Presentation
By
Syed Safeer Hussain

National Electric Power Regulatory Authority (NEPRA)

Pakistan

Scheme of Presentation

- Country Introduction
- Introduction to Power Sector of Pakistan
- Power Sector Regulations in Pakistan
- Pakistan Power Sector Profile
- Cross Border Electricity Trade

Country Introduction

- Pakistan is situated in South Asia
- Total Area: 796,095 km2
- Population: 200 Million
- Bordered with:
  - India (East)
  - Afghanistan (West)
  - Iran (South West)
  - China (North East)
- Coastal Line: 1046 Km along Arabian Sea

HISTORY OF POWER SECTOR

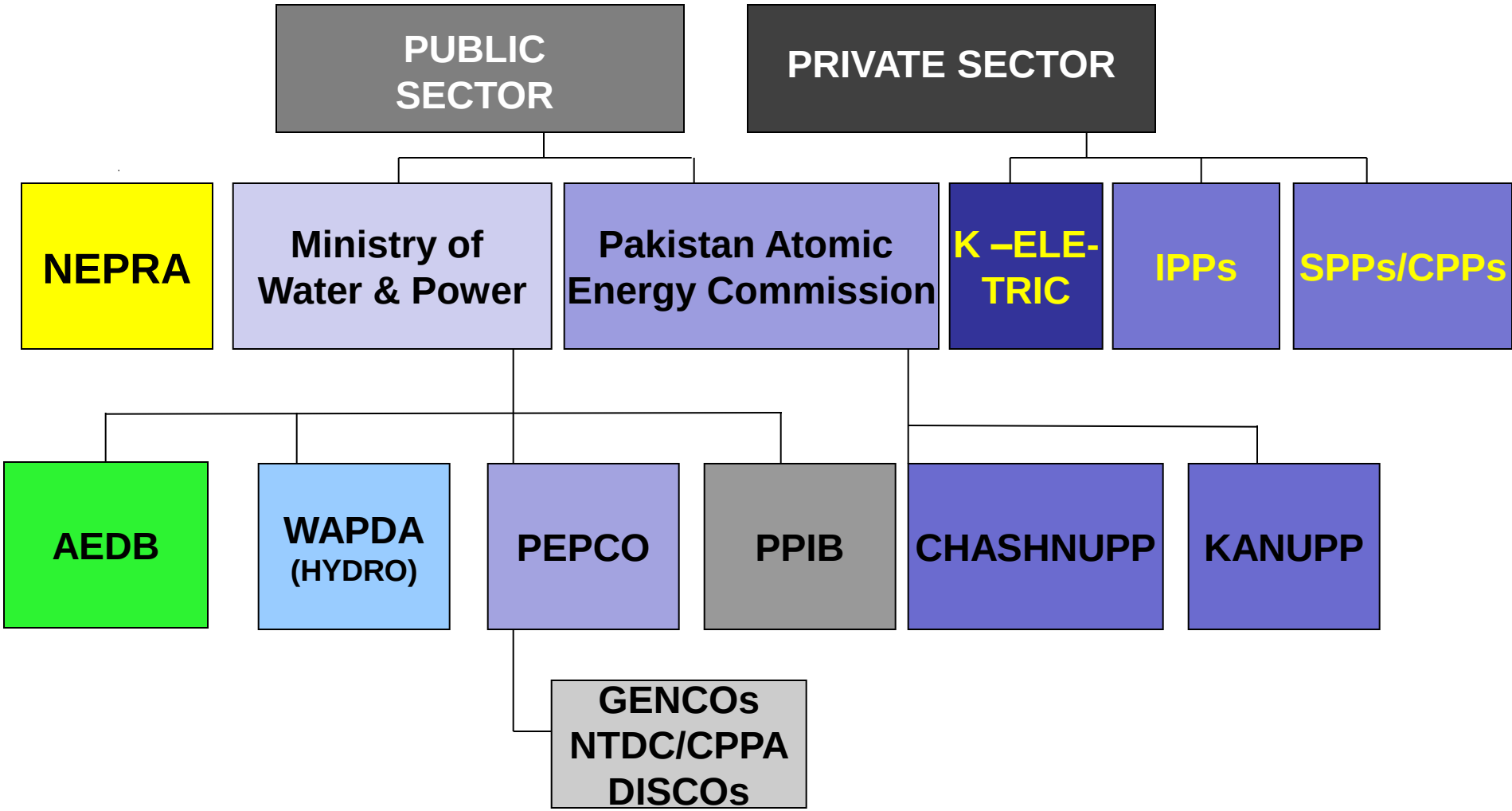
- **1947-1958** - Localised generation and distribution of power.

- **1958-1998** - Centralised public sector vertically integrated utility named Water & Power Development Authority (WAPDA).

- **1992** - Strategic Plan formulated for corporatisation and privatisation of WAPDA.

- **1997-1998** - Strategic Plan launched & induction of Regulator.

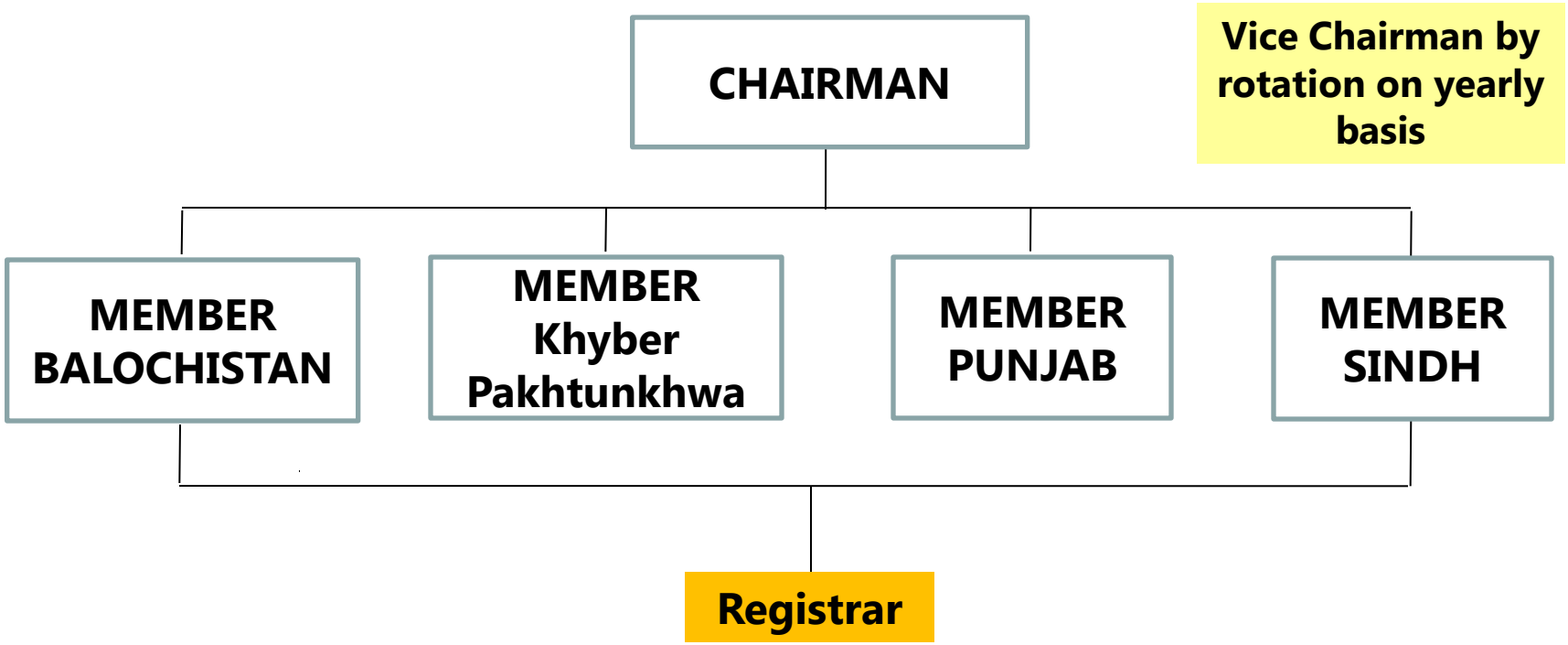
POWER SECTOR PLAYERS IN PAKISTAN



Power Sector Regulations in Pakistan

- NEPRA established as sole regulator of power sector in Pakistan through promulgation of the Regulation of Generation, Transmission and Distribution of Electric Power, Act No. XL of 1997 on 16th December, 1997 (i.e. NEPRA Act).

ORGANOGRAM


CHAIRMAN
Vice Chairman by rotation on yearly basis
MEMBER BALOCHISTAN
MEMBER Khyber Pakhtunkhwa
MEMBER PUNJAB
MEMBER SINDH
Registrar

ROLE AND FUNCTIONS OF NEPRA

- NEPRA was established under an Act of Parliament in 1997.
- Its main responsibility and objectives are:
  - Regulation of Generation, Transmission and Distribution of electric power.
  - Promotion of competition in the electricity industry.
  - Protection of the rights of consumers as well as producers and sellers of electricity.
- It is presently the sole regulator of power sector in Pakistan.

HIERARCHY OF LEGAL INSTRUMENTS GUIDING NEPRA

- **NEPRA Act**
- **NEPRA Rules**
- **NEPRA Regulations and Guidelines**
- **NEPRA Guidelines**

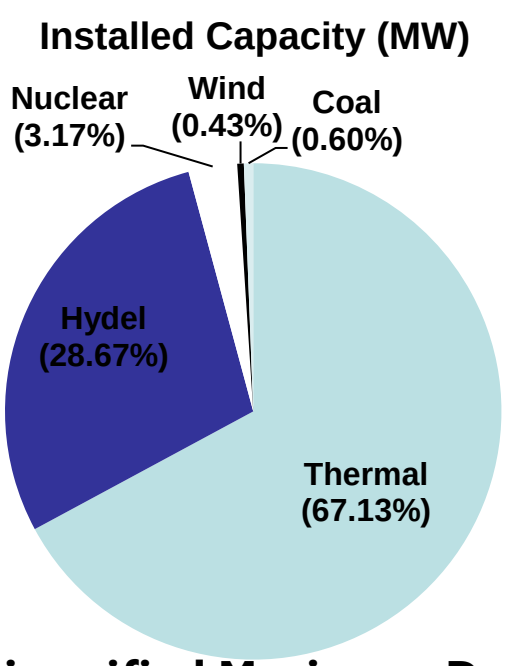
Cross Border Trade

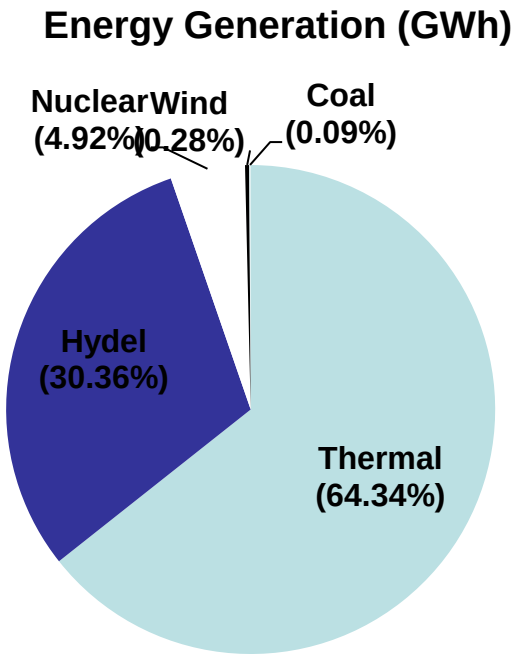
- Pakistan is currently importer of electricity.
- NEPRA has framed Import of Power Regulations to provide Regulatory framework for import of power from territories outside Pakistan.

Profile of Power Sector in Pakistan

INSTALLED CAPACITY AND ENERGY GENERATION

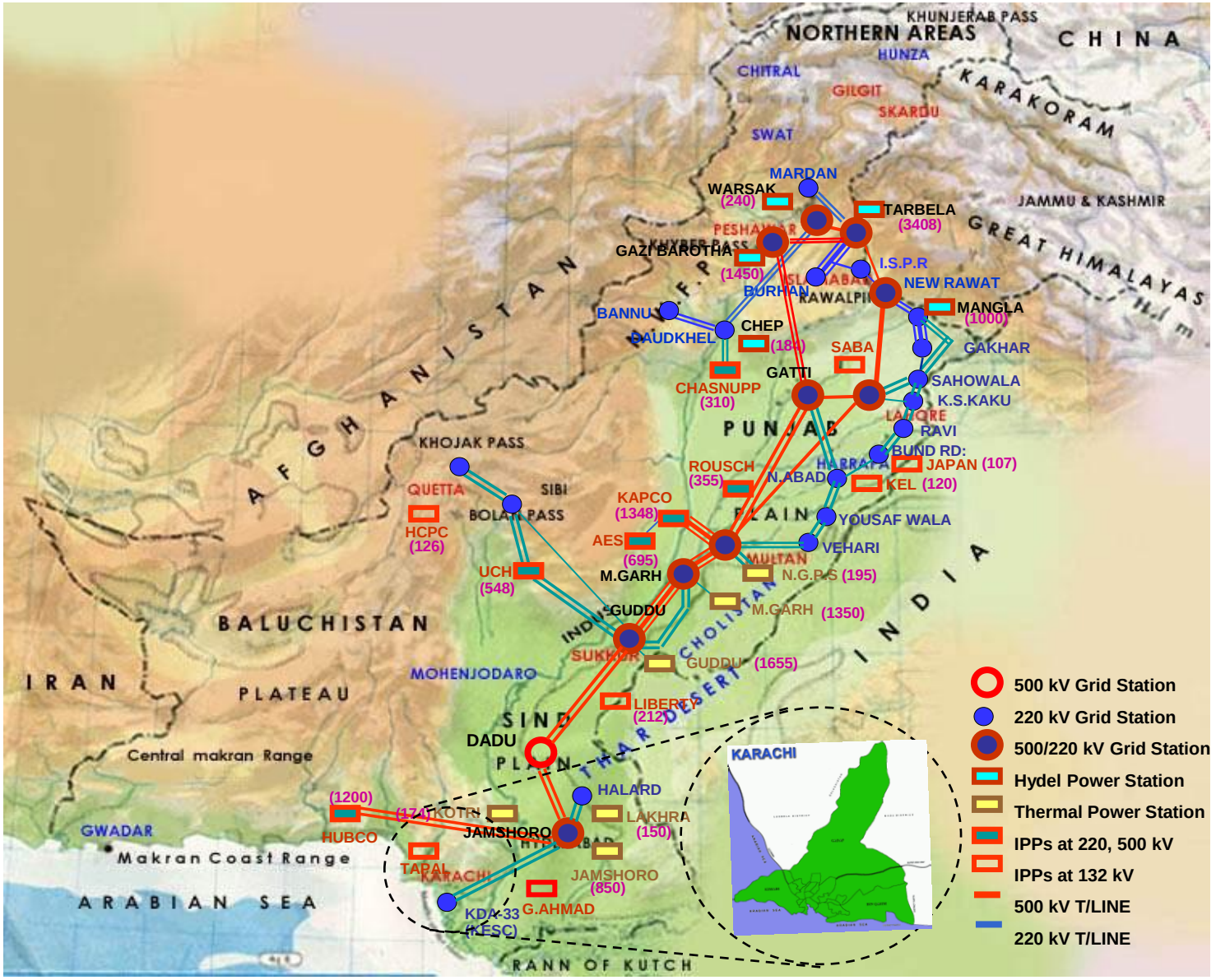
Source	Installed Capacity (MW)	%	Energy Generation (GWh)	%
Thermal	16,664	67.13	69,886	64.34
Hydel	7,116	28.67	32,979	30.36
Nuclear	787	3.17	5,349	4.92
Wind	106	0.43	300	0.28
Coal	150	0.60	102	0.09
TOTAL	**24,823**	**100.00**	**108,616**	**100.00**





Diversified Maximum Demand of the Country = 23,551 MW

Generation & Transmission System



Power Distribution Companies

No. of Distribution Companies (DISCOs) in public sector	**10**
No. of Consumers of DISCOs	24.51 million
No. of private sector DISCOs	02
No. of Consumers of Public sector DISCOs	2.25 million
Distribution Licenses granted to small power producers	10

ELECTRICITY DEMAND

- Peak Demand 19,529 MW
- Average Demand 20,554 MW
- Peak Shortfall 3,819 MW
- Average Shortfall 3,949 MW
- Projected Demand Growth 10% Annually

Power ≈Resources

- Hydro Power Potential ≈ 60,000 MW
- Coal Power Potential (Thar Coal) ≈ 100,000 MW **for 30 Years**
- Wind Power Potential ≈ 20,000 MW
- Solar Power Potential ≈ 1600 GW
- Average Wind Speed of Identified Wind Corridor 7 m/Sec
- Annual Average Solar Irradiation (South Region) **5.5-6.2 Kwh/Sqr**
- Annual Average Solar Irradiation (North Region) **4.7-5.4 Kwh/Sqr**

Cross Border Electricity Trade

Cross Border Electricity Trade

- On-going import of power (84 MW) from Iran.
- CASA-1000 Transmission Project for import of 1300 MW power from Kyrgyz Republic and Tajikistan is in advance stage.
- Future electricity exchange with India.
- Exchange of Energy through other options i.e. Gas pipeline projects.
- TAPI is a natural gas pipeline project. The pipeline will transport Caspian Sea natural gas from Turkmenistan through Afghanistan into Pakistan.

THANK YOU.