



The International Framework for Nuclear Energy Cooperation (IFNEC) 10 Years Later Expanding its Promise to Fulfill its Potential

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By Alex Burkart

**The opinions and characterizations in this piece are those of the author and do not necessarily represent those of the U.S. government*

Background and Introduction

In 2010 the Partner countries of the Global Nuclear Energy Partnership (GNEP) redirected its international cooperation activities into a new information exchange forum under the moniker IFNEC, the International Framework for Nuclear Energy Cooperation. IFNEC's Mission Statement defines its purpose as providing "a forum for cooperation among participating states to explore mutually beneficial approaches to ensure the use of nuclear energy for peaceful purposes proceeds in a manner that is efficient and meets the highest standards of safety, security and non-proliferation." [1]

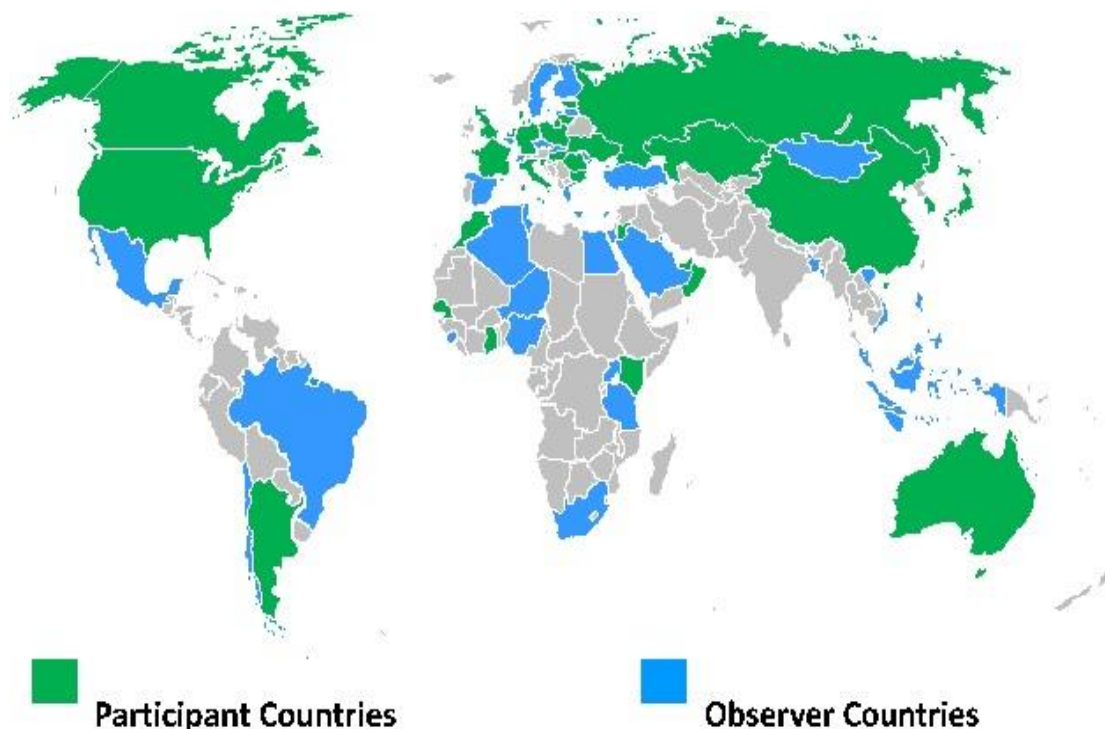
Today, the framework has 34 Participant countries and 31 Observer countries that span every continent (see Figure 1). IFNEC operates through an Executive Committee, a Steering Group, and three Working Groups. The Executive Committee meets annually at the Ministerial level to review and discuss the results of ongoing activities and to recommend further steps to support the safe, secure, and peaceful use of nuclear energy. The Executive Committee also adopts an annual Joint Statement addressing current topics in nuclear energy and reviewing the work of the Steering Group and Working Groups and providing direction for future activities. [2]

In conjunction with these annual meetings, IFNEC has held four conferences to provide opportunities for presentations on broader nuclear-related topics: Latin American Nuclear Stakeholders; Global Supply Chain and Localization, Issues and Opportunities; the NICE Future Initiative; and Bringing the World SMRs and Advanced Nuclear.

While the primary function of the Steering Group is to provide direction to the Working Groups, it has also sponsored highly successful workshops on financing and small modular reactors. Beyond

the inclusion of expert briefings, one of the key tools used in these workshops has been facilitated role-playing where experts assume the roles of the key stakeholders in establishing or implementing a nuclear program, from the perspectives of both established programs and newcomers.

Figure 1: The World of IFNEC



The major portion of work is conducted by the Working Groups-the Infrastructure Development Working Group (IDWG), the Reliable Fuel Services Working Group (RNFSWG), and the Nuclear Supplier and Customer Countries Engagement Group (NSCCEG). The IDWG seeks to address the various infrastructure development issues identified by the IAEA's "Milestones" Document.[3] The IDWG has focused on seven areas-Human Resource Development, Radioactive Waste Management, Safety, Security, Small Modular Reactors, Emergency Preparedness and Response Stakeholder Involvement. The RNFSWG supports cooperation among member countries in their efforts to enhance reliable, commercially-based front and back end fuel services that provide options for developing nuclear energy, while reducing the risk of nuclear proliferation. The focus of its work, in recent years, has been on the back end, exploring the issues associated with spent fuel management, storage and disposal. The recently established NSCCEG analyzes the relationship between supplier and customer countries, and helps establish a common working ground and a reliable and trustworthy forum to discuss, identify, and propose actions each can take to facilitate projects.

The programs, briefings and results of many of the conferences and workshops held by INFEC are available on the IFNEC website.[4]

Recent Developments

As with many other activities that depend on face-to-face meetings, the COVID-19 pandemic has had a devastating impact on IFNEC's agenda for 2020 (which had been more extensive in terms of planned activities than ever before). One way in which the Steering Group and the Working Groups have responded to the limitations imposed by the pandemic and its consequences and impacts is through online/virtual media, like webinars, including a series of five on SMR-related topics held throughout the month of June. The RNFSWG has conducted a webinar on multinational repository concepts for small nuclear programs; webinars are being planned by the IDWG and the NSCCEG. Two virtual meetings were held by the Steering Group, and IFNEC leadership is considering whether/how to modify plans for the remainder of the year given present uncertainties regarding international travel.

The Framework is relatively unknown outside of its member countries (and even within the nuclear communities of its member countries). To address this, IFNEC's new leadership has established a quarterly newsletter to publicize its activities and provide a platform for topical articles by industry leaders, complemented by active social media (Twitter and YouTube).

Opportunities and Challenges

Opportunities

IFNEC presents a number of unique opportunities. It is a strong forum for exploration of commercial issues, such as multinational approaches to spent fuel disposal, reactor financing, and the adequacy of the commercial nuclear supply chain. Its broad membership gives it the potential for supplier and customer states to address common issues. The addition of the NSCCEG has provided an especially useful setting for such dialogue--for example, its November 2017 Conference on Global Supply Chain and Localization Issues allowed attendees to identify best practices for suppliers in working with customers on localization issues, and areas where customer states can better support suppliers. It brought national program representatives, commercial vendors, financiers and regulators to the same table, an unusual combination.

Although IFNEC is an organization of governments, it has been readily able to engage with industry, colleges and universities, and non-governmental organizations (NGOs). Over its history, it has involved approximately 150 such "external entities" in its work. The Nuclear Energy Agency's (NEA) assumption of the Technical Secretariat role has been a boon to the Working Group chairs in organizing meetings. It has also increased the number of Workshops summarized in IFNEC reports beyond the earlier focus on Steering Group activities only, thus helping demonstrate the relevance of IFNEC to a wider audience.

One of the questions IFNEC has constantly returned to is, "What is IFNEC adding to what the IAEA does?" In fact, the strengths of IFNEC have been on display in its work with the IAEA through which it has been able to complement the Agency's capabilities. While the IAEA draws on Member State experiences in its work, it does not hold specific experiences up for emulation or provide them for reference. It generally develops and disseminates consensus advice only. IFNEC workshops, on the other hand, usually draw on individual country experience and best practices, and the individual briefings are available to Participant and Observer countries through the IFNEC Resource

Library. For IFNEC, it is easier to discuss commercial issues, such as financing, and controversial issues, such as waste management, as it need not defer to the interests of one or more members or avoid perceptions of bias when incorporating commercial experiences into its activities.

The IAEA can convene regional conferences that draw on Agency expertise and that of the countries of that region. But as has been demonstrated in conferences in Africa and Asia and Pacific, IFNEC countries can provide funding through the Peaceful Uses Initiative to support the conferences and add outside presentations, sharing expertise and experience from established countries that strengthen those conferences.

Examples include U.S. presentations on localization of foreign technology and experience by an emerging country and the role of local governments in emergency preparedness and response at the 2015 Africa regional conference, as well as a Korean presentation on siting waste disposal facilities at the 2016 Asia and Pacific regional conference. Additionally, while the IAEA may take up to a year to organize a conference, based in part on siting challenges, IFNEC provides flexibility to adjust to new opportunities, and has scheduled and organized meetings in as little as two months. Furthermore, the IFNEC "Role Play" model used in workshops on both financing and SMRs has proven to be an excellent integration technique for Agency workshops, as demonstrated by an INPRO "Dialogue Forum" on spent fuel management.

Challenges

It is also important to recognize that there are some significant challenges that need to be addressed if IFNEC is to realize its full potential. In particular, there should be greater participation by IFNEC countries in IFNEC activities, both in terms of the level of participants and the number of countries represented. The level of representation at Executive Committee meetings has declined--during the early years, it was at the Ministerial level, while recently it has been one or two levels below that. The number of attendees has declined as well--of the 34 Participant countries, only 16 attended the 2018 Executive Committee meeting (only 19 attended in 2019 despite a concerted effort to increase attendance). This issue extends to the Working Groups as well. The first IFNEC IDWG meeting in 2010 in Rome was attended by well over one hundred people, while current attendance has settled at around 50-60, with a low of less than 30 people. And with the exceptions of Ghana, Kenya and sometimes Jordan, participation by emerging countries has all but disappeared. The introduction of online webinars should help enhance participation, but it is not a substitute for in-person exchanges of information.

One issue contributing to the decline in the number of participants is the cost of attendance. While the cost of a nuclear program is in the tens of billions USD, many countries (including the U.S.) pay for their representatives to participate in meetings such as IFNEC out of official travel funds, which are usually limited. While very senior officials may have access to sufficient resources for travel, lower level management and staff often do not. Industry can usually find marketing funds to support participation of its representatives, but NGOs and universities have no comparable resources. Moreover, funding for participation and presentations by representatives of countries with new programs is particularly concerning.

IFNEC also needs a steady stream of income to support the Secretariat work. Until 2015, Secretariat services were provided by DOE, after which the function was transferred to NEA, with

financial support initially provided by the United States, Poland, France, and Japan. While in following years the Executive Committee called on Participant Countries to contribute, it never acknowledged which countries were (or were not) contributing. With the U.S. now seeking to reduce its financial burden to something more representative of the "fair share" typical of international organizations, funding remains an obvious problem.

The work of the IFNEC Working Groups has been consistently praised by the Executive Committee in its annual Joint Statements. These statements also contained directions for future activities, although these generally amounted to "continue doing more of the same." But, perhaps unsurprisingly, the activities conducted by the Working Groups to execute those directions reflected the types of positions held by their Co-Chairs. The IDWG was co-chaired for most of the last decade by two policy people with little access to program funds. Therefore, its meetings focused on sharing of information on a broad range of topics rather than on studies, like making recommendations to a new country on how to pursue Human Resource Development, that would require funding and program staff. Furthermore, the lack of resources has caused publication of the results of IDWG workshops to lag, if it occurred at all. Conversely, the RNFWDG has been chaired by at least one and often two program people, who had the ability to task and fund staff to undertake projects. Consequently, this Working Group has been able to focus on exploring the issue of multinational spent fuel storage and disposal in some depth, producing important publications. While the NSCCEG is still in its early stages of development, and has developed little continuity in the Co-Chair positions, the fact that it could rely on the Secretariat for programing support resulted in publication of an informative IFNEC report from its 2017 Workshop on Supply Chain and Localization.

Proposed Changes

Identify funding to support travel to workshops and conferences

IFNEC could support travel to conferences and workshops through IAEA procedures using U.S.-supplied Peaceful Uses Initiative funds. Past consideration of options points to using the Scientific Visit mechanism as the most viable. IFNEC leadership would continue to set the agenda while IFNEC countries would seek support from the Agency. The most significant additional requirement would be for the host state of an IFNEC meeting to conclude a "Host Country Agreement" with the Agency. This practice will not address attendance at Steering Group and Executive Committee meetings, but it would be a start.

Enhance use of Webinars

The Working Groups, particularly the IDWG, should build on the newly established practice of holding webinars by adding, post COVID-19, several (single or multiple session) each year to their offerings. This would ease access to and provide more opportunities for WG activities. Webinars could then be expanded into much longer in-person workshops to address issues in greater detail.

Promote stronger Ministerial-level attendance at Executive Committee meetings

Greater effort is required to establish and publicize Ministerial-level U.S. participation at Executive Committee meetings, and to do it sufficiently in advance for other countries to follow suit. As a

practice in the early 2000s, this was highly effective. If the 2021 IAEA Nuclear Energy Ministerial is held in the fall of 2021 as planned, that will be an excellent opportunity to enhance attendance by holding the Executive Committee meeting in conjunction with that conference (even if that would mean holding the IFNEC Ministerial in the U.S. twice within three years).

Better identify contacts

An important concern in enhancing attendance is identifying people as points of contact for Executive Committee, Steering Group and Working Group meetings. For the Executive Committee and Steering Group, this means identifying the staff responsible for scheduling senior officials. For the Working Groups, this means identifying those to "get the word out" to others in the government, scientific and NGO community potentially interested in attending. The IFNEC Secretariat should work through Vienna Missions to the IAEA in order to identify appropriate points of contact in capitals. Furthermore, as a backup, notices of all meetings should be circulated to Vienna Science Officers of IFNEC Participant and Observer countries for distribution as appropriate in capitals.

Increase publication

Greater effort should be made to publish the work of the IDWG. For example, the IDWG has held numerous individual sessions on human resource development that could be collected and published, if the financial resources were available. Work on nuclear security, export control and nuclear waste management (apart from spent fuel) should also be published. This should not come at the expense of publication of the work of the RNFSWG or future work by the NSCCEG.

Expand use of the IFNEC Library

The IFNEC Resource Library was designed in part to be a repository of all briefings and summaries from IFNEC meetings and of other information, mostly administrative, of common interest. It has largely fulfilled that objective, and continues to be updated by the Secretariat as appropriate. However, the library could greatly expand its usefulness by providing links to Participant and Observer countries' documents addressing the issues identified in the IAEA Milestones document (the IAEA bibliography for the Milestones document references only Agency documents). For example, the UAE's highly informative 2008 publication of its nuclear energy policy is an excellent example of the development of a national policy. The U.S. document, "A Short History of Nuclear Regulation," would provide insights into how the United States developed its regulatory framework.

Ensure sufficient funding for Secretariat activities

The hardest issue to address may be funding of IFNEC activities. IFNEC is not, and will not be allowed to become, an official "International Organization." Consequently, funding needs to be voluntary. However, IFNEC might try adopting a target approach, similar to how the IAEA funds technical cooperation and the Generation IV International Forum funds its common administrative services. This approach would be facilitated if IFNEC's work was tied to proposed new commitments to peaceful uses of nuclear energy in the context of the upcoming NPT Review Conference. Also, the U.S. Department of State might consider the fact that IFNEC and the IAEA

support similar missions and use a small part of the U.S. voluntary contribution to the IAEA, say \$100K, to match DOE's contribution to IFNEC as an "in-kind" contribution to the Agency.

Summary

As highlighted above, IFNEC has done a lot of very valuable work, probably more than many in the nuclear community realize. It can adapt rapidly to changing situations and work closely with other established organizations. To move forward, it needs more people to contribute to and utilize its work through: 1) enhancing participation at meetings, 2) collecting more of the experience of its Participants and Observers, and 3) distributing information of value through publication of reports and incorporation into the Resource Library.

[1] www.ifnec.org

[2] https://www.ifnec.org/ifnec/jcms/g_5370/executive-committee-meetings

[3] IAEA, Milestones in the Development of a National Infrastructure for Nuclear Power, IAEA Nuclear Energy Series, NG-G-3.1 (Rev. 1)

[4] https://www.ifnec.org/ifnec/jcms/g_5655/ifnecpublicdocumentsquery

***Dr. Alex Burkart** retired in January from the U.S. Department of State as the Senior Level Advisor for Nuclear Energy. He was the Co-Chair of the IFNEC IDWG from its beginning in 2010 until his retirement. During his 44-year career with the U.S. Government, including 25 years as the Department's Deputy Director of the Office of Nuclear Energy, Safety and Security (and its predecessors), he served in a variety of positions in the field of nuclear energy, mostly in the area of international nuclear cooperation policy and programs. He is a Registered Professional Engineer in the State of Virginia.*

Global America Business Institute | 1001 Connecticut Avenue NW, Washington, DC
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