



# Egypt - 2025

## **PREAMBLE AND SUMMARY**

This report provides information on the status and development of the nuclear power program in Egypt, including factors related to the country energy policy, effective planning, decision making, and implementation of the nuclear power program that together lead to safe and economical operations of nuclear power plants.

The CNPP summarizes organizational and industrial aspects of the nuclear power program and provides information about the relevant legislative, regulatory, and national framework in Egypt.

Egypt is in the construction phase of its first nuclear power plant (NPP) at El-Dabaa site along the northern west coast of Egypt on the Mediterranean Sea. The NPP consists of four VVER-1200 units with a capacity of 1200 MWe each (for a total installed capacity of 4800 MWe).

## **1. COUNTRY ENERGY OVERVIEW**

### **1.1. ENERGY SYSTEM**

#### **1.1.1. Energy Policy**

Egyptian energy strategy involves the diversification of the energy mix including renewable and nuclear energies, higher energy efficiency, a reform of the electricity and the oil and natural gas markets, and reduction of energy subsidies. It is based on meeting the ever-increasing demand on electricity with a high degree of reliability and sustainability in addition to defining follow up energy efficiency programmes in the electricity sector.

The diversification of the energy mix in the electricity sector aims to reduce the consumption of fossil fuels, and as a result reduce the production of greenhouse gases, while increasing the share of renewable energy sources. Such diversification has provided an impetus to re-start the nuclear power programme that was suspended in the 1980s.

The Egypt's Strategy, "Integrated Sustainable Energy Strategy to 2035", includes the Egypt's plans for introducing NPPs in the energy mix. The Strategy seeks to diversify energy sources and ensure energy security and sustainability, as well as setting conditions necessary to support the growth of renewable energy sources. Moreover, Egypt aspires to become a focal point on the energy map linking Africa, Asia, and Europe by strengthening the interconnection of the electricity network in the Arab region and beyond. Egypt possesses many untapped energy resources, such as wind energy and solar energy. The Strategy foresees the construction of the first Egyptian NPP with a total installed capacity of 4800 MW(e). The Strategy indicates that renewable energy should contribute 42% of total energy capacity by 2035, and that nuclear energy will contribute about 7%.

The Government of Egypt has given special attention to environmental matters in its energy policy and has promulgated several laws and regulations concerning the protection of the environment. Egypt promulgated its Environmental Law during 1994, pursuant to which, the Egyptian Environmental Affairs Agency (EEAA) was established with the principal functions of developing and monitoring projects and the implementation of pilot projects. An environmental impact assessment must be submitted to the EEAA for review and approval before licensing power plants. In addition, the air and water pollution limits pertaining to the power plant projects are established.

#### **1.1.2. Energy Statistics**

In 2007, the Egyptian Government announced that it will revive Egypt’s civil nuclear power programme and its plan to build Egypt’s first NPP at the El Dabaa site. This NPP is currently under construction, with participation from the Russian Federation.

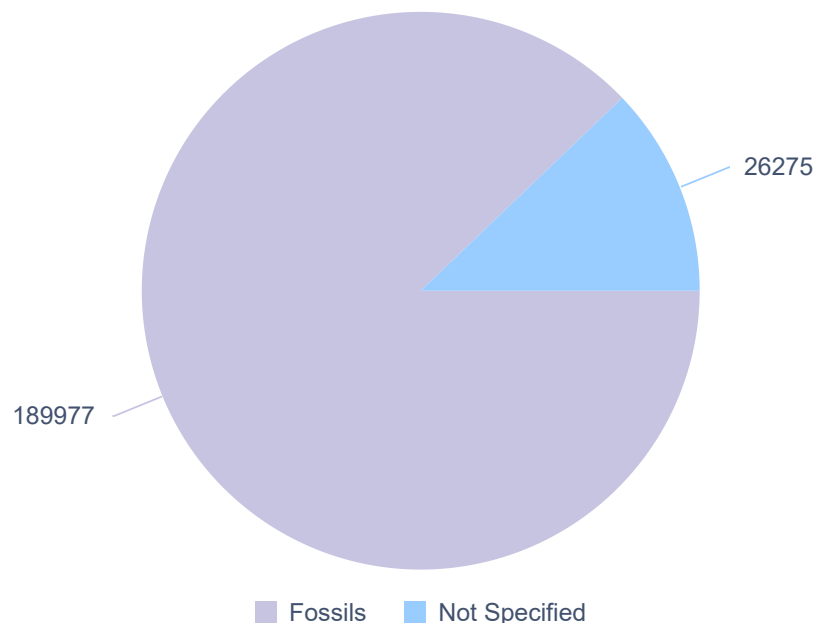
Egypt approved a strategy aimed at increasing the contribution of renewable energy to 20% of total energy generated by 2022, where hydropower would represent 6%, wind energy would represent 12%, and 2% would be provided by other renewable energy resources, in particular, solar energy.

TABLE 1: INSTALLED CAPACITY AND ELECTRICITY PRODUCTION BY SOURCE

Energy Sources [Net]				
Energy Sources [Net]	Electricity Supplied		Installed Capacity	
	[GW(e)*h]	Share (%)	[GW(e)]	Share (%)
Total	216252		59.4	100
Nuclear	0		0	0
Fossils	189977	88	53.3	90.3
Hydro	15458	7	2.8	4.8
Other Renewables	10642	5	3.3	5.6
Total				
Nuclear				
Fossils				
Hydro				
Other Renewables				

Data as of 2024-12-31 from [IAEA Power Reactor Information System](#)

CHART 1: ELECTRICITY PRODUCTION BY SOURCE



Electricity Supplied [GW(e)\*h]

The total energy consumption in Egypt was about 1765 PJ in 2005. This figure increased to about 2904 PJ in 2023. Natural gas consumption increased from 380 PJ in 2005 to 635 PJ in 2023. Oil consumption reached 1501 PJ in 2023. Coal consumption was about 91 PJ in 2023. (See Table 2).

TABLE 2: ENERGY CONSUMPTION

Final Energy consumption [PJ]					
Final Energy consumption [PJ]	2005	2010	2015	2020	2023
Coal, Lignite and Peat	20	15	8	36	91
Oil	973	1230	1258	1170	1501
Natural gas	380	459	438	600	635
Bioenergy and Waste	60	64	65	66	66
Electricity	332	451	561	563	611
Heat	0	0	0	0	0
Total	1765	2219	2330	2435	2904
Coal, Lignite and Peat					
Oil					
Natural gas					

Bioenergy and Waste

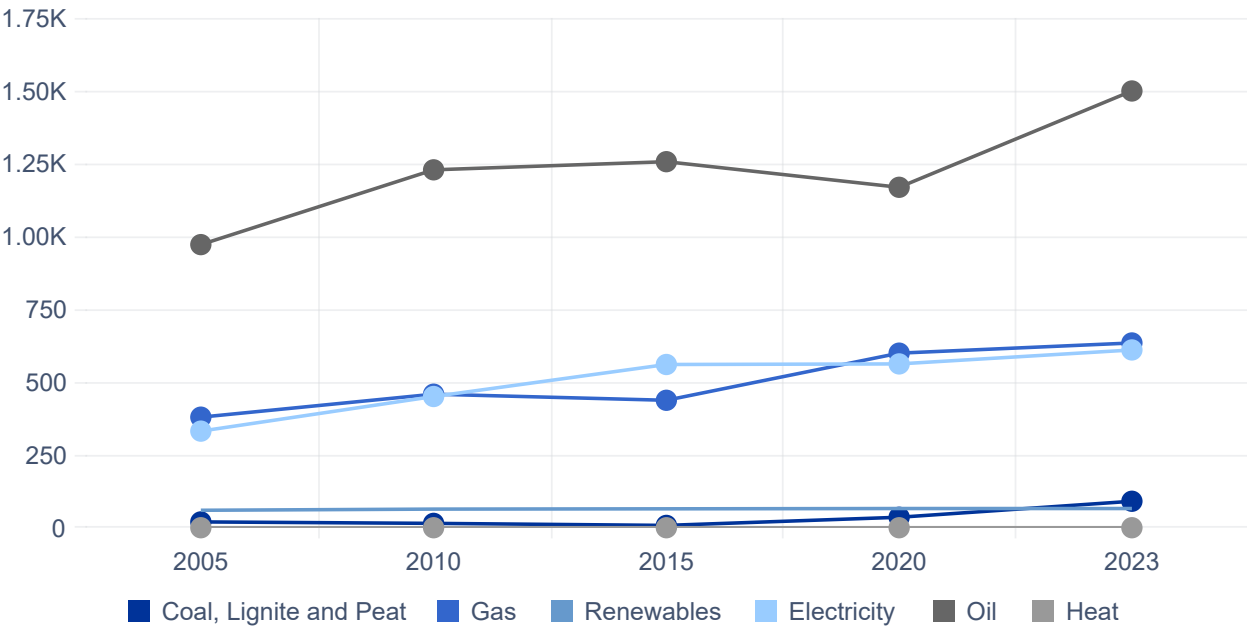
Electricity

Heat

Total

Data as of 2024-12-31 from IAEA Referential Data Series 1

CHART 2: ENERGY CONSUMPTION



Final Energy consumption [PJ]

1.2. ELECTRICITY SYSTEM

1.2.1. Electricity System and Decision-Making Process

The principal sources of energy policy within Egypt are:

- the Supreme Council for Peaceful Uses of Nuclear Energy, which was established as Egypt’s nuclear energy programme implementing organization (NEPIO) in 2007, and is chaired by H.E. the President of Egypt, Abdel Fattah El-Sisi, with the participation of the relevant Ministries and State agencies;
- the Ministry of Electricity and Renewable Energy (MOERE), which holds a monopoly over the distribution, transmission, and generation of electricity in Egypt;
- the Supreme Council for Energy (SCE), which reports directly to the President.

Furthermore, the Electric Utility and Consumer Protection Agency (EUCPA) is the industry watchdog and is responsible for sector monitoring. The Egyptian Nuclear and Radiological Regulatory Authority (ENRRA) is the authority responsible for all regulatory and



control functions and duties, including the promulgation of regulations, related to nuclear and radiation facilities, activities and practices in Egypt.

### 1.2.2. Structure of the Electric Power Sector

MOERE is the focal point for five different authorities and one affiliated holding company, as shown in Figure 1.

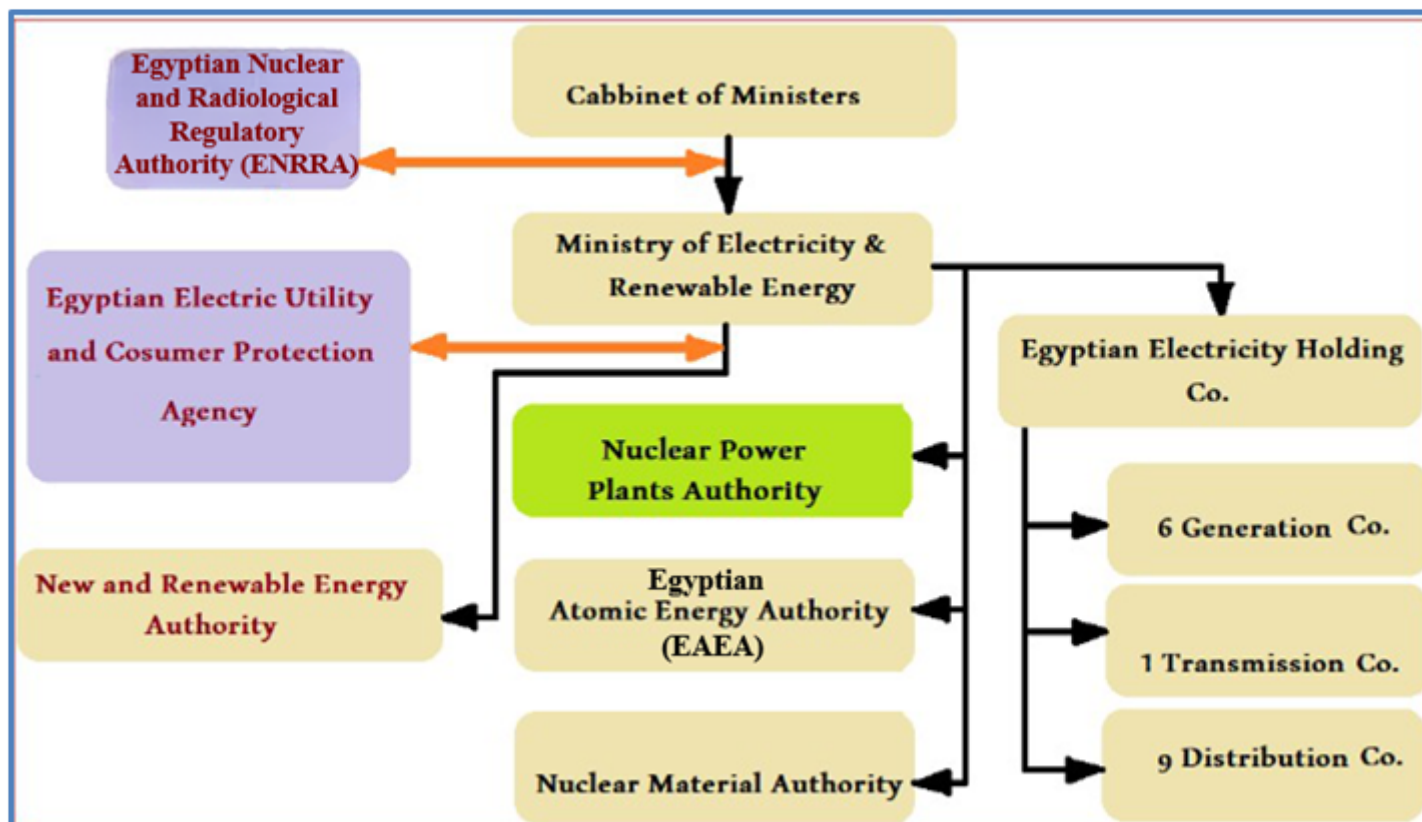


FIG 1: Structure of Egyptian Electric Power Sector

Egypt had approximately 59.44218 GWe of installed capacity during 2023. Figure 2 shows the distribution of installed capacity by source, being roughly 89.7% from thermal sources and 4.8% from hydropower sources. Renewable sources (wind and solar) represent about 5.5% of total installed capacity.

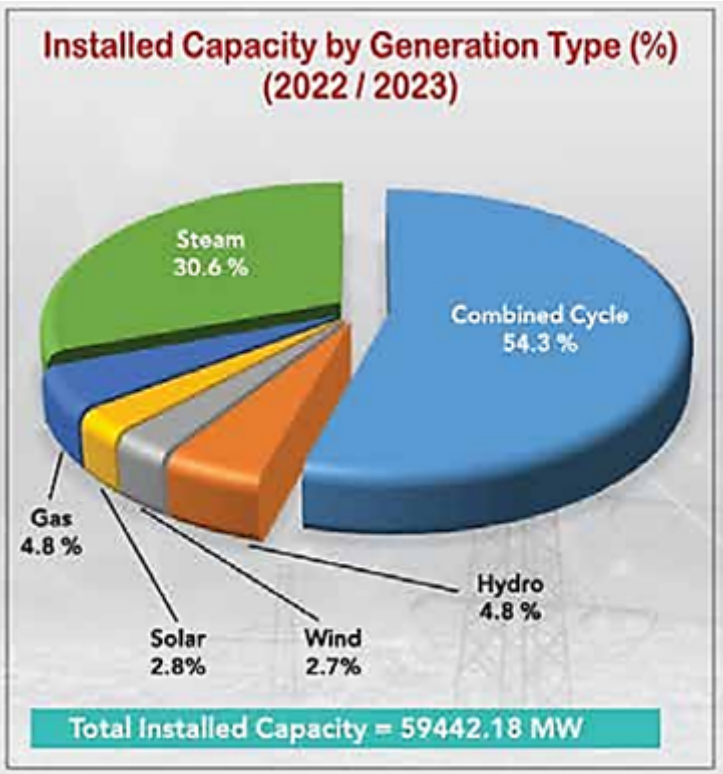


FIG 2: Total Installed Capacity of 59.44218 GW(e) in 2023

More than 99% of the Egyptian population has access to electricity, with the number of consumers across all voltage levels increasing to 39.1 million in 2022, compared to the 37.9 million consumers in the preceding year, representing a variation rate of 3.2%.

The number of consumers across all voltage levels (medium and low voltages) increasing to 40.7 million in 2023, compared to the 39.1 million consumers in the preceding year, representing a variation rate of 4.1%.

The Egyptian Electricity Holding Company (EEHC) is the body responsible for system studies and planning for power plants and grid expansion projects. EEHC has 16 companies: six for production, one for transmission, and nine for distribution functions.

### 1.2.3. Electricity Statistics

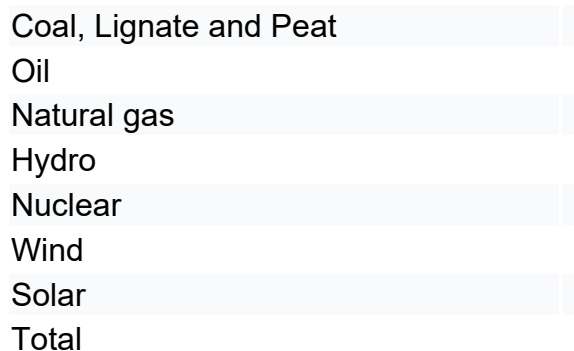
In 2023, the total installed capacity reached 59.44218 GW(e), the electricity generated reached to 215,128 GWh. During 2023, the peak load reached 34.2GWe and electricity consumption per capita was 2034 kWh.

TABLE 3: ELECTRICITY PRODUCTION

Electricity production (GWh)					
Electricity production (GWh)	2005	2010	2015	2020	2023

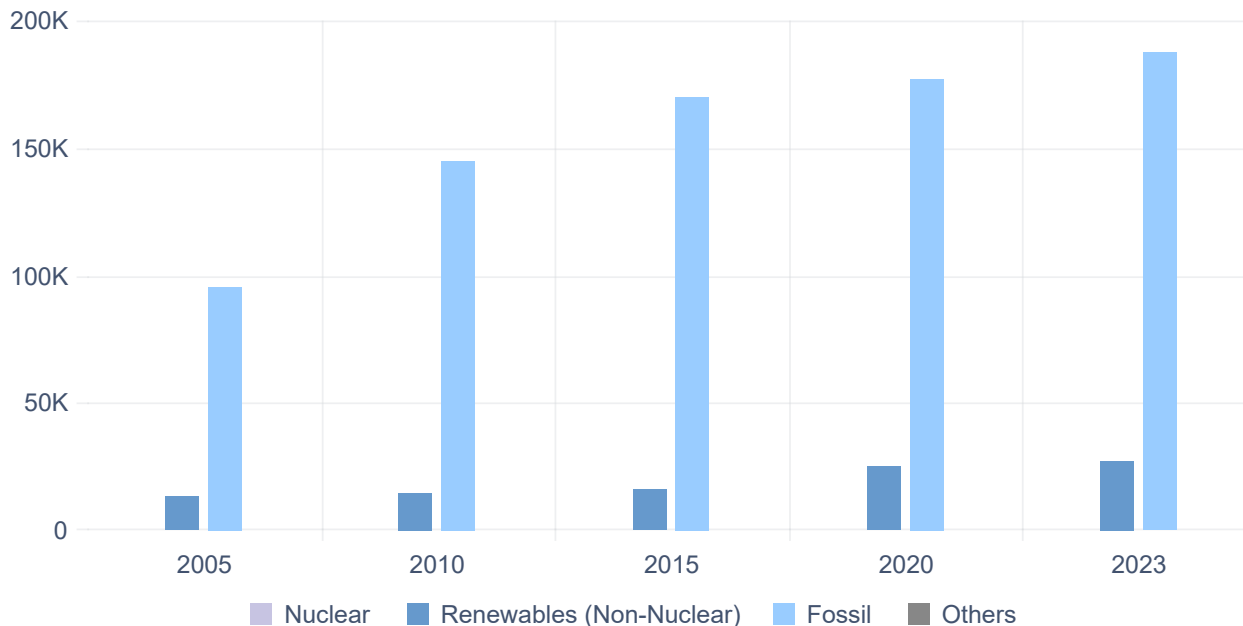


Coal, Lignite and Peat	0	0	0	0	0
Oil	14488	19782	38237	2200	24570
Natural gas	81006	125573	132126	175094	163108
Hydro	12644	13046	13545	14769	15458
Nuclear	0	0	0	0	0
Wind	552	1498	2058	5257	6686
Solar	0	206	203	4980	5306
Total	108690	160105	186169	202300	215128



Data as of 2024-12-31 from IAEA Referential Data Series 1

CHART 3: ELECTRICITY PRODUCTION



Electricity production (GWh)

### 1.3. NUCLEAR ENERGY SUPPORTING SDGs



Egypt signed its fourth Country Programme Framework (CPF) with the IAEA, focusing on areas such as nuclear safety, energy planning, industrial applications, and human health. The CPF serves as a critical tool for leveraging nuclear technology to achieve the Sustainable Development Goals, promoting a holistic approach to sustainable development that addresses health, energy, food security, and environmental challenges.

Moreover, the technical cooperation projects developed between Egypt and the IAEA support several SDGs by ensuring that suitably qualified and experienced personnel are capable of assuming the relevant duties and responsibilities. A comprehensive sustainability plan will be developed and implemented.

2. NUCLEAR POWER SITUATION

2.1. OVERVIEW

2.1.1. Historical Developments

The factors which led to Egypt deciding to launch a peaceful nuclear power programme include:

- The steadily increasing demand for energy and electricity within the country caused by population growth, urbanization, industrialization, and the desire to improve the conditions and the standards of living;
- Inadequate and insufficient energy resources to meet the increasing demand for energy and electricity on both a medium and long-term basis;
- Limited potable water resources call for the utilization of desalination technology and for which nuclear energy could provide a source of power;
- The convenience, economic competitiveness and viability of nuclear power as an energy source, which, if introduced in the country, would not only complement existing energy sources, but would also promote technological development and foster social and economic progress;
- The desire to reduce greenhouse gas emissions.

These reasons have not only retained their validity but have been reinforced as nuclear technologies continue to develop.

In accordance with its mission and the functions assigned to it by the Government of Egypt, the Nuclear Power Plants Authority (NPPA) performed a pre-feasibility study for Egypt’s first NPP for the cogeneration of electricity and desalinated water. This study was carried out with technical support from the International Atomic Energy Agency (IAEA) over the period between 1999 and 2001 and was subsequently updated in 2007.

The history of the development of nuclear power in Egypt is reflected in the following timeline:

1955	Establishment of Atomic Energy Commission.
1957	Establishment of The Egyptian Atomic Energy Authority (EAEA).
1961	Operation of the first research reactor.
1963	Establishment of Nuclear Engineering Department within the Faculty of Engineering at Alexandria University.

1964	International bidding for constructing a cogeneration NPP at Borg El-Arab site (150 MW(e))
1974	Limited international bidding for constructing NPP at Sidi-Krir site (600 MW(e))
1976	Establishment of the Nuclear Power Plants Authority (NPPA)
1976	Establishment of Supreme Council of Energy
1977	Establishment of Nuclear Materials Authority (NMA)
1979	Considerations to construct an NPP halted due to accident at the Three Mile Island NPP
1980	Selection of El-Dabaa site for construction of an NPP
1981	A presidential decree allocating El Dabaa site for the NPP project
1982	International bidding for El Dabaa NPP
1986	El-Dabaa NPP was postponed due to the accident at the Chornobyl NPP
1991	Establishment of the National Centre for Nuclear Safety and Radiation Control, (NCNSRC)
1998	Operation of the second research reactor
2006	Considerations regarding nuclear energy as an option for electricity generation revived
2007	Strategic decision made to start a programme to construct a number of NPPs for electricity generation in Egypt
2009	Contracting with a consultant for services related to the first Egyptian NPP
2010	Law No. (7) of 2010 Promulgating the Law Regulating Nuclear and Radiation Activities
2010	NCNSRC provides preliminary approval of El-Dabaa site
2010	Bidding documents for the first Egyptian NPP prepared
2011	First Egyptian NPP project suspended after Egyptian Revolution in January 2011 and the accident at the Fukushima Daiichi NPP
	Improvements made to bidding documents for first Egyptian NPP and reviewed by IAEA experts
	Executive Regulations of Law No. (7) of 2010 Regulating Nuclear and Radiation Activities issued
2012	Establishment of the Egyptian Nuclear and Radiological Regulatory Authority (ENRRA)
2013	Council of Ministers issues decision approving NPPA to resume work on the first Egyptian NPP project

2014	Preliminary works carried out at the El-Dabaa site, including the construction of an environmental monitoring system
2015	Signing of an inter-governmental agreement between Egypt and the Russian Federation to cooperate on the construction of the first Egyptian NPP using Russian technology
2016 - 2017	Negotiations take place with Russian Federation for the delivery of four Russian designed VVER-1200 (AES-2006) units with a capacity of 1200 MWe each and also the supply and storage of nuclear fuel
2017	Engineering procurement and construction (EPC), nuclear fuel supply (NFS) contract, spent nuclear fuel treatment (SNFT) contract, and operation support and maintenance services (OSM) contract, enter into force with various companies within the Rosatom State Atomic Energy Corporation group
2019	Site Approval Permit (SAP) for El Dabaa NPP site issued by ENRRA
2022	Site Approval Permit (SAP) for the spent nuclear fuel storage facility issued by ENRRA (February)
2022	ENRRA issued construction permit (CP) for Unit 1 of the El-Dabaa NPP (June)
2022	Pouring of first concrete for Unit 1 of the El-Dabaa NPP takes place, signalling the formal start of construction for Unit 1 (July)
2022	ENRRA issued construction permit (CP) for Unit 2 of El-Dabaa NPP (October)
2022	Pouring of first concrete for Unit 2 of the El-Dabaa NPP takes place, signalling the formal start of construction for Unit 2 (November)
2023	El-Dabaa docking facility takes receipt of first item of long lead equipment (core catcher of Unit 1) for the El-Dabaa NPP (March)
2023	ENRRA issued construction permit (CP) for Unit 3 of El-Dabaa NPP (March)
2023	Pouring of first concrete for Unit 3 of the El-Dabaa NPP takes place, signalling the formal start of construction for Unit 3 (May)
2023	ENRRA issued construction permit (CP) for Unit 4 of El-Dabaa NPP (August)
2023	Installation of Core Catcher for Unit 1 (October)
2023	Installation of Core Catcher for Unit 2 (November)
2024	Pouring of first concrete for Unit 4 of El-Dabaa NPP takes place, signalling the formal start of construction for Unit 4 (January)
2024	Installation of Core Catcher for Unit 3 (October)
2024	Installation of Core Catcher for Unit 4 (November)

2024	ENRRA issued the construction permit for the spent nuclear fuel storage facility (SNF SF) at El Dabaa site (December)
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### 2.1.2. Current Organizational structure

Figure 3-a shows structure of nuclear organizations in Egypt, and Figure 3-b shows construction of nuclear power project.

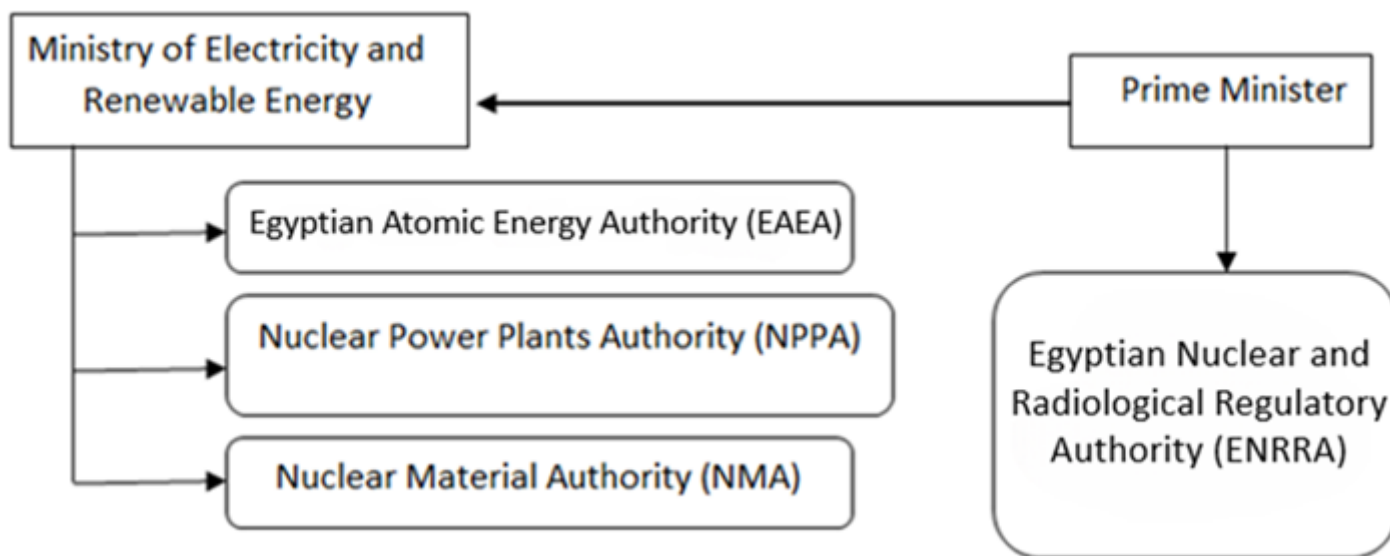


FIG 3-a: Structure of nuclear organizations in Egypt

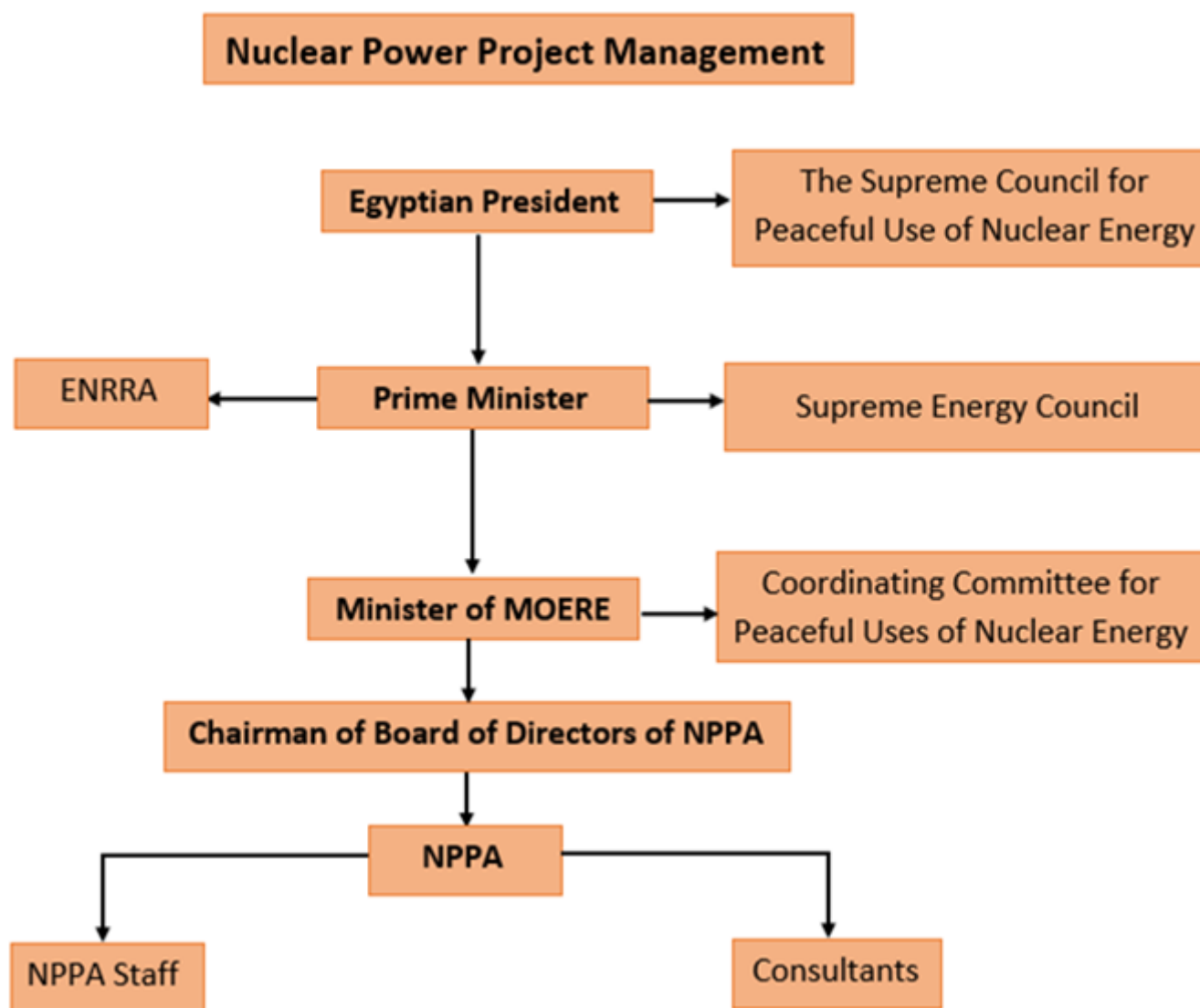


FIG 3-b: construction of nuclear power project

### 2.1.3. Development Strategy

The main decisions that have been made, and the milestones that have been achieved, with respect to the first Egyptian NPP are as follows:

- Strategic decision made to start a programme to construct a number of NPPs for electricity generation in Egypt;
- Restructuring the Supreme Council for Peaceful Uses of Nuclear Energy;
- Contracting with a consultant for the first Egyptian NPP;
- Law No. (7) of 2010 Promulgating the Law Regulating Nuclear and Radiation Activities, and the issuance of its Executive Regulations;



- Establishment of ENRRA;
- Signing of an inter-governmental agreement between Egypt and the Russian Federation to cooperate in the building and operating El-Dabaa NPP in Egypt using Russian technology;
- Commencement of negotiations with the Russian Federation for the delivery of four Russian designed VVER-1200 (AES-2006) units with a capacity of 1200 MWe each and also the supply and storage of nuclear fuel;
- Signing and entry into force of the EPC contract, the NFS contract, the OSM contract and SNFT contract with various companies within the Rosatom State Atomic Energy Corporation group with respect to El-Dabaa NPP;
- Issuance of SAP for the El Dabaa site by ENRRA in 2019;
- Commencement of the manufacturing of the first item of long-lead equipment (the core catcher for Unit 1) in July 2021 for the El-Dabaa NPP;
- Issuance of SAP for the spent nuclear fuel storage facility by ENRRA in February 2022 for the El-Dabaa NPP.
- Issuance of construction permit for El-Dabaa NPP Unit 1 by ENRRA in June 2022.
- Pouring of first concrete for Unit 1 of El-Dabaa NPP in July 2022, signalling the formal start of construction for Unit 1.
- Issuance of construction permit for El-Dabaa NPP Unit 2 by ENRRA in October 2022.
- Pouring of first concrete for Unit 2 of El-Dabaa NPP in November 2022, signalling the formal start of construction for Unit 2.
- Delivery of first item of long-lead equipment (the core catcher for Unit 1) to the El-Dabaa docking facility in March 2023.
- Issuance of construction permit for El-Dabaa NPP Unit 3 by ENRRA in March 2023.
- Pouring of first concrete for Unit 3 of El-Dabaa NPP in May 2023, signalling the formal start of construction for Unit 3.
- Issuance of the construction permit for El-Dabaa NPP Unit 4 by ENRRA in August 2023.
- Installation of Core Catcher for Unit 1 in October 2023.
- Installation of Core Catcher for Unit 2 in November 2023.
- Pouring of first concrete for Unit 4 of El-Dabaa NPP in January 2024, signalling the formal start of construction of Unit 4 (and all four Units).
- Installation of Core Catcher for Unit 3 in October 2024.
- Installation of Core Catcher for Unit 4 in November 2024.
- Issuance of the construction permit for the spent nuclear fuel storage facility at the El Dabaa site by ENRRA in 2024.

## 2.2. CONSTRUCTION

NPPA is the owner/operator and the sole entity in Egypt responsible for the construction and operation of NPPs for electricity generation and seawater desalination. NPPA works closely with ENRRA and other Egyptian Government ministries and agencies, namely the Ministry of Finance (MOF), and MOERE.

The Egyptian strategy intends to maximize the effects of the NPPs programme in modernizing Egyptian industries and upgrading several stakeholders through planned increase in local participation in every new plant.

### 2.2.1. Project Management

NPPA is the sole entity in Egypt responsible for the construction and operation of NPPs for electricity generation and seawater desalination.

The Nuclear Material Authority (NMA) is responsible for exploring the potential of uranium ore. ENRRA is responsible to regulate and oversee all activities and practices related to the peaceful use of atomic energy, in a manner that ensures the protection of

people, property and the environment from the exposure to ionizing radiation. The Hot Laboratory and Waste Management Center (HLWMC), which operated by (EAEA), is dedicated for radioactive waste disposal.

### 2.2.2. Project Funding

El-Dabaa NPP project is financed by credit extended by the Russian Federation, which was first contemplated under the inter-governmental agreement and then arranged in detail between the Government of Egypt and the Government of the Russian Federation in a separate agreement known as the credit inter-governmental agreement (CIGA). Under the CIGA, 85% of El-Dabaa NPP Project is funded through a credit line extended by the Government of the Russian Federation.

Funding in relation to nuclear power programme as a whole, including the budgets of ENRRA, NPPA and other involved government authorities, is provided by the general state budget of the Egyptian Government.

### 2.2.3. Sites

The site selection and evaluation were conducted in accordance Egyptian requirements and international practices. These studies ultimately resulted in the selection of the El-Dabaa site, which is situated along the northern west coast of Egypt on the Mediterranean Sea (approximately 156 km west of Alexandria) and is characterized by low seismic hazard and low biodiversity.

NPPA gathered geological, geophysical, meteorological, hydrogeological, and oceanographical data at the El-Dabaa site in order to provide data for the site evaluation. In 2009, site evaluation requirements for nuclear installations were issued by ENRRA and in February 2010 a Site Evaluation Report (SER) was presented by NPPA to ENRRA. In September 2010, ENRRA issued a report stating that there were no exclusionary criteria preventing the construction of the NPP at the El-Dabaa site.

In 2016, ENRRA subsequently updated the site evaluation requirements for nuclear installations and, the updated SER and Environmental Impact Assessment Report (EIAR) were presented by NPPA to ENRRA in 2017. The SER update included revisions following the review of the accident at the Fukushima Daiichi NPP, revisions to the population distribution and activities around the El-Dabaa site, and included additional considerations with respect to flooding, aircraft crashes, and data from seismic activity monitoring and oceanographic systems.

Egypt received IAEA Peer Review missions in regard to the Site and External Events Design Review Service (SEED) to the El-Dabaa site in 2019.

Based on the result of review and assessment of information provided in licensing documentation to ENRRA, NPPA granted a site permit of the El-Dabaa site in March 2019.

El-Dabaa site contains four units under construction as shown in Table 5A.

**TABLE 5A: STATUS OF REACTORS UNDER CONSTRUCTION**

Reactor Unit	Type	Net Capacity [MW(e)]	Status	Date	Operator	Supplier
EL DABAA-1	PWR	1100	Under Construction		NPPA	JSC ASE

EL DABAA-2	PWR	1100 Under Construction	NPPA	JSC ASE
EL DABAA-3	PWR	1100 Under Construction	NPPA	JSC ASE
EL DABAA-4	PWR	1100 Under Construction	NPPA	JSC ASE
Number of reactors: 4				

Data as of 2024-12-31 from [IAEA Power Reactor Information System](#)

2.3. OPERATION

NPPA will be the sole entity responsible for the operation of NPPs in Egypt.

2.4. DECOMMISSIONING

According to the Egyptian Legislative and regulatory framework, NPPA is responsible for developing the decommissioning strategy to obtain the NPP license.

2.5. PLANNED DEPLOYMENT OF NUCLEAR POWER

As of 31 December 2024, Egypt currently has no plans to deploy additional nuclear power reactors.

2.5.1. Planned Nuclear Power Projects

TABLE 7: CONSIDERED AND PLANNED NUCLEAR POWER PLANTS

Reactor Unit	Type	Net Capacity [MW(e)]	Status	Expected Construction Start Year	Expected Grid Construction Licence Year Submission Date
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Not Applicable

Data as of 2024-12-31 from [IAEA Power Reactor Information System](#)

Please refer to [RDS2 Publication Table 12](#) for more information on status of Planned reactors

2.6. FUEL CYCLE AND WASTE MANAGEMENT

In October 2017, the Supreme Council for Peaceful Uses of Nuclear Energy approved the Egypt’s Strategy for Securing Long-Term Supply Plans for Nuclear Fuel. This was closely preceded by NPPA entering into the NFS contract with a Russian supplier in September 2017.

2.6.1. Fuel Cycle Activities

The NFS contract not only provides the supply of nuclear fuel throughout the operational life of the El-Dabaa NPP, but also includes additional services to be provided by the NFS contractor, including, nuclear fuel design and in-core fuel management services, ongoing technical assistance; and support for various activities related to the fuel supply, and handling and in-core management services. Training is also contemplated under the NFS contract and covers areas such as in-core management, start-up physics testing, and nuclear fuel handling.

For spent nuclear fuel, NPPA has entered into the SNFT contract, which provides for on-site spent fuel storage facility covering the operating life of the NPP. In February 2022, NPPA obtained from ENRRA the SAP for the spent nuclear fuel storage facility to be constructed pursuant to the SNFT contract, and obtained from ENRRA the construction permit for the spent nuclear fuel storage facility in December 2024. Final disposal will follow international developments.

Egypt has taken the decision to adopt an open fuel cycle.

### **2.6.2. Waste Management**

The Hot Laboratory and Waste Management Center (HLWMC), which operated by (EAEA), is dedicated to radioactive waste disposal.

## **2.7. EMERGENCY PREPAREDNESS**

### **A- ENRRA Infrastructure Requirements for Emergency Preparedness**

The following comprises the legal and regulatory framework within Egypt with respect to emergency preparedness and response (EPR):

- Law No. (7) of 2010 Promulgating the Law Regulating Nuclear and Radiation Activities,” and its Executive Regulations contain provisions with respect to emergency response requirements relating to nuclear and radiological facilities, activities, and practices. It also clearly identifies the roles and responsibilities of ENRRA and the Supreme Committee for Nuclear and Radiological (N&R) Emergencies;
- Prime Minister Decree Concerning the Establishing of Supreme Committee for N&R Emergencies;
- The following ENRRA Board Decrees:
  - The nomination of national coordinator;
  - The issuance of regulatory requirements for emergency plan; and
  - The issuance of national standards for protecting the public and emergency workers in case of nuclear and radiological emergencies.
- Requirements and Guides concerning the enhancement of national capabilities in N&R emergencies were issued. Examples are as follows:
  - 2017: Regulatory Requirements for EPR plan for parties dealing with radioactive sources;
  - 2018: Guide for initial response procedures to land transport accidents involving nuclear materials, radioactive sources, or other radioactive materials;
  - 2023: Guide on response to nuclear and radiological emergencies outside Egyptian borders.

### **B- National System and Coordination Mechanism**

- The Supreme Committee for N&R emergencies has prime responsibility for the management of N&R emergencies;
- The coordination mechanism at national level is executed by ENRRA;
- The Central Chamber for Nuclear and Radiological Emergencies (CCNRE) provides 24/7 coverage for nuclear and radiological emergencies and is responsible for ENRRA coordination role.
- There are various memorandums of understanding (MoUs) signed between ENRRA and its national counterparts, including:

- MoU between General Meteorological Authority (GMA) and ENRRA, describing the role of GMA as the competent authority for atmospheric dispersion models and other modelling at the national level and defining ENRRA's role in relation to matters such as cooperation in EPR, exercises,.. etc.
- EPR training and workshops: As part of its capacity-building activities ENRRA has been conducting workshops and training for national organizations and first responders related to EPR since 2014.

#### C- EPR Strategies and Plans

- The national strategy for Nuclear and Radiological Emergency Preparedness and Response was issued in 2016 and is based on IAEA categorization of hazards.
- National Emergency Plan for Preparedness of and Response to N&R Emergencies was issued in 2021 and includes hazard assessments, protection procedures, and roles and responsibilities of all relevant organizations, as well as other functional and infrastructure requirements described in the IAEA Safety Standards Series No. GSR Part 7, Preparedness and Response for a Nuclear or Radiological Emergency.
- The following plans have also been issued:
  - 2016: Plan of Preparedness and Response to Nuclear and Radiological Emergencies Associated with Transport Accidents;
  - 2016: Medical Preparedness and Iodine Tablets Distribution Plan in Nuclear and Radiological Emergencies;
  - 2016: Public Communication Plan in Case of Nuclear and Radiological Emergencies;
  - 2020: National Plan for Evacuation and Accommodation during Nuclear and Radiological Emergencies; and
  - 2021: Preparedness and Response Plan for Nuclear Security Events.

#### D- EPR International Cooperation:

- Egypt is a member of the Convention on Early Notification of a Nuclear Accident and the Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency and has registered its national capabilities with the Response & Assistance Network (RANET).
- The CCNRE is also defined as Egypt's contact point with the IAEA in relation to matters of N&R emergencies. The Supervisor of CCNRE is nominated as the national officer in International Nuclear Event-Scale-(INES).

## 2.8. RESEARCH AND DEVELOPMENT

### 2.8.1. Development of Novel Technology and Applications

Not applicable

### 2.8.2. Organizations and Institutions

The main research and development organization in Egypt is the EAEA, which comprises four research centres (as indicated in Appendix 2). Its mandate is to achieve the maximum utilization of the peaceful uses of nuclear energy for the welfare of the Egyptian people, covering the fields of health, agriculture, food, industry, environment, and water resources.



Major research and development facilities at the EAEA include two research reactors (the Egyptian Research Reactor -1 (ETRR-1) and Egyptian Research Reactor -2 (ETRR-2)) and an associated fuel manufacturing facility, Fuel Manufacturing Pilot Plant (FMPP), for ETRR-2, a radioisotope production facility, a cobalt-60 gamma unit, and a cyclotron.

## **2.9. HUMAN RESOURCES DEVELOPMENT**

Egypt has an experience in the application of nuclear technologies which provides a good basis for the development of the workforce needed for the civil nuclear power programme.

NPPA conducted an integrated human resource development (HRD) study in 2011 to determine the skills and knowledge required for the implementation of the El-Dabaa NPP and revised its HRD plan in 2017 to address the specific staffing needs following the selection of the NPP technology. NPPA has a detailed organizational structure and staffing plan for the El-Dabaa NPP that includes the qualifications and experience required for each position. Based on that organizational structure, NPPA commenced the recruitment process for the El-Dabaa NPP project.

ENRRA has initially performed a self-assessment based on "Systematic Assessment of Regulatory Competence Needs" (SARCoN, IAEA Tool) of the competencies needed to support the nuclear power programme. It has also developed job profiles for each position with support from its technical support organisations. ENRRA has employed a sufficient number of qualified and competent staff for performing its functions and to discharge its responsibilities, in an efficient and effective manner.

The staffing plan covers the number of staff necessary and the essential knowledge, skills and abilities for them; recruits' staff in order to obtain staff with appropriate competences and skills; maintaining the required competences and resources needed. The staffing plan is developed in accordance with annual budget preparation and incorporates requirement forecast figures for replacement of expected turnover, and recruitment of additional employees based on periodically performed gap analysis. ENRRA developed its tool for systematic assessment of competencies needed. ENRRA strategy for human resources is based on recruitment of seniors and specialists have experience and engaged in previous regulatory body activities; seniors and specialists have operational experience from nuclear facilities; seniors and specialist have experience from industrial and non-nuclear fields; juniors and fresh graduate officers.

NPPA with the support of the Contractor have developed a training programme that consists of several elements, such as, the development of soft skills, Russian and English language proficiency, and project management. Specialized courses are also provided in the areas of mechanical, electrical, instrumentation and control (I&C) systems, human resources (HR), and contract management and negotiations. In addition, the EPC contract provides for theoretical, practical and on job training in the areas of design, construction, commissioning, operations and maintenance.

As part of the EPC contract, comprehensive training systems, including a training centre with two full scope simulators, will be delivered by the contractor. It is anticipated that the instructors for this training centre will be Egyptian nationals.

ENRRA has prepared job profiles for the primary leadership positions in its new organizational structure and in May 2019 initiated a recruitment process for the heads of several departments within the organization (finance, HR, legal, security, public relations and international cooperation).

ENRRA has also developed a Basic Professional Training Programme which is delivered to all staff of the organization; additional training programmes in the areas of review, assessment and inspection have also been carried out through international cooperation.

Furthermore, ENRRA's current training administration becomes a separate unit, the Centre of Excellence (COE), which is responsible for overseeing and delivering training for the entire organization. The COE reports directly to the Vice Chairman of ENRRA and also is responsible for conducting competency reviews of the staff and evaluating the effectiveness of the training programmes.

In cooperation with ENRRA's Human Resources Department and its technical support organization, the COE is also developing and implementing a capacity building program to assist in achieving ENRRA's strategic objectives. The COE is maintaining a pool of training providers consisting of the IAEA, technical support organizations, national and international experts, and countries with bilateral agreements in place with Egypt.

Within the MOERE, an Education and Training Committee was established to integrate the HRD plans of the key organizations. In 2010, NPPA, together with its technical consultant, prepared a generic and comprehensive National Human Resources Strategy. This strategy was recently updated by NPPA and is currently under final review by the Education and Training Committee.

Egypt established El-Dabaa Nuclear Energy Vocational School in 2017. The school is located near the site of El-Dabaa NPP and is a five-year technical school for post-secondary school students. The first, second and third batches of students from El Dabaa Nuclear School graduated successfully in 2022, 2023, and 2024 respectively.

The first groups of specialists from the El-Dabaa NPP also commenced training at Rosatom Technical Academy in September 2021. The training programme is being carried out under the framework of contracts pertaining to the construction of the El-Dabaa NPP.

## **2.10. STAKEHOLDER INVOLVEMENT**

Communications/public relations specialists need to be a part of the project team. The stakeholders to be addressed are:

1. Organizations that should participate in the development of the strategy and communication plans, and organizations involved in the implementation of these plans;
2. Affecting and affected stakeholders that should be the target audiences for the communications.

NPPA takes a leading role in the implementation of the NPP project. The main actions taken by NPPA (or that NPPA plans to take) regarding stakeholder involvement are:

- Finalizing strategic goals and action plans with clearly defined role responsibilities for each stakeholder;
- Implementing the human resources development programme;
- Implementing target audience communication plans;
- Established a website on the internet;
- Conducted an information campaign to raise awareness of the nuclear programme in order to explain its objectives and plans and to respond to dissenting voices.

ENRRA has a strategy and communication plan, as well as a strategic goal to continuously improve the engagement of interested parties and maintain public awareness. In order to foster greater public understanding and confidence in its regulatory mandate, ENRRA, through its communication plan, seeks to provide information in an open and transparent way with respect to its role and the regulatory measures it's adopts to ensure nuclear safety and security.

ENRRA's communication plan has been designed to target various audiences, including the public, nuclear and radiological license holders, and academia through multiple communications channels (e.g., the ENRRA website and promotional materials such as posters and brochures). ENRRA issues quarterly and annual reports on the national radiological status to the Egyptian public and publishes these reports on its website, the Official Gazette, in newspapers, and through other forms of mass media.

NPPA has developed its own stakeholder management plan that it is currently implementing and updating on a quarterly basis. The plan identifies and analyses the various stakeholders related to the El-Dabaa NPP project and provides guidance on how to engage and manage the interests of such stakeholders.

NPPA has conducted a number of stakeholder involvement and public communication activities and maintains a website outlining its vision and mission, providing updates regarding the status of the El-Dabaa NPP, and detailed educational information about nuclear power. The website is also used to issue press releases and other official statements. NPPA has also developed printed outreach materials, including information to educate students and the general public more widely about how nuclear energy can be used to produce electricity.

NPPA is also developing public information centre in El-Dabaa site, with site already having been selected and work underway with a technical consultant with respect to its design. The Coordination Committee serves as the forum for communication among the various national stakeholders. Additional national coordination occurs through the Education and Training Committee, the Localization Committee, and the International Instruments Committee. These committees provide ongoing opportunities for stakeholders from national organizations to discuss their activities, share plans, and clarify any questions regarding roles and responsibilities.

In February 2017, a public hearing session was held and attended by more than 1200 individuals including tribal mayors and sheikhs, members of the parliament in Matrouh Governorate, university representatives and opinion leaders, tribal youth in Matrouh Governorate, Chairman and representatives of ENRRA, Minister and representatives of the Ministry of Electricity and Renewable Energy, Governor and representatives of Matrouh Governorate.

The hearing session was part of the EIA process and provided stakeholders with an opportunity to express their concerns and interests related to the project. The session aimed to open all channels of communication popular and official for discussion and constructive dialogue, and it was part of a range of measures being implemented to engage in community dialogue with respect to the El-Dabaa Nuclear Power Plant Project for the purposes of promoting public awareness and acceptance of the Project.

## **2.11. INTERNATIONAL COOPERATIONS AND INITIATIVES**

In 2011, Egypt joined the International Project on Innovative Nuclear Reactors and Fuel Cycles (INPRO) and participates in the International Nuclear Fuel Cycle Association (INFCA) as an observer.

Under the framework of the Technical Cooperation Programme, Egypt and the IAEA developed an integrated work plan (IWP) for the implementation of technical cooperation projects. The IWP included the following areas: project management feasibility study; siting; human resources development; and nuclear security and safety. The active technical cooperation projects are:

Project No	Project Title
EGY0019	Supporting Design and Implementation of High Sensitivity Radiation Monitoring Equipment.
EGY0020	Establishing a National Training Center and Developing Information and Communication Technology Materials to Build Technical Skills in the Field of Nuclear Science and Technology.
EGY1025	Implementing a Quality Assurance and Quality Control System for the National Center for Radiation Research and Technology (NCRRT) to Assure a Higher Degree of Customer Satisfaction.
EGY1026	Strengthening the Applications Associated with the Second Research Reactor.
EGY2011	Separation and Estimation of Valuable Rare Metal during Uranium Ore Processing in the Eastern Desert.
EGY2012	Developing Human Resource Capacities for the Nuclear Power Plant Project during Contracting and Early Construction Stage.
EGY2013	Supporting Technological Separation and Purification of Naturally Occurring Radionuclides and Rare Earth Elements from Minerals.
EGY2014	Building Capacity for the Nuclear Power Plant Project Construction Stage.
EGY2015	Developing Project Management for a Nuclear Power Programme During the Construction and Commissioning Phases.
EGY2016	Supporting a Feasibility Study for Uranium and Rare-Earth Element Recovery from Unconventional Resources.
EGY4052	Modernization and Improvement of the MGC-20 Cyclotron.
EGY5026	Establishing a National Reference Laboratory Applying Nuclear/Isotopic and Related Techniques in the Analysis of Food Contaminants.
EGY6009	Upgrading the National Facility for Radiopharmaceutical Production to Meet with International Quality Standards.
EGY6010	Introducing Positron Emission Tomography Magnetic Resonance Fusion Imaging.
EGY6011	Contributing to the Establishment of a Well-Equipped National Laboratory for the Quality Control of Radiopharmaceuticals to Enhance the Regulatory Functions of the Ministry of Health.
EGY7004	Assessing the Recharge Ability of Groundwater Resources in the Highly Mountainous Area in South Sinai under the Prevailing Climate for Sustainable Development in the Utilization of Groundwater Resources.

EGY9039	Establishing a National Decontamination Operational Unit for Hot Laboratories and a Waste Management Centre.
EGY9041	Upgrading and Improving Emergency Response Capabilities of the Atomic Energy Authority.
EGY9042	Strengthening the Regulatory Inspection of Nuclear and Radiological Installations.
EGY9043	Strengthening Capacities for Radiological Impact Assessment of Nuclear Facilities Using Modelling and Data.
EGY9044	Establishing and Upgrading Radiation Protection and Safety Measures for the Egyptian Incinerator for Low Level Radioactive Waste.
EGY9045	Developing a Quality Assurance and Quality Control Programme for the Radioactive Waste Management Facility.
EGY9046	Supporting and Strengthening the National Regulatory Body for Reviews, Assessments and Inspection for the Construction of a Nuclear Power Plant.
EGY9047	Providing Regulatory Control Assistance to the Nuclear and Radiological Regulatory Authority during the Construction Phase.
EGY2017	Building Capacity for the Construction and Pre-Commissioning of the Nuclear Power Plant Project.
EGY2019	Building Capacity for the Construction and Pre-Commissioning of the Nuclear Power Plant Project.
EGY9050	Improving Regulatory Framework and Infrastructure during Nuclear Power Plant Construction Phase
EGY2021	Strengthening the National Infrastructure and Capacity Building for Commissioning Stage of the Nuclear Power Plant and Licensing of Radiation Facilities and Activities to Ensure Safety.
EGY2024001 (Under design)	Enhancing Regulatory and Owner/Operator capacity, Infrastructure and Operational readiness in the preparation for the Introduction of Nuclear Power Plants to Egypt

### 3. NATIONAL LAWS AND REGULATIONS

#### 3.1. REGULATORY FRAMEWORK

##### 3.1.1. Regulatory Authority(s)

In 2012, ENRRA was established as an independent regulatory body with an independent budget, is a legal entity and is centrally located in Cairo. The head of ENRRA is the Chairperson of the Board of Directors and reports directly to the Prime Minister.

CCNRE, as a part of ENRRA, is the national point of contact for matters related to nuclear and radiological emergencies. ENRRA heads the national Supreme Committee for N&R emergencies.



ENRRA has the necessary competences and mandates (as provided in Art. 12 of Law No. (7) of 2010 Promulgating the Law Regulating Nuclear and Radiation Activities), particularly the following:

1. Issuance, modification, suspension, renewal, withdrawal and cancellation of all types of licenses for the nuclear and radiation facilities and activities and personal licenses of persons dealing with ionizing radiations under the provisions of this law.
2. Administrative closing of the places using ionizing radiations in violation of the provisions of this law, executive regulations thereof, or the resolutions issued in implementation of the same.
3. Issuance of the decrees and rules applicable to the licensees in necessary cases to support, enhance and ensure safety and security of the exercise, without contradicting the license conditions.
4. Obtaining all documents, papers and information related to its duties from the nuclear and radiation facilities and activities under its control, provided that such obtained documents and information shall be considered confidential.
5. Performing the regulatory and control functions such as:
  - a. Revision and assessment of the safety analyses including the reports submitted by the license applicants and issuing a decision thereon in accordance with the regulations set in this regard;
  - b. Conducting a regulatory inspection of all nuclear and radiation practices at all stages; and
  - c. Developing the rules regulating the long-term planning of sites of radioactive waste management, and the spent nuclear fuel storage, and exercising to regulatory control and supervision over such sites.
6. Raising public awareness about the nuclear and radiation activities, setting the procedures for involving the public, ensuring that all necessary actions are taken to promote the nuclear safety and security culture and providing any required information on the status of nuclear safety in their areas unless such information is confidential by nature.
7. Coordinating with other governmental and non-governmental authorities in the Authorities work fields.
8. Establishing contact with regulatory authorities in the foreign countries and international organizations to enhance the cooperation and exchange of regulatory and control duties.
9. Developing the regulations of justifiable activities including those involving the use of radioactive sources in food and beverage processing, cosmetics, and in any other goods intended for the human use.
10. Developing the regulations of acceptable radiation levels for the import, production, or export of any food or other products intended for the human use
11. Giving opinion on draft laws related to nuclear or radiation activities.

Figure 4 presents ENRRA organizational structure

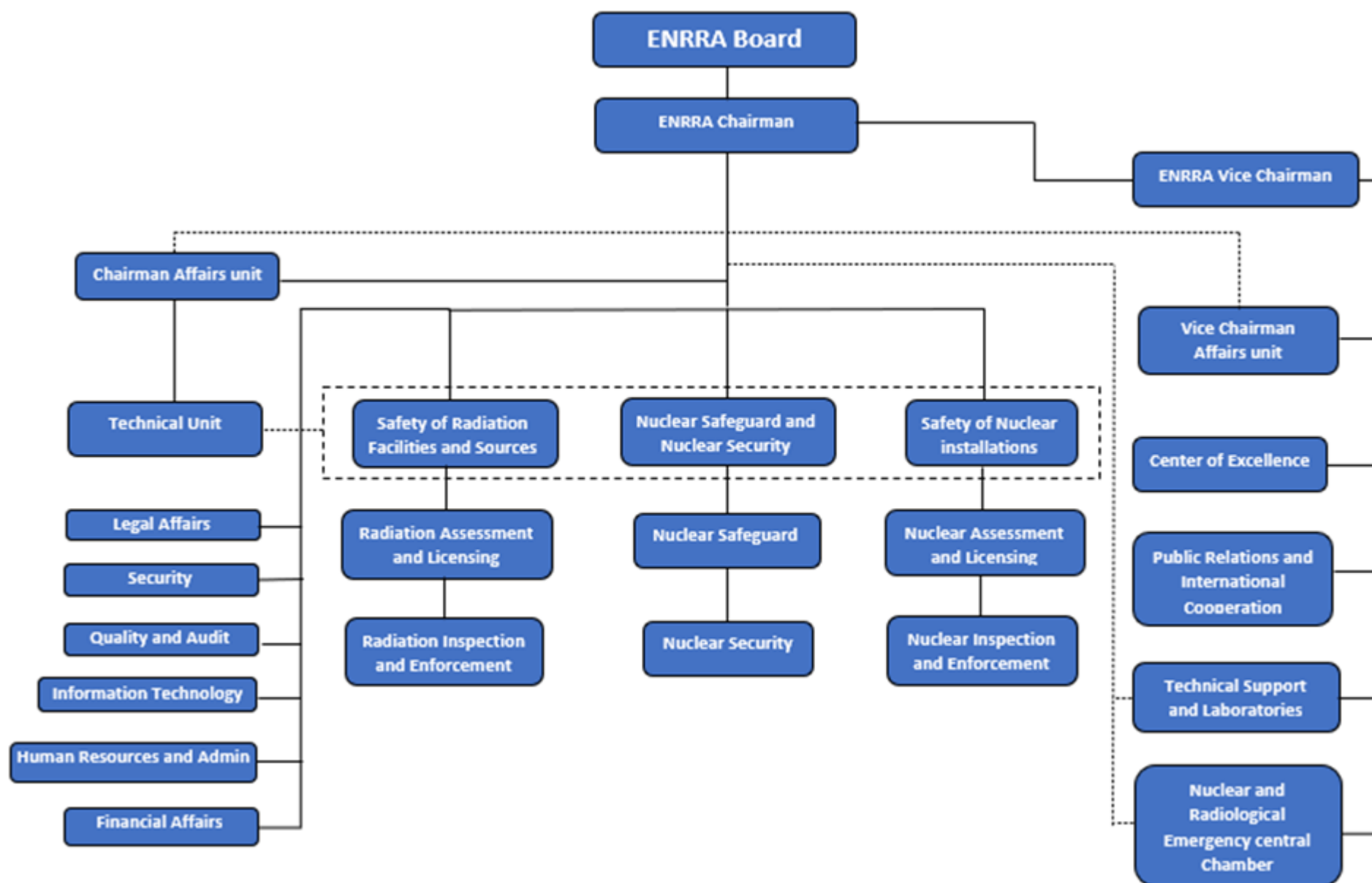
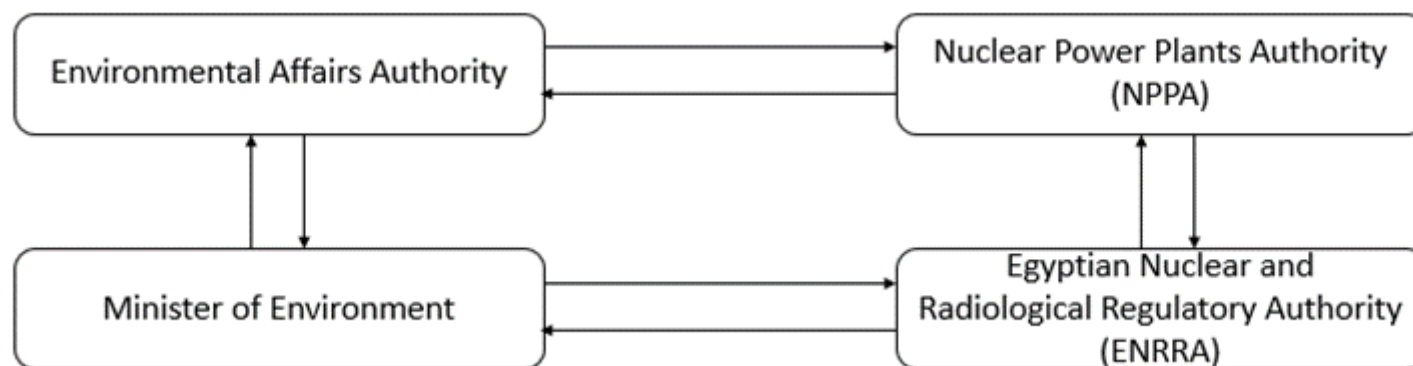


FIG 4. ENRRA Organizational Structure

### 3.1.2. Licensing Process

Upon submission of a licence /permit application, and throughout the licensing process, the Nuclear Installation Safety Sector in ENRRA conducts a comprehensive review and assessment of the sufficient of information provided in the submitted license /permit documentation (Safety Analysis Reports and any other application attachments). Review and assessment of this information constitutes the prime basis for ENRRA Board decision on issuance of the license / permit.

Figure 5 presents the organizations involved in the site approval permit process for nuclear installations, which also includes the Egyptian governmental entities that regulate the environmental aspects related to the impact of a nuclear installations.



*FIG 5. Licensing process for site selection of nuclear installations in Egypt*

According to the Executive Regulation of Law No. 7/2010, the licensing is divided into six stages:

- Site approval permit;
- Construction permit;
- Tests prior to operation permit;
- Fuel loading and approach to criticality permit;
- Operation licence;
- End of service license.

For the operated nuclear reactors, a full periodical safety review shall be conducted by the operating organization every 10 years to validate the operation license.

Law No. (7) of 2010 Promulgating the Law Regulating Nuclear and Radiation Activities, empowers ENRRA to issue Degrees, Rules, Regulations and Guides in the following areas: -

- Safety and security of the peaceful uses of atomic energy in different fields that specify the types, steps, and requirements of issuing different licenses; Safe transport of radioactive materials;
- Import and export control of radioactive materials;
- Nuclear and radiation activities for various purposes including medical, industrial, agricultural, and research applications;
- Spent nuclear fuel storage and management of radioactive wastes, including processing and storage up to final disposal;
- Management of naturally occurring radioactive materials (NORM) which result from extraction of oil and raw materials;
- Emergency preparedness and intervention in case of nuclear and radiological accidents;
- Manufacture of products and supply of services for nuclear installations;
- The Executive Regulation deals mainly with implementation of Law No. (7) of 2010 Promulgating the Law Regulating Nuclear and Radiation Activities,” and focus in particular on matters related to:
- Licensing of nuclear and radiation facilities;

- Personal licenses for exercising nuclear activities;
- International transportation via air, land, and sea crossing of radioactive substances and wastes;
- Import, export, and transport of radioactive sources and substances;
- Safe disposal of radioactive wastes;
- Nuclear and radiological emergencies;
- Nuclear safeguard and nuclear security.

According to Law No. 7/2010, the licensing process of nuclear and radiological facilities is based on the national regulations, the IAEA safety standards; the vendor country codes and standards that are in force. ENRRA may adopt the safety criteria, codes, rules, and standards used in the vendor country at the time of contract signing to the extent that they are not incompatible with the national regulations or the IAEA safety standards.

Licences are granted to legal entities after ensuring that safety is achieved and compliance with relevant requirements has been demonstrated.

ENRRA is empowered to request from the applicant/licensee all documentation needed for the regulatory decision-making process on safety-related matters. The documentation that needs to be submitted to ENRRA for review and assessment is specified in the Executive Regulations to Law No. (7) of 2010 Promulgating the Law Regulating Nuclear and Radiation Activities, its implementing decisions and regulations issued by ENRRA. Additional support documentation may also be requested on a case-by-case basis. In addition to the review and assessment of the documentation, ENRRA verifies compliance with the regulatory requirements and applicable standards through inspections and conformity assessment processes.

### 3.2. MAIN NATIONAL LAWS AND REGULATIONS IN NUCLEAR POWER

#### *Laws*

Currently, the main national laws and governmental decisions governing the activities in the field of peaceful use of nuclear energy in Egypt include the following:

1. Law No. 131 of 1948, the Egyptian Civil Code;
2. Law No. 38 of 1967, Regulating all the Activities of Collection, Transportation, Handling, Management and Safe Disposal of Solid Waste Originating from Households, Public Place, Commercial and Industrial Facilities;
3. Law No. 13 of 1976, Establishment of the Nuclear Power Plants Authority (NPPA) as the Owner/Operator of Nuclear Power Plants (NPPs) in Egypt.
4. Law No. 124 of 1983, Fishing, Aquatic Life and the Regulation of Fish Farms in the Main Body of Legislation on Fisheries;
5. Law No. 4 of 1994, Protection of the Environment from the Adverse or Hazardous Materials and Hazardous Waste Including Substances that Emit Ionizing Radiation;
6. Law No. 14 of 2025, (Labor Code) Book V on Occupational Safety and Health;
7. Law No. 119 of 2008, Unified Law on Building in Egypt;
8. Law No.7 of 2010, Regulating Nuclear and Radiological Activities (RNRA) and its amendment;
9. Law No. 87 of 2015, Egyptian Electricity Law;
10. Law No. 210 and 162 of 2017 and 2023 respectively, Amending Law No. 13/1976 identifies NPPA as the authority responsible for constructing and operating nuclear power plants.

### *Governmental Decisions*

1. Prime Minister Decree No. 338 of 1995, Promulgating the Executive Regulations of the Environmental Law No. 4, 1994 Regulating the Management of Hazardous Wastes;
2. Ministerial Decree No 126 of 2003, Notification of Accidents and Diseases at the Workplace;
3. Ministerial Decree No. 134 of 2003, OSH Committees;
4. Ministerial Decree No 211 of 2003, Safety Levels, Precautions and Terms to Prevent Detrimental Physical, Chemical, Biological and Mechanical Hazards and Securing the Work Environment;
5. Ministerial Decree No.359 of 2007, the Egyptian Code for Steel Construction (Load and Resistance Factor Design);
6. Prime Minister Decree No. 1326 of 2011, Regarding the Issuance of the Executive Regulations Implementing the Law on Regulating Nuclear and Radiological Activities;
7. Ministerial Resolution No. 537 of 2012, Egyptian Code for Design Principles of Design and Implementation Requirements of the Water and Dump Proofing System Works in Buildings;
8. Ministerial Decree No. 160 of 2013, Egyptian Code for Ventilation in Building;
9. Ministerial Decree No.578 of 2013, Egyptian Code for the Basics of Design and Conditions for the Implementation of Acoustics and Noise Control in Buildings;
10. Ministerial Decree No.532 of 2013, Egyptian Code for Design Bases and Implementation Conditions of Sanitary Fittings Engineering in Buildings;
11. Prime Minister Decree No. 1767 of 2014, Specifying the Licenses and Permit Fees Issued by ENRRA Pursuant to Nuclear Law No.7 for 2010;
12. Ministerial Resolution No.152 of 2015, Egyptian Code of Fire.

### *Codes*

1. ECP 208 of 2005, Egyptian Code for Practice for the use of Fiber Reinforced Polymer (FRP) in the Construction Fields Code Design and Construction of Concrete Structure;
2. ECP 306 of 2005, Egyptian Code for Improving Energy Efficiency in Building, Part II Commercial Building;
3. ECP 203 of 2007, Egyptian Code for Design and Construction of Concrete Structure;
4. ECP 205 of 2001, Egyptian Code for Steel Construction and Bridges (allowable stress design);
5. ECP 207 of 2015, Egyptian Code for Planning, Design and Construction of Bridges and Elevated Intersections;
6. SPEC905 for 2016, Egyptian Specification for Blast Resistance Buildings;
7. Egyptian Code for Design and Construction of Concrete Structure ECP 203-2007 Limit States Design Method of Concrete Structures (part I);
8. Egyptian Code for Design and Construction of Concrete Structure ECP 203-2007 Limit States Design Method of Concrete Structures (part II);
9. ECP 306 – 2005 Part II, Commercial Buildings Code No. (2/306);
10. Egyptian Code for Ventilation in Buildings;
11. Egyptian Code of Fire Part I (Foundations of Design and Implementation Requirements for the Protection of Installations from Fire);
12. Egyptian Code of Fire Part II (Requirements for Fire Risk Reduction Systems);
13. Egyptian Code of Fire Part III (Fire Detection and Alarm Systems);
14. Egyptian Code of Fire Part IV (Water Extinguishing Systems);
15. Principles of Design and Requirements for the Implementation of Moisture and Water Insulation in Buildings;



16. Egyptian Code for the Implementation of Acoustic Works and Noise Control of Buildings;
17. Egyptian Code for Design Bases and Implementation Conditions of Sanitary Fittings Engineering in Buildings. Part One: Sanitary Fittings of Buildings;
18. Egyptian Code of Practice for Steel Construction (Load and Resistance Factor Design LRFD) Minister Decree No 359 – 2007;
19. Egyptian Code for Planning, Design & Construction of Bridges and Elevated Intersections Code 207 Part 6 Analysis & Design of Steel Bridges;
20. Design Aids and Examples (part I) in Accordance with the Egyptian Code for Design and Construction of Concrete Structures ECP 2003 – 2007;
21. Limit States Design Method of Concrete Structures;
22. Design Aids and Examples (part II) in accordance with the Egyptian Code for Design and Construction of Concrete structures ECP 2003 – 2007;
23. Limit States Design Method of Concrete Structures;
24. Egyptian Specification for Blast Resistant Buildings SPEC 905;
25. Egyptian Civil Code, No. 131/1948;
26. The Building Law No. 119-2008.
27. The Egyptian transmission system code (ETSC)/ “Grid Code”

#### *Nuclear regulations (standards, rules, safety guides)*

ENRRA is empowered by Law No.7 of 2010 Law No. (7) of 2010 Promulgating the Law Regulating Nuclear and Radiation Activities to develop regulations detailing general legal requirements, as well as any other regulations necessary to support the licensing and regulatory control of nuclear activities.

All the Regulations and Guides required to ensure safety of NPP during its lifetime have been identified by ENRRA together with its technical consultant and are in the process of development in accordance with the stages of development of the El-Dabaa NPP (siting, design, construction, commissioning, operation, and decommissioning). After ENRRA Board's approval, issued regulations are made available on ENRRA's website. ENRRA has issued regulations in the following areas:

#### *Nuclear Safety*

1. Legal & Regulatory Framework for Nuclear & Radiation Activities (ENRRA-RB/MG/LG-01, 2019);
2. Management System Requirements for Regulated Facilities and Activities (ENRRA-GE/RR/MG-00, 2016);
3. Regulatory Procedure on Inspection of Nuclear Installation in Operation Stage (ENRRA-GE/NF/IR-01, 2016);
4. Site evaluation Requirements for Nuclear Installation, (ENRRA-NF/RR/SP-00, 2016);
5. Regulation for Manufacture License of Nuclear Power Plants Systems, Structure, and Components Important to Safety, (ENRRA-RL-NPP-Rev0-001/2024).
6. Regulation for the licensing of users in radiation facilities and activities, 2023;
7. Regulations for controlling the Limits and standards of the permissible radiation level, 2014;
8. Regulatory requirements of emergency preparedness and response plan for handling radioactive materials, 2017;
9. Regulation on licensing possessing, handling and manufacture the x-ray deceives in non-medical field, 2024.

#### *Civil Liability*

1. ENRRA board decree regarding to the financial insurance for constructing, operating nuclear installation, 2014.
2. ENRRA board decrees regarding to financial insurance for transportation of nuclear material, 2015.
3. ENRRA board decree regarding to financial insurance for radiation facilities, 2015.

#### *Nuclear Security*

1. Nuclear security rules on nuclear materials and radioactive sources categorization;
2. Security of radioactive materials during transport;
3. Security of radioactive sources during handling.
4. Physical protection of nuclear material and facilities.

#### *Safeguards*

1. Procedures and rules regulating the activities related to nuclear safeguards.

#### *Nuclear and Radiological Emergencies*

1. Regulatory rules for preparedness and response to nuclear and radiological emergency.

### **APPENDIX 1. INTERNATIONAL, MULTILATERAL AND BILATERAL AGREEMENTS**

#### **International Treaties**

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Agreement : African Nuclear Weapon-Free-Zone Treaty (Pelindaba Treaty)

Countries : Egypt

Signature Date :

Ratification Date :

In-Force Date :

Notes : Signed

Agreement : Comprehensive Nuclear-Test-Ban Treaty

Countries : Egypt

Signature Date :

Ratification Date :

In-Force Date :

Notes : Signed

Agreement : Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency

Countries : Egypt

Signature Date :

Ratification Date :

In-Force Date : 1988-11-17

Notes : Ratified

Agreement : Convention on Nuclear Safety

Countries : Egypt

Signature Date :

Ratification Date :

In-Force Date : 2023-12-24

Notes : Ratified

Agreement : Convention on the Early Notification of Nuclear Accident

Countries : Egypt

Signature Date :

Ratification Date :

In-Force Date : 1988-08-06

Notes : Ratified

Agreement : International Convention for the Suppression of Acts of Nuclear Terrorism

Countries : Egypt

Signature Date :

Ratification Date :

In-Force Date :

Notes : Signed

Agreement : International Convention for the Suppression of Terrorist Bombings

Countries : Egypt

Signature Date :

Ratification Date :

In-Force Date : 2005-08-09

Notes : Ratified

Agreement : Joint Protocol Relating to the Application of the Vienna Convention and Paris Convention

Countries : Egypt

Signature Date :

Ratification Date :

In-Force Date : 1992-04-27

Notes : Ratified

Agreement : The Agreements Between the Agency and States Required in Connection with the Treaty on the Non-Proliferation of Nuclear Weapons

Countries : Egypt

Signature Date :

Ratification Date :

In-Force Date : 1982-06-30

Notes : Ratified

Agreement : Treaty Banning Nuclear Weapons Tests in the Atmosphere, Outer Space and Under Water, Partial Test Ban Treaty  
 Countries : Egypt  
 Signature Date :  
 Ratification Date :  
 In-Force Date : 1964-01-10  
 Notes : Ratified

Agreement : Treaty on the Non Proliferation of Nuclear Weapons (NPT)  
 Countries : Egypt  
 Signature Date :  
 Ratification Date :  
 In-Force Date : 1981-02-26  
 Notes : Ratified

Agreement : Vienna Convention on Civil Liability for Nuclear Damage  
 Countries : Egypt  
 Signature Date :  
 Ratification Date :  
 In-Force Date : 1977-11-12  
 Notes : Ratified

## APPENDIX 2. MAIN ORGANIZATIONS, INSTITUTIONS AND COMPANIES INVOLVED IN NUCLEAR POWER RELATED ACTIVITIES

### National Authorities

Organization Name Address Contact Website

The Egyptian Nuclear and Radiological Regulatory Authority (ENRRA)	3 EL Huda street, Nasr City, Cairo, Egypt Post Code: 11787	Tel :+(202) 22738668 Chairman Fax: +(202) 22740238 Emergency Room : +(202) 22738668 Central Lab. Fax : +(202) 22713212 Licence Fax: + (202) 22740237
Nuclear Power Plants Authority (NPPA)	4, El Nasr Avenue, Nasr City, Cairo, Egypt P.O. Box 8191, Nasr City 11371 P.O. Box 108, Abbassia Cairo 11381	Tel. +(202) 22616480 - +(202) 22616483 Fax. +(202) 22616476
Egyptian Atomic Energy Authority (EAEA)	3 Ahmed El-Zomor Street, Nasr City, Cairo, Egypt	Tel. 202 22876033 - 202 22875924 Fax. 202 22876031
Nuclear Materials Authority (NMA)	El Maadi - Kattamiya Road, Cairo, Egypt P.O. BOX 530, Maadi	Tel. +(202) 27585831 Fax. +(202) 27585832

### REFERENCES

## Number Source Link

- [1] The Egyptian Ministry of Electricity and Renewable Energy
- [2] Nuclear Power Plants Authority (NPPA)
- [3] Nuclear Materials Authority (NMA)
- [4] Atomic Energy Authority (AEA)
- [5] The Egyptian Ministry of Petroleum
- [6] Egyptian Nuclear and Radiological Regulatory Authority (ENRRA)
- [7] Egypt Information Portal
- [8] International Atomic Energy Agency (IAEA)
- [9] The Egyptian Ministry of Economic Development
- [10] The Egyptian Cabinet Information and Decision Support Center
- [11] Energy Information Administration (EIA)
- [12] The Egyptian Ministry of Finance
- [13] Egyptian electricity holding company annual reports

Not Applicable

**COORDINATOR INFORMATION**

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