.html>

² <https://www.nrc.gov/docs/ML2122/ML21222A055.pdf>, Appendix H, pp. H-2 to H-5

³ <https://www.nrc.gov/docs/ML2122/ML21222A055.pdf>, p. 1-11

The NRC further explained that intermittent sources of energy (i.e., wind and solar) do not meet the need for baseload generation:

Energy Alternatives

A reasonable alternative must meet the purpose and need for the project. For example... to supply baseload power. ... [A]lternatives such as coal, natural gas, and mixtures of natural gas and renewable energy sources... could supply baseload power. Energy sources such as wind and solar by themselves were not considered reasonable alternatives because they could not supply baseload power.⁴

In its Final EIS for the Kairos "Hermes" demonstration reactor, the NRC found:

... the long-term benefits from implementation of the Hermes project could be substantial... [and] could help the [US]... meet its climate change objectives... with less reliance on more land-intensive energy generation processes, such as large complexes of solar photovoltaic cells or wind turbines, that require larger commitments of land and have a greater potential for aesthetic impact on landscapes and seascapes and physical injury to terrestrial or aquatic wildlife.⁵

In short, the many benefits of nuclear energy include:

- It has an impressive safety record;
- It has a small environmental footprint relative to other forms of energy;
- It is esthetically preferable to some renewables;
- In the near term, used fuel is safely stored in dry cask containers;
- It offers baseload generation with high capacity factors, which strengthens grid stability;
- It involves exceedingly low greenhouse gas emissions from workers and equipment;
- It is vital to energy security and the general welfare;
- It can supply a global marketplace with innovative US technologies, strengthening the national economy; and
- US vendors forge long relationships with international customers, which is important for national security.

Lastly, nuclear energy enjoys strong bipartisan support in the US Congress as evidenced by the unanimous approval this week of twelve nuclear bills by a subcommittee within the US House Energy and Commerce Committee.⁶ If enacted, proposed legislation would effect regulatory reforms necessary to enable scalable deployment of new and advanced reactor technologies.

In closing, I appreciate the invitation to testify on these matters and respectfully request that this letter of support be included in the hearing record.

Sincerely,



⁴ <https://www.nrc.gov/docs/ML2122/ML21222A055.pdf>, pp. 1-12 to 1-13

⁵ <https://www.nrc.gov/docs/ML2321/ML23214A269.pdf>, p. 5-9

⁶ <https://energycommerce.house.gov/posts/subcommittee-markup-recap-e-and-c-advances-bills-to-secure-reliable-clean-affordable-american-energy>