Egypt Country Report

Egypt ERA (www.egyptera.org)
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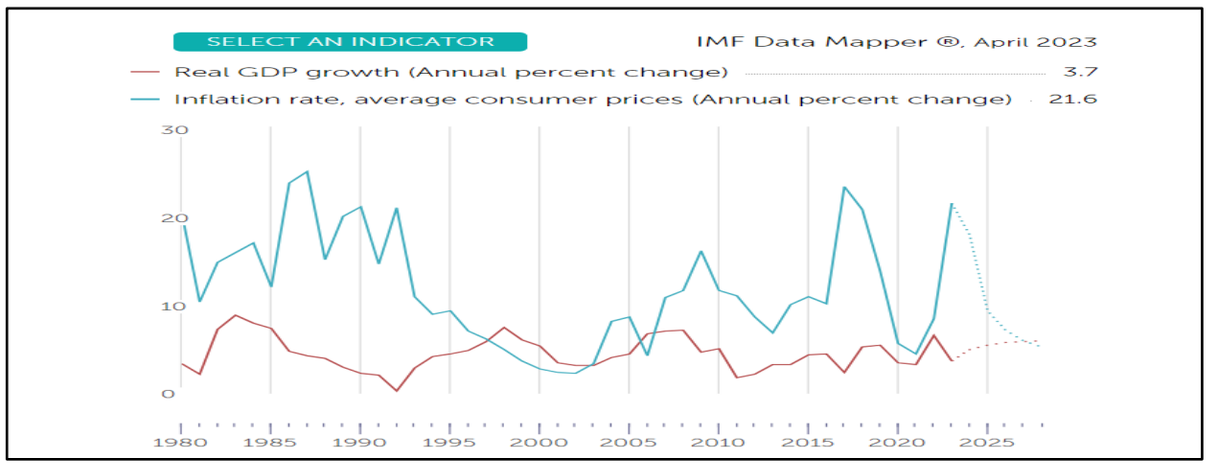
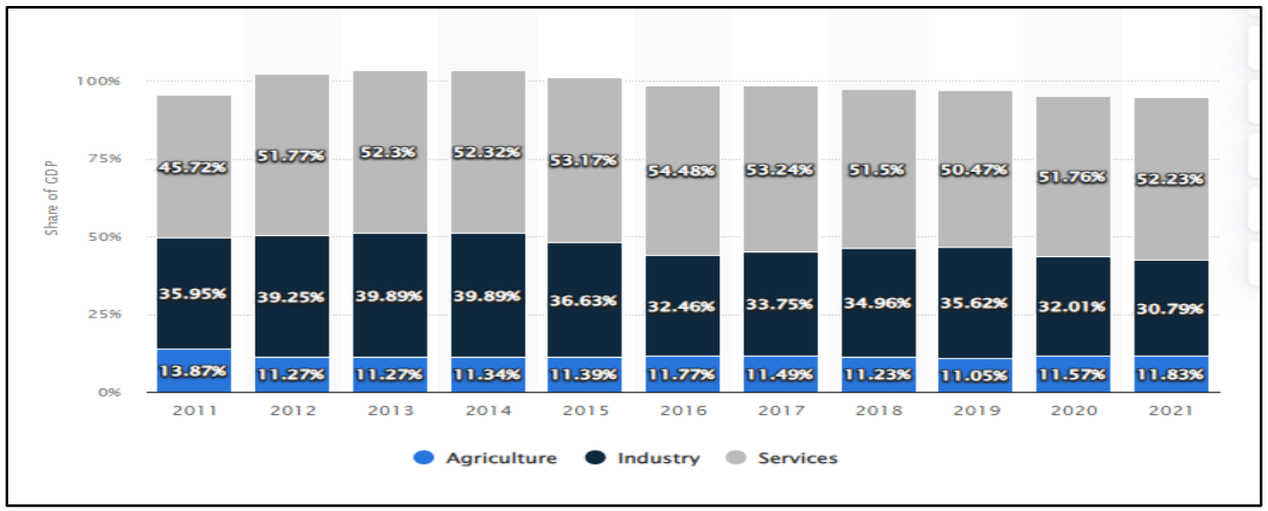
General Information (Country Profile)

- **Capital: Cairo**
- **Area: 1010408 sq km**
- **Religion: Islam**
- **Language: Arabic**
- **Continent: Africa**

- ✓ It is located on the Northern corner of the African continent, bordered by Libya to the west, Sudan to the south, the Red Sea to the east, and the Mediterranean Sea to the north.
- ✓ Ancient Egypt settled as early as 6000 B.C
- ✓ The pyramids are one of the oldest and most famous historical monuments in Egypt. Other famous monuments are the Temple of Hatshepsut, Luxor temple, Great Sphinx, and Valley of the Kings.

General Information (Economic Indicators)





GDP of Egypt in 2021 is 404.1 billion

GDP per capita is about 3698.83 USD.

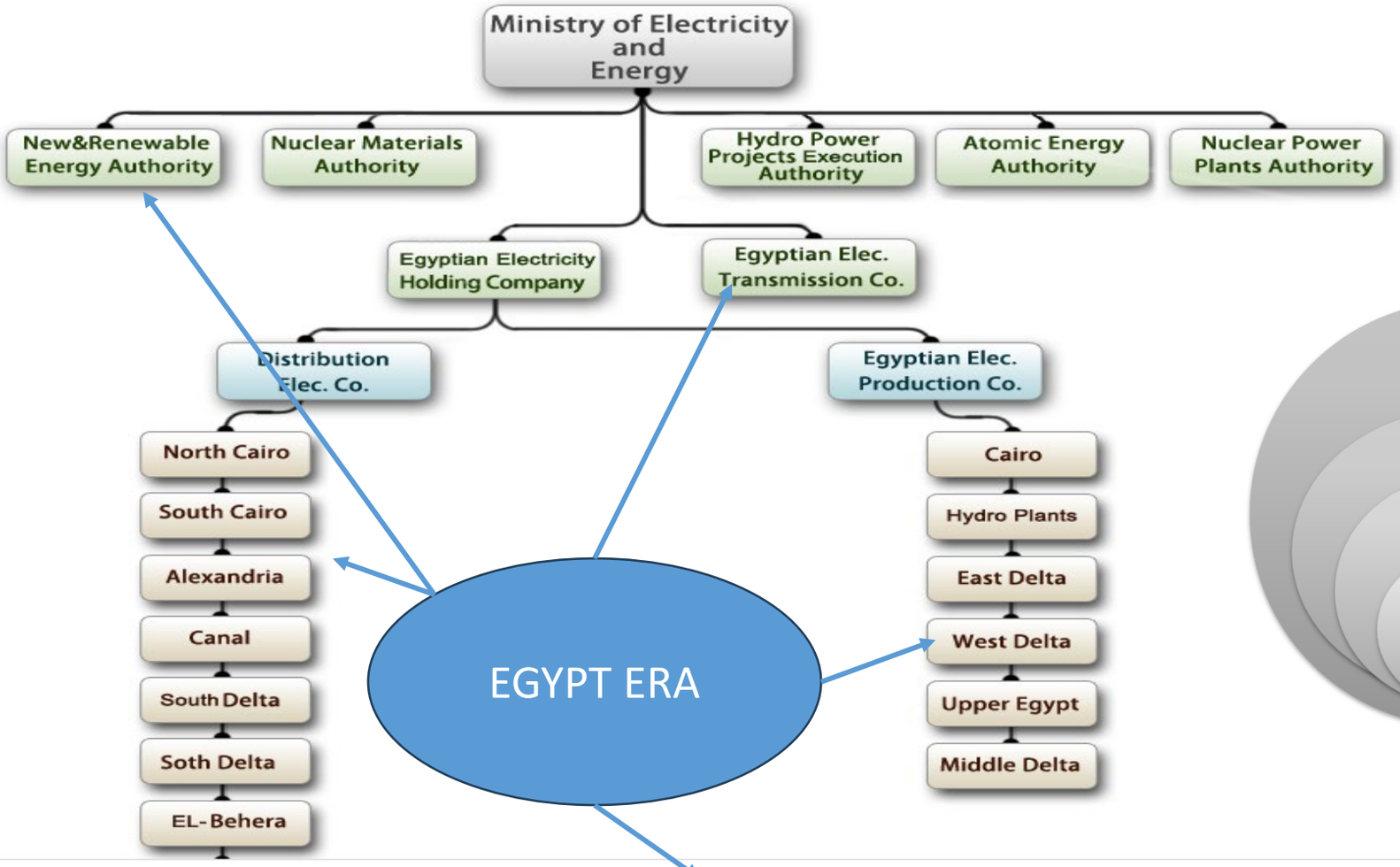
GDP growth until April 2023 is 3.7%.

Inflation rate: May 2023 is 32.750 % by 2.858 % from the previous months.

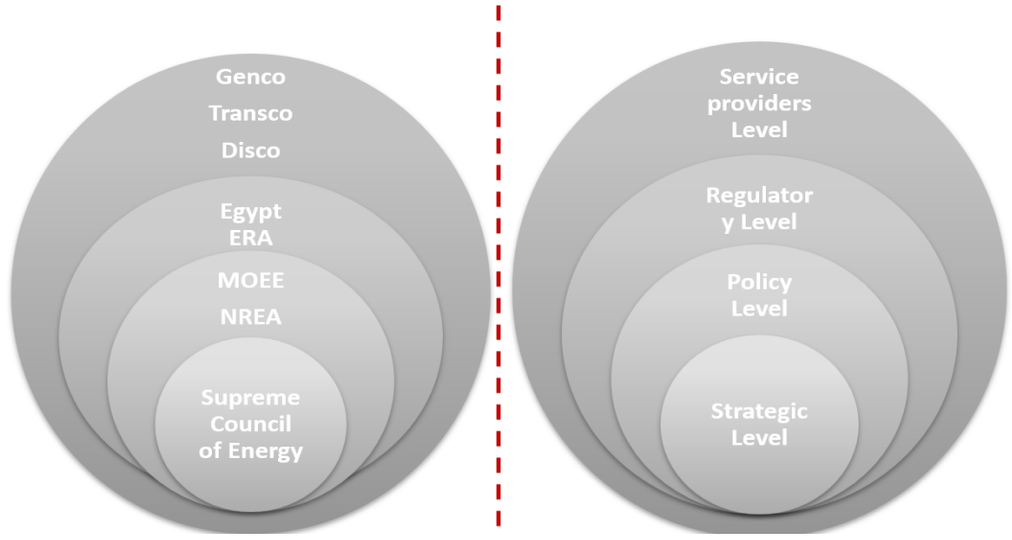
Unemployment rate: It reached 6.96% by 2022 which is less than 0.4% of the previous year.

Population: Egypt’s total population was 111.8 million in January 2023. Data 1.6 % between 2022 and 2023. 49.4 % of Egypt’s population is female, and 50.6 %of the population is male. The

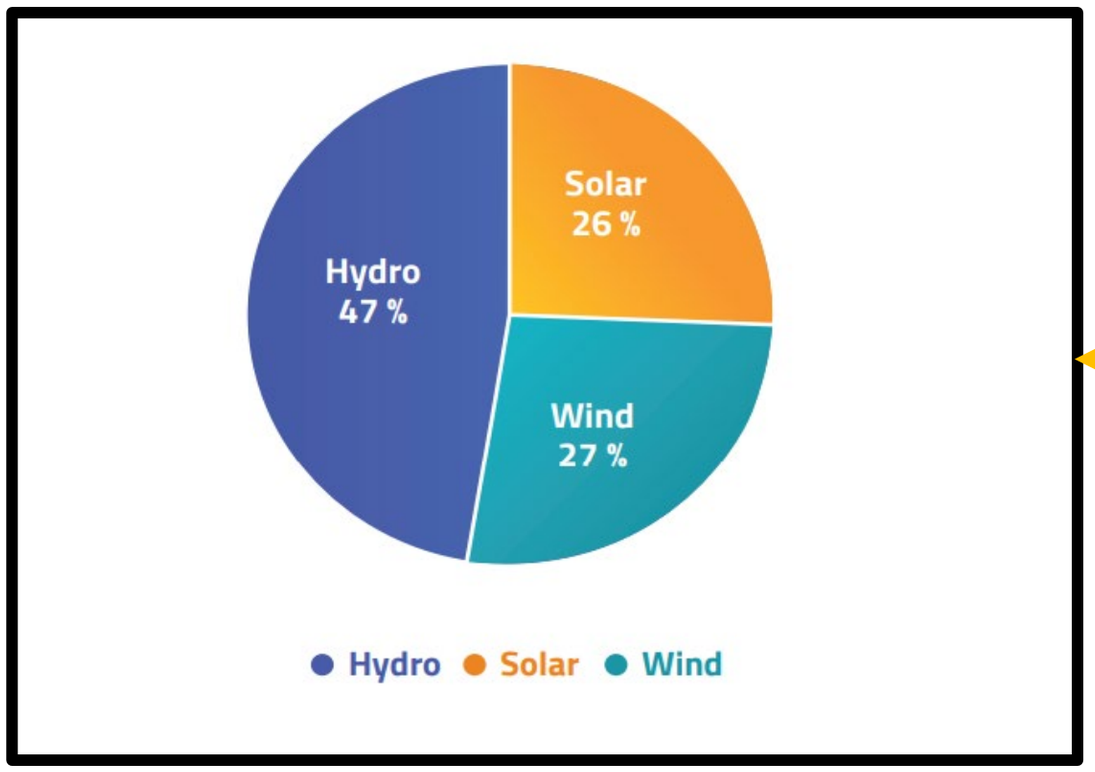
Organizational structure related to Energy (government, governmental agency, and research institute)

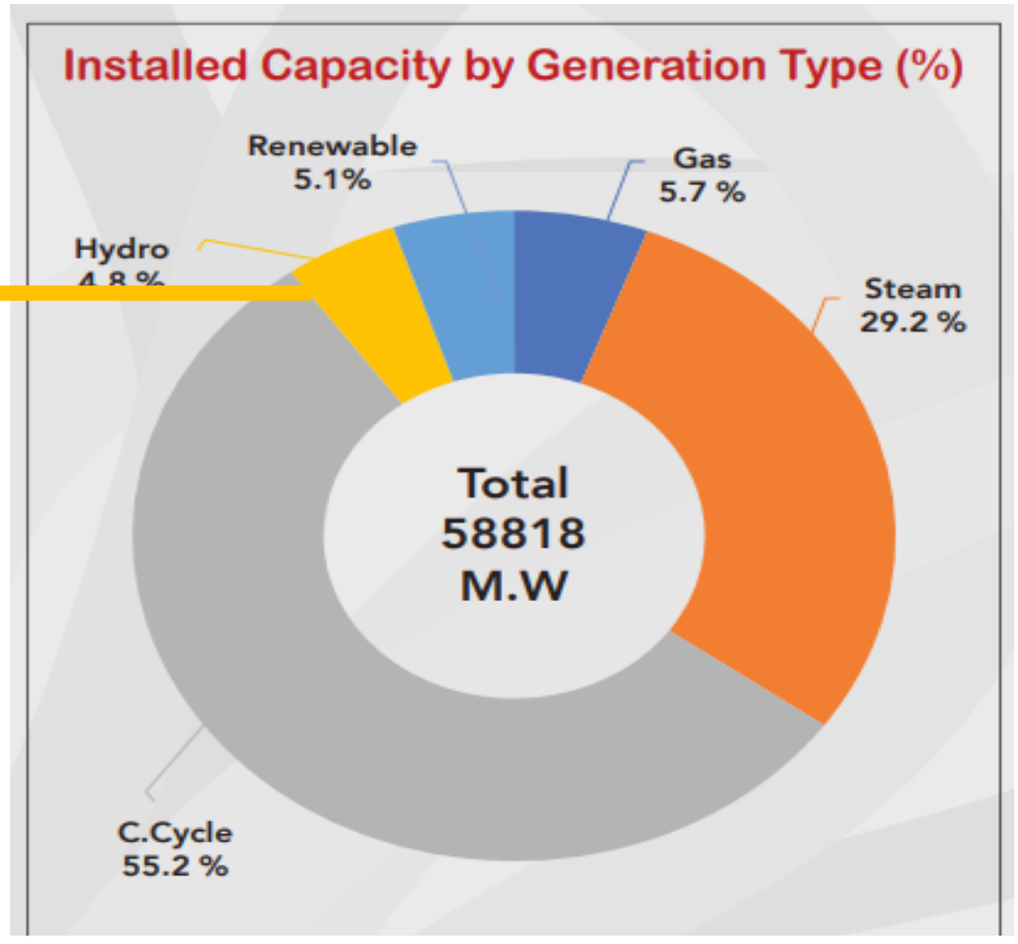


Institutional framework



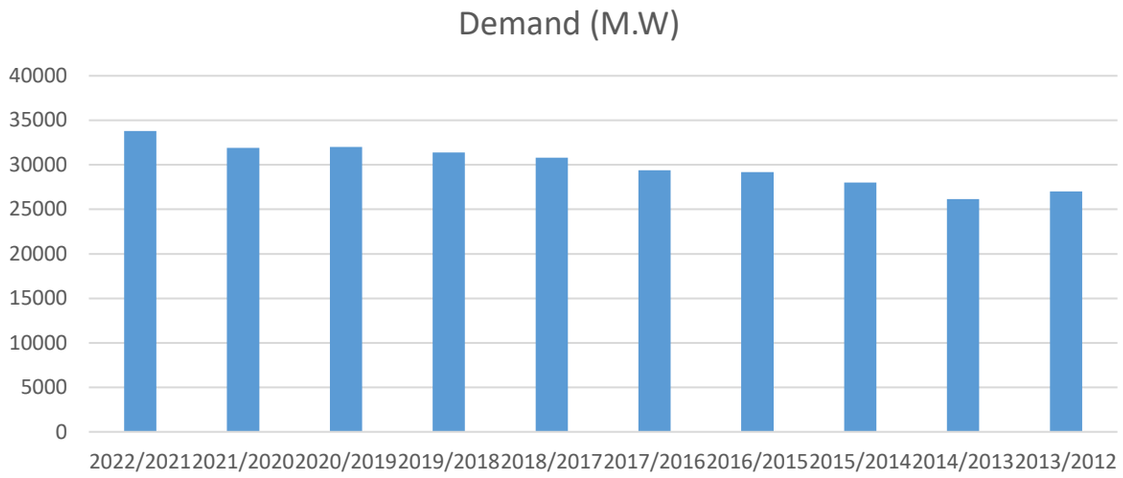
Installed Capacities



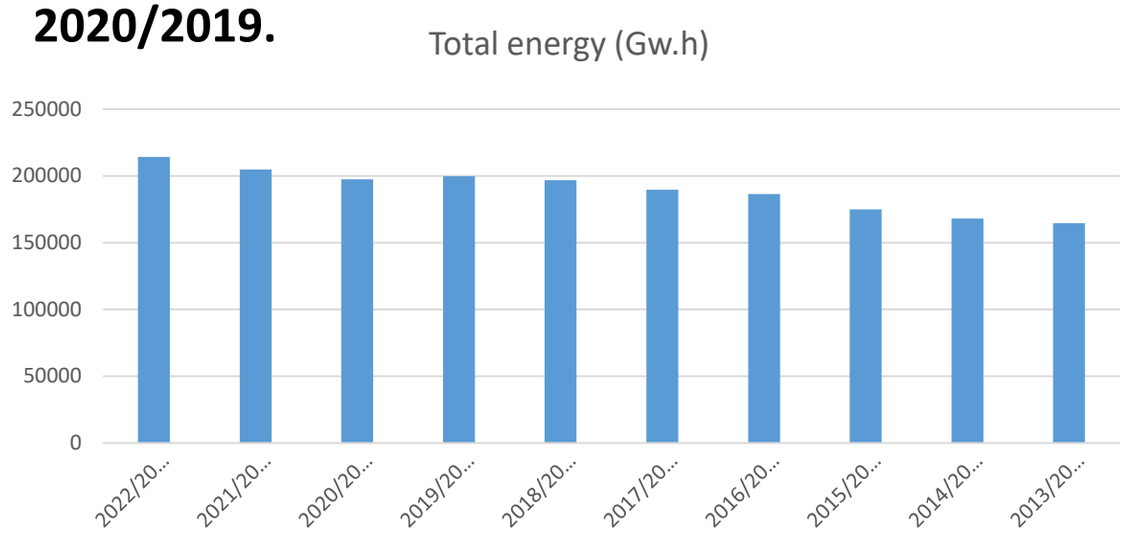


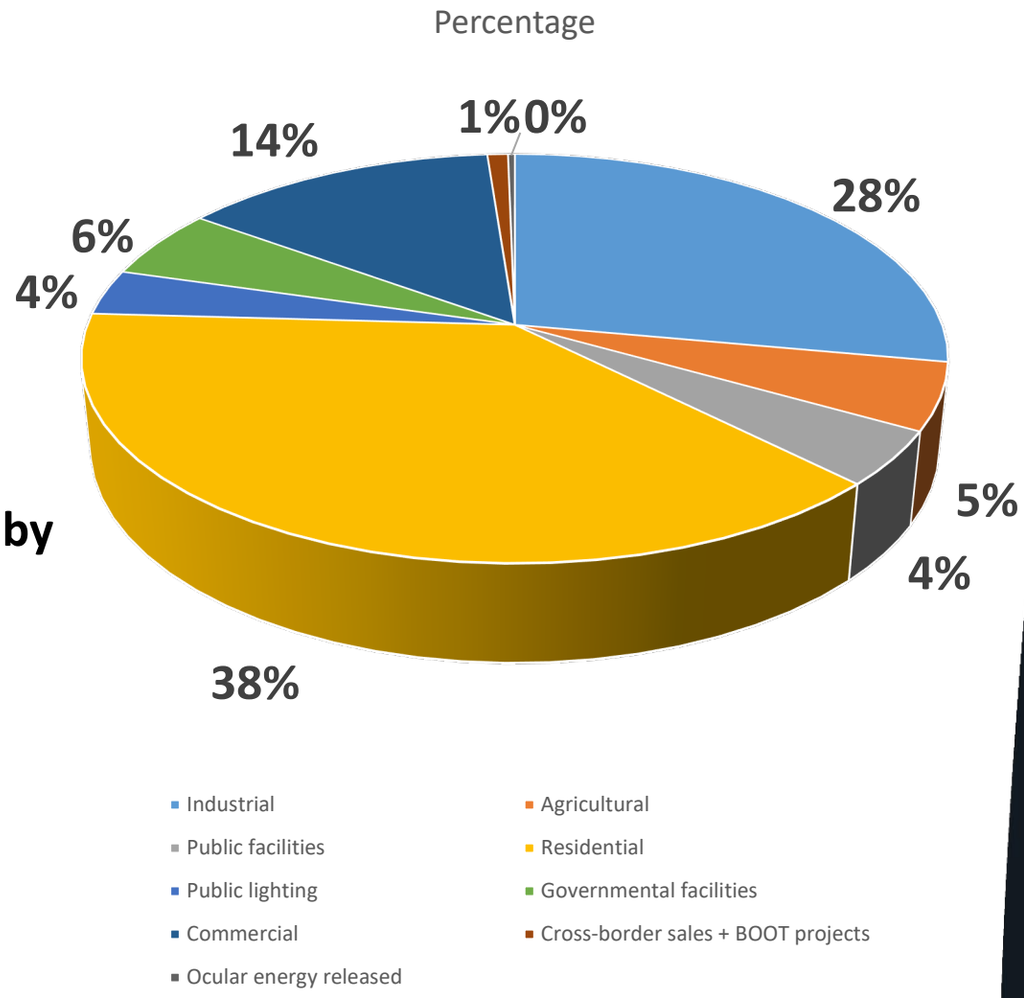
Supply and Demand

Energy demand increases over the last 3 years by 6%.



- **There is an increase in energy supply over the last 3 years by 8.54%.**
- **There is a sudden decrease in energy supply in the year 2020/2019.**





Interconnection

Egyptian / Saudi Interconnection • The project aims to exchange 3000 MW.

Egyptian / Cypriot / Greek Interconnection • The project aims to exchange electrical capacity of up to 2000 MW at a voltage of 500 using an HVDC transmission system in two phases of 1000 MW each

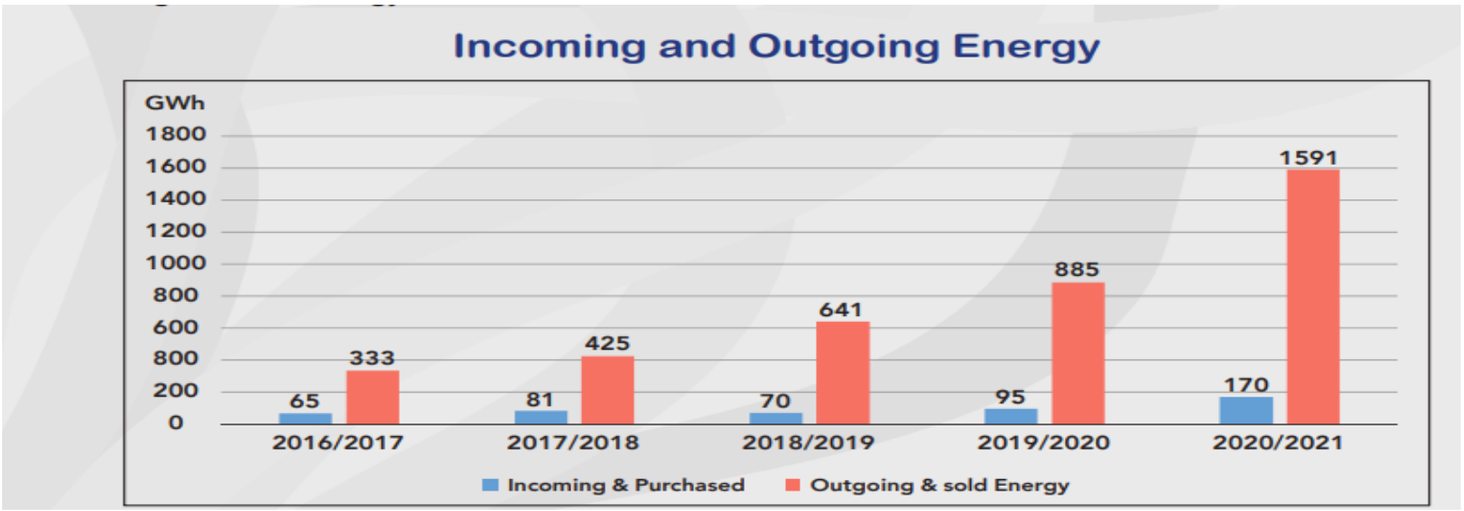
Egyptian / Gulf Interconnection • On 6.11.2019 a memorandum of understanding and a non-disclosure agreement was signed between the GCC Interconnection Authority (GCCIA) on one part and the National Electric Power Co. of Jordan (NEPCO) and the Egyptian Electricity Transmission Company (EETC) on the other part.

I. Regional Interconnection with Neighboring Countries:

Existing Dual Interconnection

Description	Egypt/Libya	Egypt/Jordan			Egypt/Sudan
Interconnection date	May 1998	October 1998			April 2020
Connectivity voltage (KV)	220	400			220
Inteconnection Countries	Libya	Jordan	Syria	Lebanon	Sudan
Outgoing & Sold Energy * (GWh)	610	492	-	-	489
Incoming & Purchased Energy * (GWh)	-	170	-	-	-

* Including in - Kind Energy.

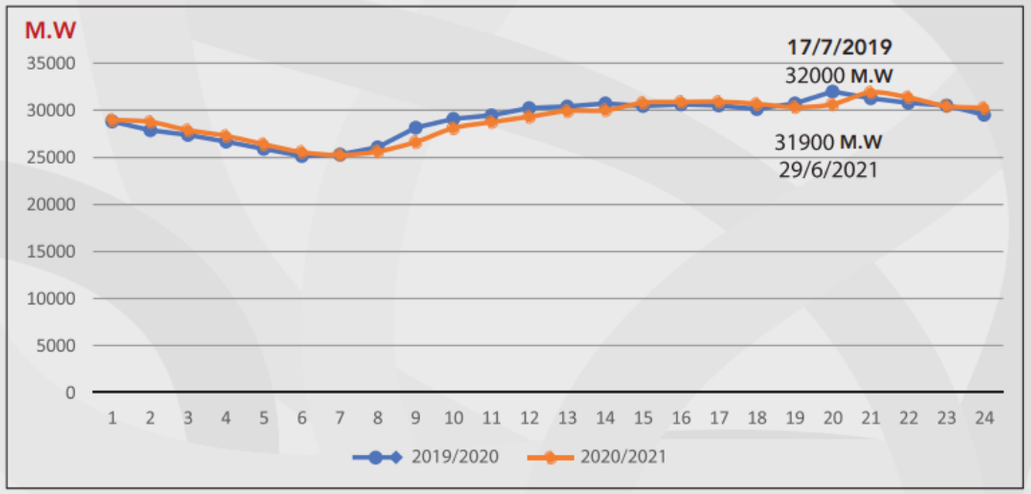


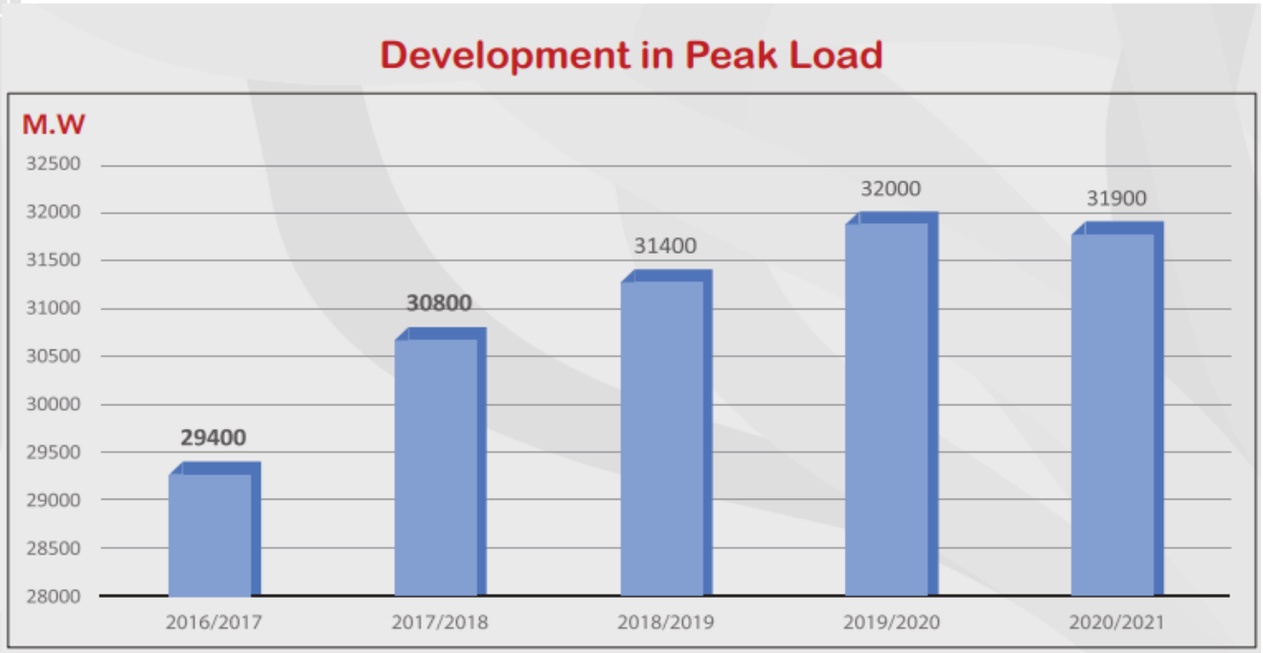
Peak Load Evolution

The COVID-19 pandemic had a notable impact on the demand and supply of electricity in Egypt. The following are the

Peak Load

Description	2019/2020	2020/2021	Variation %
Peak Load (MW)	32000	31900	(0.3)





key effects on demand and supply in the electricity sector in Egypt:
Shifts in Peak Demand, Demand Reduction, Impact on Energy-Intensive Industries, Renewable Energy Integration

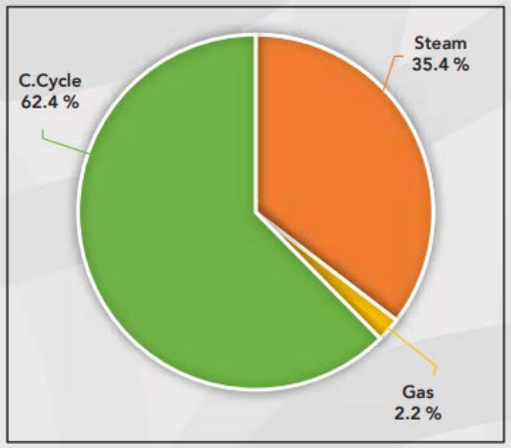
Fuel Consumption

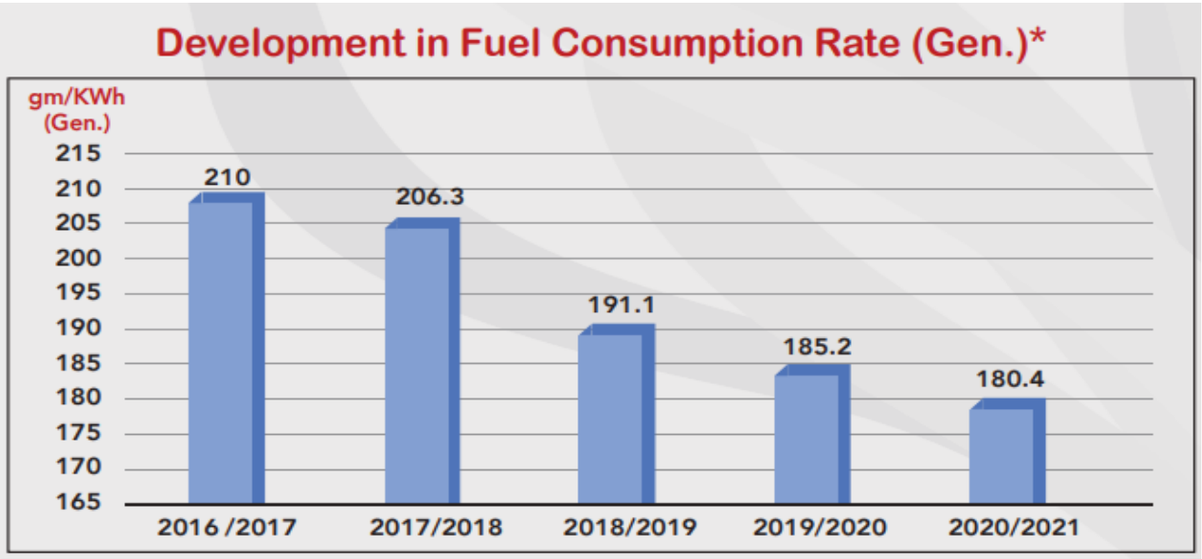
Generation of Electrical Energy

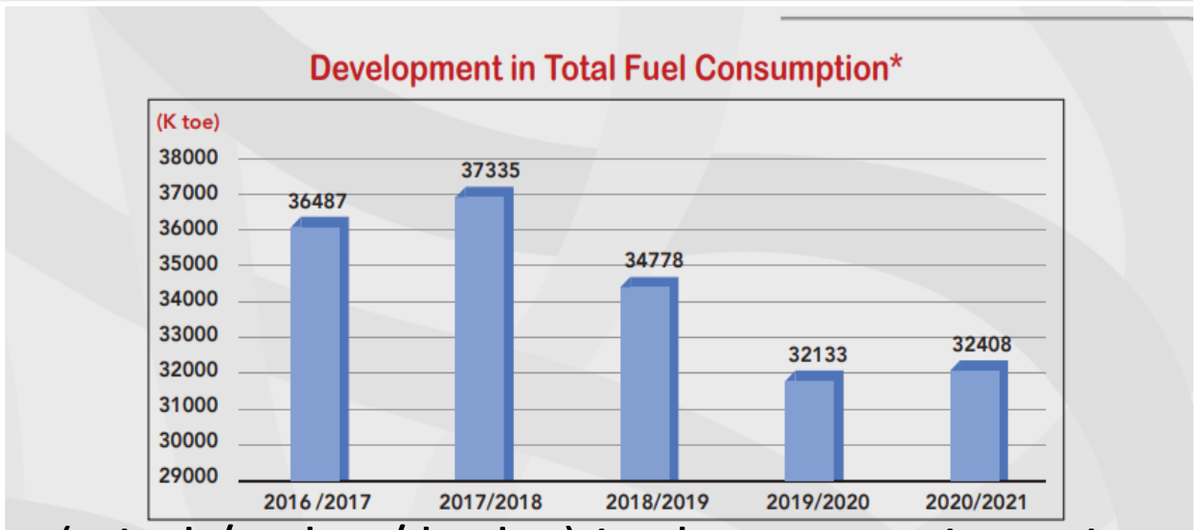
Fuel Consumption by Generation Type (k toe)

Type		2019/2020	2020/2021	Variation %
Steam	Subsidiaries	9865	9103	(7.7)
	Private Sec.	2445	2374	(2.9)
Gas	Subsidiaries	1002	714	(28.7)
Combined Cycle	Subsidiaries	12516	12403	(0.9)
	EEHC Plants	6305	7814	23.9
Total		32133	32408	0.9

* Including fuel for commissioning tests.

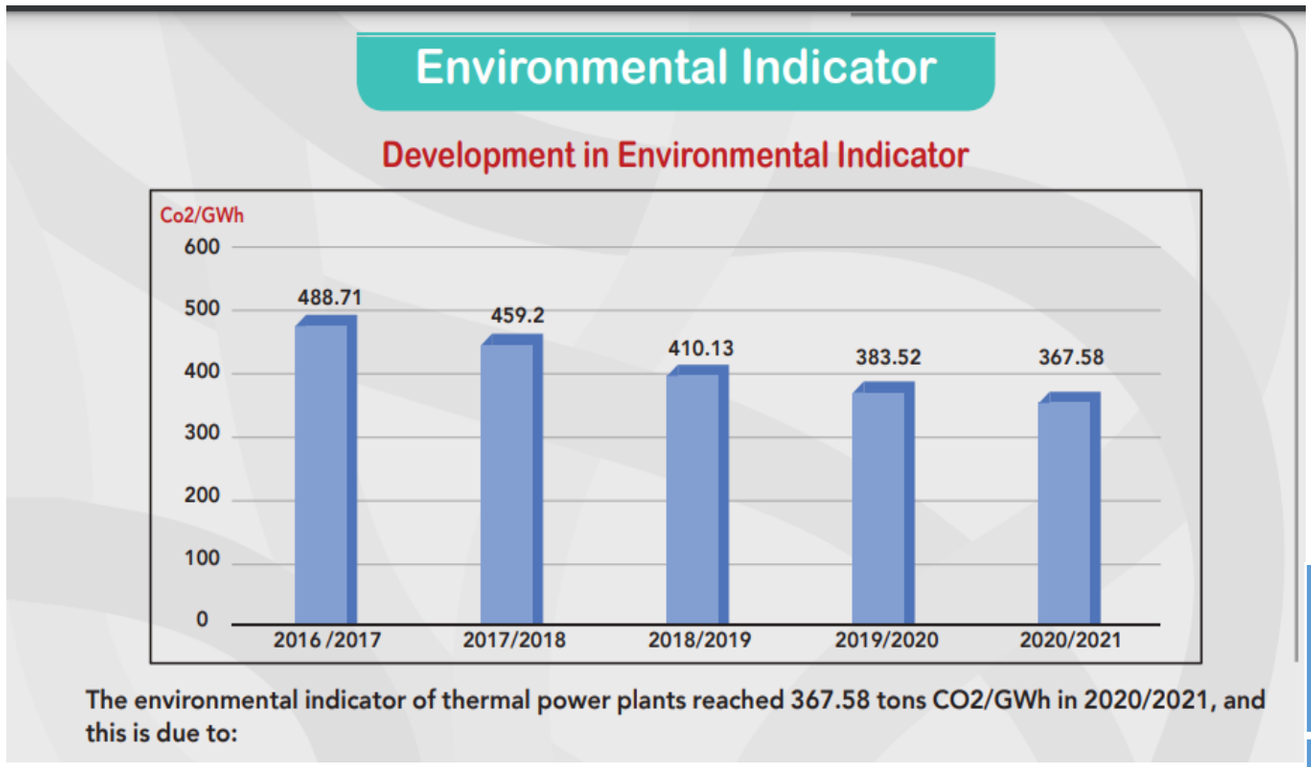






• Increasing the share of new and renewable energies (wind / solar / hydro) in the generation mix to reach 12.2% of the total generated energy in 2020/2021. • The increase in the natural gas participation rate to 98.2% of the total fuel consumption. • The total fuel consumption rate improved to 180.4 gm/KWh in 2020/2021

CO2 Emissions



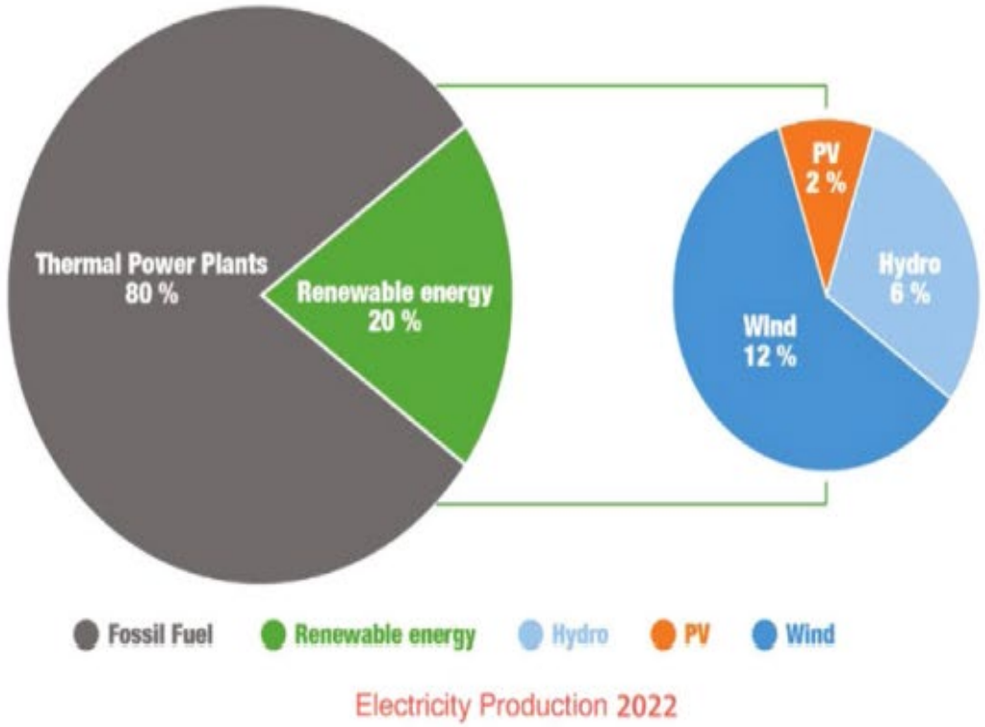
The amount of CO2 emissions produced by the power plants sector, and this is due to decreasing dependency on fossil fuels in electricity production.

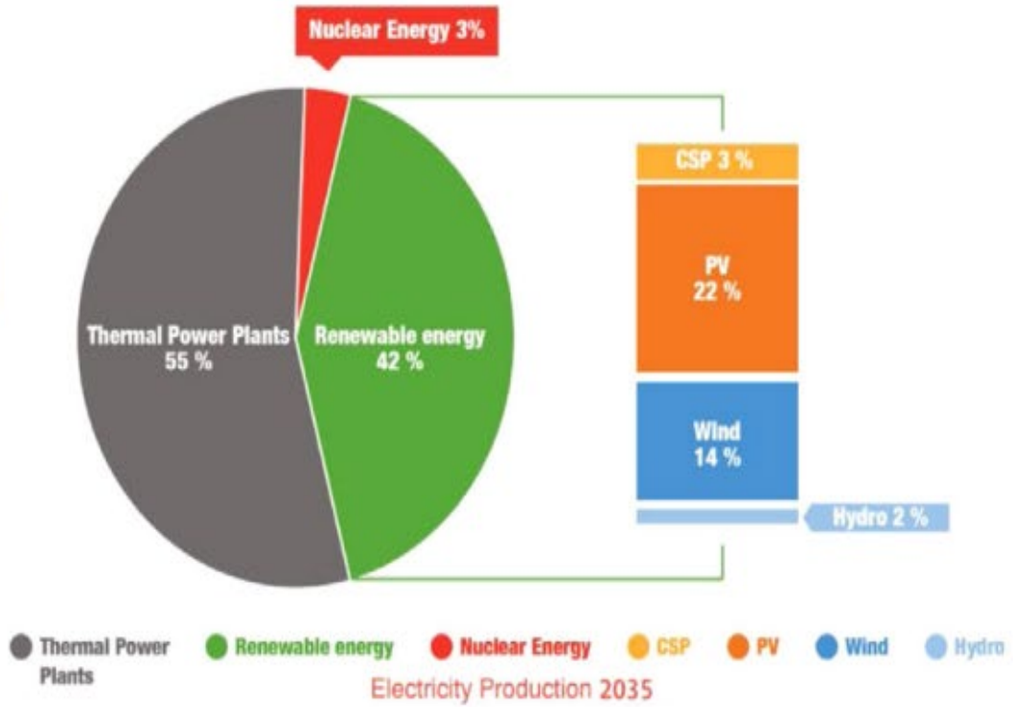
Carbon emissions from electric power plants account for approximately 45% of the Carbon emission From Energy sector in Egypt, followed by transportation at 22%, manufacturing at 17%, construction at 7%, gas leakage at 6%, combustion of various types of fuels at 2%, and ship fuel at 1%.

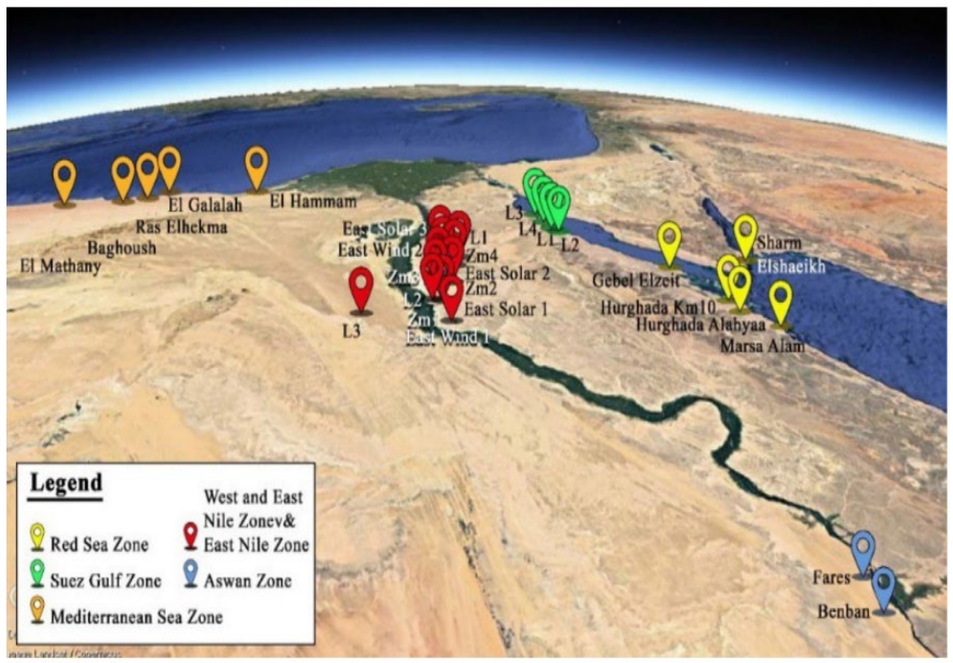
Energy source	coal	Oil	Natural gas
CO_2 emissions (Mt)	0.011	0.025	2.00849

Sector	Electric power plants	Transportation	Manufacturing	construction	gas leakage	various fuel types of combustion
Percentage	45%	22%	17%	7%	6%	2%

Outlook of energy demand and supply (2025, 2030)



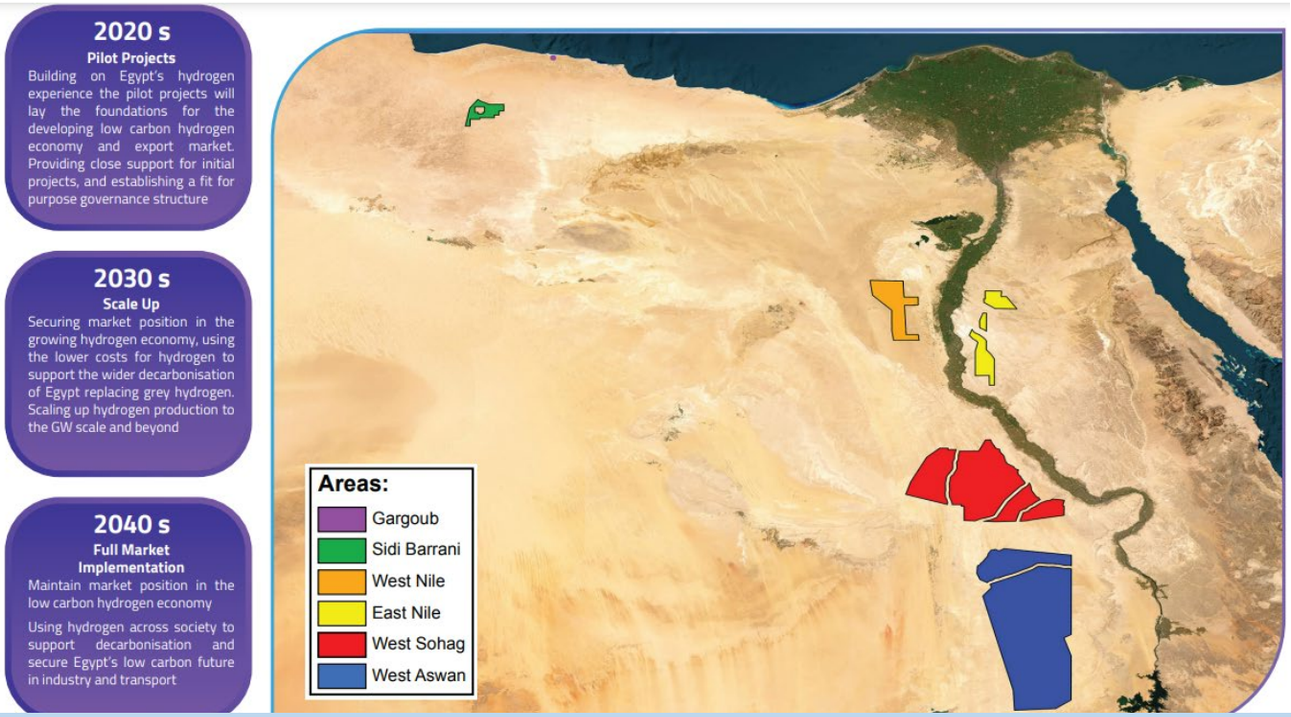




Type of Power Station	2009/10	2021/22	2029/30	2034/35
Hydro	2.8	2.8	2.8	2.9
Wind	0.5	13.3	20.6	20.6
PV	0.0	3.0	22.9	31.75
CSP	0.0	0.1	4.1	8.1
Total	3.3	19.2	50.5	62.6

Egypt ERA

Electric Vehicles targets



Egypt's Hydrogen strategy aims to localize the green hydrogen industry through the following main axes: 1- Manufacturing of green fuels (green hydrogen, green ammonia, methanol).

2- Providing complementary industries for green hydrogen industries (electrolyzes – solar panels – turbines)

3- Green fuel bunkering services through the Suez Canal Economic Authority ports.

- ✓ Establish local manufacturing. Acquire e-vehicle industrialization technology with 65% by the end of 2030. Egypt will be at the forefront of E-vehicles exporters by the end of 2040.
- ✓ Increase the market share of e-vehicle in the Egyptian markets by 2% at the end of 2030 and 5% by the year 2040.
- ✓ Reduce the health and environmental risks from fossil fuel use by 75% by the year 2040. Prepare infrastructure.
- ✓ Establish public and private charging units. Increase grid capacity to cope with high loads.
- ✓ Improve current vehicles. Substitute obsolete cars.

Current energy policy and measures/Major difficulties and bottlenecks currently faced in formulating energy policies

Current Energy Policy

- LARGE BOO RE (wind and Solar)
- Small and Medium RE (Net metering and self-consumption)
- Cogeneration
- NREA Projects (telecommunication Regulations)
- Waste to Energy Prime Minister declaration
- EVs declaration and Regulatory Framework
- Green Hydrogen Strategy

Bottlenecks

- Energy Security:
- Environmental Sustainability:
- Affordability:

Expectations

• It is of great importance to benefit from several topics, especially on how to

✓plan energy policies based on energy supply and demand projections

✓ energy balances. go through the planning

✓ implementation of energy transitions toward decarbonization

✓establish comprehensive energy policy and supply-demand forecasting.

So, the main goal is to understand how to

➢create attractive policies for sustainable investment projects, c

➢create balancing regulations serving both supply and demand

➢Clearly understand the challenges and opportunities of the transition phase,

➢ Set an action plan depending on the technological policies' evolution.

Thank You