



INTERNATIONAL FRAMEWORK FOR NUCLEAR ENERGY COOPERATION

Prospects for an International (Multi-Country) Repository Session 113 WM2014

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development working group (IDWG)



Overview

- Introduction to IFNEC
 - Membership
 - Structure
- Comprehensive Fuel Services (CFS)
- Discussions on Multinational Repositories



IFNEC: 63 Countries and 3 International Organizations

Participants

1. Argentina
2. Armenia
3. Australia
4. Bahrain
5. Bulgaria
6. Canada
7. China
8. Estonia
9. France
10. Germany
11. Ghana
12. Hungary
13. Italy
14. Japan
15. Jordan
16. Kazakhstan
17. Kenya
18. Republic of Korea
19. Kuwait
20. Lithuania
21. Morocco

22. Netherlands
23. Oman
24. Poland
25. Romania
26. Russia
27. Senegal
28. Slovenia
29. Ukraine
30. U.A.E.
31. U.K.
32. U.S.

Observer Organizations

1. International Atomic Energy Agency (IAEA)
2. Generation IV International Forum (GIF)
3. Euratom

Observer Countries

1. Algeria
2. Bangladesh
3. Belgium
4. Brazil
5. Chile
6. Czech Republic
7. Egypt
8. Finland
9. Georgia
10. Greece
11. Indonesia
12. Latvia
13. Malaysia
14. Mexico
15. Moldova
16. Mongolia
17. Nigeria
18. Philippines
19. Qatar
20. Saudi Arabia
21. Singapore
22. Slovakia
23. South Africa
24. Spain
25. Sweden
26. Switzerland
27. Tanzania
28. Tunisia
29. Turkey
30. Uganda
31. Vietnam

63 Countries and 3 International Organizations





IFNEC

- Used to be known as GNEP until 2010
- IFNEC Mission Statement
 - The International Framework for Nuclear Energy Cooperation **provides 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. **Participating states would not give up any rights** and voluntarily engage to share the effort and gain the benefits of economical, peaceful nuclear energy.



IFNEC Structure

PARTICIPANT AND OBSERVERS EXECUTIVE COMMITTEE

Ministerial Level Officials or Designees

Chair: UAE for 2013

Note: Chair is held by the country that hosts the Executive Committee meeting.

Meets
annually

IFNEC PARTICIPANTS AND OBSERVERS STEERING GROUP

Participant and Observer Representatives

Chair: Ed McGinnis, United States

Vice Chairs: Frédéric Journes, France

Takashi Nakano, Japan

TBD, China

Meets
bi-annually

INFRASTRUCTURE DEVELOPMENT WORKING GROUP

Co-Chairs

John Mathieson, UK

Al Burkart, US

RELIABLE NUCLEAR FUEL SERVICES WORKING GROUP

Co-Chairs

Daniel Iracane, France

Kazuhiro Suzuki, Japan

Each meets
bi-annually
Plus joint meetings



CFS activities

- RNFSWG considers fuel cycle implications & is developing Comprehensive Fuel Services (CFS) concept
- IDWG looks at infrastructure requirements for newcomer countries and infrastructure support to (CFS)
- CFS:
 - Commercially-based, global, fuel cycle supplies and services
 - Provides assurances of fuel supply & ultimate waste management schemes; including enrichment and recycling activities
 - Should not impact existing markets / competition



IFNEC discussions on CFS

- Recognize:
 - Front-end services routinely provided through the commercial market
 - Back-end services are less well developed either by governments or commercial vendors (restricted to reprocessing / recycling and HLW returns)
- Aim to:
 - Develop of a common understanding of CFS and its key characteristics
 - Identify barriers to deliver CFS
 - Address these recognizing the needs of users and providers of nuclear supplies and services



CFS Characteristics

- Attractive to countries with small nuclear fleets
- Adaptable to a country's specific needs
 - ranging from fuel leasing to separate fuel supply and disposition arrangements
- Customer reassurance would rely on
 - government and industry commitments
 - and operate within national and international legal arrangements
- Government long-term commitment and support would be prerequisite to the development of any international disposal facility



International Repositories

- Development of IRRs remains at the study stage,
 - Recognizes that a number of countries expressly forbid disposal of another country's radioactive waste
 - Joint Convention (and EU Waste Directive) does not preclude the idea
- These studies have identified the following scenarios:
 - A national approach in which the country providing the fuel uses its own disposal facility to dispose of only the fuel it has supplied
 - A multilateral approach - several countries enter into agreements to share their resources to develop and operate a repository located in one of them
 - An international approach in which a country develops a repository and offers a disposal service to other countries on a “commercial basis” regardless of who has supplied the fuel;
 - An extra-territorial international approach in which the IAEA sites, develops and operates a geologic repository on extra-territorial land as a disposal service to the international community. [Not considered in IFNEC discussions.]



Considerations

- IFNEC, (& other international organisations e.g. EDRAM)
 - National programmes are a priority
 - “Wait and see” policy is not acceptable
 - National positions on banning import of spent fuel and other wastes for disposal acknowledged
- Main challenges related to CFS:
 - Transfer / transport of used fuel from one country to another
 - Gaining public and political support.
- Uncertainties / risks:
 - Technical, and cost & pricing uncertainties and risks
 - Reversibility of disposal
 - Unintentional “stranding” of spent fuel in a third country
- Priorities:
 - Nuclear safety, security, safeguards, protection of the environment in the host country



Conclusions

- Effective regulatory and legal mechanisms to support expanded development of back-end fuel services will be needed
- Biggest challenge is the development of a geologic repository
- Any commercially-based offering must be based on international agreements
- Regional cooperation is perhaps the most promising opportunity
- Necessity to engage with the public & politicians about radioactive waste management and nuclear energy's benefits and risks.
- Support at all levels of the government and within the public is necessary to maintain existing programs and support emerging and expanding nuclear programs.



Recommendations

- International standards and oversight development to support commercially based CFS
 - Existing for transportation but are highly desirable for commercial transactions
 - Should be international oversight to ensure that proper standards are developed that could be the basis of bilateral or multilateral agreements
 - Studies to assess the adequacy of existing international standards to support CFS
 - Should include oversight and enforcement of agreements
- Internationally accepted Model Transportation Agreements to Support CFS
 - Drawn on existing contracts and consistent with the Joint Convention
 - Should address the full range of risks (including financial) and responsibilities.
- Internationally accepted Model Storage and Disposal Agreements to Support CFS
 - that will provide the basis for commercial contracts and the international legal framework to ensure their implementation.
- These model agreements should address the full range of risks and responsibilities that participating parties will be required to assume, including financial risk



Model agreements

- Responsibility of the host country government to guarantee:
 - the long-term reliability of the disposal service
 - safety security and proliferation resistance
 - gain partner country assurances.
- Legal mechanism for transfer of used fuel between the exporting country and host countries
 - with a specific focus on liability and residual liability
 - may need enacting legislation to limit risk and provide assurances.
- The financing responsibilities and business models are clearly defined to ensure
 - long term adequacy of financial resources to maintain safety, security, and reliable operation, and to be able to respond as much as possible to any unexpected occurrences.
 - Protection against adverse events which could be mitigated by service contracts which ensure the stability of the global commercial market and its suppliers.
- Define the regulatory oversight regime
 - Detailed safety requirements
 - Conditions of access of customer countries representatives
 - Waste acceptance criteria
- Dispute resolution procedures