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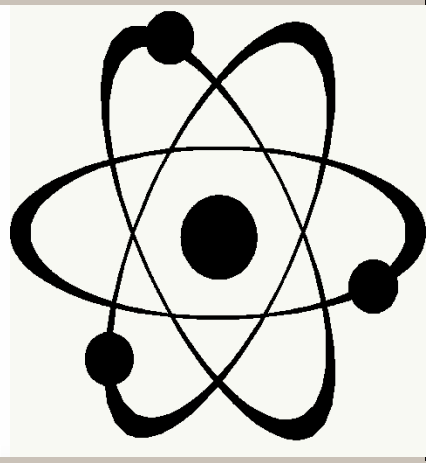

NEA Workshop on

The Role of Electricity Price Stability and Long-Term Financing for Nuclear New Build

Financing an NPP: Thoughts on Reputational Risk

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Overview of Presentation

- Reputational Risk Analysis as a Key Factor in Financing
- Importance of the Host Country Regulator
- International / Bilateral Agreements
- Sustainability

Challenges for Developing and Financing Nuclear Power Projects

Nuclear Financing Concerns

- Primary Concerns for Financiers
  - **Long development / construction periods**
  - **High capital costs**
  - **Regulatory uncertainty**
  - **Reputational Risk**
  - First-of-a-kind risk
  - Safety culture
  - Operational Success
  - Human Resources and Supply Chain
  - Sustainability of government commitment
  - Fuel cycle concerns
  - Environmental responsibility
  - Commitment to International Regimes and Standards

Lending Decisions: What do financial institutions really care about?

- Need for Proven Industry
  - High Standards
  - Reliable Technology
  - Experienced Regulators and strong, independent regulatory regimes
  - Experienced Owners & Operators
  - Conclusion: Quality of the Project Team is important
- Need for International Regimes
  - Nuclear Liability
  - Non-Proliferation / IAEA Safeguards
  - Safety
- Rule of Law
- Environmental Responsibility
  - Carbon Policy / GHG
  - Decommissioning & Treatment of Spent Fuel / Radioactive Waste
  - Equator Principles, etc.
- Sustained Government Commitment

❖ **"REPUTATIONAL RISK" analysis is as important to financial institutions as the commercial analysis.**

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Financing a Nuclear Power Project

- Even though it might not be a “project financed” transaction, reputational concerns will necessitate a robust reporting and covenant package, applying project finance discipline to the project review process
  - Environmental & Social Considerations
    - Equator Principles
    - IFC Environmental Guidelines
    - OECD Environmental Guidelines
  - International Nuclear Obligations
    - Nuclear Liability
    - The 3Ss of Safety / Security / Safeguards
    - Bilateral agreements
  - Confidence in the host country regulator
  - Importance of technical due diligence on the project

Lending Decisions: What do financial institutions really care about?

- **<u>Conclusion</u>:** ***REPUTATIONAL RISK*** **analysis is as important to financial institutions as the commercial analysis.**

  (1) Will I get paid back? How will I get paid back?

  (2) Is this a "good project"?

  <u>Both</u> are equally impotent !

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Fundamental Legal Questions and Host Country Conditions

Key Principles for International Deployment

- Safety
  - Safe operation of civilian nuclear power facilities
- Security
  - Physical protection
- Safeguards
  - Non-proliferation
- Note that the nuclear industry is unique in its cooperation and regulation
  - But, remember, too, that the IAEA provides guidance on technology; the IAEA does not make law regarding civilian nuclear power, leaving such certifications to national regulatory authorities …
  - … Which means that the host country regulator is very important and must be capable !

Fundamental Legal Questions

- What are the international treaty commitments of the host country?
- Has the host country committed to the Non-Proliferation Treaty, IAEA Safeguards, and the Additional Protocol?
- Has a national nuclear law been put in place, such that program participants have a clear understanding of the rules and responsibilities associated with such participation?
- Are the laws clear, coordinated, and customary, as judged by the international nuclear industry? Does the national nuclear conflict with other national laws?
- Do the laws facilitate and encourage NPP development or are the laws (perceived to be) a hindrance to such development?
- Have the three Ss (Safety, Security, Safeguards) been addressed, both in principle and through clear laws, regulations, and international commitments (both international treaties and bilateral agreements)?

Fundamental Legal Questions

- Will the regulatory authority recognize country-of-origin licensing in respect of the NSSS design? What other licenses will be required? Will construction and operating licenses be issued simultaneously or will they be staggered at the front and back end of the construction cycle? Does the developer understand the regulatory process?
- Is the host country regulator capable and independent? Is it familiar with the technology being considered?
- Has the host government considered the full life cycle of an NPP in its planning, taking into consideration sustainable development and a decommissioning approach, as well as the long-term treatment and disposal of nuclear waste and spent fuel?
- What assurances has the host government implemented to demonstrate to the international nuclear industry its long-term commitment to a viable nuclear program?
- Are contractual and other legal rights enforceable in a meaningful way?

Capability of the Regulator

- Key Questions:
  - Does the host country have a competent regulator?
  - Is the regulator independent?
  - Does it have the requisite authority to act?
  - Will it take action when appropriate?
  - Will limitations be imposed as to technology type (e.g., PWR, BWR, HWR) and generation level (e.g., only Gen III and Gen III+)
- The regulatory body must:
  - Have adequate legal authority, technical and managerial competence, and human and financial resources to fulfill its responsibilities
  - Be able to demonstrate ***nuclear regulatory experience***
- Note that regulatory capability is a key consideration for financing entities
  - The regulator needs to be the "adult in the room" that watches over the project during both construction and operation
  - Challenge: assessing regulatory competence

Additional Regulatory Considerations

- Recognition of country-of-origin licensing
- Cooperation with country-of-origin regulator (e.g., training)
  - Note the difference between education / training and practical regulatory experience
- What is the licensing approach of the host country regulator?
- Who will take regulatory risk?
  - Particularly important if the regulatory regime is untested
  - Can baseline assumptions be established so that the developer takes some (reasonable) regulatory risk?
- What will the licensing process be for:
  - Design certification
  - Site permit
  - Construction license
  - Operating license
  - Environmental permits
- Is a “reference plant” approach going to be used?
  - Note that site specific considerations will still need to be assessed
  - Will the reference plant have to be in operation by the bid submission deadline?

International Nuclear Agreements & International Best Practices

International Nuclear Agreements and Sustainability Considerations

- Why are International Nuclear Agreements and Sustainability Considerations important?
  - Confidence-building measures for the international community
    - ❖ Demonstrating that it is a "good project"
  - **Reputational Risk** for project participants
  - **Reputational Risk** for lenders and investors
  - Compliance with "prudent industry practice" / international standards
  - Post-Fukushima scrutiny for nuclear projects

❖ *Reputational Risk is a very real consideration in NPP development, especially for financial institutions.*

- What does "prudent industry practice" mean?
  - "**Prudent Industry Practice**" means the standards, practices, methods and procedures consistent with that degree of skill, diligence, judgment, prudence and foresight which would ordinarily be expected from an international skilled and experienced owner, contractor, equipment manufacturer or, as the case may be, operator, engaged in designing, engineering, constructing, developing, commissioning, repairing, refurbishing, operating, insuring, maintaining and/or decommissioning a nuclear power plant, in each case taking into account and giving appropriate consideration to all applicable standards and guidelines and local conditions.

International Nuclear Agreements

- Nuclear Liability
  - Vienna Convention (1997 Amendments)
  - Paris Convention
  - Brussels Supplementary Convention
  - Joint Protocol
  - Convention on Supplementary Compensation
- Safety
  - Convention on Nuclear Safety
  - Convention on Early Notification of a Nuclear Accident
  - Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management
- Security
  - Convention on the Physical Protection of Nuclear Material (and the Amendment to the same)
  - International Convention for the Suppression of Acts of Nuclear Terrorism
- Safeguards
  - UN Treaty on Non-Proliferation of Nuclear Weapons
  - Safeguards Agreement with IAEA (and host country)
  - Additional Protocol with IAEA (and host country)
  - UN Comprehensive Test Ban Treaty
  - Nuclear Suppliers' Group Guidelines

❖ Note the importance of bilateral agreements

❖ Note the importance of a national policy statement that is publicly available

Sustainability Standards

- Sustainability
  - Sustainability considerations have risen in importance to the financial community, and lenders will want to see that compliance with local environmental laws and international standards (the aforementioned Equator Principles and IFC guidelines) is observed.
  - Such matters will necessarily bring project lifecycle considerations to the lenders' analysis of the project, as lenders will look to see that the NPP planning includes a spent fuel / nuclear waste plan and a decommissioning plan, demonstrating the lenders' desire to look beyond the tenor of the debt.
  - Sustainability, in particular, is a combination of both art and science, where, oftentimes, there is no clear solution that is measurable and quantifiable; instead, the compliance plan can be qualitative, not quantitative, and, thus, much more difficult to resolve.

Environmental, Safety, and Social Guidelines

- **Equator Principles**
  - The Equator Principles are a credit risk management framework for determining, assessing and managing environmental and social risk in project finance transactions.
- **International Finance Corporation's Performance Standards on Social and Environmental Sustainability dated 30 April 2006 and the IFC Environmental Health and Safety Guidelines**
  - The World Bank Group Environmental, Health and Safety Guidelines ("EHS Guidelines") are technical reference documents with general and industry-specific examples of Good International Industry Practice, as defined in the International Finance Corporation's Standard 3 on Pollution Prevent and Abatements.
- **Council Recommendation on Common Approaches on the Environment and Officially supported Export Credits adopted by the OECD Counsel on 12 July 2007**
  - The OECD's Revised Council Recommendations on Common Approaches on the Environment and Officially Supported Export Credits ("OECD Export Credits and Credit Guarantees Recommendations") is a set of recommended common approaches for OECD member states with respect to addressing environmental issues relating to exports of capital goods and services and the locations to which these are destined.
- **ECA-specific environmental and social guidelines**
- **Espoo and Aarhus Conventions**

Concluding Thoughts

- Ultimately, it has to be a viable project … it must be a “good project”
  - Economics must work
  - Classic nuclear challenges must be addressed
  - Participants need to be dependable
  - Sustained government support is critical
  - Reputational Risk factors must be considered
  - High visibility program of geopolitical significance
  - Nuclear projects are unique
  - Early-stage program decisions must consider financing issues

- Thank you for your time and attention.

- Contact Information:

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Paul Murphy's practice focuses on multiple aspects of the nuclear industry – from legal and policy matters, including international regulatory and treaty frameworks and issues regarding nuclear liability, to strategies for creating viable nuclear power programs and the identification and mitigation of associated risks – representing developers/owners, investors, and contractors on nuclear projects internationally. Mr. Murphy is recognized as an expert in the development and financing of nuclear power programs by the International Atomic Energy Agency (IAEA), the OECD's Nuclear Energy Agency (NEA) and the US government. Mr. Murphy currently serves on the IAEA's Technical Cooperation Program team, which assists member states in developing civilian nuclear power programs. Mr. Murphy has served as a designated expert, chairman, and author at several special meetings and for multiple working groups of the IAEA, primarily involving the development, financing, and structuring of nuclear power projects. He continues to work with the IAEA in a number of key areas, including a current revision of the IAEA's *Handbook on Nuclear Law* and as lead author for a new report to be released in the next few months, entitled, *"Alternative Contracting and Ownership Practices for Nuclear Power Plants".*

Mr. Murphy currently serves as a two-time appointee to the US Secretary of Commerce's Civilian Nuclear Trade Advisory Committee, and he serves as chair of its Finance subcommittee. In addition, Mr. Murphy recently served as the US Government's sole representative on an NEA working group on *"Financing of Nuclear Power Plants"*, acting as chairman for the working group. Mr. Murphy also chaired the IAEA working group that issued, "*Issues to Improve the Prospects of Financing Nuclear Power Projects."* Mr. Murphy has also worked with the Nuclear Energy Institute, the US State Department, the US Mission to the OECD, and the Export-Import Bank of the United States on revisions to the OECD's Guidelines for the financing of nuclear power projects by Export Credit Agencies.

For the last five years, Mr. Murphy served as a faculty member for the *"Training Course on Nuclear Power Infrastructure Programs and Related Projects in Emerging Nuclear States",* held on behalf of the US State Department and the IAEA at the Argonne National Laboratory and attended by representatives of over 20 foreign governments. Mr. Murphy was the lead instructor for the segments on financing and the bidding / evaluation process for nuclear power projects.

In addition to his work in the nuclear sector, Mr. Murphy's representations have included extensive work in the engineering and construction industry, where he has been heavily involved in the nuclear and fossil power sectors, both domestically and internationally. His project experience, both domestic and international, includes nuclear (new build, steam generator replacement, nuclear operating plant services), coal (both new build and environmental retrofit), and gas-fired power projects, ranging from EPC contracting structures to technical support agreements and including major equipment purchase agreements and subcontracting. Recent projects have included work in solar power projects (CSP), IGCC and coal liquefaction plants, and pipelines.

Prior to joining Milbank, he served as Senior Counsel for Bechtel Power Corporation, supporting both the Nuclear and Fossil business lines as a transactional attorney involved in bid evaluations, business development, proposal submittals, contract negotiations, procurement, and project execution.

Mr. Murphy is a graduate of Princeton University's Woodrow Wilson School for Public and International Affairs and a graduate of Harvard Law School. Mr. Murphy is also a member of the International Nuclear Law Association.

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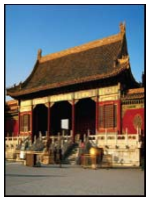

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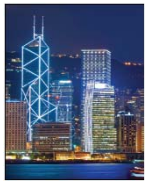

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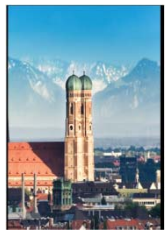

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