

Initial Report

of the

NEAC Existing Fleet Subcommittee

March 28, 2019

Charter:

“to provide expert advice and guidance to the Assistant Secretary for Nuclear Energy (NE) in the U.S. Department of Energy (DOE), through the NEAC, on topics related to the long-term sustainability of the current fleet of nuclear power plants.”

Areas for review: “Technology development ... or policy opportunities ...”

First meeting: November 2, 2018, Washington, DC

Focus of first meeting:

- Review of the LWRS program

- NRC input on opportunities for expanded cooperation with DOE/NE*

- Discussion of relevant policy issues*

*in areas supporting the charter

KEY RECOMMENDATION

Policy changes are necessary to assure survival of the existing fleet of U.S. commercial nuclear plants.

- Continued early shutdowns of operating plants are jeopardizing the ENTIRE domestic commercial nuclear industry and threaten to have extremely severe repercussions on national security and the integrity of the national electricity grid.
- Without policy changes, reductions in operating costs and improved efficiencies utilizing advances in technology will not be sufficient to address the crisis in short-term economic sustainability.

Membership

Existing Fleet Subcommittee

- **Eric Anderson** **Executive Director at J.P. Morgan**
- **John Bear** **CEO of MISO**
- **Matthew P. Crozat** **Senior Director, NEI**
- **Eugene S. Grecheck** **Grecheck Consulting LLC & Past Pres. ANS**
- **Karen Kirkland** **Assoc. Dpt. Head & Professor, TAMU***
- **Seungjin Kim** **Professor & Head, Purdue School of Nuc. Eng.**
- **Maria Korsnick** **Pres. and CEO, NEI**
- **Peter Lyons** **Former NE-1 & NRC Commissioner***

*co-chairs

Policy Recommendations – 1/2

- A WH Senior Director position should be created, responsible for nuclear energy domestic and international programs, reporting to both the NSA and the Chairman of the NEC.
- A new PTC should be set at a level (w/inflation) comparable to the past solar and wind PTCs of \$23/MWh – for LW SMRs and other advanced reactors coming online before 2040.
- Create pilot programs, either with existing LWRs or planned SMRs, to demonstrate utilization of nuclear energy in sectors beyond traditional electricity production.
- Secretary and other senior Admin. officials should provide expert witness to importance and benefits of maintaining a strong nuclear industry and interact with leadership of the fossil and renewables industries to discourage their opposition to nuclear energy.
- Administration should recognize the separate attributes of coal and nuclear energy and ensure that programs are tailored to the needs of each energy source.
- Administration should support revenue-neutral legislation to financially recognize the zero-carbon attributes of nuclear power and its substantial contribution to clean air.
- Administration should develop legislation or propose a FERC rule to assure that state or federal mandates for specific energy sources do not discriminate against any energy source with comparable emission attributes.

Policy Recommendations – 2/2

- Administration should work with FERC on market structure issues that currently do not recognize, or that frustrate the effectiveness of state and federal financial incentives designed to recognize, the attributes of nuclear power. The Administration should encourage FERC to adopt market structures that permit units needed to serve demand, such as nuclear plants, the opportunity to set price and earn their competitive returns in the markets.
- The Administration should consider recommending, in regulated states, review by the public utility commission whenever closure of any operating nuclear plant is considered.
- DOE/NE should expand existing programs to assure that the university community is more involved in issues relevant to the sustainability of the existing fleet.
- Administration should work with Congress to enact a comprehensive used fuel management policy with adequate funding.
- DOE should place high priority on re-start of a Low Dose Radiation Research Program, per Public Law 115-246, dedicated to resolving uncertainties in health effects of low doses of radiation.
- To avoid ceding international leadership of nuclear power to Russia and China, charge the NSC with development of a comprehensive suite of programs to re-invigorate U.S. global competitiveness in nuclear energy. (joint with International Subcommittee)
- The FY19 reductions in the NEUP program should be restored immediately.

Technology Recommendations – 1/2

- The recommendations with highest priority:
 - Expansion of LWRS project efforts for:
 - Optimization of plant physical security,
 - Research supporting utilization of ATFs in the near-term, and
 - Integration of smart instrumentation into the existing plants.
 - Assistance to plants to become more flexible.
 - Extension of some plants' products outside the traditional electricity sector may enhance their economic situations.
 - Both Owners' Groups included load-following as a top priority.

Technology Recommendations – 2/2

- Focus LWRS projects on improving the economic competitiveness of the existing fleet on a near-term time scale.
- Provide additional assistance with the following technologies
 - Data analytics on large data sets,
 - Replacement of existing battery systems with a fast charge system, and
 - Labor optimization
- Increase support to the nation's university research reactors
 - Advise and assist nuclear engineering programs in providing educational offerings related to the existing fleet and
 - Better utilize university nuclear engineering programs in mission support of DOE/NE programs to ensure that the nation's nuclear engineering university sector remains the gold standard for global excellence.
- Develop technologies to detect fraudulent components.
- Support additional research on health effects of low doses of radiation, consistent with the 3rd to last Policy recommendation.

Recommendations for Increased Cooperative Research with NRC

- The Committee recommends increased cooperative research between the DOE and the NRC in the following key strategic areas:
 - ATF
 - Security
 - Digital Instrumentation
 - Cyber-security
 - Fire PRA

Acknowledgements

- The EF Subcommittee expresses thanks to the following guest speakers at our first meeting:
 - Ed McGinnis (DOE/NE, Acting Assistant Secretary for Nuclear Energy)
 - Alison Hahn (DOE/NE, Federal Program Manager for LWRS and also representing Shane Johnson, Deputy Assistant Secretary)
 - Bruce Hallbert (DOE/NE, LWRS Technical Integration Office Director)
 - Ken Schrader (PWROG Chair)
 - John Grubb (BWROG Chair)
 - Ray Fursteneau (U.S. NRC, Director, Office of Nuclear Regulatory Research)

Tentative Topics for next Subcommittee Meeting

- Accident Tolerant Fuels
- Modeling and Simulation