# Legislative Framework for the Regulation of Decommissioning at Egypt,2011

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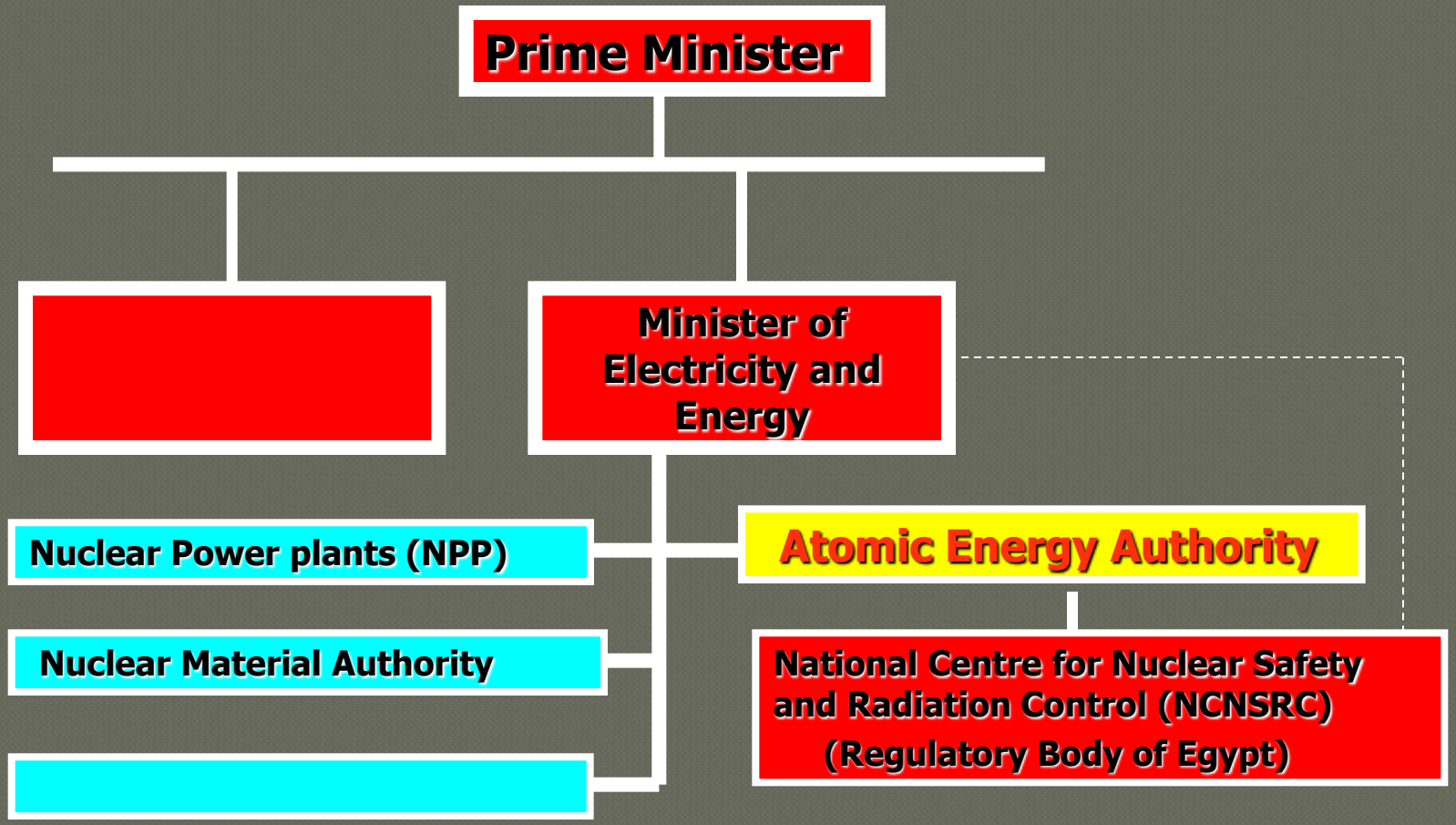
# Egypt Framework for Decommissioning

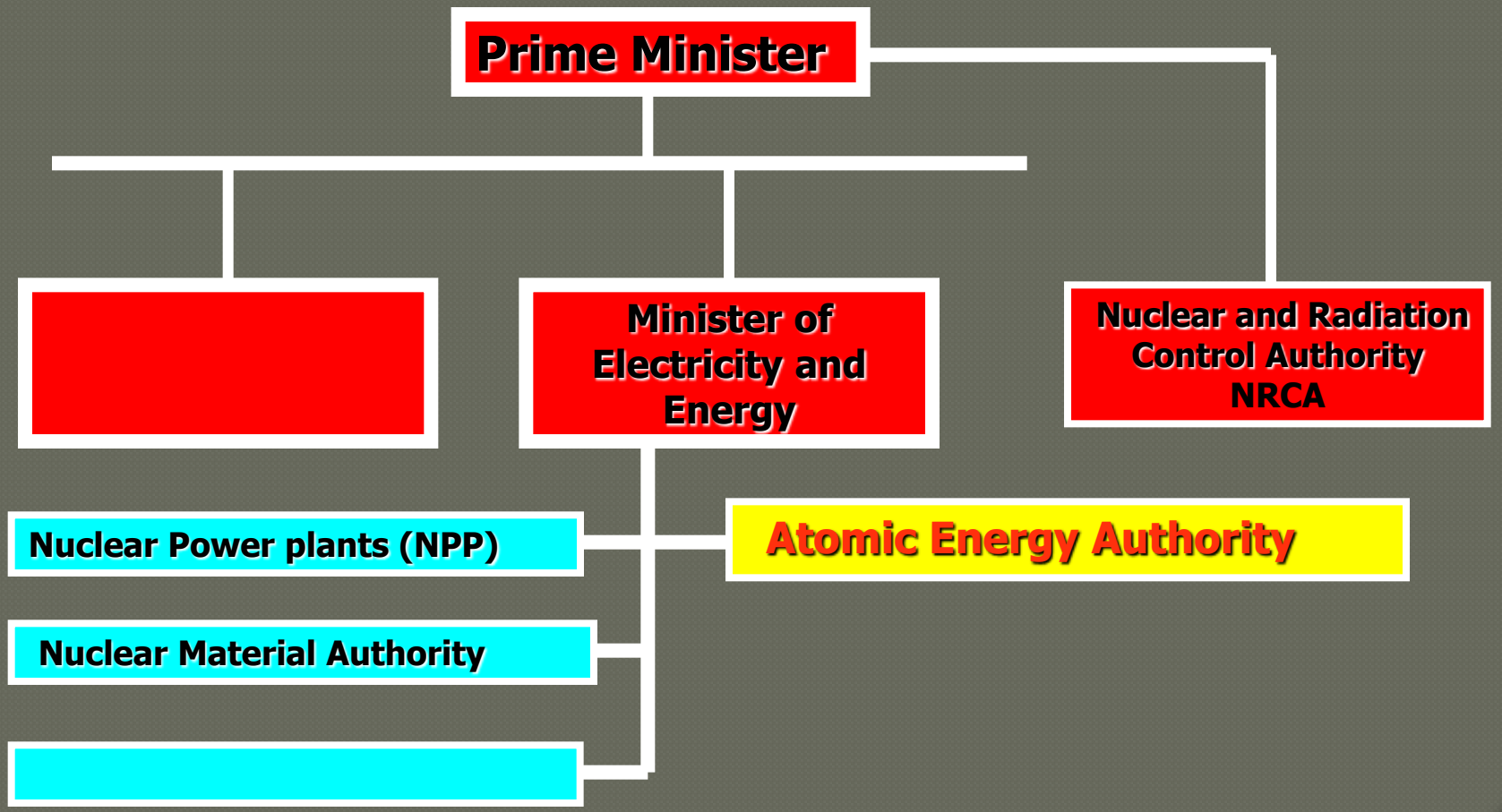
## Legal

- **Law No. 7 for year 2010 (**Law of regulating nuclear and radiation activities**)**
- **The law moves the Egyptian nuclear regulatory framework closer to be in agreement with international safety standards.**
- **Under the law, the regulatory powers transferred to a separate and independent regulatory body (Nuclear and Radiation Control Authority).**
- **All nuclear and Radiation activities and nuclear and Radiation facilities in Egypt will be regulated by the new body.**
- **The law regulate the decommissioning of nuclear facilities**
- **The law has legal arrangement for a financing mechanism covering decommissioning**

# Egyptian Legal Framework Before the law No.7,2010



# Egyptian Legal Framework after the law No.7,2010




# Atomic Energy Authority

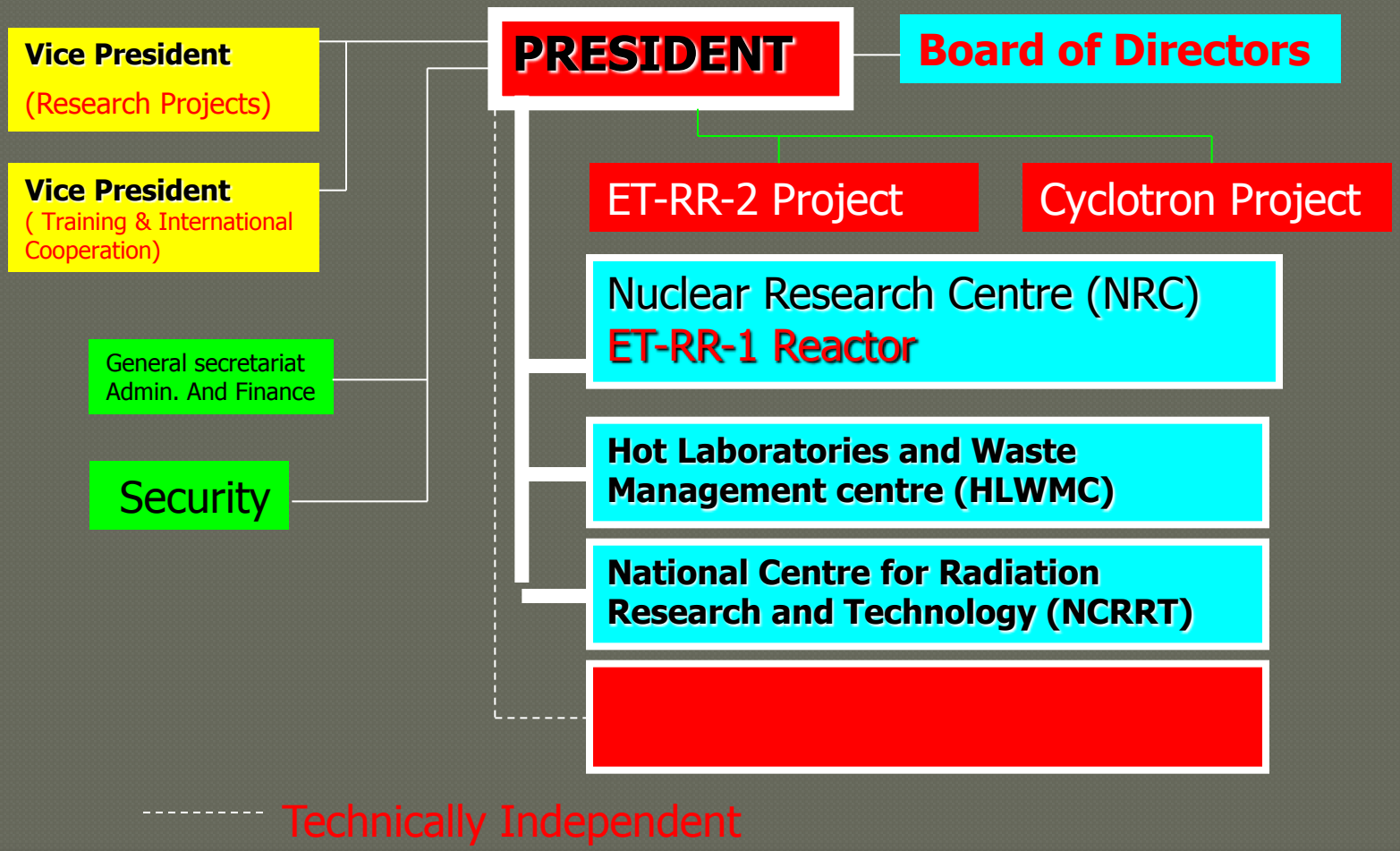
- The Egyptian Atomic Energy Authority (AEA) was Established in 1955.

  - ***The AEA before 2010 is the Operator of both***
    - ***the Egyptian Nuclear Facilities***
    - ***and the National Nuclear Regulation***

**At that time, the Minister of Electricity and Energy has created an internal regulatory system that provides separation and independence between:**

- **the operating (AEA)**
- **and regulating body (NCNSRC),**
- **and requires the Egyptian nuclear facilities and activities to be licensed by NCNSRC**

# AEA Organization Chart



# NRCA Licenses

1- Research Reactors (ET-RR-1 & ET-RR-2)
- Reactor Operators
- Fuel Fabrication Factory for ET-RR-2

2- Nuclear Power plant
- Reactor Operators
- Fuel Fabrication Factory

3- Accelerators ( Cyclotron & Linear Accelerator )
- Industrial Irradiator ( Egypt's' Mega Gamma I & II).

4 - Applications of radioisotopes in Industry, Medicine, Agriculture and Research all over Egypt
- Laboratories, Factories (30) and Hospitals (300) using Radioisotopes all over Egypt
- Radioisotopes Production
- Any other radiation activities

5 - Radioactive Waste Disposal Facility
- Radioactive Waste Treatment Plant

6- Transportation of Radioactive Materials all over Egypt

# Egyptian Nuclear Facilities

**The ( ET – RR – 1) Facility :- commissioned in 1961**

- **The (ET-RR-1), is a tank-type which was purchased from the former USSR, on the basis of a bilateral agreement . The fuel is 10% enriched uranium and the coolant, moderator and reflector are ordinary distilled water.**
- **The normal power of 2 MW corresponds to an average thermal neutron flux of $10^{13}$n /$cm^2$S.**
- **It contains 8 vertical channels for material irradiation, 9horizontal beam tubes for neutron experiments ,one thermal column ,four hot cells and one spent fuel storage .**
- ***• Decommissioning***

***A preliminary decommissioning plan is available for ETRR-1***
(initial planning & ongoing planning)

# Egyptian Nuclear Facilities

**The ( ET – RR – 2) Facility :-**

- ***The (ET-RR-2 ) is of the open pool type, 22 MW Power type, 22 MW Power, cooled and moderated by light water , with Beryllium reflectors***
- ***The nominal power of 22 Mw and a maximum thermal neutron flux of $2.7x10^{14}$ n/ $cm^2$ s***
- ***It is used for research in neutron physics, materials science, Nuclear fuel R&D ;***
- ***radioisotope production, neutron radiography, activation analysis, boron neutron capture therapy and training in nuclear engineering and reactor operation.***
- ***• Decommissioning***

***A preliminary decommissioning plan is available for ETRR-2***
(initial planning & ongoing planning)

# NRCA Requirement for Licensing

| Fuel Removal Authorization (from site) | Waste Storage | Decommissioning License |
|---|---|---|
| ▪Plan for Constructing a fuel storage building<br>▪Transportation procedures<br>▪Criticality calculation<br>▪Safety & Security | ▪Site<br>▪QA & Procedures<br>▪Monitoring plan<br>▪Type and Capacity<br>▪Facility layout and access<br>▪Potential hazards<br>▪Waste characterization<br>▪Safety, Security &Safeguards<br>▪Engineering structure | ▪Decommissioning Plan<br>▪Decommissioning Management<br>▪Decommission Method / Strategy<br>▪Quality Assurance<br>▪Financial Assurance<br>▪Waste Management<br>▪Responsibilities of Various Parties: Operator, Contractor, Other relevant parties.<br>▪Estimation of :<br>–Time<br>–Dose<br>–Cost<br>▪Future plan of the Site |