

# **Financing of NPP projects in developing countries and relevant IAEA activities**

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## Background and Objective of this workshop

- Financing to capital intensive NPP project
  - one of the primary concerns in the project both for developed and developing countries
  - recognized importance of improving creditworthiness of the nation and project
  
- This WS is intended;
  - 1) To share information on financing aspect of NPP project with focus on developing countries
  - 2) To discuss and improve draft IAEA document on “improving prospects for financing nuclear power projects”
  - 3) To share experiences

# Generic information

*Information based on literature study, consultancy meetings, Senior Advisor Group meeting etc*

## 1. NPP financing is not a function of global capital availability

- In 2006, some \$4.2 trillion were raised in the global capital markets of which 5%, or \$230 billion, was invested in the power industry
- Given this large investment capacity, the real issues involved in NPP financing are not related to investment capacity
- But rather *involve political, economic, commercial & operational factors.*

# Generic information

## 2. Nuclear premium?

- No consensus in the eyes of investors on its existence
- Major issues
  - Regulatory uncertainty
  - Political risk
  - Stability of the NE policy
  - The degree of government involvement
  - Prospect of the project : economically feasible and return to investment
  - Lack of experience on the part of investors and financial institutions with financing NPP projects

# Generic information

(Background) How nuclear is characterized to investors' eye

- Public opinion polarized
- Highly capital-intensive
- Long construction time period and long return "return on investment" period
- Highly regulated industry
- Very long institutional responsibility (waste)

# Generic information

## 3. What investment environment nuclear requires?

- Political stability
- Economic stability
- Consistent long term policy of the nation
  - influence of public perception and support
  - consistent regulatory practices
- Adequate infrastructure in place
- Adequate grid and sizable market (long term guarantee on sale of electricity)

# Generic information

## 4. Financing Modalities

### ➤ **Mix of equity and debt funding**

- Balance sheet
- Project finance
- Government budgetary allocations, government grants
- Domestic and international capital market
- Soft loans, grants from international aid organizations and development banks
- Funds provided under ECA insurance schemes or institutions

### ➤ **BOO & BOOT:** Vendors are unlikely to get involved

# Generic information

## 4. Financing Modalities (...continued)

### ➤ Debt

- ✓ **Creditworthiness of the borrower is key**

- ✓ **Credible government support is helpful**

- 1) In what form?

loan guarantee, securitization of government assets, pledging an asset like uranium reserves, bartering, AFUDC, long-term power purchasing agreement, production tax credit

- 2) What is the basis of such support?

- energy supply security objectives

- environmental protection

- benefit of technology spin-offs from NP programme

### ➤ Equity

- ✓ Equity is more expensive than debt (it is more at risk: lenders have in case of project failure) → A high equity share can add significantly to

the cost of the project



# Generic information

## 4. Financing Modalities (...continued)

- **Advantage and constraints of specific source of debt financing**
  - Of : International Organ, Supplier's Credits, Export Finance, Balance Sheet Financing
  - (Discussed on Tuesday)
  
- **In Europe and North America**

Schemes to depend on the participation of suppliers and private industry financing and participation is emerging

# New in Europe

## ➤ **Cernavoda 3 (Romania)**

11 expressions of interest to participate from:

- Equipment or service suppliers (Ansaldo, AECL, GE, Hitachi etc)
- Utilities
- Off-takers (Steel company in Romania)

## ➤ **Belene 1&2 (Bulgaria)**

Candidates for up to 49% of the shares in Belene Power Company to own/operate the Belene NPP with NEK EAD (Natsionalna Elektricheska Kompania EAD: State-owned generation, transmission and distribution company )

- Equipment/service suppliers (AtomStroyExport, Areva, Skoda-WH)
- Utilities / Shareholders (Electrabel, CEZ, E.ON, ENEL, RWE)
- Off-takers

## ➤ **EIB (European Investment Bank)** to finance new build in EU?



# Generic information

## 5. Any “Innovative” means?

- Essentially the repackaging the existing methods
- However, experts suggests we may be able to learn from experiences in other field (SAGNE: Mr. Kovachev)
  - Gas: long-term take or pay
  - Renewable: CDM and carbon financing
- **Finance of NPP project could benefit from**
  - a) International **GHG reduction schemes** that recognize the GHG mitigation potential of NP which would increase its attractiveness to investors
  - b) **international nuclear fund** which funds projects/programmes to protect the environment especially the use of renewable energy and energy efficiency improvements

## Recent IAEA activities

1987: “Promotion and Financing of NP Programmes in developing Countries”  
*IAEA should assist, in conjunction with the World Bank, in strengthening and supporting for financial planning (project financing and debt management)*

2006: GC(50)/RES/13B requested a report on innovative means of financing NPP projects as an option in meeting the energy needs in interested developing countries

2007 Feb: Staff wrote a discussion paper, organized a CM (Bank, NSSS supplier, EPC, Developing country, Consultant) → Drafted a report and circulated among *extended* experts for review

2007 July: A CM (EPC, ECA, Developing country, consultant) to provide advices/guidance by a NE Series Doc on “Improving the prospects of financing NP projects”

## IAEA activities and role

- Expand analysis on the **increasing creditworthiness of the borrower** through various types of government support as well as credible and technically sound business plans:
  - Preparation of a NE Series Doc on “Improving the prospects of financing NP projects”
- Further review of draft **GC report** by additional international experts
- **IAEA’s role?**
  - Advice/guidance by including external experts through TCPs & technical documents
  - Disseminate facts and good practices through workshops
  - While it does not appear that there is a clear role for the Agency in directly financing new NPP, there may be opportunities for the IAEA to assist in facilitating arrangements (SAGNE)
  - ECA may want credible source of evaluation of readiness?



***...Thank you for your attention***