

# **USNRC INTERNATIONAL REGULATORY DEVELOPMENT PARTNERSHIP (IRDP)**

**Presented by**

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# OUTLINE

- International nuclear development
- Who we are
- International regulatory development partnership
- Our web site

# ***INTERNATIONAL NUCLEAR DEVELOPMENT***

# EMBARKING NUCLEAR COUNTRIES

- **Great interest in nuclear energy among states which do not currently have power reactors**
- **Significant challenges**

# PERCEIVED NEED FOR NUCLEAR

- Growing world population
- Rising economic expectations
- Limited indigenous energy resources
- Rising energy prices
- Carbon emissions

# CHALLENGES

- **Availability of capital**
- **Industrial/technical infrastructure**
- **Skilled and educated personnel**
- **Public support**
- **Lack of regulatory infrastructure**

# IAEA MILESTONES PROGRAM

- IAEA states that 60 countries interested in new reactor programs
- Nearly that many countries participating in “Milestones” program
  - Assess the need for nuclear power
  - Guide the program through three stages of development
  - Focus on 19 areas where preparation is needed

# IAEA INFRASTRUCTURE CONFERENCE: February, 2010





# WORLD NUCLEAR ASSOCIATION

- Nations planning new programs
  - Egypt
  - Indonesia
  - Nigeria
  - Turkey
  - Gulf cooperation council
  - Kazakhstan
  - Poland
  - Vietnam
- (Most likely) Potential entrants
  - Italy
  - Philippines
  - Jordan
  - Thailand

# *WHO WE ARE*

# IRDP PARTICIPANTS

- **NRC Office of International Programs**
  - Jack Ramsey (NRC Program Manager)
- **AdSTM Inc.**
  - Sergey Katsenelenbogen (Vice President)
    - Bruce Mallett
    - Gene Imbro
    - Ernie Rossi
    - Dave Squarer
    - Mort Fleishman
    - Weidong He
    - Scott Newberry
    - Bill Bateman
    - Mark Reinhart
    - Kahtan Jabbour
    - Harvey Abelson
    - Mihaela Biro

# PARTNER COUNTRIES

- **Mature full partners**

**Armenia**

**Kazakhstan**

**Vietnam**

- **New full partners**

**Thailand**

**Indonesia**

- **Partial participants**

**FNRBA**

**Jordan**

**Poland**

# *IRDPA*

# PURPOSE OF IRDP

***Provide assistance to countries with emerging nuclear power programs to develop a regulatory agency capable of licensing and regulatory oversight for operation of a new reactor***

# PURPOSE OF IRDP (Cont.)

IRDP covers principle elements necessary for the regulator to make major licensing decisions and to provide operations regulatory oversight: organization, licensing process, requirements and guidance for technical review and inspection.

Issues	Milestone 1	Milestone 2	Milestone 3
National position			
Nuclear safety			
Management			
Funding and financing	<b>Conditions</b>	<b>Conditions</b>	<b>Conditions</b>
Legislative framework			
Safeguards			
Regulatory framework			
Radiation protection			
Electrical grid			
Human resources development			
Stakeholder involvement			
Site and supporting facilities			
Environmental protection			
Emergency planning			
Security and physical protection			
Nuclear fuel cycle			
Radioactive waste			
Industrial involvement			
Procurement			

# PARTICIPANTS AND ROLES

- **US NRC Office of International Programs**
  - Technical direction and funding support
- **AdSTM Inc.**
  - program implementation (program design, document development, training, bi-lateral consulting)
- **Participant country regulator**
  - Adopt products/ develop national program



# PROGRAM ELEMENTS

- **Planning and orientation**
  - Regulatory program Action Plan
- **Agency infrastructure development**
  - Regulatory agency structure
  - Staffing, training and technical support
  - Staff qualification program
- **Regulatory program development**
  - Decrees, Regulatory requirements, Regulatory guidance, Regulatory processes
- **Training development and delivery**

# REGULATORY PROGRAM PHASES OF OVERSIGHT

SITING

CONSTRUCTION PERMIT

CONSTRUCTION

OPERATING LICENSE

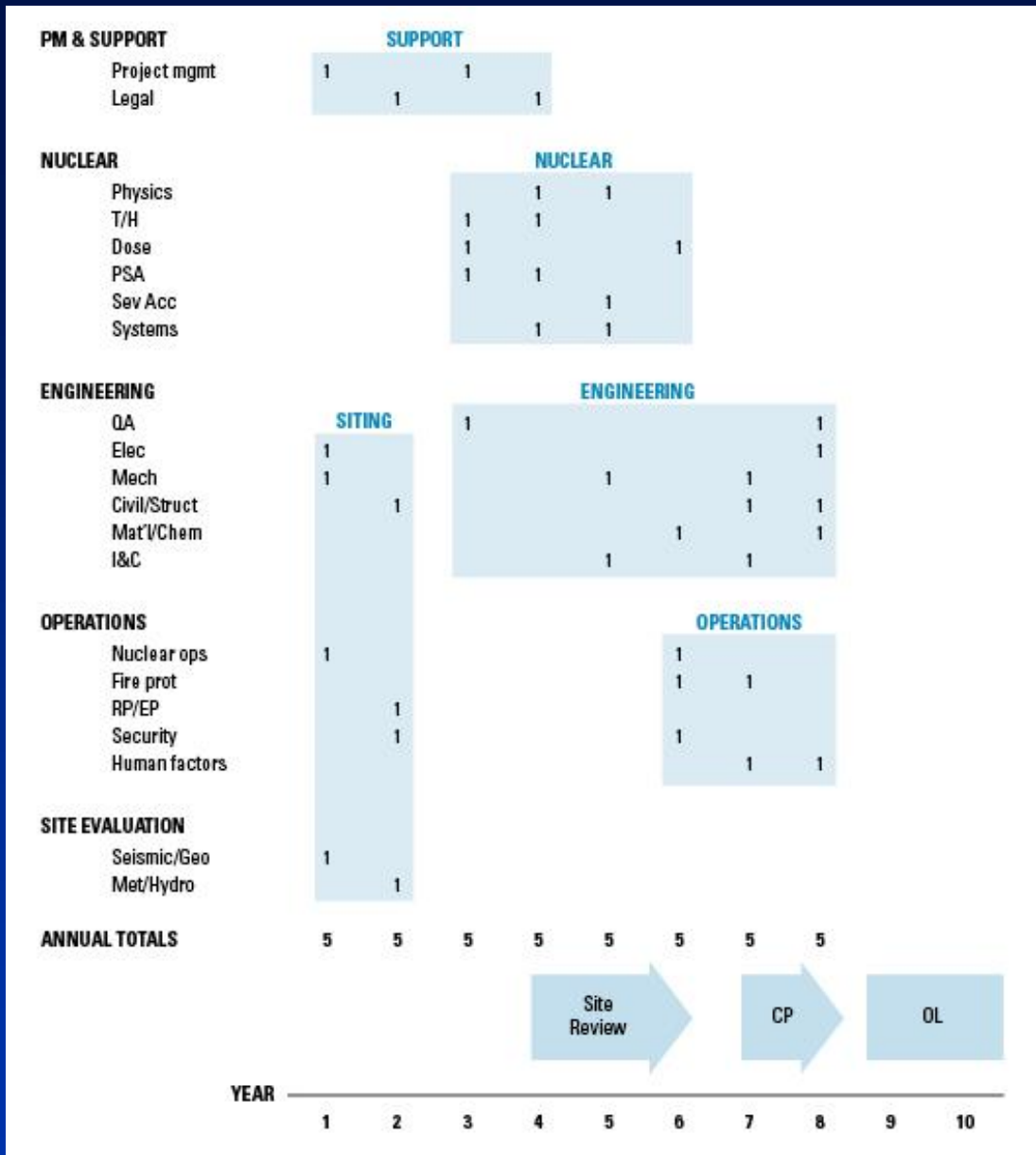
COMMISSIONING

OPERATION

DECOMMISSIONING

# AGENCY INFRASTRUCTURE

- Structure of a nuclear regulatory agency (**G-OI-OS**)
- Staffing, training and technical support for startup of a nuclear safety regulatory program (**G-OI-ST**)
- Qualification program for nuclear regulatory staff (**G-OI-QP**)
- Regulatory infrastructure training module



# REGULATORY PROGRAM

- **Technical requirements related to siting, design, operation and decommissioning**
  - Acceptance criteria, general and specific design requirements, analysis, safety management
- **Guidance for each phase of regulation**
  - Form and content of application
  - Technical review and inspection guidance
  - Process guides
- **Training modules for each phase of regulatory oversight**

# NEW DEVELOPMENTS

- **Inspection guidance**
  - Conduct of inspection
  - Construction inspection
  - Vendor inspection
- **Regulatory process**
  - Licensing process
- **Design review guidance**
  - Appropriate to a country with limited resources
  - Accounting for previous review



# TRAINING

TITLE	VENUE
Nuclear executive workshop	Vietnam Nigeria (FNRBA) Indonesia
Site review	Vietnam Armenia Thailand South Africa (FNRBA) Indonesia (planned) Jordan (planned)
Construction permit review	Armenia Vietnam (planned)



# TRAINING (Continued)

TITLE	VENUE
Inspection workshop	Poland
Quality assurance	Vietnam
Codes and standards	Vietnam
Fundamentals of reactor safety	Vietnam
Fundamentals of reactor regulation	Vietnam

# SUMMARY

- IRDP is effective in participant countries in developing the agency capable of licensing a new reactor
- Balanced between development, training and bi-lateral consulting activities

**[WWW.IRDP-ONLINE.ORG](http://WWW.IRDP-ONLINE.ORG)**



