



U.S. DEPARTMENT OF
ENERGY

Nuclear Energy

Status of NEAC Recommendations

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**Nuclear Energy Advisory Committee
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Charges to the NEAC International Subcommittee

■ 2010 – International Subcommittee Established

- Assistant Secretary for Nuclear Energy Pete Miller
- Allen Sessoms, Chair
- Charge: Review and provide guidance on international nuclear energy policy supporting the safe, secure and peaceful expanded use of nuclear energy while minimizing the risks of proliferation

■ 2012 – International Nuclear Energy Cooperation

- Assistant Secretary for Nuclear Energy Pete Lyons
- William Martin, Chair
- Charge: Review NE-6 international activities to evaluate how to better employ limited resources, advance multinational approaches to SNF disposal and most effectively support U.S. nuclear exports.

■ 2014 – U.S.-China Cooperation on Nuclear R&D

- Assistant Secretary for Nuclear Energy Pete Lyons
- Regis Matzie, Chair
- Charge: Review U.S.-China nuclear collaboration and recommend mechanisms to increase effectiveness in support of USG and U.S. industry objectives while minimizing any potential negative impacts.

International

- **Develop a catalog of existing and planned NEUP-type university projects and study if any of these are related or could be linked to international nuclear initiatives. Consider giving special credit when evaluating the proposals that explicitly include international universities from targeted countries as team members in NEUP bids.**

Status: NE's international office's commercial engagement strategy includes creating a catalog of R&D projects to include NEUP programs in the next year. NEUP has successfully implemented this recommendation and illustrated its potential through its continued highly successful collaboration with the United Kingdom (UK).

International

■ DOE NE, in regard to International Collaboration, should:

- Maintain active involvement in OECD NEA activities, recognizing that recent activities of NE have led to the sustainability of the NEA

Status: NEAMS significantly contributes to NE's ongoing active involvement in OECD NEA programs through its activities at INL:

- International Reactor Physics Experiment Evaluation Project (IRPhEP) and the International Criticality Safety Benchmark Evaluation Project (ICSBEP)
- Collaboration with OECD NEA to promote international and student participation, and maintain and upgrade an advanced searchable database that provides easy characterization and identification of the vast amount of data that are contained within the Handbooks.

International

- **Increase the budget for NE-6 to \$8-10 million as this relatively small increase could do much good in regard to accomplishing overall objectives.**

Status: NE has requested \$3.0 million in FY17.

International

- **Develop an international nuclear energy R&D roadmap (recognizing it needs to be integrated with the emerging national view of the future) delineating areas of existing and possible collaboration internationally with the objective of sharing expertise, expenses and facilities. Particularly, countries with less established nuclear programs should be focused on as the U.S. can positively influence new build decisions as well as the regulatory, safety culture, and education environments. (Bring to bear the creative thinking of U.S. suppliers, national laboratories and key universities into this process.)**

Status: NE has recently updated the nuclear energy R&D roadmap and included in the update NE6 provided areas of international collaboration with other countries. The revised Roadmap is still working through interagency clearance prior to being issued.

International

- Continue efforts to complement existing SMR program activity, with the aim of seeking early overseas deployment within legal guidelines.

Status: NE supported a workshop in Jordan in June 2014 exploring challenges and opportunities associated with the development of SMRs worldwide. The results of the workshop were published as a report entitled “Report of the Small Modular Reactor Workshop: Practical Deployment Issues and Approaches.”

International

- **Establish a more comprehensive program to maintain nuclear workforce expertise, both domestically and internationally, noting this can only be done in conjunction with a healthy U.S. nuclear industry. It also must be recognized that DOE NE cannot be successful overall without a healthy U.S. nuclear industry.**

Status: NE and State Department, under a Team USA working group initiative, are developing a 5 day training course on Nuclear Energy. The course will address nuclear energy technology, critical policy approaches related to nuclear, discuss key stakeholders (government and private), and discuss issues, challenges, and opportunities regarding nuclear com

International

- **Assign a high priority for participating in climate change initiatives across DOE.**

Status: On August 3, 2015, President Obama announced the Clean Power Plan (CPP) – an historic and important step in reducing carbon pollution from power plants that takes real action on climate change. Nuclear power is part of an "all the above" energy strategy that supports economic growth and job creation, enhances our nation's energy security, and protects the planet for future generations. The CPP ensures that zero carbon nuclear power will continue to play a prominent and meaningful role in America's energy mix.

- **Develop a specific topic of increased interaction with ARPA-E; a specific example for a nuclear related "stretch goal" could be: "expedited (i.e. less than 10 years) operational deployment of zirconium-free fuels."**

Status: Pending Response.



International

- **Identify the competitive advantages and disadvantages of international competitors for nuclear plant construction, fuel services and infrastructure support for nuclear energy development in emerging economies (in cooperation with the Department of Commerce and Department of State) by looking at the last several international reactor sales and dissect them into: what did the USG do in support of these?; what did other governments do to support their vendors?; and why did the sale go in the direction that it did? This would help identify a possible better TEAM USA strategy for future opportunities.**

Status: NE actively participates in ongoing discussions of the competitive market at TEAM USA and CINTAC meetings which actively explore how the USG can support U.S. nuclear exports.

International

- **Assess the potential for the United States to provide bundled services, including priorities, processes and recommended actions.**

Status: NE actively participates within IAEA/INPRO and IFNEC/RNFSWG activities exploring the potential benefits of a commercially-based comprehensive approach to providing back end services to the marketplace.

- **Analyze the extent to which current lending terms are inhibiting investments, and to what extent an expansion of lending terms (OECD-based and others) would relieve this limitation (case studies).**

Status: As chair of the IFNEC Steering Group, NE has sponsored nuclear finance workshops in London, Morocco, Abu Dhabi, and Paris over the past four years.



International

- **Leverage current U.S. nuclear industry design innovation advantage (e.g., the AP1000 and the ESBWR) through the TEAM USA initiative with an emphasis on manufacturing innovations (case study).**

Status: Advantages of U.S. reactor designs are promoted primarily through advocacy by the USG for vendor bids. NE supports the interagency process in evaluating advocacy requests and supports advocacy during international trade missions and other visits.

- **Continue to enhance efforts to aid American vendors in their bids to compete in key nuclear markets. Work through TEAM USA to enhance the NRC's role in this regard to leverage the continued regulatory "gold standard" that the agency still holds, thereby promoting the highest level of safety of U.S. approved designs.**

Status: The NRC is an independent agency which is aware of the competitive market and makes its own programmatic decisions on when and how to support.

International

- **Maintain active involvement in OECD NEA activities, recognizing that recent activities of NE have led to the sustainability of the NEA.**

Status: This month NE successfully completed the transition of the IFNEC Secretariat to the NEA including funding support.

- **Continue to support post-Fukushima research and development (including U.S. commercial assistance and U.S. national laboratory expertise) to assure that the lessons of Fukushima are studied and experience gained (including reducing radioactivity at the site, as well as taking steps to decommission the facility). This should be done in close coordination with the international community so that the lessons learned are applied globally assuring a safer nuclear future.**

Status: The Office of Environmental Management is the lead program office for facilitating DOE Headquarters and encouraging National Lab technical engagement with the Tokyo Electric Power Company and Japanese government ministries/agencies involved in Fukushima clean-up activities.

International

- **Maintain active involvement in OECD NEA activities, recognizing that recent activities of NE have led to the sustainability of the NEA.**

Status: This month NE successfully completed the transition of the IFNEC Secretariat to the NEA including funding support.

- **Work at being more involved and influential at the IAEA as new entrant countries always look to the IAEA for guidance and help.**

Status: NE actively supports emerging states through its participation in the Joint Convention, INPRO projects, and recently chaired a session within the INPRO Dialogue Forum on the transfer of responsibility for spent nuclear fuel as part of a multinational approach to spent fuel disposal.

International

- **Continue to support the IAEA international laboratory at Seibersdorf and international activities within the Idaho National Laboratory.**

Status: NE relies heavily on INL's resources to support bilateral engagement for the development of nuclear energy in a safe and sustainable manner and also to support the Office's multinational engagement in IFNEC and other fora.

- **Maintain the IFNEC program, recognizing that U.S. leadership in an international forum strengthens overall U.S. nuclear objectives as supporting the IAEA in these functions is a positive, but its budget is not large enough to add a mission as potentially broad as nuclear energy operations and safety.**

Status: NE continues to chair the IFNEC Steering Group and contributes substantively to activities conducted within the RNFSWG on multinational options for the disposal of spent fuel.

International

- **Reinvigorate the U.S.'s role in the Generation IV International Forum (GIF) through the leadership of the DOE Deputy Assistant Secretary for Nuclear Reactor Technologies in his new role as the new chairman of GIF.**

Status (from NE-6/7): After assuming the Chairmanship of the GIF Policy Group in 2013, the NE Deputy Assistant Secretary for Nuclear Reactor Technologies was pivotal in the launch of the Strategic Review of the organization -- a retrospective evaluation of the GIF's progress over the last ten years.

International

- **Proactively project U.S. nuclear energy leadership through enhanced nuclear technology education, safety and safeguards training, collaborative R&D, and regulatory collaboration and training; key elements of this recommendation are:**
 - Be initiated early, e.g., when nuclear power program intentions are being discussed
 - Be funded through a collaborative effort by government and non-government sources
 - Be geared to building the infrastructure needed to have a safe, secure, and effective nuclear power program

Status: NE’s participation in “Team USA” yields this on-going leadership to strategically develop a whole-of-government approach on a country by country basis.

■ DOE should issue a Request for Proposal (RFP) to:

- Select an entity that can collect the training and education capabilities and offerings that already exist among the nuclear industry and organize the information into a comprehensive and coordinated program
- Task the selected entity to develop a model project to offer this program to new entrant/newcomer nuclear countries
- Task the selected entity to develop a fund raising process (e.g., similar to the Fulbright approach), identify potential funding sources, and solicit funding to provide a sustainable program
- Find or establish an independent company or organization that would deliver this program to new entrant countries

Status: NE finalized an internal commercial strategy plan identifying how to better leverage its resources to contribute to USG advocacy and other support for the U.S. nuclear industry. NE is now developing an implementation plan prior to committing resources to this endeavor.

International

- Give greater confidence to new nuclear power entrants as well as established nuclear power countries in the once-through fuel cycle by promoting dry spent fuel storage as an interim step to be followed by direct geological disposal
- Continue ongoing efforts on Comprehensive Fuel Services programs, especially those suggested by the “Blue Ribbon Commission on America’s Nuclear Future” as part of a comprehensive nuclear waste management approach

Status for both items: NE, through its active participation in the RNFSWG, has made significant progress in advancing concepts supporting multinational collaboration in the disposal of spent fuel, and is now working to focus these efforts to include the active participation of emerging nuclear states.

International

- The importance of a strong, knowledgeable, and independent nuclear regulatory body has been a constant and well-articulated theme over the past few years since the Fukushima reactor accident. Since the nuclear industry is global and events anywhere influence programs all over the world, it is vital that the U.S continue to support this type of regulatory body in emergent nuclear power countries. Since the U.S. NRC is generally regarded as the “gold standard”, it is appropriate that it helps set the standard worldwide. DOE should work within existing mechanisms or help develop new mechanisms in cooperation with the NRC to accomplish this goal

The following elements should be considered in this initiative:

- Encourage the NRC to continue to support various nuclear training to less advanced nuclear programs
- Proactively look for opportunities to provide a context and venue for greater engagement of the NRC with these new regulators

International

- Broaden or open up more internship positions in the NRC to “newcomer” countries
- In collaboration with the NRC, consider the scope and delivery model of the current NRC International Regulatory Development Partnership (IRDP) to look for ways that it might be expanded and more universally embraced

Status: NE works closely with the NRC in many fora on a broad range of issues, and seeks additional opportunities to include NRC’s expertise on safety and regulatory issues.

International

■ **Financing support from the U.S. Export-Import Bank (ExIm) for new international nuclear projects is a critical factor in the success of U.S. companies; key elements are:**

- Continue to support the long-term reauthorization of the ExIm Bank as a vital element in U.S. exports
- Promote flexibility in the ExIm Bank to allow U.S. financing to better match that of other countries by requesting the ExIm Bank to evaluate its procedures/policies to be more competitive with other foreign Export Credit Agencies (ECAs) that are less restrictive

Status: NE appreciates ExIm's role in supporting US commercial bids for foreign new builds and encourages ExIm's participation in activities and events where their financial expertise can make a contribution. NE invited ExIm to participate in its most recent financial workshop in Paris.