Milestones in the Introduction of Nuclear Power

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Post-Fukushima?

A few countries have said in the press that they are no longer considering nuclear. Other countries may review plans, slow down decisions. Several countries proceeding with plans and taking lessons in stride.

Drivers for consideration of nuclear have not changed:

- Increased demand for energy
- Energy independence
- Volatile fossil fuel prices
- Climate change

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Nuclear Power "Newcomers" Post-Fukushima

	2011	2010
New nuclear power plant under construction	0	1
New nuclear power plant ordered	3	2
Decided and started preparing infrastructure	6	10
Active preparation of infrastructure with no final decision	6	7
Considering a nuclear power programme	15	14
Total:	30	34

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Social acceptance after Fukushima makes it harder to start

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Newcomers' Top Issues

- How do I start?
- Is there public support?
- Do I have the people?
- Can I find the money?
- What am I going to do with the waste?
- Is it safe? Can I manage if there is an accident?

How to start a nuclear programme?

- The nuclear power option emerges…
  - Political leader makes an announcement
  - Energy planners identify the option in the mix
  - Policy makers see potential benefits
- *And then what???*

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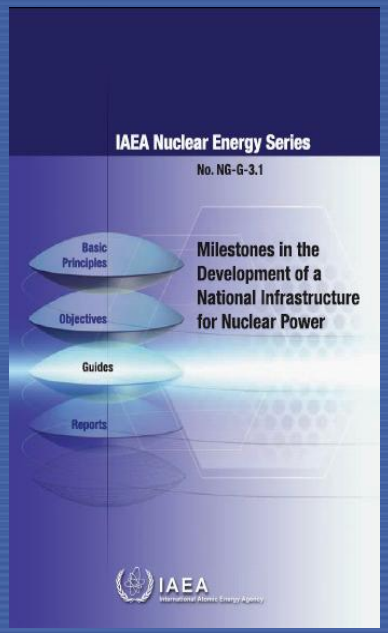
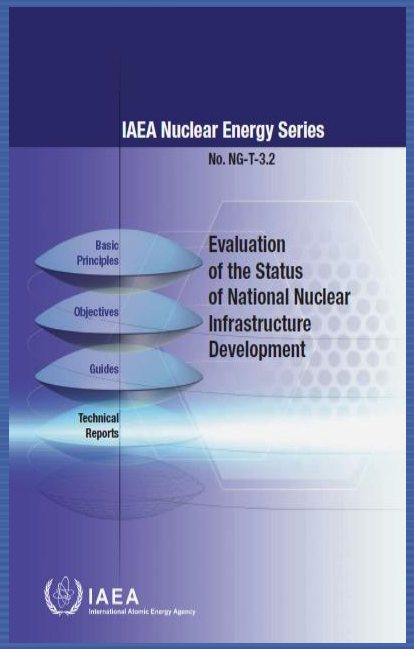
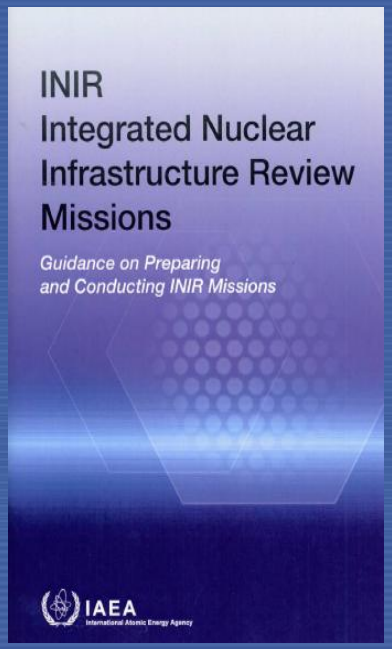
Milestones approach to launching nuclear power

- Based on international experience
- Comprehensive and holistic (19 issues)
- Phased (3 Phases)







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Phased Approach to Nuclear Power

Considerations before decision to launch → **Prep work for construction** → **Construction** → **Operation** → **Decommissioning**

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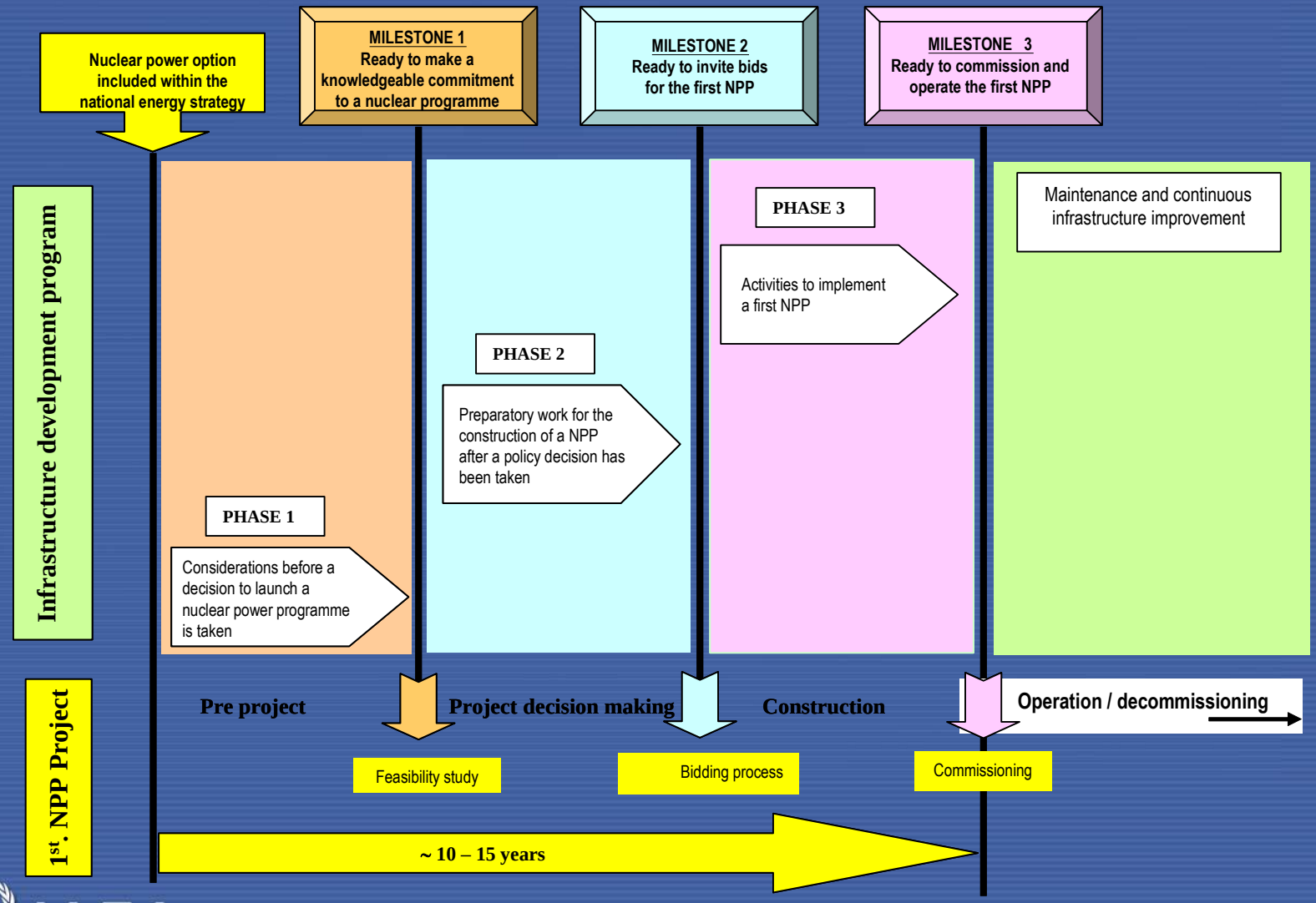
Milestones in the Development of a National Infrastructure for Nuclear Power (NG-G-3.1)



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INFRASTRUCTURE DEVELOPMENT PROGRAMME

Milestones in the Development of a National Infrastructure for Nuclear Power (NG-G-3.1)

- National position
- Nuclear safety
- Management
- Funding and financing
- 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

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What's important?

- Comprehensive – many stakeholders
- Integrated – coordinated planning
- Government Commitment – essential to long-term sustainability

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Knowledgeable Decision
Announcement
Policy
NATIONAL POSITION
"Why" and "How"
Justification
Consensus
Strategy
Roadmap
Public Awareness
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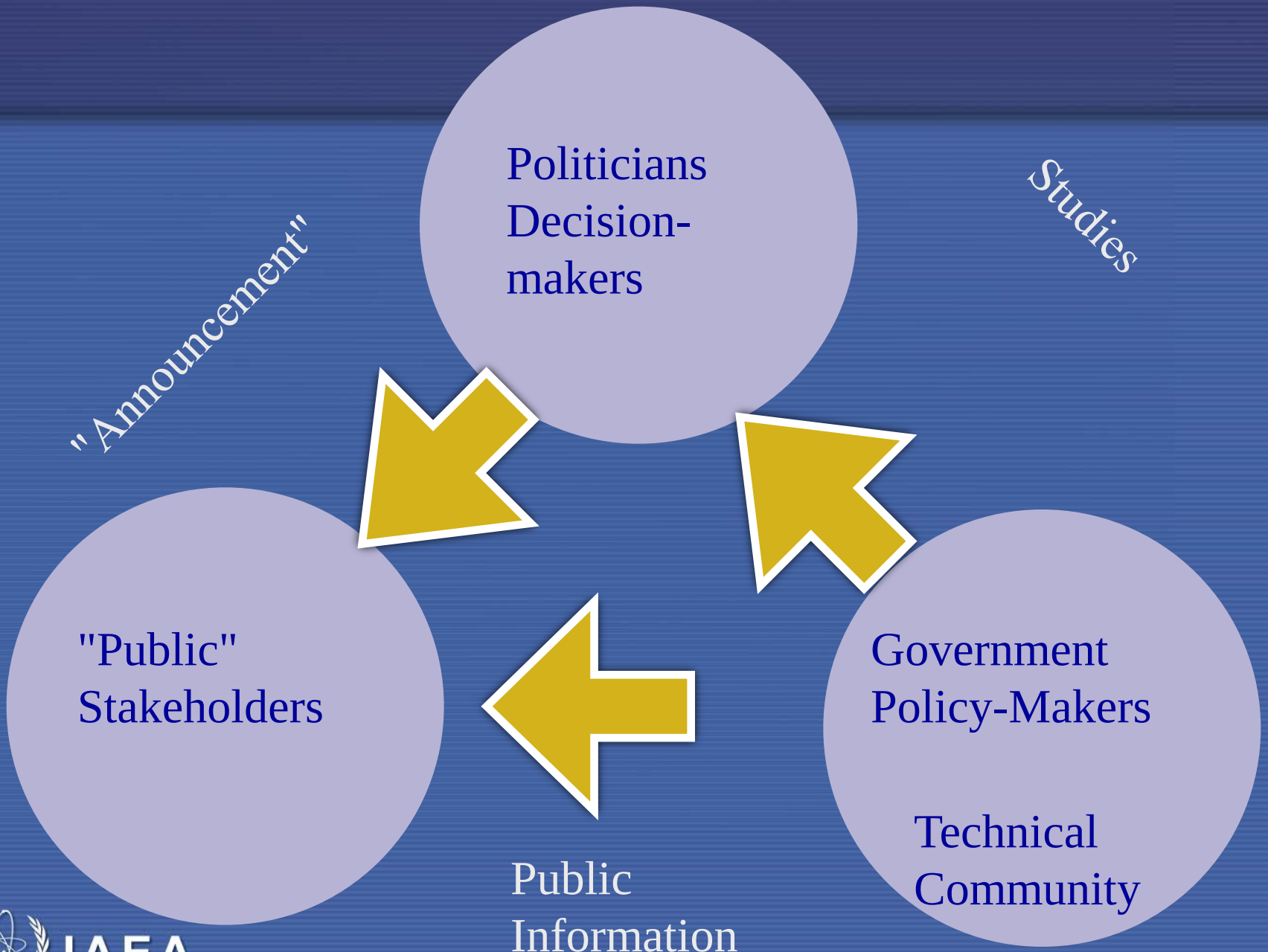

Politicians
Decision-
makers
"Announcement"
Studies
"Public"
Stakeholders
Public
Information
Government
Policy-Makers
Technical
Community

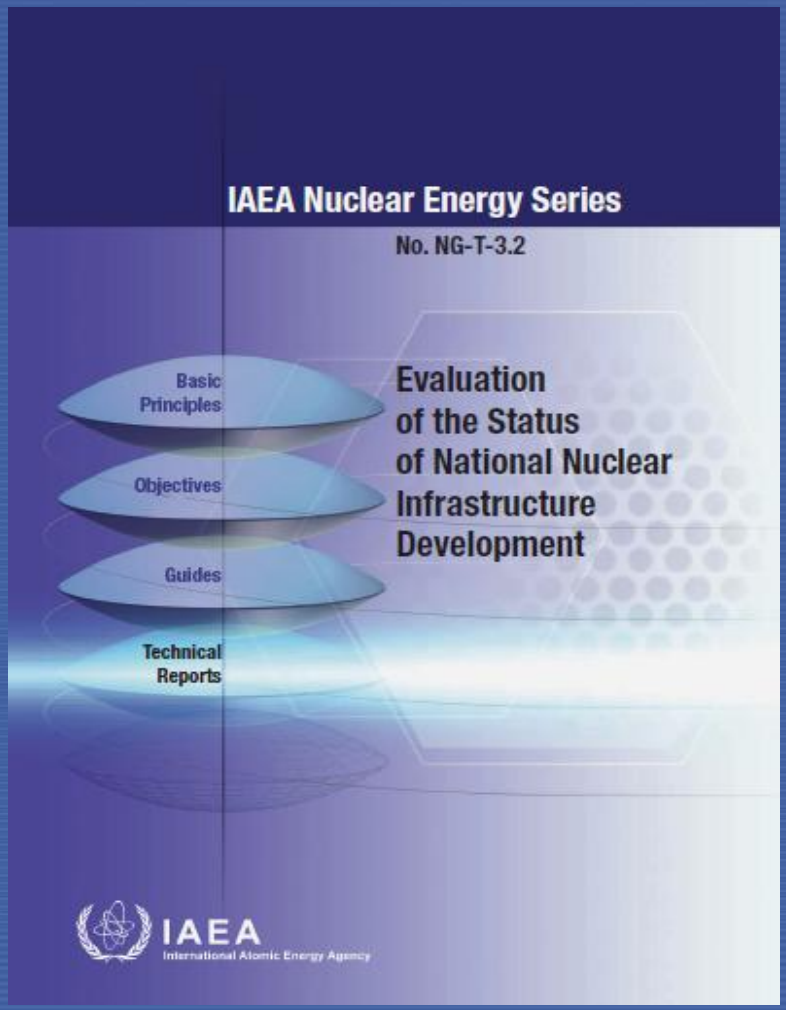
National Position

The daydreams of cat herders

National Position and Public Support

- Factors for success:
  - Consensus across the political spectrum
  - Translating nuclear power into social values
  - Connecting the technical community to the government and politicians
  - Communicating with the public
- Clear policy at the beginning forms foundation for future decisions

Comprehensive Infrastructure Evaluation



1. National Position / Phase 1	
Conditions	**Basis for evaluation**
1.1 Safety, security and non-proliferation needs recognized	• Official document clearly demonstrating the Governments commitment to the safe, secure and peaceful implementation of nuclear energy for the long term.
1.2 NEPIO established and staffed	• The charter showing that the NEPIO has been established by and reports to a Senior Government Minister • The basis of the charter is known by other Government ministries and key members of NEPIO • The NEPIO charter clearly charges and authorizes the preparation of a comprehensive report to identify the commitments and conditions necessary to establish a national nuclear power programme. It defines an adequate scope of investigations and clear definition of objectives and timescales. It should identify how its mandate and activities fit with overall plan for implementing nuclear power option • A clear description of how NEPIO operates in terms of funding, office accommodation and equipment, reference material • Evidence showing adequate interactions between and support from appropriate ministers such as those responsible for Energy, Environment, etc • A documented budget planning and reporting process showing appropriate funding is provided to and expended by NEPIO to fulfil its charter in the scheduled time • Organisation chart; job descriptions and CVs of members demonstrating appropriate skills, qualifications and experience to address all the infrastructure issues based on requirements in IAEA-TECDOC–1513 [3]. This includes appropriate use of consultants and the demonstration of national staff as “intelligent customer” • Comprehensive report produced by NEPIO covering all areas identified in [1] and recognising the resources and timescales required for the activities required for Phase 2. A demonstration that the Member State can provide the overall resources required integrated across all areas. • Executive summary of comprehensive report is based on detailed report, contains estimates of total resources and timescales and has been properly reviewed by senior government officials

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Integrated Nuclear Infrastructure Reviews

- Jordan 2009
- Indonesia 2009
- Vietnam 2009
- Thailand 2010
- UAE 2011
- Bangladesh 2011
- Jordan follow-up 2012
- Belarus 2012
- Vietnam (Phase 2) 2012
- Poland 2013
- South Africa 2013

- Evaluation Methodology update in progress
- INIR Phase 3 (before commissioning) under development

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International Cooperation – IAEA's Role

- Standards and Guidance
- Reviews and Services
- Capacity Building
- Knowledge Networks
- Forum for communicating, increasing transparency, sharing lessons learned

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Summary

- Even after Fukushima, some countries continue with plans to start NPP programmes
- Infrastructure for nuclear power involves a wide range of institutions and issues
- Developing a national position can help ensure sustainability of the programme
- IAEA can assist

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Atoms for Peace

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