

LWVNM Nuclear Issues Consensus Questions

December 2023

Task #1 *Summarize the current contribution nuclear energy provides as both a baseload and a greenhouse gas free source for domestic/international energy production.*

- 1. Should both baseload energy sources and variable/renewable energy sources be weighted in the energy mix to ensure power is available to consumers when needed? (Variable energy producers such as wind and solar are not always available. Baseload sources can supply energy continuously.)**

Pros: Baseload sources include nuclear, hydropower (where available) and fossil fuels. Eliminating Baseload power from sources available could result in power outages.

Cons: LWVNM may consider some Baseload power sources as objectionable because of waste streams generated or public exposure to radiation, pollution or hazardous materials.

- 2. As limiting carbon emissions is a prerequisite for minimizing global climate change, how important should the total carbon footprint be when considering a GHG-free energy option?**

Pros: To speed the reduction in the emission of greenhouse gases, the total carbon footprint must be considered.

Cons: It might be preferable to choose a source with a bigger carbon footprint if it is considerably less expensive and/or easier to build.

Task #2 *Identify deterrents to nuclear energy expansion and any proven and effective remedies (consider the LWVNM Spent Nuclear Fuel Storage Safety Position adopted in 2021).*

- 3. Will the US be able to achieve its targets to mitigate climate change over the next 20-25 years without maintaining or increasing the use of nuclear power?**

Pros: Wind and solar generation are growing rapidly because of declining costs relative to other sources. They may be sufficient with battery back-up and fossil fuel where available. In addition, geothermal and other baseload sources may be developed.

Cons: Some experts do not believe that will be possible.

- 4. What are the most serious barriers to greater use of nuclear power generation in the U.S.?**

Response: There is currently no domestic repository for spent nuclear fuel. Public apprehension regarding dangers of commercial nuclear energy is an issue. Most of the

world's supply of enriched uranium comes from Russia. Domestic nuclear power plant construction costs greatly exceed those of foreign nations producing nuclear power.

Remedy: Provide better explanation and education to minimize concerns. Institute consent-based siting. Create new supply chains for uranium fuel.

Task #3 Consider the current U.S. energy situation and domestic nuclear plant status including closures with related impacts on states.

5. Should a combination of life extension of the current nuclear reactors and construction of new reactors of the same type be used by the U.S. to meet its goal of zero greenhouse gas emissions by 2050?

Pros: Maintaining the current domestic nuclear power plants by license extensions and construction and operating additional light water reactors of current design will eliminate 12 years of global carbon emissions.

Cons: Increasing operation of the current light water reactor fleet domestically will only increase the current spent nuclear fuel problem unless there is federal action regarding a permanent repository or a change in the national opposition to reprocessing spent nuclear fuel.

6. What criteria are most important in deciding whether to build a new nuclear power plant?

Pros: Community acceptance, limited baseload power options available or rejection of fossil fuel sources could increase community acceptance of nuclear power as a viable option.

Cons: Prohibitive costs, concerns about a reliable source of fresh fuel, increasing the stock of spent nuclear fuel when no domestic solution is available.

7. How much should costs to consumers be considered in deciding what type of investments a public utility should consider in order to meet future demand for electricity?

Pros: The full cost of an energy source should be considered including raw materials, fabrication costs, operating costs, transmission/distribution costs, and final demolition and disposal costs. This hasn't historically been reported for renewable energy sources and typical costs quoted are for operating only. However, commercial nuclear power always considers the decommissioning that the trust fund and nuclear waste fund utilities must address.

Cons: There are federal subsidies for some energy sources and the stand-alone costs should be considered when evaluating viable energy options.

Task #4 *Evaluate newer advanced reactor concepts with enhanced safety features and efficiency with related implementation status.*

8. Should the League support the use of the Advanced Nuclear Reactors to have a positive impact on meeting the goal of zero greenhouse gas emissions by 2050?

Pros: Advanced nuclear reactors include options to minimize/reuse spent nuclear fuel; ease of manufacture allowing factory fabrication (modular units) with portability/shipment to site on trucks or barges; and disposal as a unit without lengthy/costly decommissioning or spent nuclear fuel remaining, thereby enabling community reuse of the land. Additionally, some communities may opt to purchase several smaller units offering flexibility. Acceptance of small and medium nuclear power reactors is driven both by a desire to reduce the impact of capital costs and to provide power away from large grid systems.

Cons: Most advanced reactor designs require HALEU fuel (high assay low enriched) for operation and until recently Russia was the only international source. Following international concerns regarding the invasion of Ukraine, additional sources of HALEU are being developed internationally. The initial domestic small modular reactor project slated for deployment in 2023 at Idaho National Laboratory was cancelled following cost concerns.