

# Interregional Training Course on Legal and Financial Issues for a Decision in Countries Introducing or Expanding Nuclear Power

6-10 October 2014













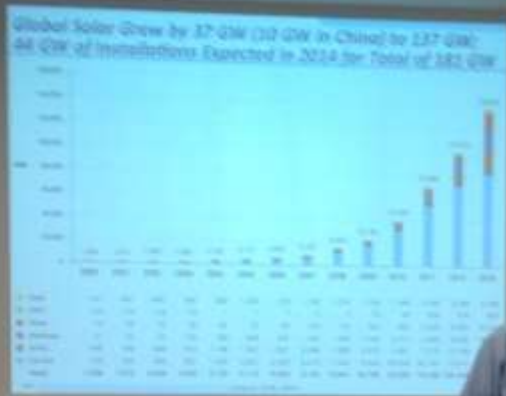
**IAEA-Argonne  
Interregional Training Course on  
Legal and Financial Issues for a Decision in Countries Introducing or Expanding Nuclear Power**





**Joe Braun**





Guenter Conzelmann

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**Anjana Das**



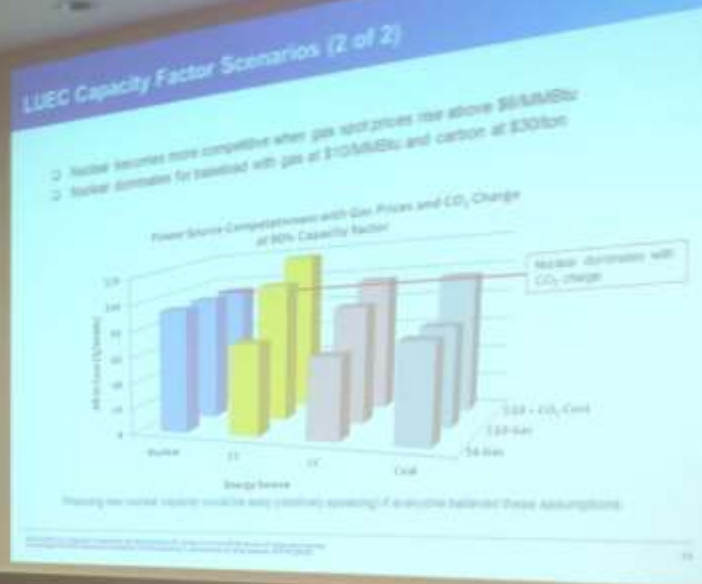


## Sustainable Energy Dev

- **Government - Policy and Regulation Setting**
  - National (Green and Investment, emissions levels)
  - Regional (Transmission, reliability, energy markets)
  - State (Rate, rate, Renewable & Demand Side Management)
  - Local (Codes, permitting, zoning requirements)
- **Utility - Investment and Operation Decision-Making**
  - Invest based on their knowledge (Government, Customers, etc)
  - Define Corporate Vision
  - Develop Information to support decision-making
  - Make decisions on strategies for investment and operations
- **Energy Planners - Contribute to informed judgments**

Energy planning involves evaluation of the energy system with the intent of providing technical and/or information that will enable them to make informed judgments on strategies needed to meet present and future energy objectives

**Bruce Hamilton**



Rilck Noel

Panel of four men seated at a long table, some with laptops open.

Panel of men seated at a long table, some with laptops open, listening to the presentation.

Rilck Noel



Meeting

Item	Notes	Item	Notes
1. Agenda		1. Agenda	
2. Welcome		2. Welcome	
3. Presentation		3. Presentation	
4. Discussion		4. Discussion	
5. Action Items		5. Action Items	
6. Meeting Summary		6. Meeting Summary	
7. Next Steps		7. Next Steps	
8. Meeting Evaluation		8. Meeting Evaluation	
9. Meeting Minutes		9. Meeting Minutes	
10. Meeting Follow-up		10. Meeting Follow-up	



**Mark Muldowney**



Core Competencies for the Host Country

- Visa Subvention
- Licensing
- Legal and Regulatory Framework
- International Trade Commission
- Safety
- Security
- Reliability
- Speed and Quality of Service
- Environmental
- Audit Rights

Manager

1. Understanding and compliance with local laws
2. ...

**Paul Murphy**



As  $\neq$  conventional PPAs

NECG

development/construction period

risk in development and construction

term/tenor (high capital + long asset life)

availability, high-impact nuclear events

risks (Decom, SNF, TPL insurance)

regulatory cost issues

fixed/variable costs & dispatch

ANL/NECA



Edward Kee



**Farid Berry**



## Risk Allocation in the EPC Framework

Inter-Regional Training Course on  
National Position, Legal and Financial Matters  
for Introducing Nuclear Power  
ANL, 8 October - 10 October, 2014

Paul Warren  
Planning & Economic Studies Section



IAEA

**Paul Warren**



**Mark Cunningham**

## Objective of presentation

- Presentation will focus on approaches to funding:
  1. *Costs of NPP decommissioning*
    - Costs of decommissioning the NPP are – obviously! – paid after the end of the station's life
  2. *Costs of ultimate disposal of used fuel*
    - For the purposes of this presentation it will be assumed that the ultimate disposal of used fuel will occur after the end of the NPP life
- Costs incurred at this stage in the life-cycle often referred to as 'back end' costs
- *Financing and funding of these 'back-end' costs raises particular issues*



**Paul Warren**





**Daniel McGarvey**

## The \$10 Question

- WHAT ACCOUNTS FOR THE REGIONAL DIFFERENCE IN THE LCOE FOR NUCLEAR POWER GENERATED ELECTRICITY?

gowlings

3

**Ahab Abdel-Aziz**

# SMR Economics and Financing

Dr Giorgio Locatelli BEng MSc PhD CEng

Senior Lecturer in Economics & Management  
Programme Leader of Mechanical Engineering

School of Engineering - University of Lincoln

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**Giorgio Locatelli**



# The Vendor's Dilemma

Small modular reactors offer several new features:

- Enhanced safety margins and plant robustness
- Reduced capital cost and flatter debt profile
- Increased flexibility of use in diverse locations and for broader applications

BUT...

Owners want: Lowest cost option

Regulators want: No changes from *existing* standards



Proprietary  
© 2014 NuScale Power



Dan Ingersoll

# Safety Culture

## DECISION MAKING



- Decisions are made with the authority and understanding the expectations, when faced with unexpected or uncertain conditions to place the plant in a safe condition. Senior leaders support and reinforce conservative decisions.
- Consistent process: "Decisions use a consistent, business approach to make decisions. Key insights are communicated as appropriate."
- Consistent tool: "Decisions use decision-making methods that are consistent. Decisions are made based on the best available information. A process plan is used to ensure the plant is able to proceed in a safe manner to the next step."
- Accountability: "Decisions are made with accountability to safety."



Jack Grobe

FUNDAMENTAL ISSUES  
BASIC STRUCTURE OF THE LAW

*Two Basic Approaches*

- A "comprehensive" or "unified" form covers all aspects of nuclear energy in a State
- A "plural" form treats different subject matter areas in separate laws
- A key issue is whether to cover both promotional and regulatory aspects in a single law
- National legislative practice will influence the choice of a structure for nuclear legislation



**Carlton Stoiber**





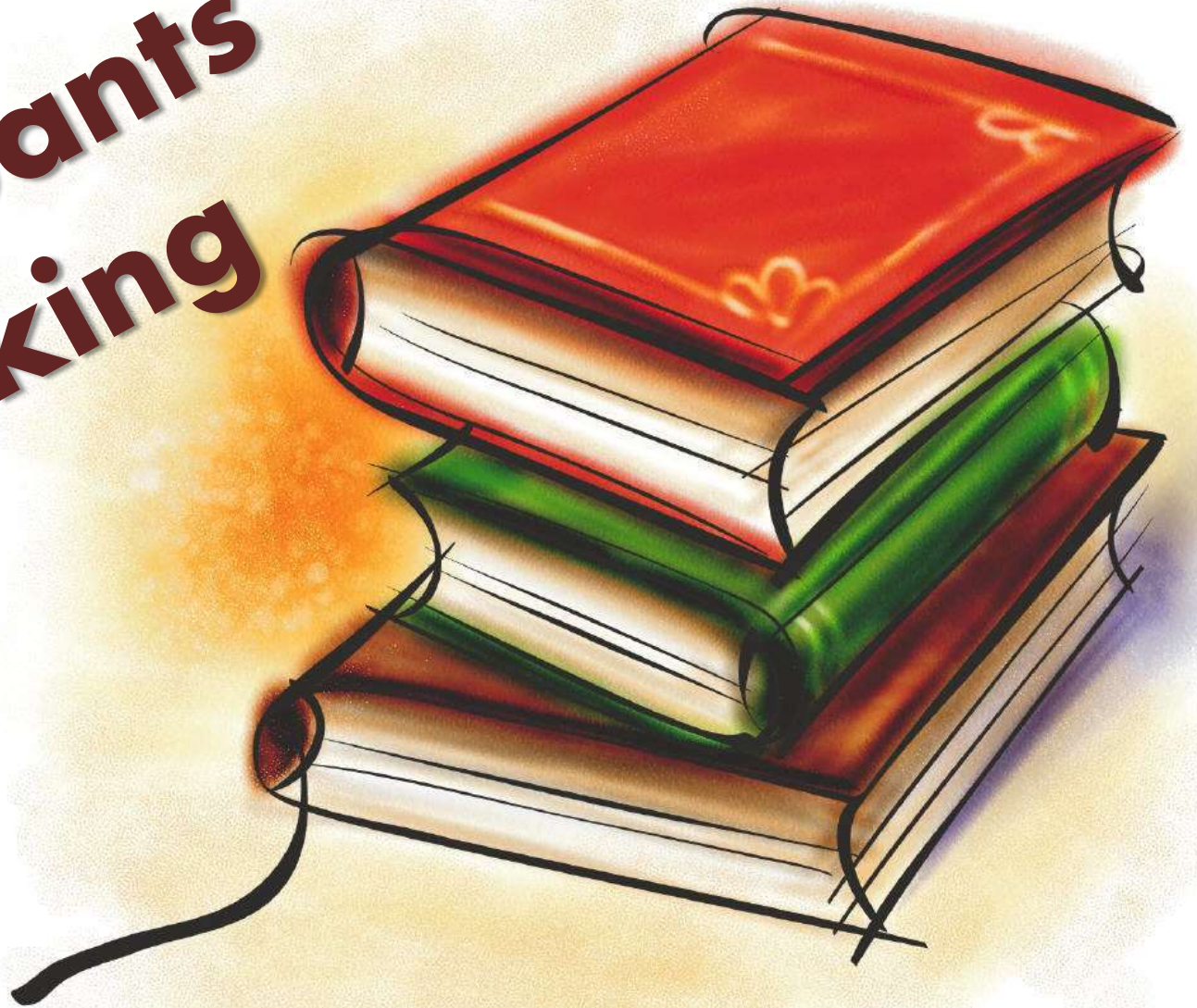
*Coffee Break*







# Participants Working







## Built, but retired early



- A nuclear power plant is retired early
  - Major Maintenance – Zion, Yankee Rowe, Trojan, Crystal River 3, SONGS
  - Accidents – TMI 2, FD 1-4 and 5&6, Chernobyl
  - Safety – Soviet RBMK units in EU
  - Environmental – Oyster Creek
  - Economics – Kewaunee & Vermont Yankee





# *Participants Receive Certificates*





**Silvia Lucilla MOLINA**  
**ARGENTINA**





**Elchin HUSEYNOV**  
**AZERBAIJAN**







**Dilip Kumar BASAK**  
**BANGLADESH**





**Jafar SADIQUE**  
**BANGLADESH**





**Pedro Maffia DA SILVA**  
**BRAZIL**







**Rakan AYOUB**  
**JORDAN**





**Viktor TSYNGAYEV**  
**KAZAKHSTAN**





**Moses MUIINDE**  
**KENYA**







**Lenard ONG'ONGE**  
**KENYA**





**Egidijus PURLYS**  
**LITHUANIA**





**Takoubakoye DJIBO DAOUDA**  
**NIGER**







**Agnieszka MOLDAWSKA**  
**POLAND**





**Chaiyod SOONTRAPA**  
**THAILAND**





**Fatih Berker AVSAR**  
**TURKEY**







**Ahu Sinem CIVILOGLU**  
**TURKEY**





**Erbay DOKMECI**  
**TURKEY**





**Isaac BAZIWE**  
**UGANDA**





A celebratory graphic featuring several white-frosted cupcakes with colorful sprinkles and a pink flower-shaped decoration. The cupcakes are arranged around a central white rectangular area. This area is framed by a gold star garland and a gold ribbon. The background is a light purple and white patterned fabric.

**Celebrating  
a  
Job Well Done**









**Share the Knowledge**