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Joint ICTP-IAEA School of Nuclear Energy Management

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ROLE OF THE FUTURE NPP OWNER/OPERATOR

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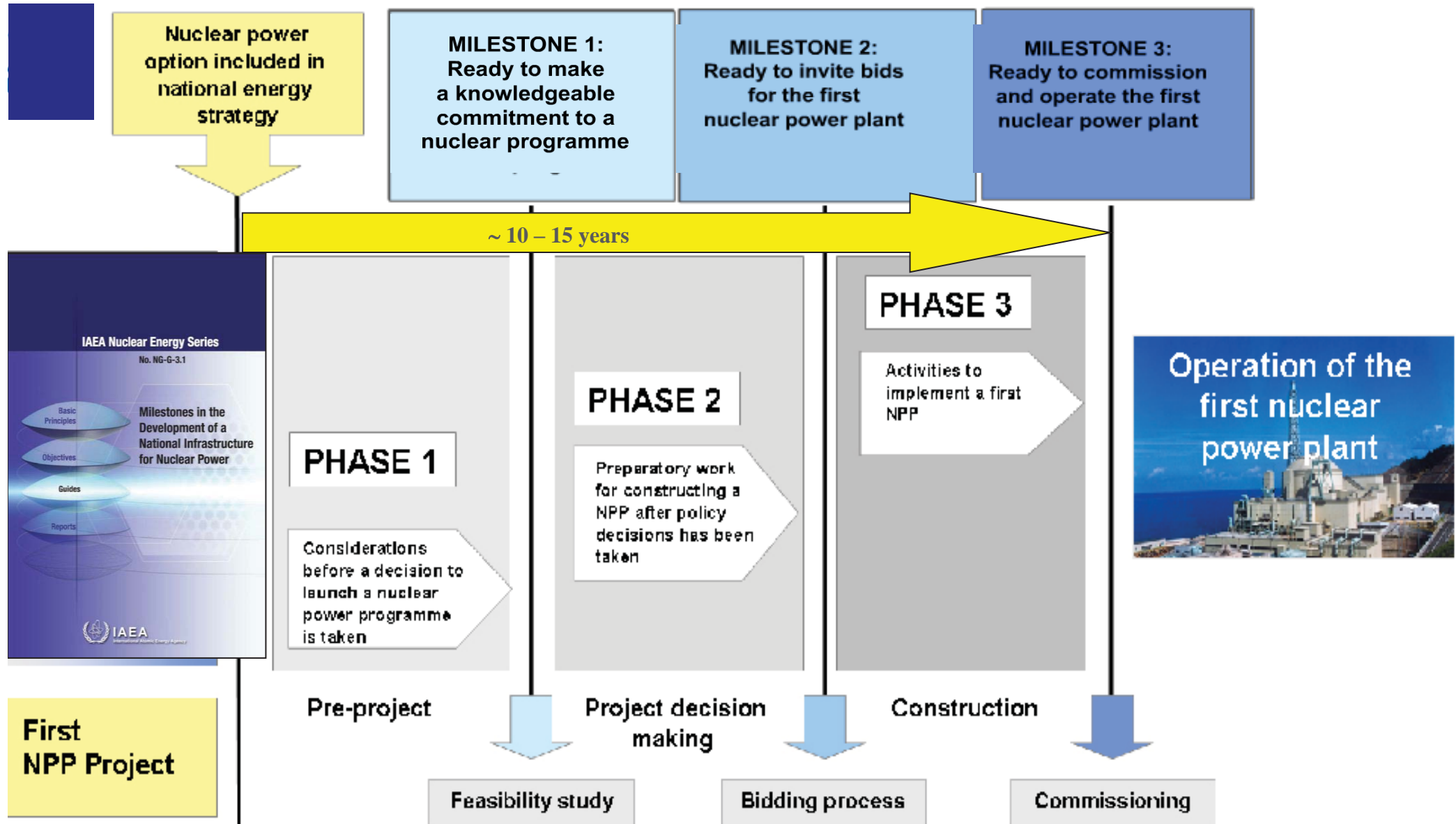
ROLE OF THE FUTURE NPP OWNER/OPERATOR

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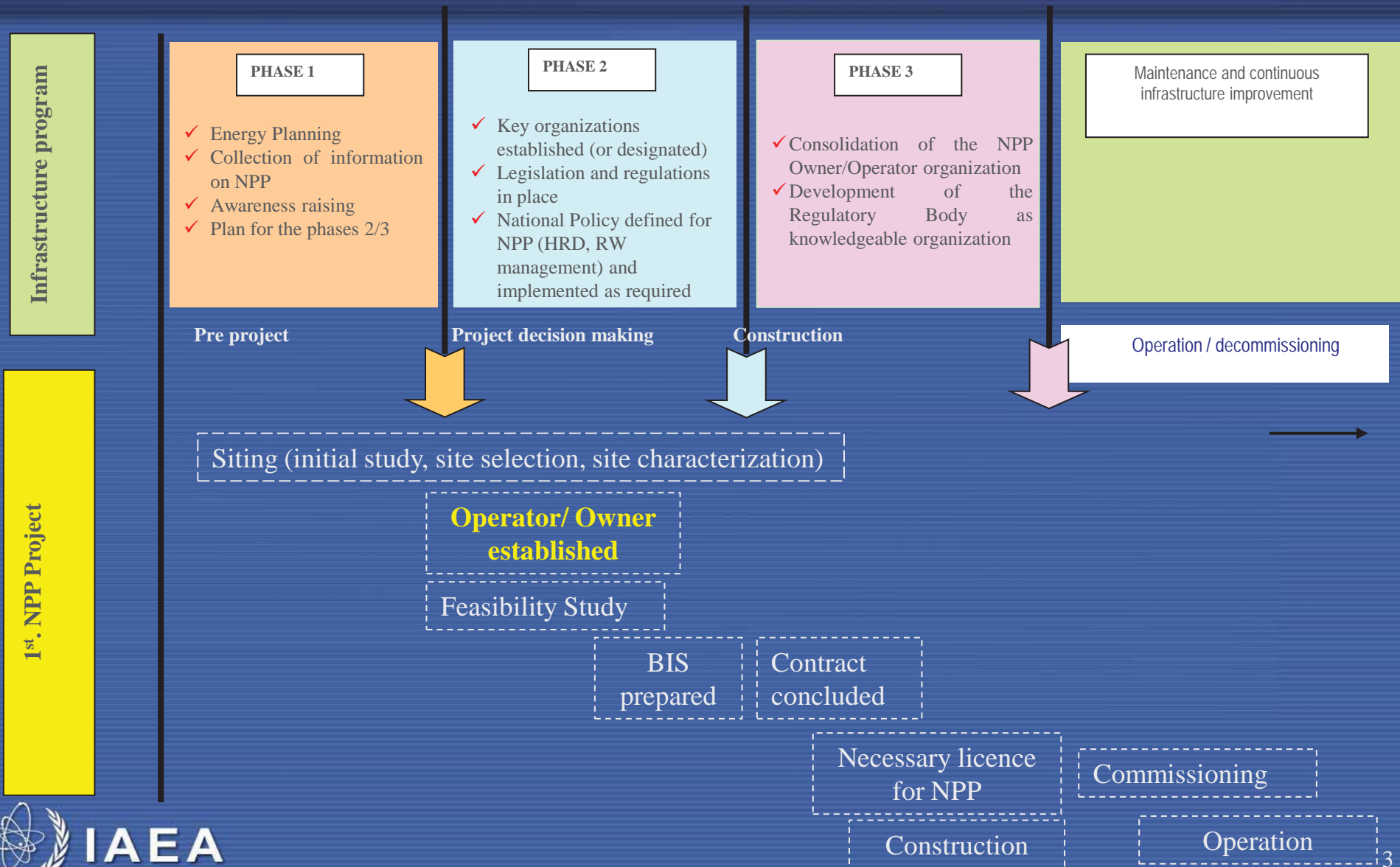
Annual ICTP/IAEA Nuclear Energy Management School
Trieste, Italy, 5 to 23 November, 2012



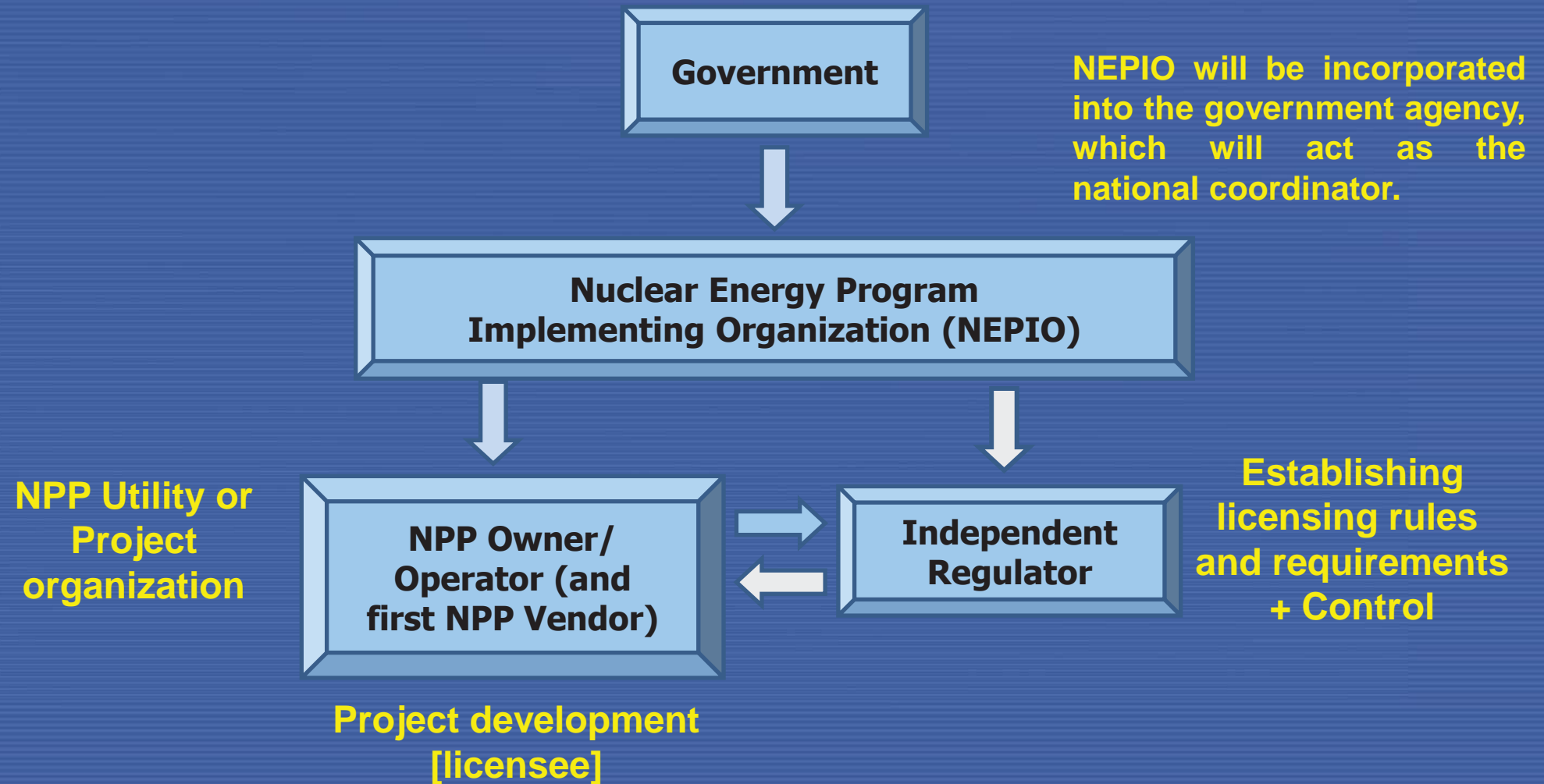
MILESTONES APPROACH



INFRASTRUCTURE DEVELOPMENT PROGRAM



MAIN PLAYERS IN NUCLEAR POWER



WHO IS NPP OWNER/OPERATOR ? (1)

- NPP Owner/Operator is a national organization being a key player in a National Nuclear Power Program.
- NPP Owner responsibilities will include:
 - ✓ bidding,
 - ✓ construction,
 - ✓ licensing,
 - ✓ commissioning,
 - ✓ Operation & Maintenance,
 - ✓ life management
 - ✓ final decommissioning

WHO IS NPP OWNER/OPERATOR ? (2)

- NPP Owner/Operator role and characteristics:
 - ✓ provides ownership and management of the NPP project;
 - ✓ must clearly understand **what** and **how** it has to act, **who** are its partners and supporters and the corresponding interactions that have to be established;
 - ✓ may be state-owned or a private company;
 - ✓ may be an existing utility or a specially established NPP Project organization.
- NPP Owner/Operator will have the **ultimate responsibility** to meet the safety, security and safeguards requirements at national and international levels.

WHO IS NPP OWNER/OPERATOR ? (3)

Two distinct functions:

- **“Operator”**: has ultimate responsible for the safety operation of the NPP.
- **“Owner”**: the holder of the license, which has the right to use the NPP and receive the profits from its operation by selling electricity

NPP OWNER/OPERATOR ATTRIBUTES

Licensable

[legal entity with ultimate responsibility]

Integrated management system

[areas: safety, health, environment, quality, security, economics, commerce, social]

Manages growth and change

[ready for rapid change in size, functions, organization, management techniques]

Learning organization

[structured, continual improvement]

Strong safety culture

[self-disciplined, inherent in actions, enhancement of safety]

Empowers employees

[encourage individuals to take 'ownership']

Assesses of performance

[self/independent, events reporting]

Good communicator

[simple and clear, internal/external]

Effective leader

[managers influence by saying and doing]

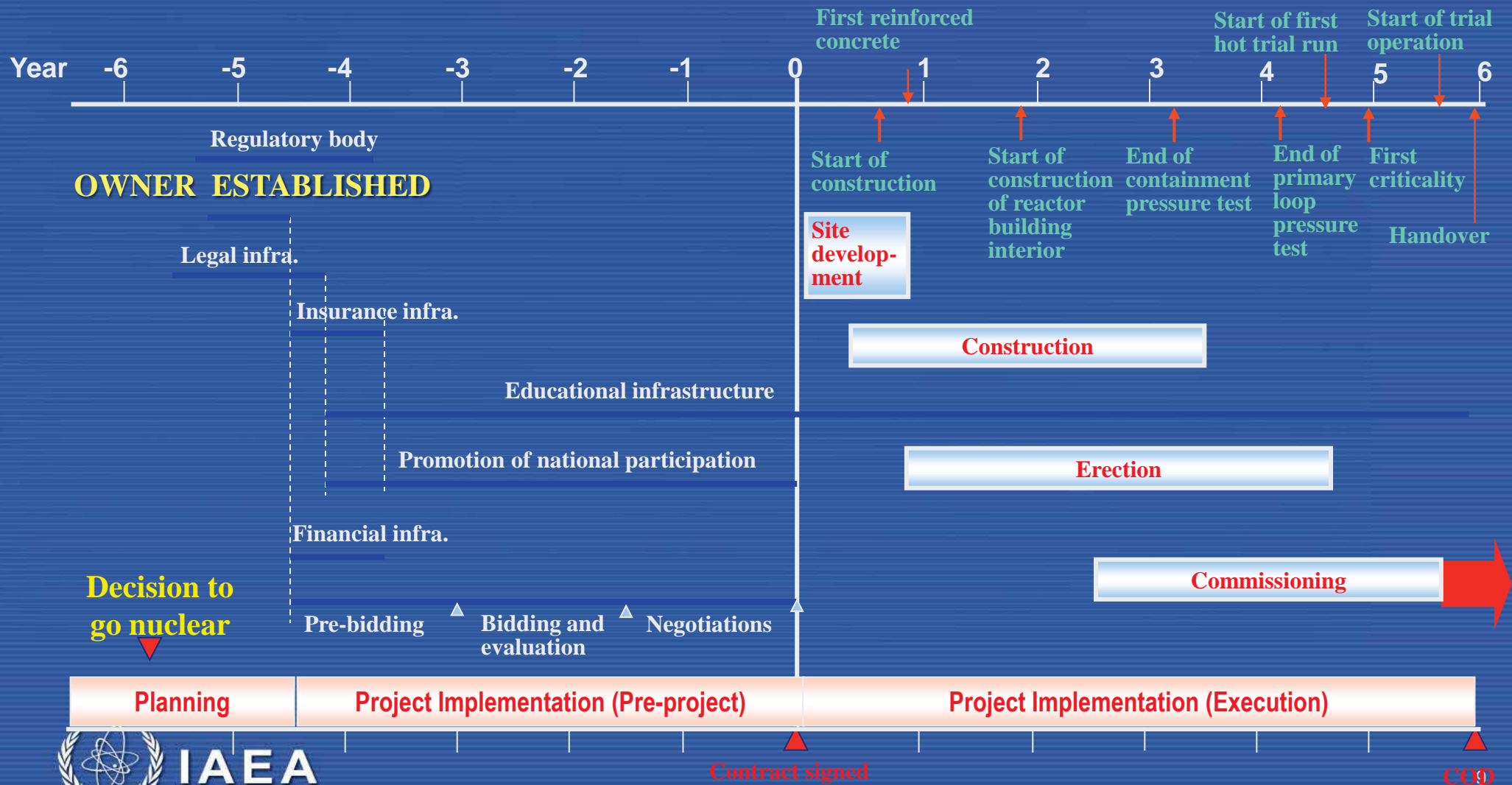
Technically competent

[sufficient knowledge, expertise]

Commercially competent

[exercise to control costs, generate a profit]

NPP OWNER/OPERATOR ESTABLISHMENT

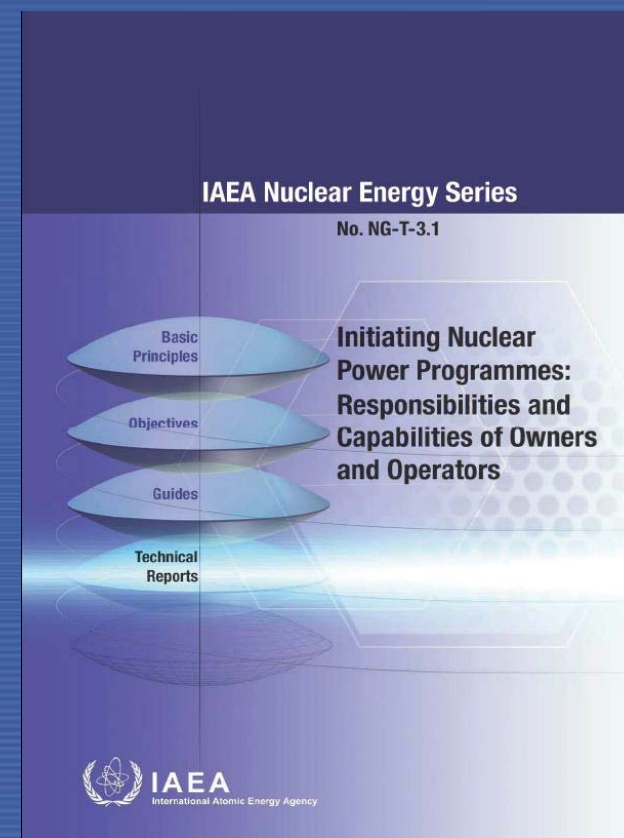


IAEA GUIDANCE DOCUMENT

IAEA Nuclear Energy Series Technical Reports Initiating Nuclear Power Programmes: Responsibilities and Capabilities of Owners and Operators No. NG-T-3.1/2009

Content:

- ✓ Main activities and responsibilities of the owner/operator;
- ✓ Desirable attributes for the owner/operator;
- ✓ Owner/Operator organizational aspects;
- ✓ First NPP contract structure;
- ✓ Interfaces with stakeholders.



NPP OWNER RESPONSIBILITY IN PHASE 2 (1)

- ✓ Establish the Integrated Management system (including Quality Management) of Owner/Operator organization.
- ✓ Review the potential NPP Vendors references.
- ✓ Prepare the Feasibility Study (FS) for the first NPP.
- ✓ Selection of the NPP site.
- ✓ Provide the relevant technical inputs for the selection of the appropriate nuclear power technology for the country (nuclear reactor, nuclear fuel type and fuel cycle).
- ✓ Establish the contractual approach for the first NPP.
- ✓ Develop the financial strategy and financial plan in consultation with the Government authorities and potential foreign and local sources of finance.

NPP OWNER RESPONSIBILITY IN PHASE 2 (2)

- ✓ Start to build a Project Management organization.
- ✓ Prepare the Environmental Impact Assessment (EIA) study for the first NPP.
- ✓ Educate the public and communicate as per specific strategy and plan.
- ✓ Communicate in a transparent and professional manner with all stakeholders involved in the Nuclear Power Program.
- ✓ Prepare the BIS, including the bid evaluation criteria and procedure.
- ✓ Develop capabilities for NPP bids evaluation and contract negotiations in Phase 3.
- ✓ Develop HRD plan to recruit and train staff for Phase 3.

NPP OWNER RESPONSIBILITY IN PHASE 3

- ✓ Inviting and evaluating bids.
- ✓ Liaising with the Regulatory Bodies.
- ✓ Placing contracts for the supply and construction of the first NPP.
- ✓ Preparing all required documentation to obtain the necessary licenses in accordance with the national regulations.
- ✓ Managing and supervising the construction of the first NPP in accordance with design bases, regulatory requirements and contractual provision.
- ✓ Recruiting and training operating personnel, and arrangements for operating staff licensing.
- ✓ Developing the organization and its Integrated Management System to be suitable for the operating Nuclear Power Plant.

NUCLEAR SAFETY ACTION PLAN EMBARKING COUNTRIES

Member State Actions

- ✓ Member States to build appropriate nuclear power infrastructure
- ✓ Member States to request Agency review missions

Secretariat Actions

- ✓ Developing a “catalogue of services” that countries can use to design TC projects
- ✓ Developing a concept for INIR before commissioning (ready to operate)



IAEA ASSISTANCE PACKAGE

- IAEA assistance package for the future NPP Owner/Operator organizations, for the Phases 2 and 3 of the nuclear power program:
 - 1. Workshops (WS)** on the NPP Owner/Operator responsibilities and managerial aspects;
 - 2. Expert Missions (EM)** on the specific aspects of the NPP Owner/Operator activities (Feasibility Study, Bid Invitation Specification, Integrated Management Systems, etc.)
 - 3. Review services and “peer review” missions.**
- This IAEA assistance package, including others potential IAEA assistance (Fellowships and Scientific Visits in the similar organization of developed MSs), should be available through **IAEA Technical Cooperation program.**

WORKSHOPS (1)

Suggested sequence	When is recommended	Subject of WS
1	Earlier Phase 2	Nuclear Power Program Management, including NPP Owner/Operator interfaces
2	Earlier Phase 2	Establishment of the NPP Owner/Operator organization, including Capacity Building
3	Earlier Phase 2	New Nuclear Power Programs: How to Become a Knowledgeable Customer
4	Beginning of Phase 2	Integrated Management System, Leadership and Safety Culture for the NPP Owner/Operator organization
5	Beginning of Phase 2	NPP Feasibility Study(FS) preparation
6	Beginning of Phase 2	NPP site selection

WORKSHOPS (2)

Suggested sequence	When is recommended	Subject of WS
7	Beginning of Phase 2	Interfaces with NPP Owner/Operator in a BOO/BOOT approach
8	Middle of Phase 2	Stakeholder involvement
9	Middle of Phase 2	NPP bidding process, including BIS preparation
10	Late in Phase 2	NPP Project Management
11	Late in Phase 2 Beginning of Phase 3	Interfaces of NPP Owner/Operator with Regulatory Bodies for the first NPP licensing
12	Late in Phase 2 Beginning of Phase 3	Management of Construction of the NPP Project
13	Beginning of Phase 3	Management of Commissioning of the NPP Project
14	Beginning of Phase 3	Emergency Preparedness and interfaces with stakeholders

WORKSHOPS (3)

- National or regional WS
- For each WS the following will be available on the IAEA website:
 - ✓ Terms of Reference including outline of WSs topics
 - ✓ Target audience (organizations and individuals) from the recipient MS
 - ✓ Reference publications
 - ✓ Guidance for the break-out sessions of WSs
 - ✓ Guidance for topics of required presentations for WSs.
- Arrangements for WSs should be made by MSs with IAEA (NE -INIG and TC)

EXPERT MISSIONS

No.	When is required	Subject of WS	Main scope
1	Phase 2	First NPP Feasibility Study (FS) review	To review the draft of the Feasibility Study for the first NPP
2	Phase 2	Review the NPP Owner/Operator Human Resources Development plan	To review the draft of the HRD plan of the NPP Owner/Operator organization
3	Late in Phase 2	Review of the Bid Invitation Specification (BIS)	To review the draft of the BIS for the first NPP prepared by NPP Owner/Operator organization
4	Beginning of Phase 3	Review the Integrated Management System (IMS) of the NPP Owner/Operator	To review the IMS manual and main procedures of the NPP Owner/Operator organization
5	Phase 3	Review construction management process of the first NPP	To review the first NPP construction management process developed by the NPP Owner/Operator organization



IAEA REVIEW SERVICES (2)

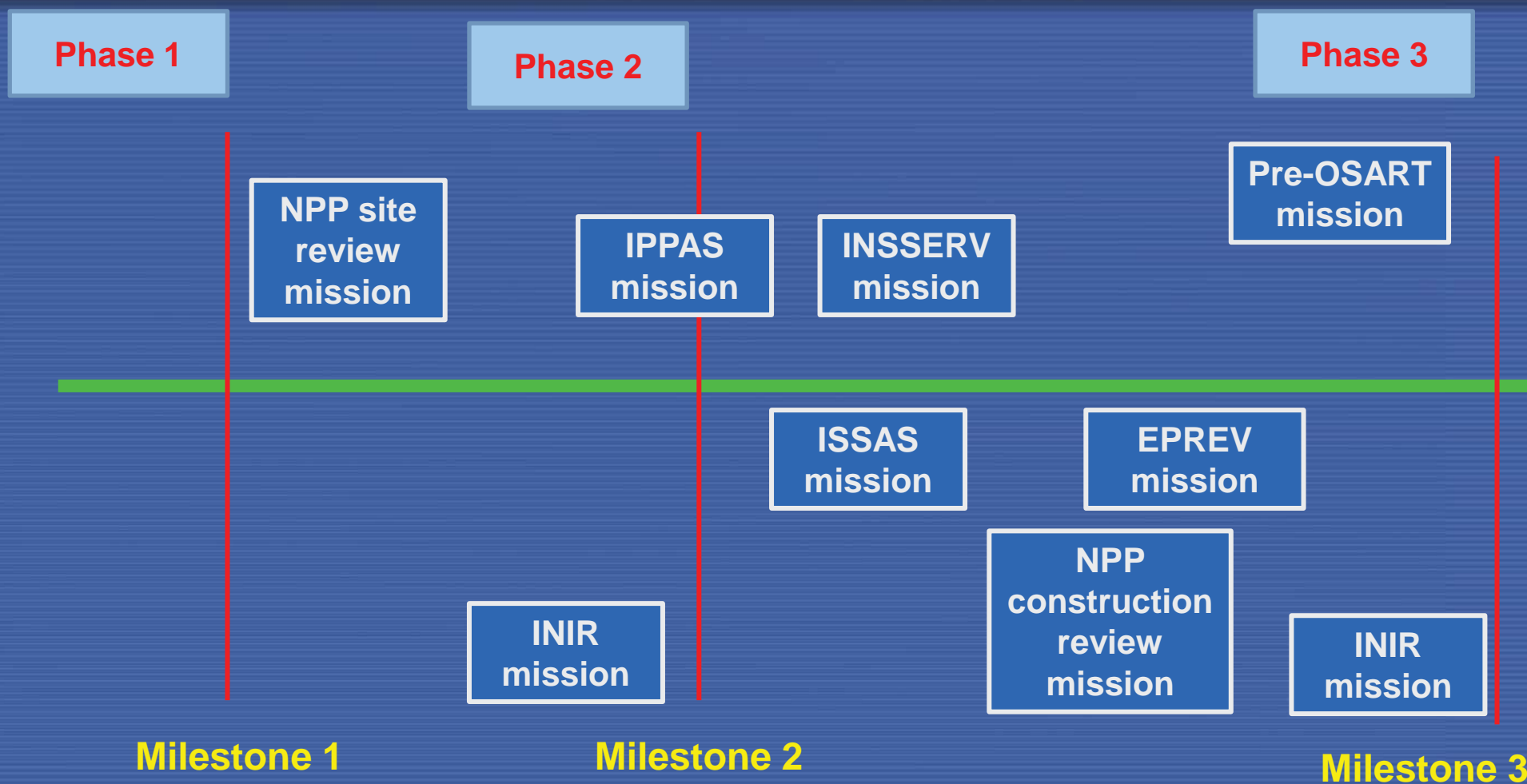
Services available for NPP Owner/Operator organization in Phases 2 and 3 :

1. Site and Seismic Safety Review Services
2. International Physical Protection Advisory Services **IPPAS**
3. International Security Advisory Service: **INSSERV**
4. State Systems of Accounting for and Control of Nuclear Material mission: **ISSAS**
5. NPP Construction Review Services (under development)
6. Emergency Preparedness Review Services: **EPREV**
7. Operational Safety Review Team: **pre-OSART** for NPP commissioning

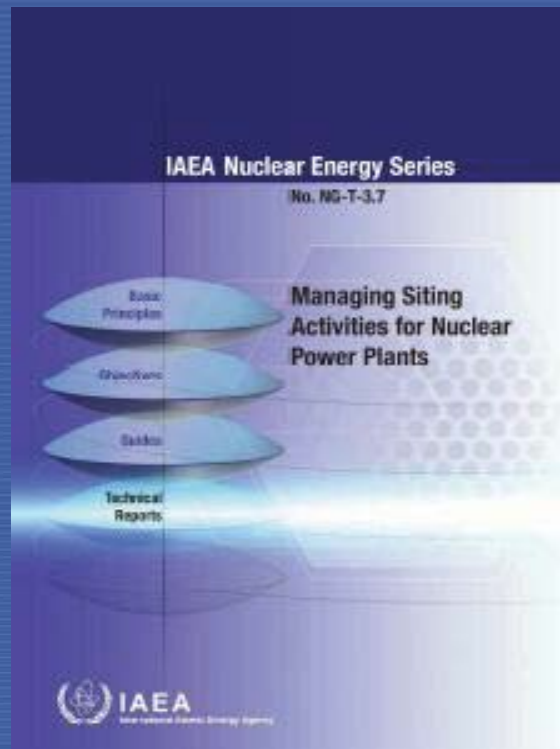
Note: Others similar mission should be available from others international organizations (WANO, NPP Owners groups, etc.)

8. Integrated Nuclear Infrastructure Review (**INIR**) missions in Phase 2 and 3

IAEA REVIEW SERVICES (2)



IAEA DOCUMENTS FOR OWNER/ OPERATOR ACTIVITIES [EXAMPLES]

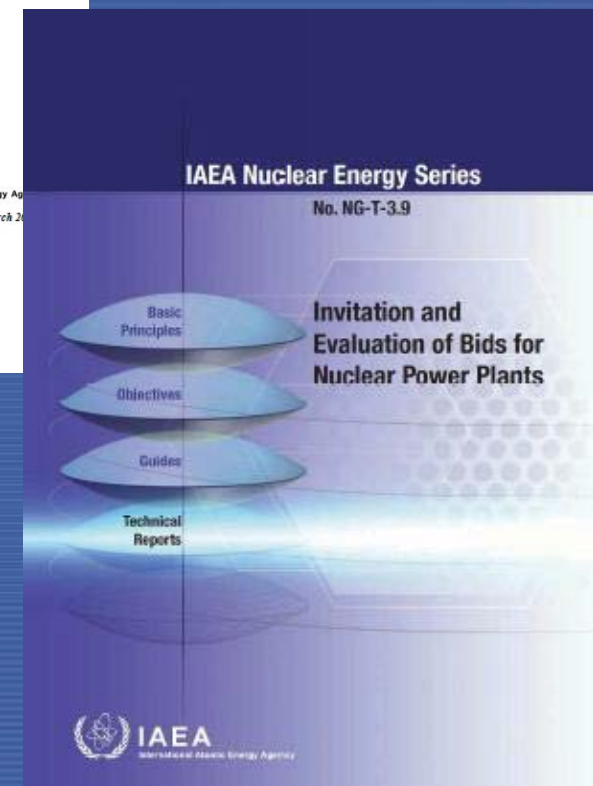


*Feasibility Study Guide for the
Introduction of a Nuclear Power
Project*



IAEA
Managing
Environmental
Impact Assessment
for Construction and
Operation
in New Nuclear
Power Programmes

IAEA-DIG



CONCLUSIONS

- ✓ NPP Owner/Operator has to be knowledgeable and capable to commission and operate NPP
- ✓ NPP Owner/Operator is on the frontline for guarantying nuclear safety, not the NPP Vendor, EPC Contractor or various consultants.
- ✓ IAEA Assistance Package for future NPP Owner/Operator is an integral part of the IAEA Action Plan on Nuclear Safety and should help Member States embarking on a Nuclear Power program.
- ✓ IAEA will continue to improve the offered services and to develop new services based on the Member States feedback and requests.

Thank you!

