Infrastructure for Nuclear Power Plants (NPPs) in Israel

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The Ministry vision

- Provide sustainable supply of all needs of energy, water and natural resources to the residents of Israel, regularly and in a case of emergency.

- All these, while complying with the highest environmental standards and in an economically affordable way.
Prediction of the electricity demand in Israel\(^1\)

Prediction of the power production distribution in Israel in 2030²

- **Basic design**
  - Natural Gas: 60%
  - Renewable: 15%
  - Coal: 25%
  - Other (Nuclear?): 10%

- **Preferred design**
  - Natural Gas: 55%
  - Renewable: 15%
  - Coal: 25%
  - Other (Nuclear?): 10%

Approximately 2 GWe

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The IAEA framework for a first NPP

NUCLEAR INFRASTRUCTURE DEVELOPMENT PROGRAMME

MILESTONE 1
Ready to make a knowledgeable commitment to a nuclear programme

MILESTONE 2
Ready to invite bids for the first nuclear power plant

MILESTONE 3
Ready to commission and operate the first nuclear power plant

OPERATION OF THE FIRST NUCLEAR POWER PLANT

PHASE 1
Considerations before a decision to launch a nuclear power programme is taken

PHASE 2
Preparatory work for the construction of a nuclear power plant after a policy decision has been taken

PHASE 3
Activities to implement a first nuclear power plant

PRE-PROJECT
FEASIBILITY STUDY
PROJECT DECISION MAKING
BIDDING PROCESS
CONSTRUCTION
COMMISSIONING

First nuclear power plant project

3. IAEA Services for MEMBER STATES, Developing Infrastructure for New Nuclear Power Programs, IAEA-11-2407, Vienna, Austria (Sep. 2011)
Application of INPRO Infrastructure methodology$^4$ in Israel

- A country considering whether to acquire its first NPP have to identify, early in its planning, the steps needed to establish the required infrastructure.
- The INPRO Infrastructure methodology is used in order to identify these requirements and gaps that have to be addressed in planning for a first NPP.

Prospects for NPP construction in Israel

- At present, no formal decision to construct a first NPP was taken by the government of Israel.
- However, some preliminary work was initiated by our Ministry in order to allow this project in the future, if such a decision will be taken.
The Pre-feasibility Study

- The prefeasibility study was initiated two years ago by our Ministry, in cooperation with the Israel Atomic Energy Commission (IAEC) and the Prime Minister’s Office.

- The program’s main goals were:
  - To determine if there is a need for a NPP in Israel
  - If needed, to analyze the major gaps that might prevent NPPs in Israel in the future.

- The report was submitted (Feb. 2013) and most of its major recommendations have been adopted.
The way forward

- Continue with the prefeasibility study in order to:
  - Remove or minimize the major gaps on the way to implement NPPs in Israel
  - Establish a **sustainable infrastructure** (experts and research facilities) needed in order to enable the execution of a full feasibility study in the future
  - Locate and allocate siting for a future NPP
The way forward (continued…)

- The NPP topic was included in the Ministry’s 2014 Call for R&D tenders
- Two key projects aimed at attracting new scientists are planned,
  - Nuclear experimental facility
  - Thermo-hydraulic laboratory
- A proposal for a national technical project “Updating the criteria for NPP siting in Israel” was accepted as one of the IAEA 2016 technical cooperation projects
The way forward (continued…)

- Upcoming conferences in Israel dealing with NPPs,
  - International workshop on NPP Siting Criteria (planed for 2015)
  - The 28th Conference of the Nuclear Societies in Israel (planed for 2016)
Thanks