



THE ELECTRIC POWER SYSTEM

ISLAMIC REPUBLIC OF IRAN





Key Data of Iran in 2017

- ❑ Area: 1,648,195 km²
- ❑ Population: 81,000,000 (Based on 2017 Census)
- ❑ Number of electricity consumers: 33.8 (Million)
- ❑ Number of Regional Electricity Companies: 16
- ❑ Number of DSOs: 42
- ❑ Peak load: 55,443 (MW), in 2017

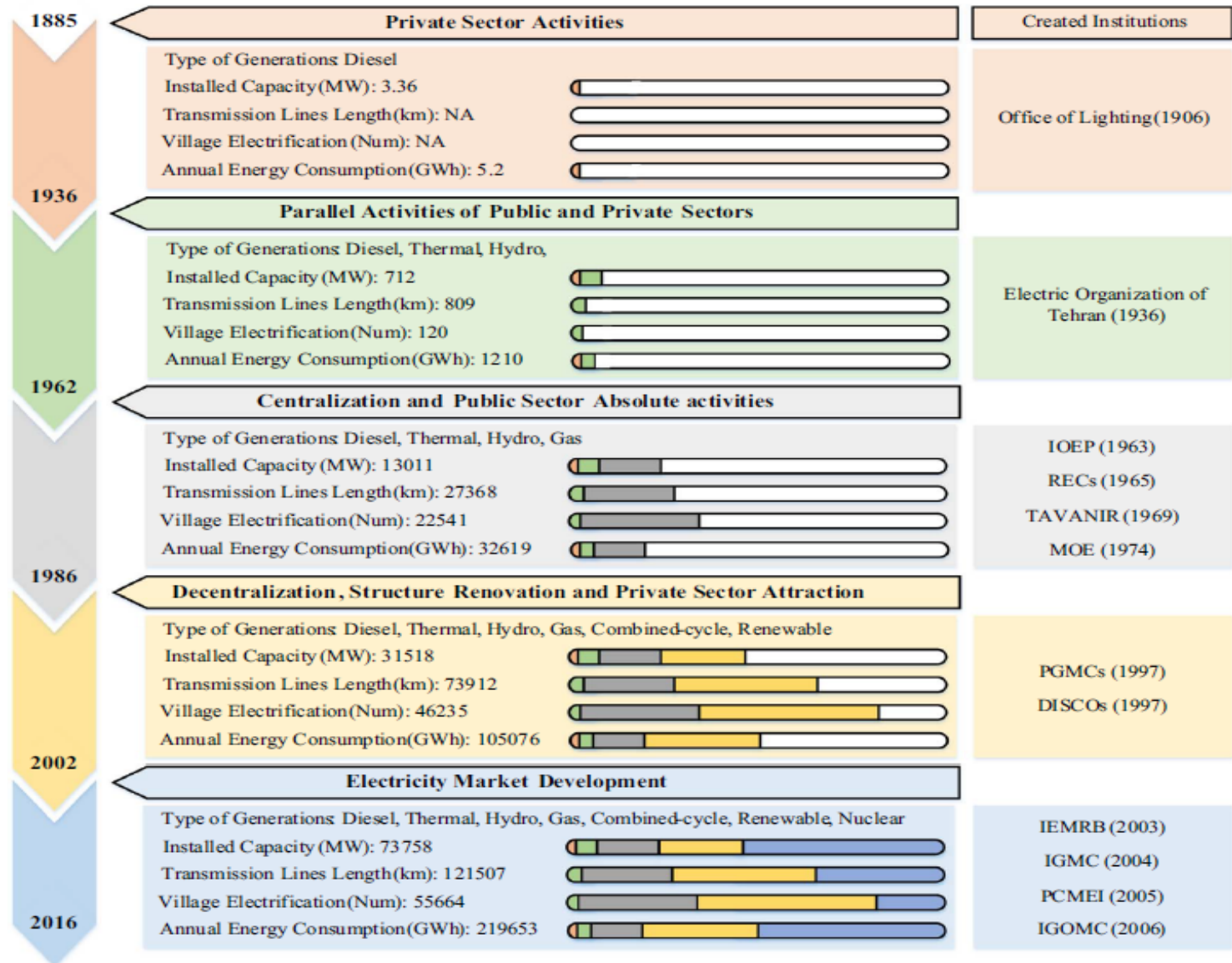


Power Balance in 2017

- ❑ Generation (TWh): 289
- ❑ Consumption (TWh): 237
- ❑ Imports (TWh): 4.2
- ❑ Exports (TWh): 6.7
- ❑ Losses (TWh): 52

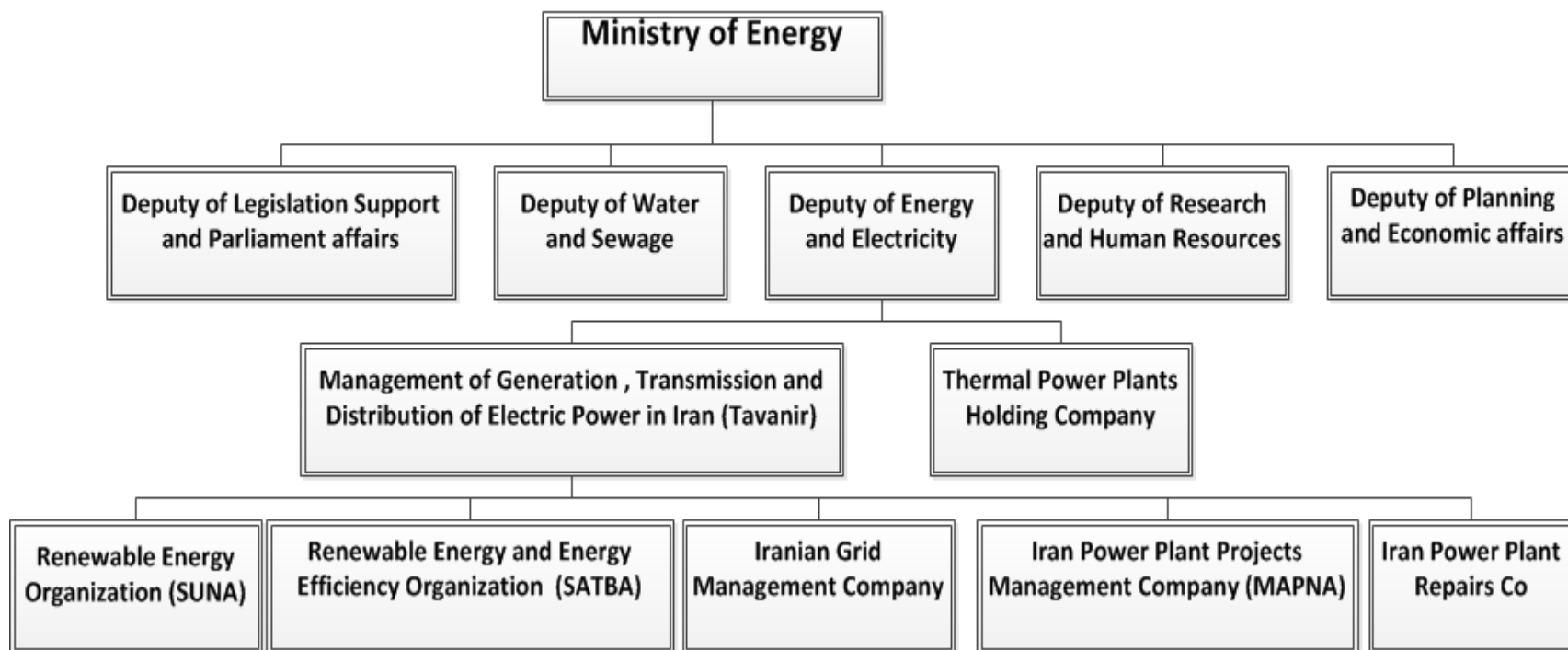


Grid Facts and Characteristics





Power structure of the country





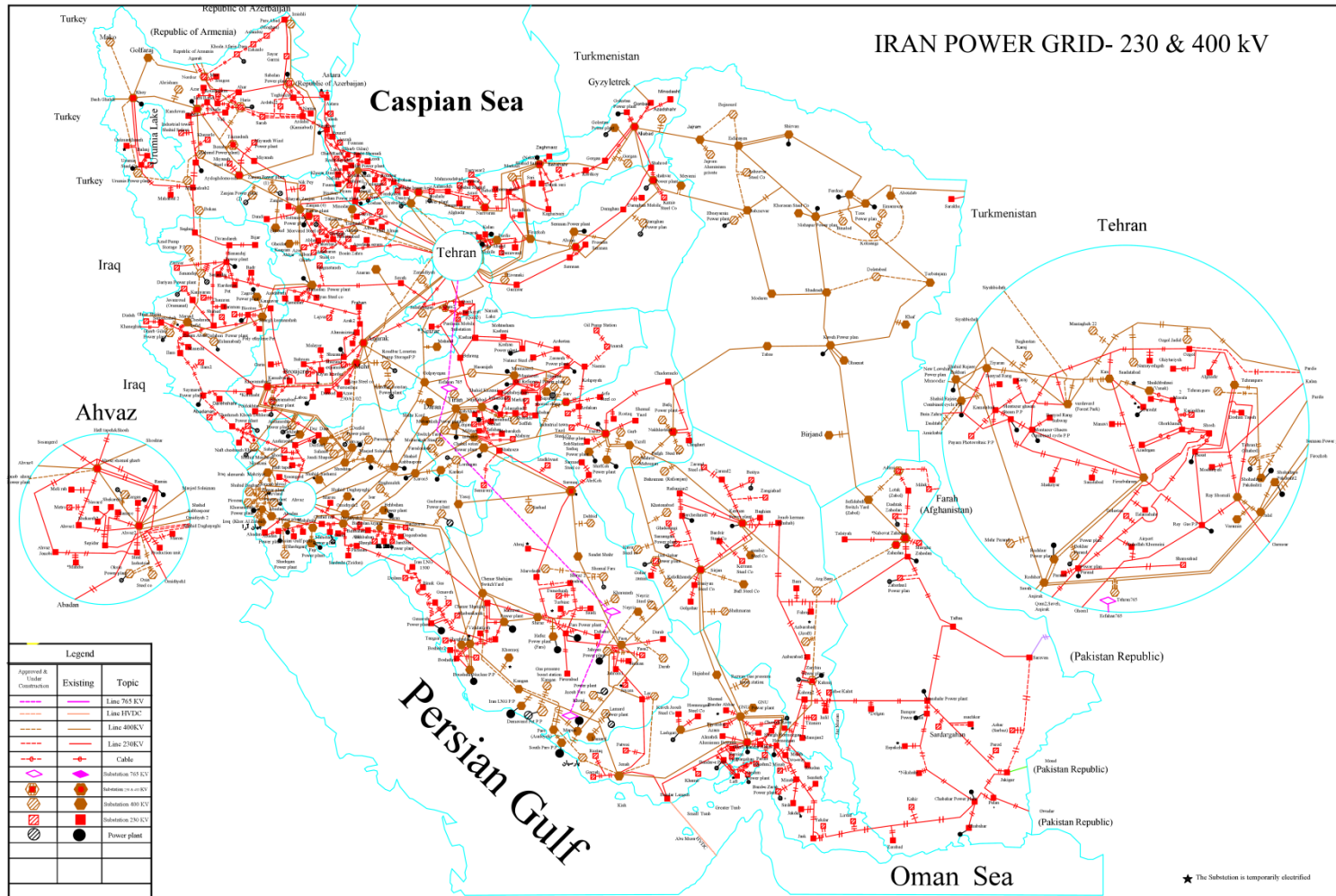
Structure of Electrical Power System

- ❑ The Transmission Sector is responsible for maintenance, operation and development of 400 kV & 230 kV transmission lines and substations as well as 132 kV , 66 kV and 63 kV sub-transmission lines

- ❑ 42 Distribution Companies are working as non-governmental Companies in the county.

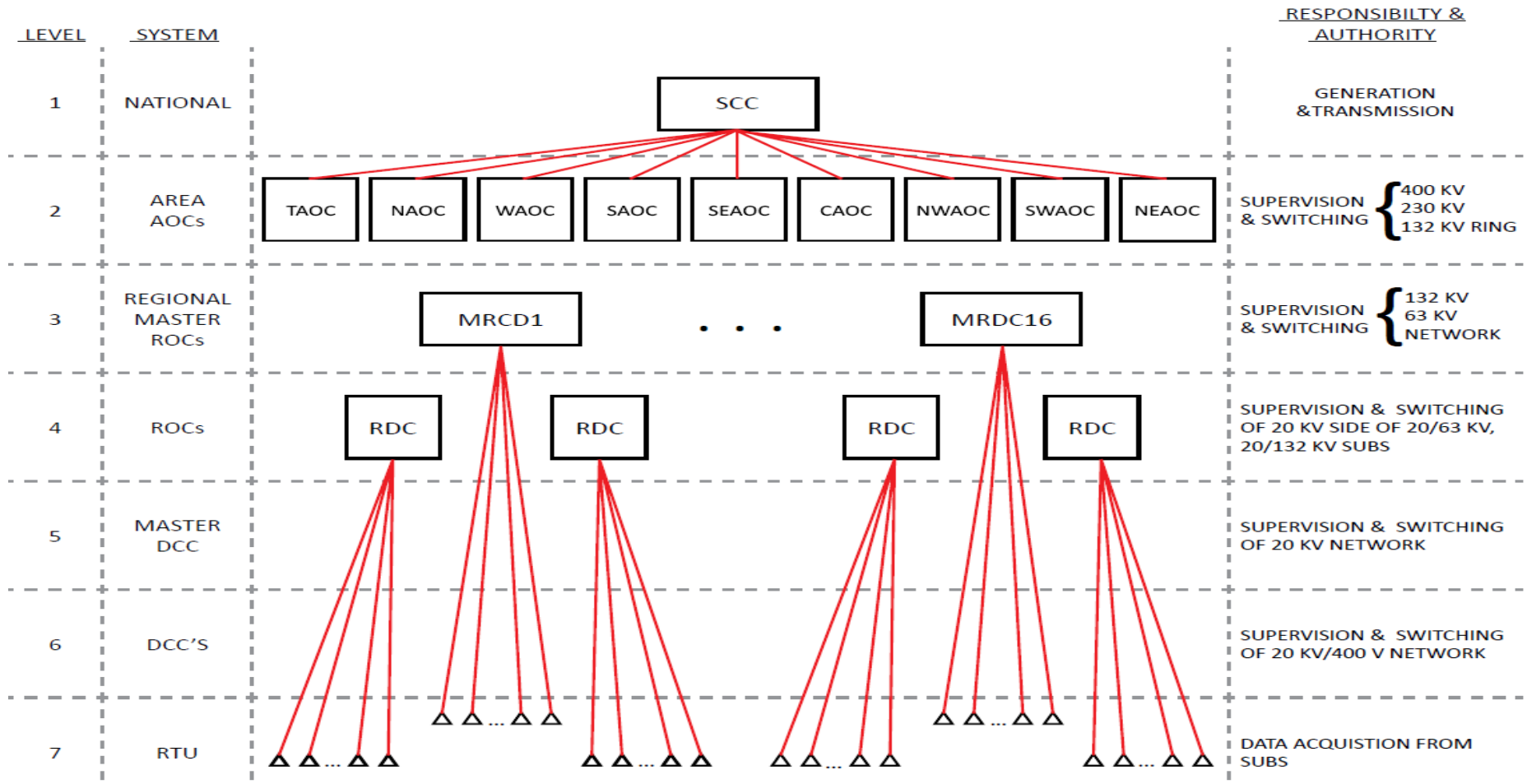
- ❑ The Distribution voltage level are 33 kV, 20 kV, 11 kV
- ❑ The voltage level of three phase consumer is 380 V.

Map of the High Voltage Grid (400 kV & 230 kV)





Hierarchy of Dispatching Centers in Iran



Regional Electricity Companies



Dispatching Centers

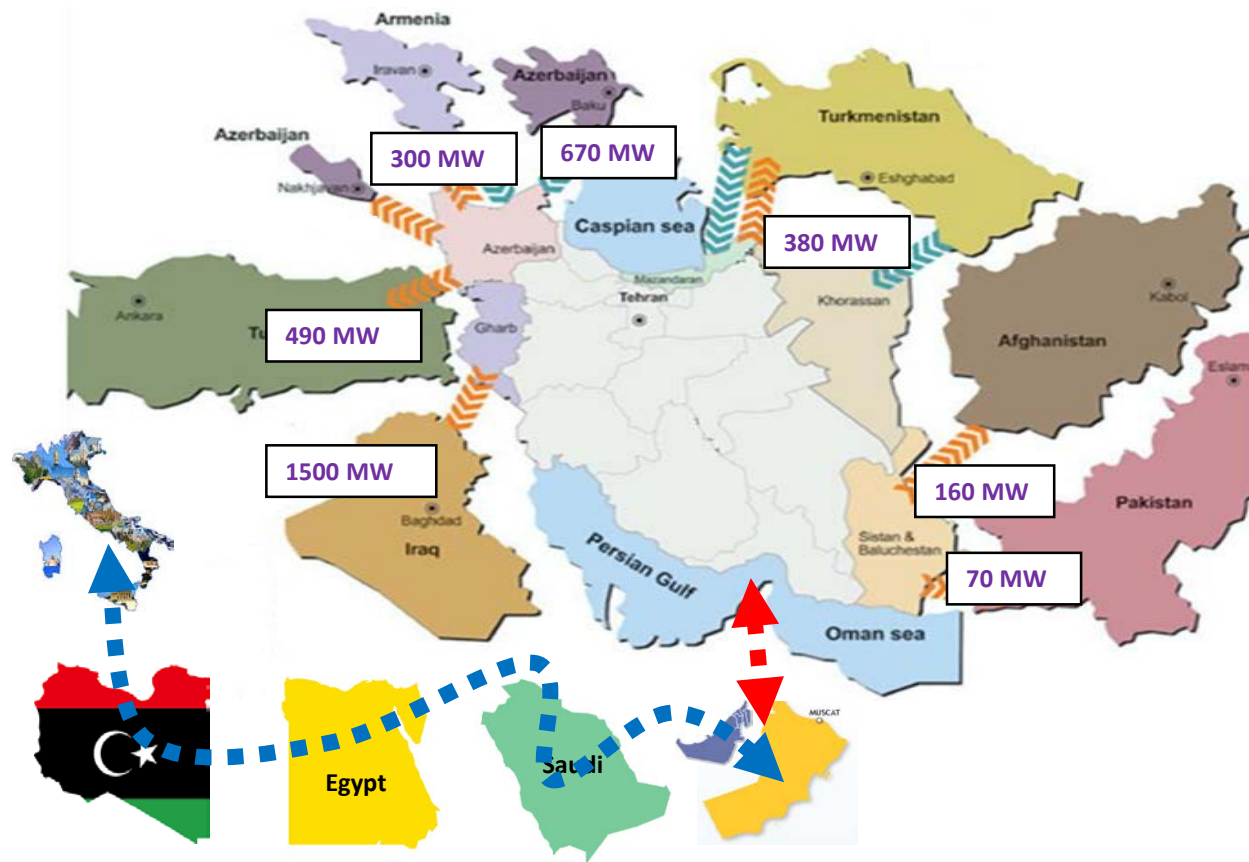




Global Map of the Grid and of Its Interconnections

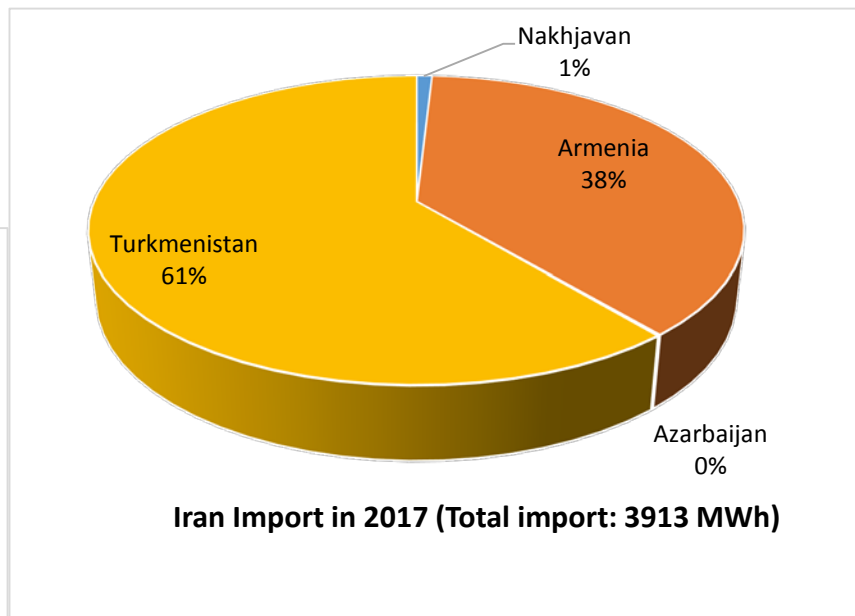
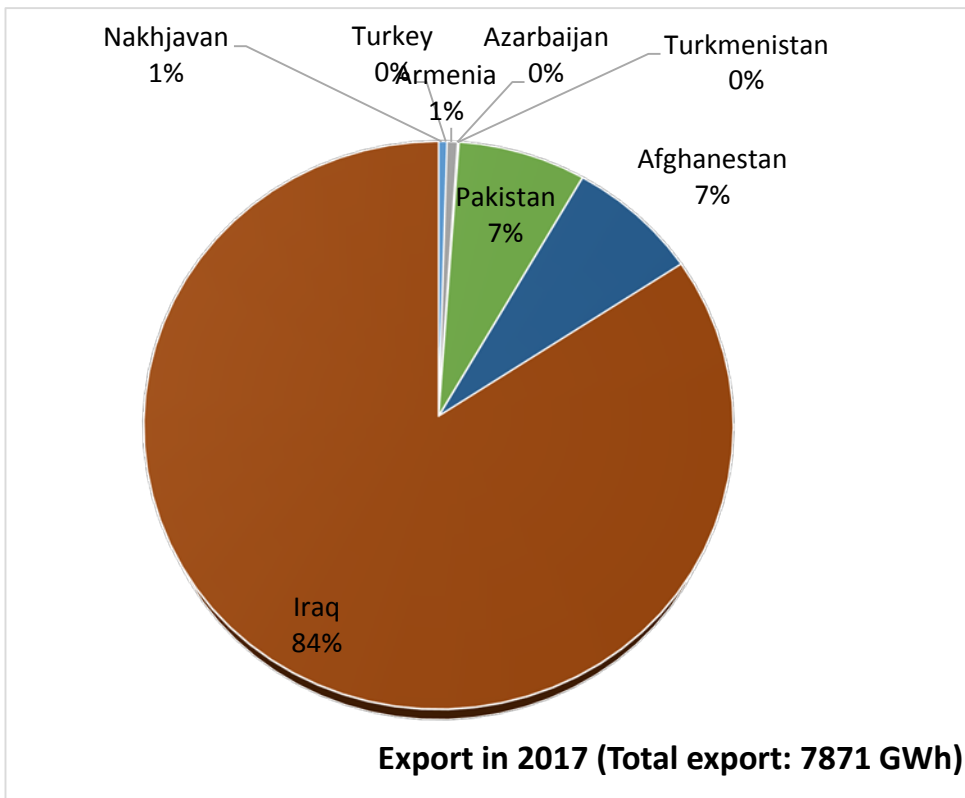
☐ Interconnection with:

- Turkey
- Azarbaijan
- Turkmenistan
- Armenia
- Iraq
- Afghanistan
- Pakistan
- Nakhjavan





Cross-Border Energy Exchanges in 2017

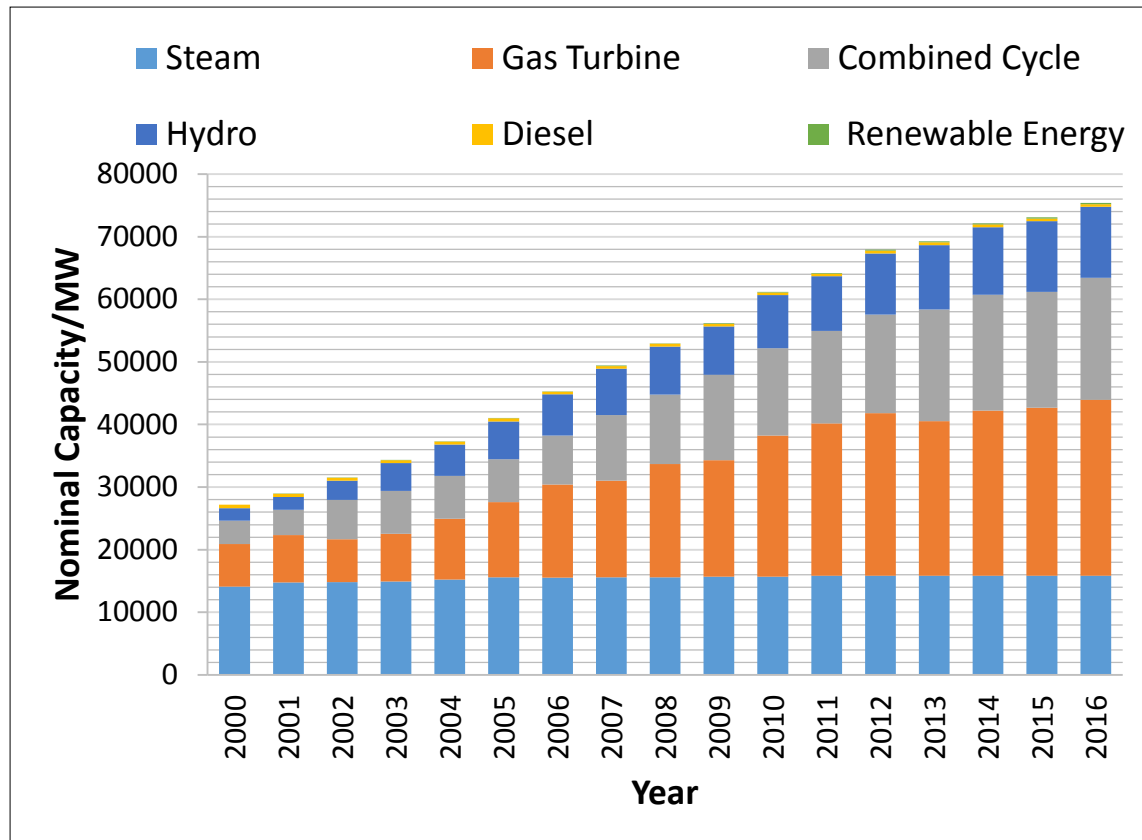




Installed Capacity with Reference to Primary Resources

☐ Installed operational capacities (MW), in 2017:

- Gas: 26,200
- Steam: 15,829
- Combined Cycle: 23,166
- Nuclear: 1,020
- Hydro power: 11,943
- Other Renewables: 333





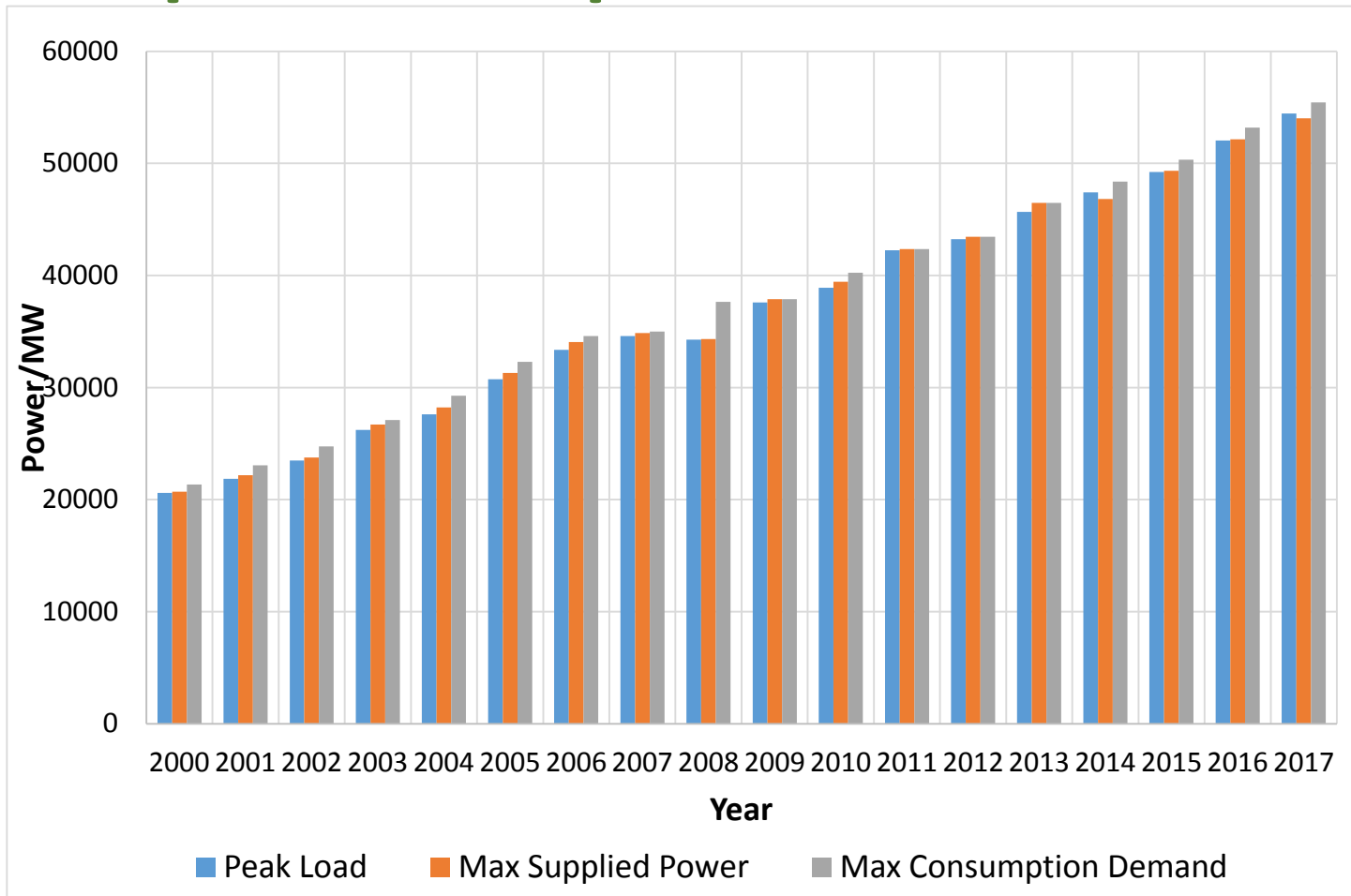
Energy Production with Reference to Primary Resources

□ Electricity generated (GWh), in 2017

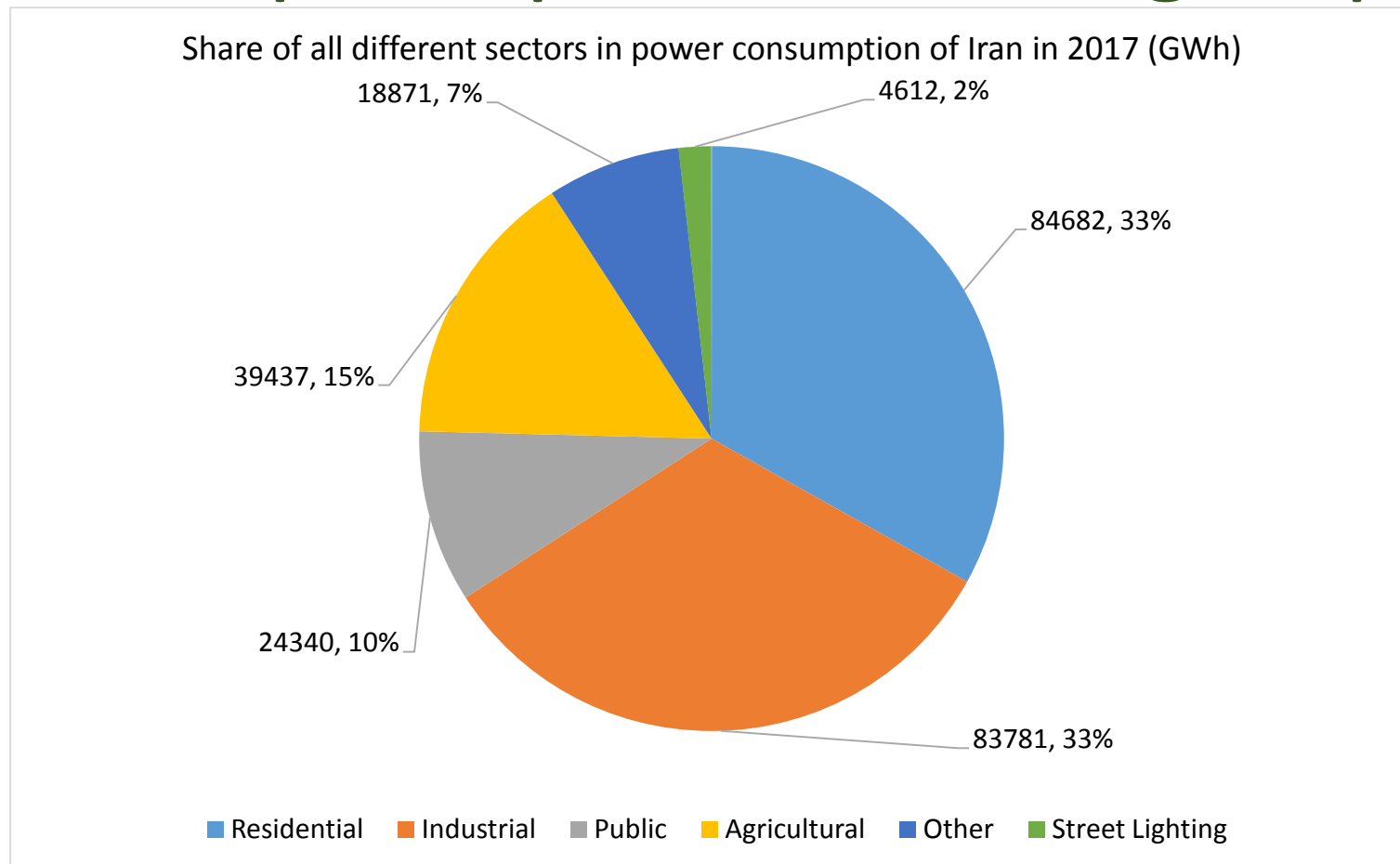
- Steam: 85,092
- Gas: 76,053
- Hydro Power: 16,417
- Nuclear and Renewables: 7,001
- Diesel: 24
- Combined Cycle: 103,859



Peak load, maximum supplied power and power demand

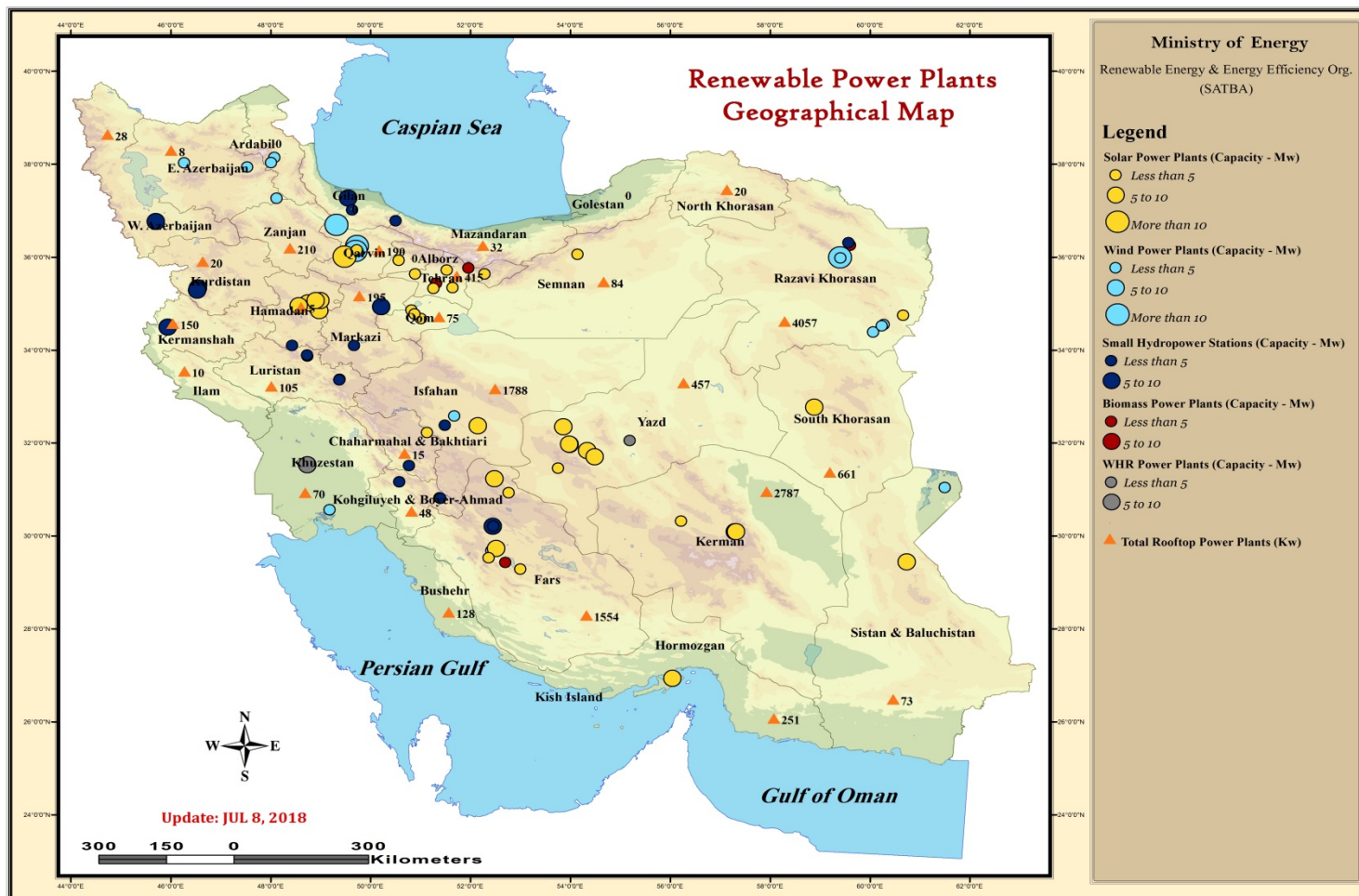


Consumption per customer groups



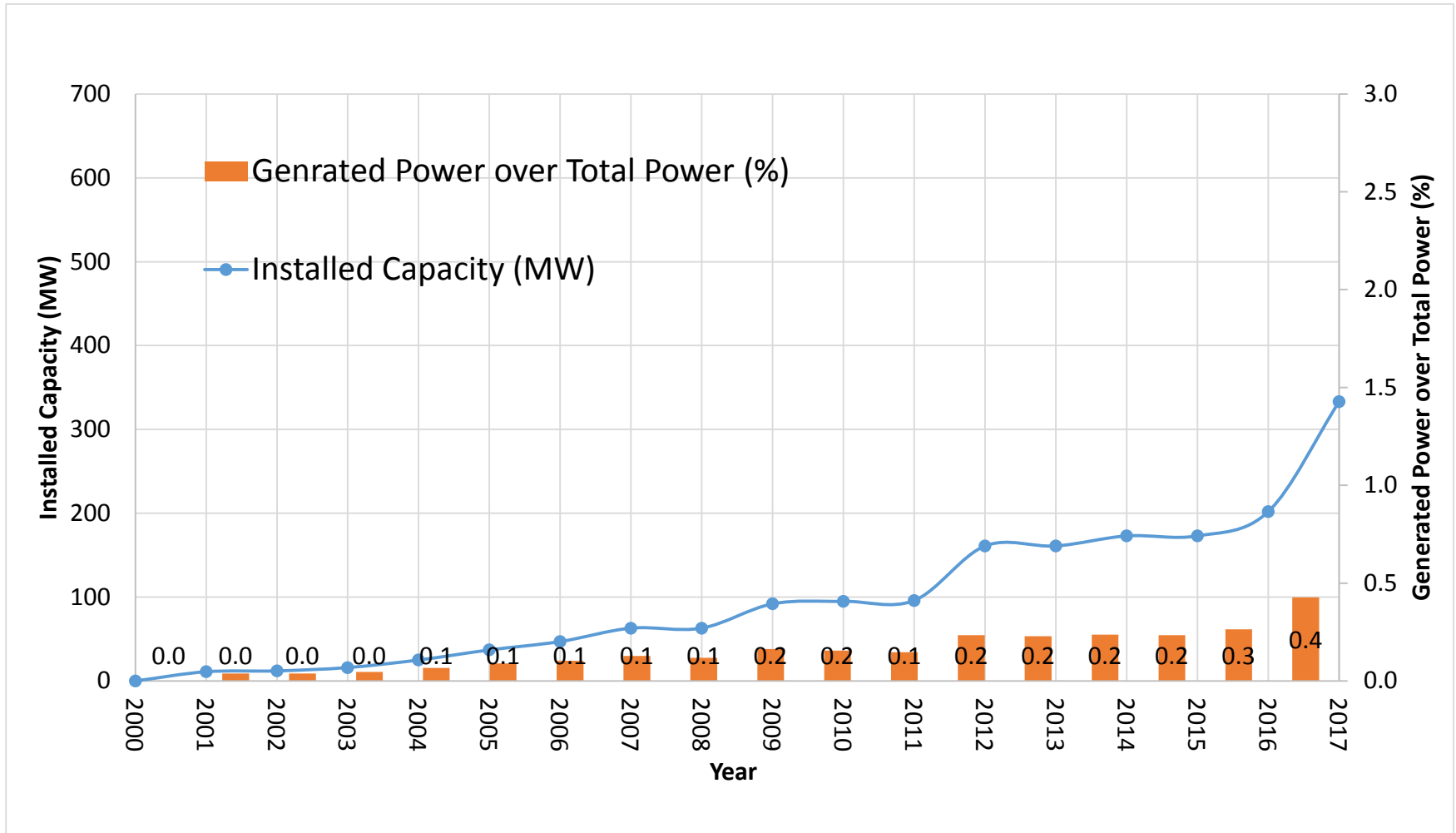


Location of Renewable Energy Sources





Development of Renewable Energy



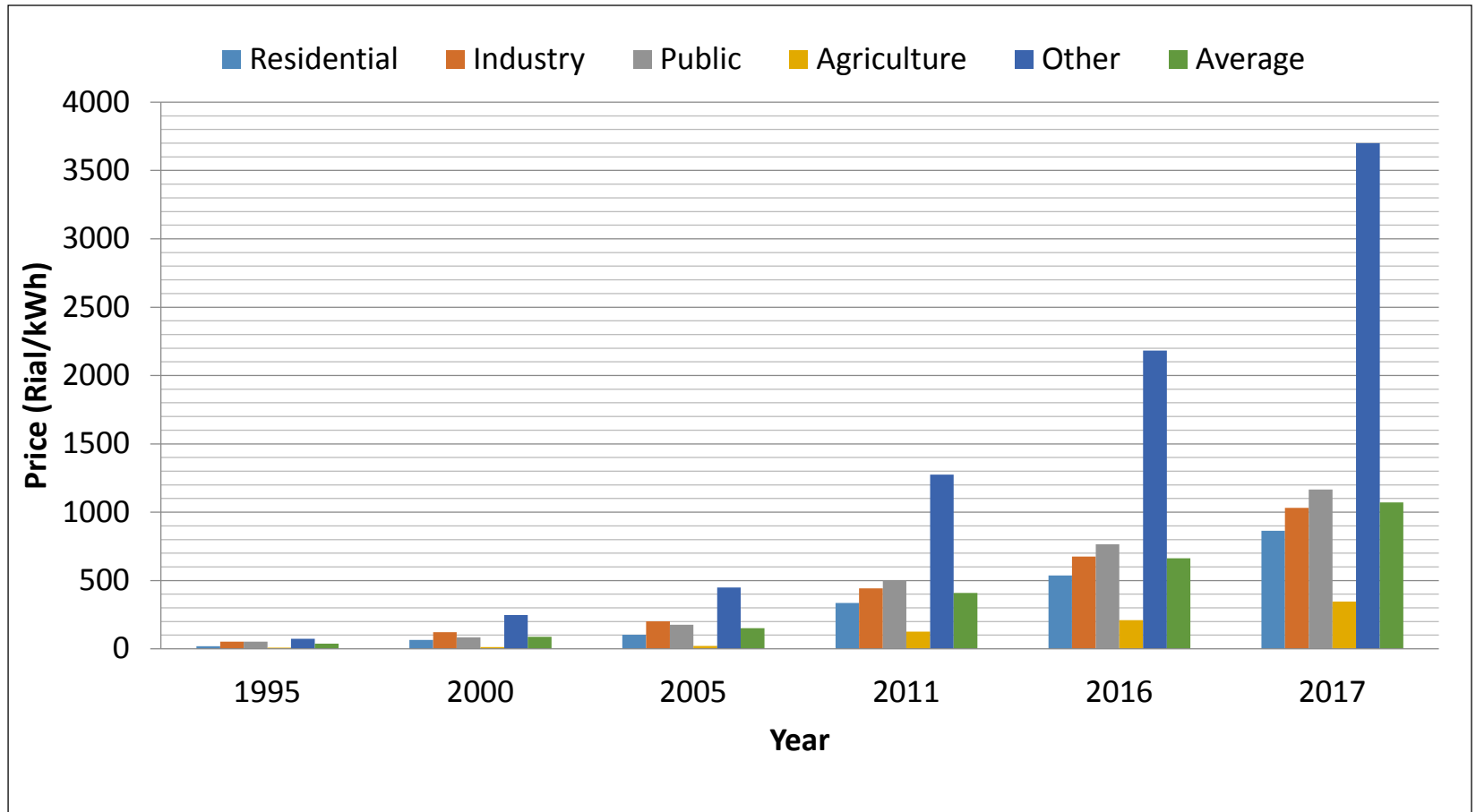


RES installed capacity and production since 2016 to 2017

	Wind	Solar	Small Hydro (<10 MW)	Other (biomass, landfill,...)	Total
Installed Capacity- MW(until 2017)	150.7	148.5	13.6	20.2	333
Generated Energy in 2017 (kWh)	180,413,491	110,059,118	67,277,474	68,373,596	426,123,679
Generated Energy in 2016 (kWh)	126,452,005	4,046,684	64,459,538	23,522,105	218,480,332

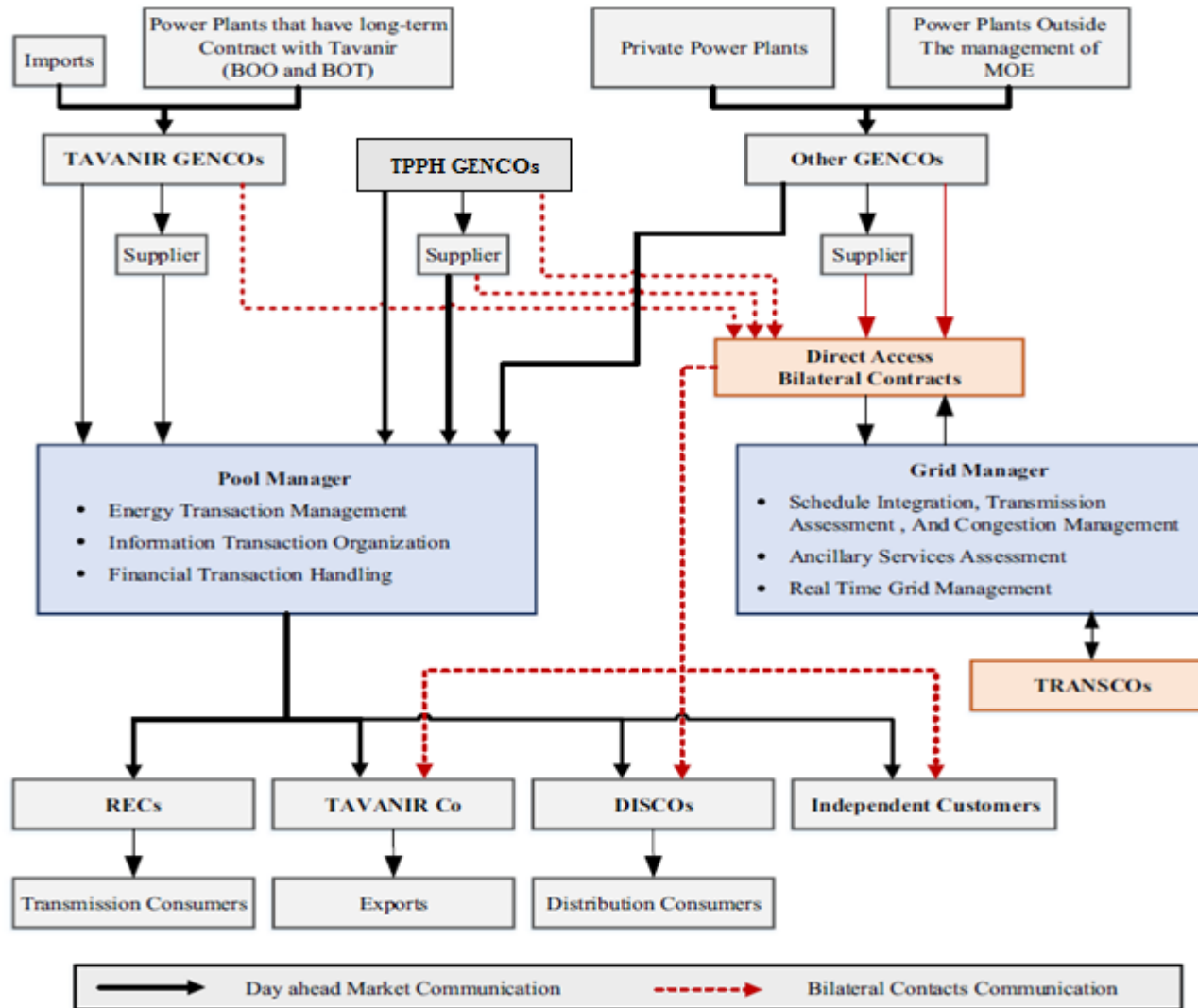


Price Development for All Consumers



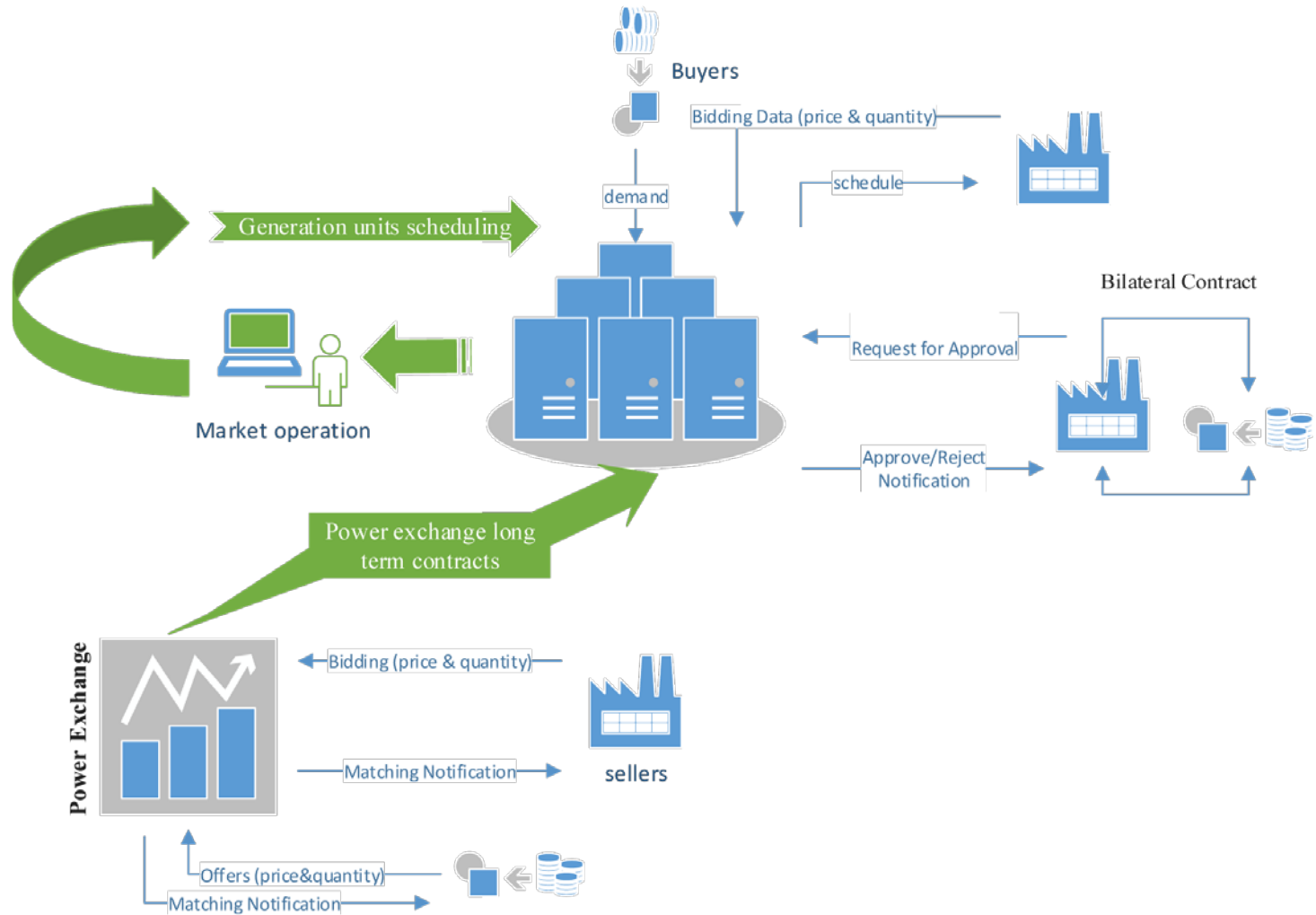


Electricity Market Organisation





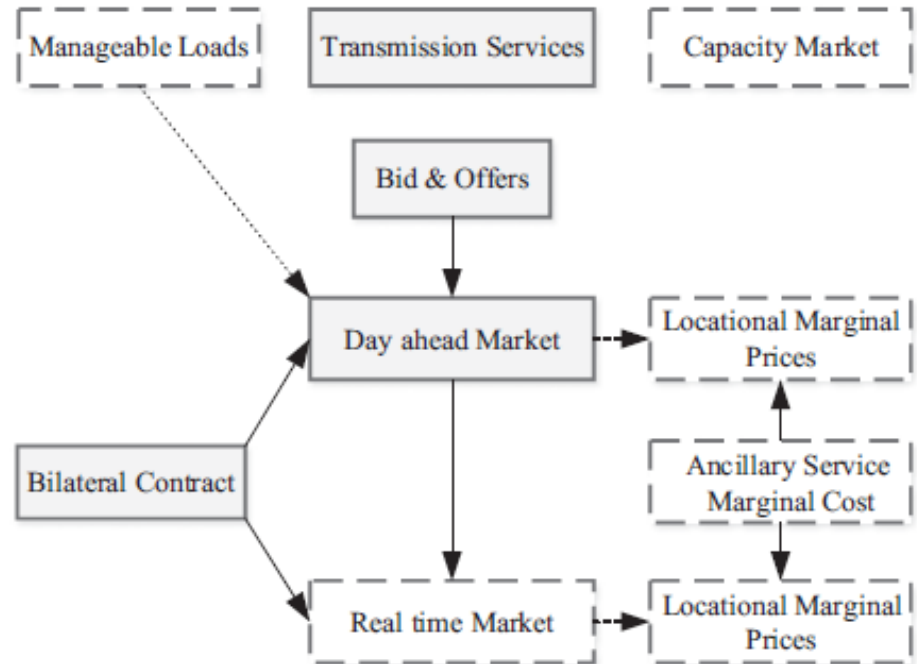
Electricity Trade Structure





Specific aspects of the electricity market

Iranian Electricity market model in comparison with standard market from the viewpoint of FERC (the dotted connections have not been established yet).



Thanks for Your Attention