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Export Credit Agencies and the Role They Can Play in Facilitating the Financing of New NPPs

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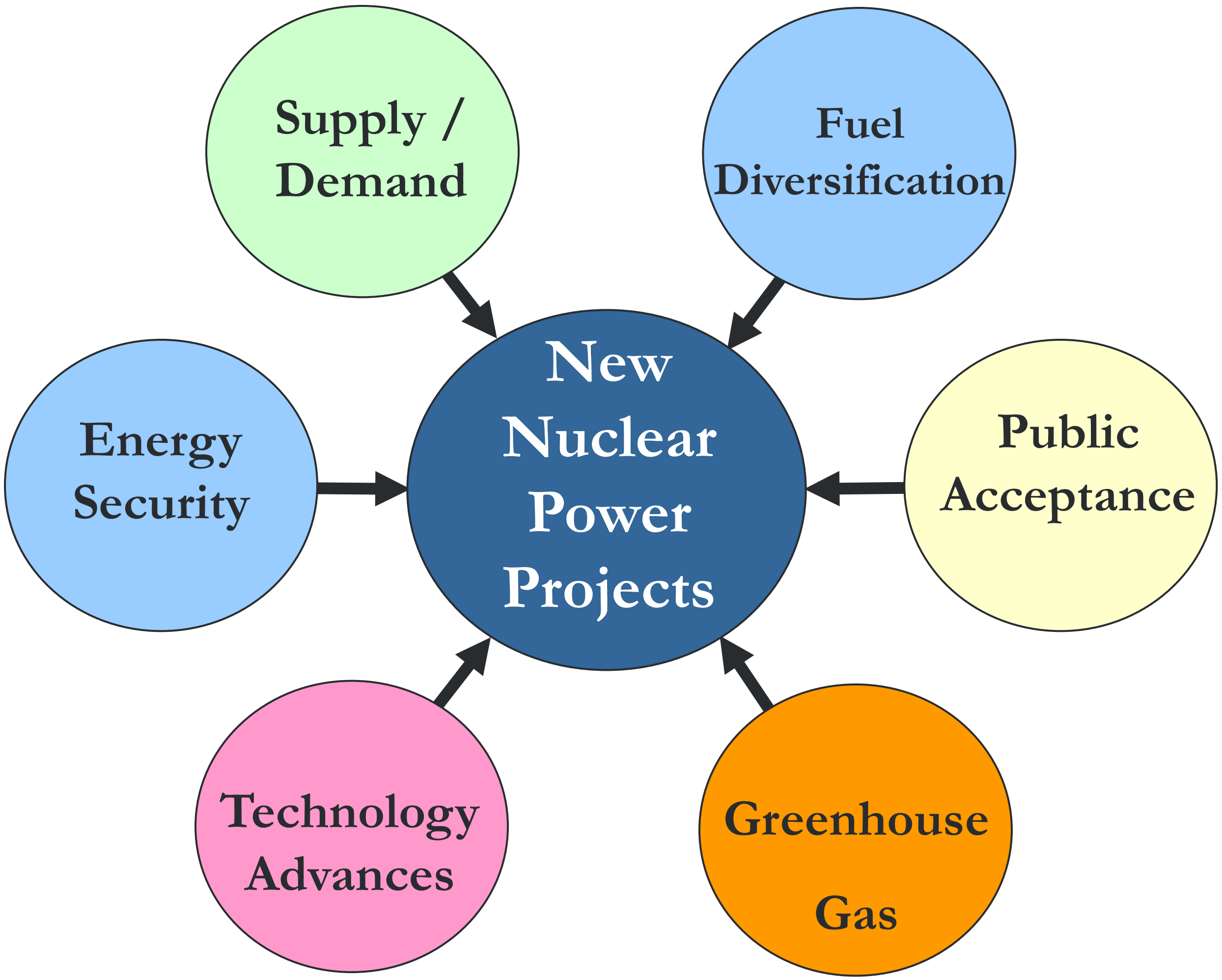
I. Forces Driving New Nuclear Projects



Driver #1 – Supply / Demand Fundamentals

Supply / Demand

Worldwide Growth:

- Estimated 87% increase in world net electricity generation from 2007 to 2035
  - Growth in energy consumption in non-OECD countries estimated to increase by 84% during this period, as compared to a 14% increase in OECD-member countries
- By 2030, non-OECD nations will account for 58% of world electricity use (up from 45% in 2006)

Middle East Growth:

- Estimated 86% increase in net electricity generation from 2007 to 2035

Tremendous Growth of Electricity Demand in the 21st Century in MENA

Source: U.S. Energy Information Administration, International Energy Outlook 2010

Supply / Demand

Nuclear as Part of the Supply

Worldwide:

- Nuclear is attracting new interest
- Nuclear generation expected to increase from 2.6 trillion kilowatt hours in 2007 to 4.5 trillion kilowatt hours in 2035, an increase of 73%

Middle East:

- Expected to increase from no generation in 2007 to 0.05 trillion kilowatt hours in 2035
  - Based on this estimate, nuclear will comprise less than 1% of the generation supply in the Middle East
- This estimate takes into account new nuclear in the United Arab Emirates and Iran only
  - Q. Will UAE's nuclear experience shape the market?

Supply / Demand

Alternative Sources of Supply – Middle East

LIQUIDS

- Currently accounts for 35% of generation
- Expected to drop to 21 % by 2035, as many nations pursue natural gas to increase their export of petroleum

GAS

- Currently accounts for 57% of generation but expected to grow to 68% by 2035

COAL

- Good hedge against gas price volatility but with serious (and expensive) pollution control issues and supply risk

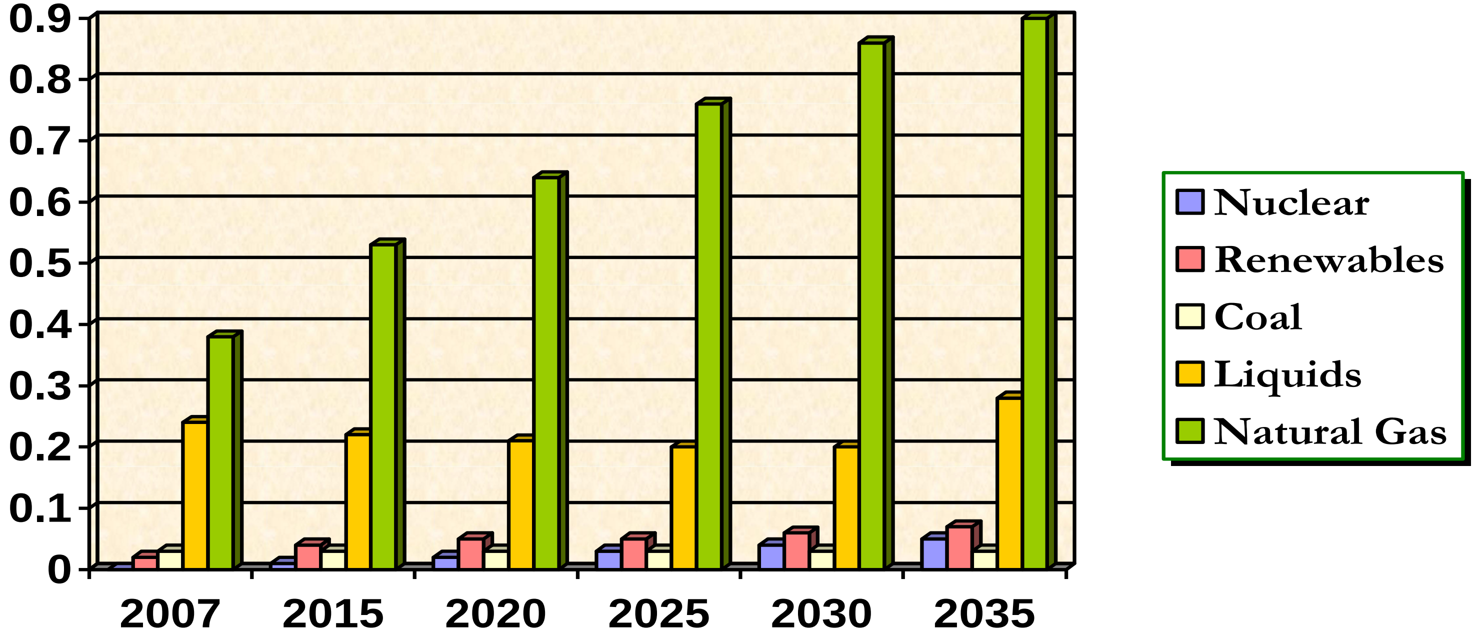
RENEWABLES

- Very few incentives for countries to add renewables
- Iran is adding hydroelectric capacity

Source: U.S. Energy Information Administration, International Energy Outlook 2010

Supply / Demand

Net Electricity Generation in Middle East By Fuel, 2007 – 2035 (trillion kilowatthours)

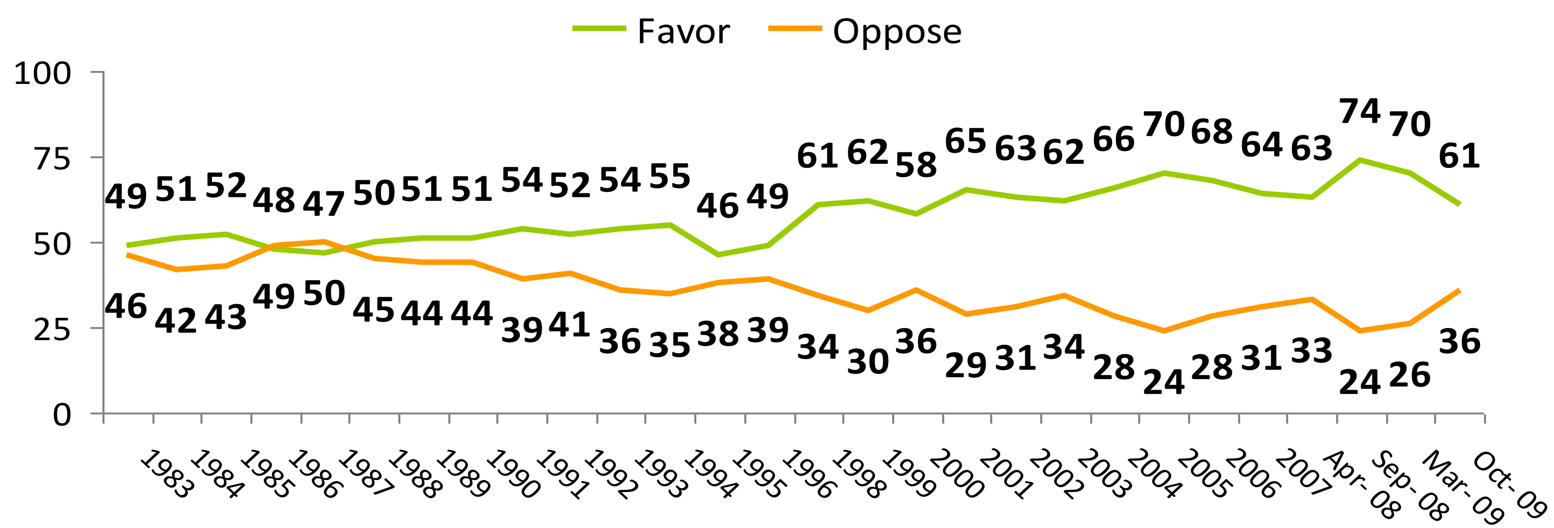


Source: U.S. Energy Information Administration, International Energy Outlook 2010

Driver #2 – Major Shift in Public Acceptance

Public Acceptance

U.S. Public Opinion: Favorability to the Use of Nuclear Energy for Electricity (1983 – 2009)



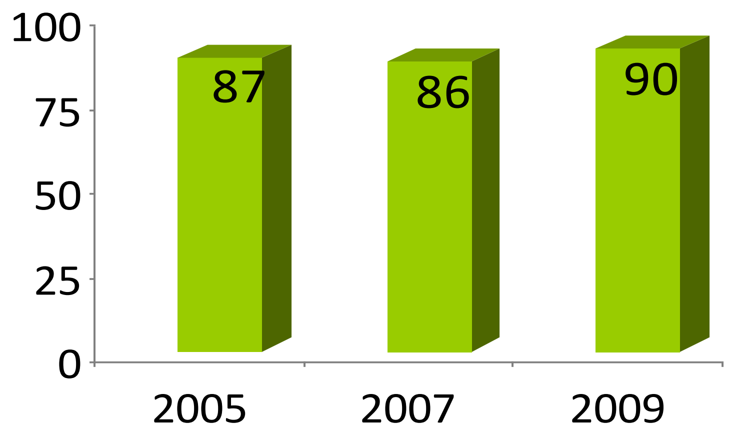
Significant changes in the general public perception in the US in the past 25 years

Source: Nuclear Energy Institute

Driver #2 – Major Shift in Public Acceptance

Public Acceptance

Nuclear Power Plant Neighbors Favorable to Local Plant: Percent with Favorable Impression 2005-2009



90% of residents near nuclear plants favor nuclear energy

Source: Nuclear Energy Institute

Driver #3 – Global Warming Concerns

Greenhouse Gas

A carbon-constrained world?

- Prominent environmentalists have begun to rethink their opposition to nuclear power
- Nuclear power is the only base-load source of power that does not emit GHG
- Carbon tax can create potentially large upside profits for NPPs, mitigating the expensive up-front capital costs
  - But carbon regime remains unsettled after Copenhagen
- Environmental concerns helped to drive wide bipartisan support for the Energy Policy Act of 2005 in the United States, legislation that created the Loan Guarantee Program administered by the Department of Energy

Technology Advances

Gen 3+ Nuclear Technology

Safety Advances:

- Redundant and separated safeguard buildings
- Corium retention area
- Robust containment
- Passive safety features
- Plant design simplification

Performance Advances:

- Higher overall efficiency
- Longer fuel cycles
- Design simplification resulting in less O&M
- On-line maintenance capabilities

Drivers #5 & 6 – Fuel Diversification and Energy Security

Fuel Diversity/
Energy Security

Fuel Diversification:

- Nuclear is a hedge against volatile gas prices
- Switching away from liquids will expand petroleum export opportunities
- Nuclear can efficiently stabilize a grid containing intermittent and variable generation sources (i.e. renewables)

Energy Security:

- May be difficult to obtain coal in required quantities in certain areas
- Countries can obtain nuclear fuel through long-term contracts with the approval of international organizations

II. Role of Export Credit Agencies in Financing New Nuclear Power Projects

Export-Import Bank of the United States

- The official export credit agency of the United States
- Ex-Im Bank's mission is to assist in financing the exports of U.S. goods and services to international markets
- Ex-Im Bank acts as a lender of last resort
  - Covers financing gaps
  - Has an increased risk tolerance
- Ex-Im Bank assumes credit and country risks that the private sector is unable or unwilling to accept
- Ex-Im Bank harmonizes its financing terms and conditions with other export credit agencies of OECD-member nations to avoid competition on the basis of financing
  - Governing policy is the OECD Arrangement on Officially Supported Export Credits

OECD Arrangement Governing Export Credit Agencies

Revisions to the Nuclear Annex of the OECD Arrangement (effective July 1, 2009)

Scope	Extends coverage terms for nuclear fuel and enrichment; extends coverage to sub-stations, transformers and transmission lines located inside the nuclear power plant site boundary
Max Repayment Terms	•up to 18 years (from 15) (standard repayment of equal installments) •up to 15 years (sculpted repayment)
Repayment Profiles	•Equal semi-annual •Mortgage-style •Sculpted (no single payment < 2% or > 25% with weighted average life restricted to 9 yrs) – <u>only available</u> for up to 15 yr repayment
Fixed Interest Rates	Standard Arrangement CIRR
Grace Period	•up to 6 moths from the starting point of credit (typically the date of commissioning) •up to 12 months if sculpted terms
Local Costs	Up to 30% of the export contract value

Ex-Im Bank Nuclear Procedures and Guidelines

- Ex-Im Bank has published Nuclear Procedures and Guidelines on its web-site: www.exim.gov

- The Nuclear Procedures and Guidelines are applicable to commercial nuclear power plants used for producing electric power, the supply of the initial nuclear fuel and fuel reloads, and nuclear research reactors and facilities, including reactors used to produce radioisotopes for medical and other uses.

- Ex-Im Bank Nuclear Procedures and Guidelines are intended to help ensure that the nuclear projects Ex-Im Bank supports are constructed and operated in an environmentally responsible manner and that the projects include reasonable measures and provisions to address public health and safety.

- Ex-Im Bank recognizes that it is the sovereign responsibility of each operating state to ensure the safety of the nuclear installations on its territory.

Ex-Im Bank Nuclear Procedures and Guidelines, cont.

- Transactions involving nuclear projects will be evaluated against host-country environmental guidelines and international nuclear environmental guidelines. The international nuclear guidelines generally applicable will be those of the International Atomic Energy Agency (IAEA), supplemented by guidelines of the World Bank.

- Nuclear transactions should, in all cases, comply with the relevant environmental standards of the host country, and when the applicable international nuclear and environmental guidelines against which the project has been evaluated are more stringent, these guidelines will apply.

- Consistent with Ex-Im Bank's Charter, all loans, guarantees or insurance facilities related to nuclear exports are subject to Congressional review for a period of at least 25 days of continuous session of Congress, but not more than 35 calendar days, prior to final Ex-Im Bank authorization.

Financing New Nuclear: How is Nuclear Different?

- Long-lead Materials/Complex Supply Chain
- Regulatory Uncertainty
- EPC Terms and Conditions
- Nuclear Liability
- Technology/Construction Risk

Bottom Line:

Ex-Im Bank looks forward to playing a critical role in financing new nuclear power projects in MENA and world-wide