The International Framework for Nuclear Energy Cooperation (IFNEC)

Reliable Nuclear Fuel Services Working Group

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Presentation Outline

- Overview of the working group Terms of Reference.
- Working group meetings and workshops.
  - IFNEC Joint Workshop
  - RNFS working group meeting
- Next steps.
- Appendix:
  - Contents of the overview document on current practices,
  - Highlight of Joint Workshop.

Terms of Reference

Objective:

Establish international supply frameworks to enhance reliable, cost-effective fuel services and supplies to the world market, providing options for generating nuclear energy and fostering development while reducing the risk of nuclear proliferation.

Scope:

The Working Group will identify **common interests** among the participants and recommend practical measures to develop a **reliable fuel service approach**, including “cradle to grave”/ “comprehensive fuel services” management.

Comments:

- National representatives;
- Industry is invited to present its view on the issues;
- The scope of the RNFS WG doesn’t include any discussion on business or contractual matters;
- The aim is really **to promote a dialogue between technology provider states and newcomers/ countries with a small reactor fleet** and to assess **the availability of nuclear fuel services with the input of Industry and to identify ways of improvement in the institutional framework.**

Previous RNFS meetings

- Wilmington, North Carolina, USA, March 31 – April 1, 2008
- Vienna Austria, September 3-4, 2008:
- Cherbourg, France, March 19-20, 2009:
- Warsaw, Poland, October 1-2, 2009:
- Vienna, Austria, February 23-24, 2010:
- Tokyo, Japan, October 5-6, 2010
- Paris meetings, April 19 – 20, 2011
- Kozloduy Meeting, November 8-9, 2011:

General exchange of information on on-going program

- **RNFS WG meetings are opportunities for information exchange on country updates on nuclear activities:**
  - 2009: China, USA,UK and Poland,
  - Feb 2010: Italy, Korea,
  - October 2010: Japan, Australia, Ukraine,
  - April 2011: Kuwait, Sweden,
  - November 2011: Bulgaria, UK, China , Korea, Italy.

- **Contents:** general nuclear program, fuel supply/procurement, fuel back-end policy.

- **Outcomes:**
  - **Sources of information which can be updated with flexibility and with no formal and lengthy procedure,**
  - **Identification of topics of common concern,**

Sub-working group activities (1/2)

a. <u>Resources requirements and fuel supply</u>

- Poland and France co-lead this Sub-WG, and will prepare an action plan for the next meeting.

- The tasks of the sub-WG are the following;
  - To update the Uranium resources document,
  - To enlarge it to others fuel front end services,
  - To validate the approach of Security of Supply: list of risks and « tools »: the Risk Matrix.
  - The risks assessment methodology (use of the Risk Matrix)
  - To get an overview of the additional mechanisms related to : Fuel bank concepts.

Sub-working group activities (2/2)

b. Approaches for selecting back-end fuel cycle options

- **"Overview document on the current fuel back-end practices"** (detailed content in annex).
  - The aim of this report is to make a synthesis of existing practices and references, enhancing what are the main issues to deal with and without entering into too technical detail.

- **"Challenges, approaches and criteria for fuel back-end options"**
  - Considered by RNFS to be elaborated.
  - At present moment, no observation was received.
  - Considering the complementary nature of this report compared to the first one, RNFS agreed to give more time to address observations, allowing focusing on the elaboration of the first report.

- To be issued for the next Executive Committee meeting (Oct. 2012).

CFS Workshop (1/2)

- **To Explore pragmatic way to improve the fuel services especially for the fuel back end up to the final disposal:**
  - Recommadations should be discussed in international forums (IAEA and Joint Convention)
- **Previous meetings:**
  - Vision from Countries (Tokyo meeting, 2010) with key highlights issued.
  - Vision from IAEA and NEA and perspective from Industry during Paris joint meeting (highlights in Appendix), complemented by Paris RNFS WG meeting.
  - Kozloduy meeting (Nov 2011):
    - US presentation on “Supporting the Establishment of Commercially-based Comprehensive Nuclear Fuel Services “
    - **Discussion on the request of the Executive Committee to the WGs to prepare a document assessing the benefits and challenges for the implementation of the CFS:**

CFS Workshop (2/2)

- Preparation of the position paper on CFS:
  - The core group (co-chairs and a US representative) will draft a first version, based on the outcomes of the meeting discussion; the drat will be released to the WGs for comments and proposals by the beginning of March 2012;
  - A joint IDWG RNFS WG will be organized by mid April 2012; Industry representatives will be invited to this meeting;
  - The outcome of the joint meeting will drive the preparation of the 2nd draft which will be released by beginning of June.
  - The final draft shall be ready by mid September 2012 for transmission to the Executive Committee representatives;
  - Presentation of the document to the Executive Committee meeting on October, 2012.

Appendix

- **Contents of the overview document on current practices**
- **Highlight of Joint Workshop**

Contents of the overview document on current practices

1. Introduction

1.1. The global context

1.2. IFNEC

1.3. Contribution and added value of this document to IFNEC activities

2. Global Nuclear Energy forecast and spent fuel inventories:

2.1. Review of international scenario or studies

3. Description of present technologies for spent fuel management:

3.1. Open fuel cycle and direct disposal of spent fuel*

3.2. Reprocessing technology and ultimate waste conditioning and disposal*

3.3. Closed fuel cycle with MOX recycling in LWR

3.4. Interim storage of spent fuel or HLW

3.5. Transportation of spent fuel and of HLW

(*): Disposal of spent fuel and HLW as well as transportation are in the scope of the IDWG; RNFS WG will consult IDWG on the draft.

4. Current R&D activities and perspectives

4.1. Generation IV perspectives

4.2. Reprocessing technologies: hydrometallurgy, pyrometallurgy

4.3. Long-term R&D

5. Institutional aspects of spent fuel management, existing arrangements

5.1. Political aspects, international rights and obligations

5.2. Legal

5.3. Societal and public acceptance

5.4. Economics

6. Presentation of current approaches:

6.1. Experienced nuclear countries

6.2. Countries with a small reactor fleet

6.3. "Newcomers" specific needs

7. Industry capabilities for providing fuel back-end services

7.1. Reprocessing services

7.2. Waste management

7.3. Transportation services

Highlight of IFNEC Joint Workshop (1/4)

1. Scope and objectives of the meeting:
   - Focus on fuel back-end issues
     - Used fuel and HLRW geological disposal, in particular with a regional or multinational approach.
     - Role of interim storage in fuel back-end policy.
     - Transportation of used fuel or HLRW.
   - Industry was invited for presentation of its service offers.
   - Based on relevant presentations and discussion, the goal was confirmed as follows;
     - Discuss the key drivers to address in order to ease the implementation of a comprehensive fuel back-end policy,
     - Ease enlarged industrial offers.

Highlight of IFNEC Joint Workshop (2/4)

2. Geological Disposal:
   a. International cooperation on radioactive waste management (NDA)
   b. Political and social acceptance and stakeholder interactions (AEN)
   c. Implementing geological disposal of radioactive waste Technology Platform (ANDRA)
   d. International cooperation on radioactive waste disposal - EDRAM position
   e. Multinational approaches in radioactive waste management: IAEA role
   f. International and regional geological disposal facilities (ARIUS)

Highlight of IFNEC Joint Workshop (3/4)

3. Interim storage:
   a. The role of storage in radioactive waste management (NEA)
   b. High level considerations regarding interim storage of spend fuel (NAC International)
   c. Interim storage of High Level Radioactive Waste (AREVA)

4. Transportation:
   a. Back-end perspective of INS and PNTL experience (INS)

Highlight of IFNEC Joint Workshop (4/4)

5. General discussion:
   - Presentations from IAEA and NEA have given the perspective on back-end issue, and in particular on ethical, political and social aspects.
   - One of the main messages is that multinational approaches are attractive, but in fact very difficult to implement, because of lack of political will and technical support from national programs.
   - Specific role for IFNEC
     - Share the existing experience feedback and the lessons learned
     - Cooperation on technologies necessary
     - Exchange information and experience on infrastructures
     - Deepen the dual track approach with a national program, in parallel of a multinational program
   - Some of the needs of the newcomer countries
     - Assistance for an operational definition of policy and strategy
     - Assistance in establishing infrastructures, especially legal and regulatory framework
     - Partnership building between regulators, and also partnerships between site operators or organizations
   - It would be still necessary to clarify what are their expectations and so to stimulate discussion for the next step.