

A Snapshot of the Turkish Power System

February 29, 2024, Ljubljana / Slovenia

Erkan ALAN



South East European
Regional Council

- **Türkiye's Electricity at Glance**
 - **Current Capacity**
 - **Current Generation**
 - **Solar and Wind**
- **Future Grid**
- **National Energy Action Plan**
 - **Capacity**
 - **Generation**
 - **Consumption**
 - **Flexibility**
- **Energy Efficiency Plan**
- **Regional Integration**

72,616 KM transmission line*

72,000.04 KM OHL

589 KM Cable

16 KM Submarine Cable

11 Interconenction Lines

1406 Substations*

794 Substations owned by TEIAS

106,7 GW

Generation Capacity

~ 326.3 TWh

Total Generated Electricity*

*Gross and Temporary Values.

~ 328.98TWh*

Total Consumed Electricity Amount *

* Gross and Temporary Values.

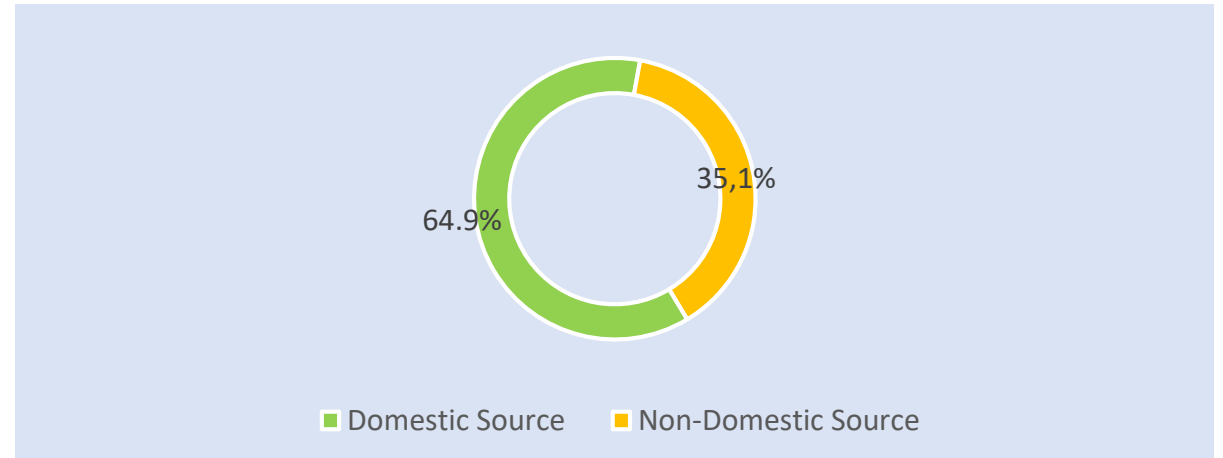
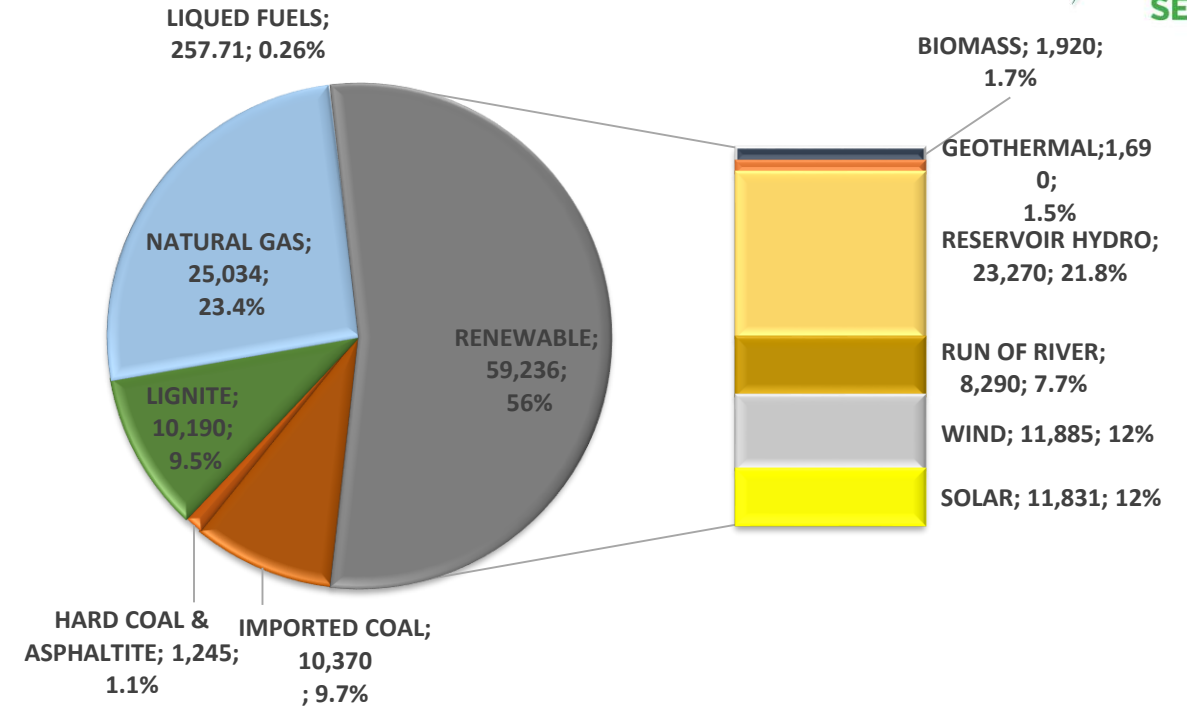
~ 59 GW

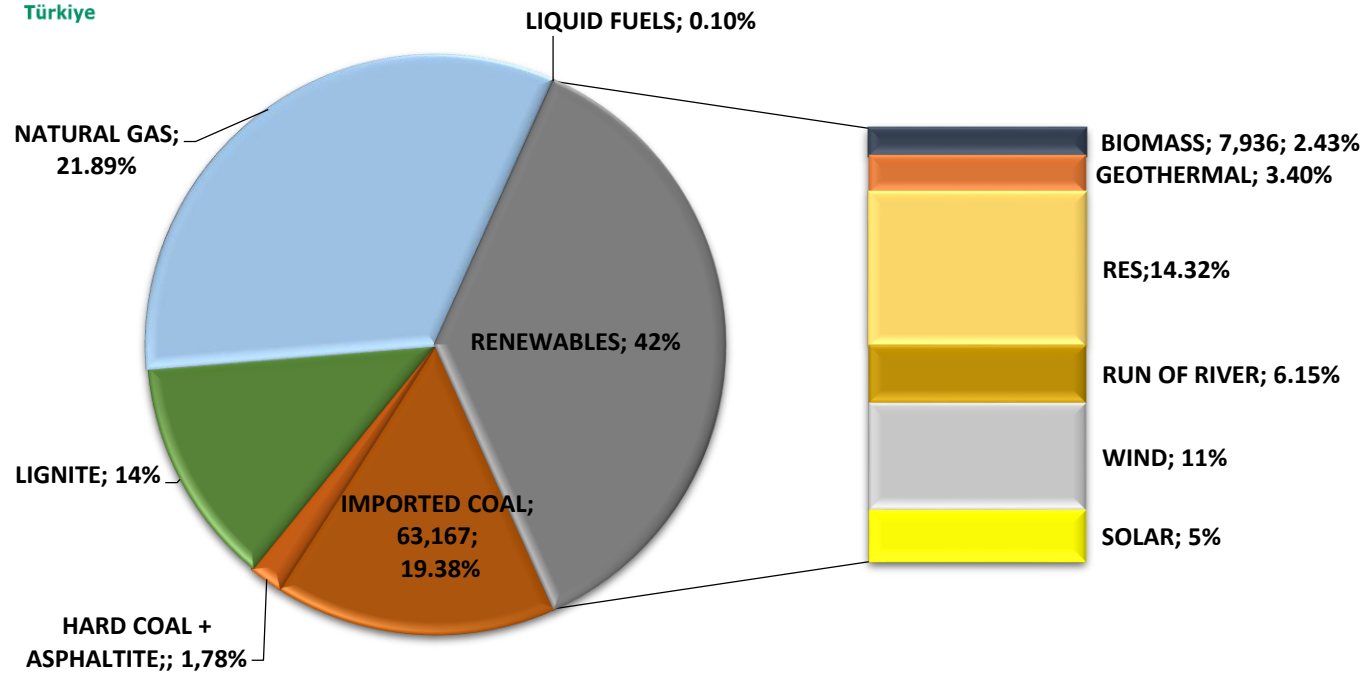
Peak Load

*As of end of 2022

Capacity

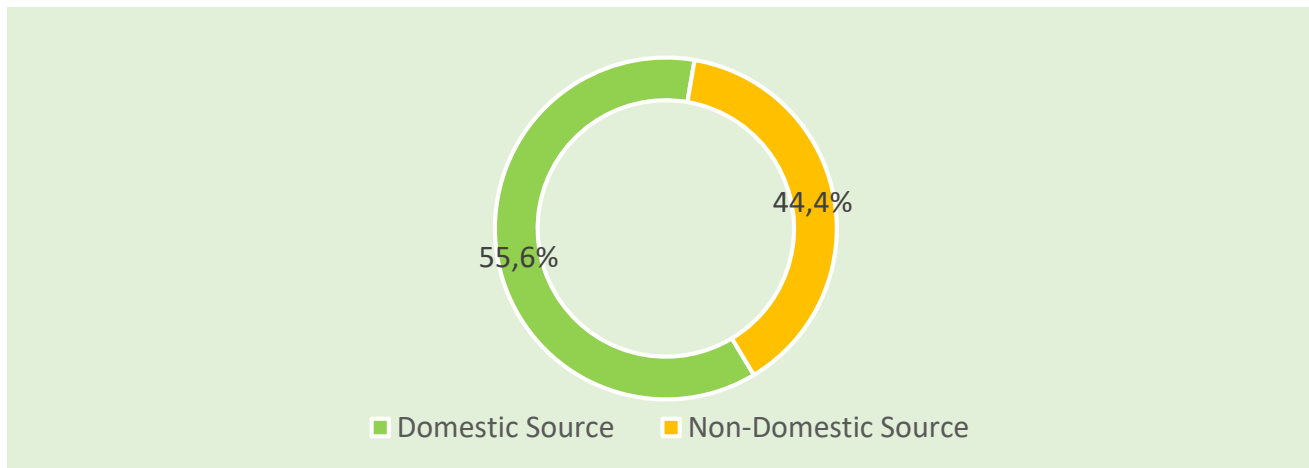
- Total Capacity: 106.668 MW
- Renewables: 56%
- Solar+Wind: 24%
- 2023: + 2.834 MW
Renewables: 99.5%



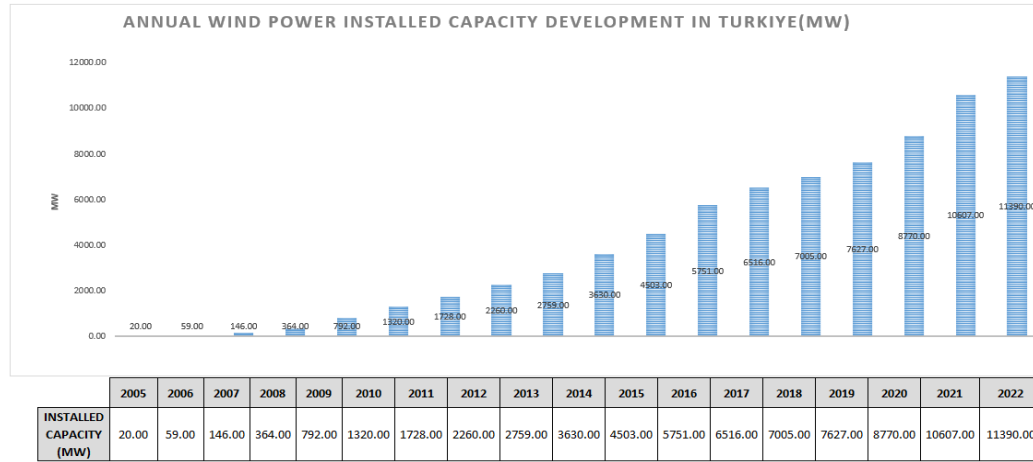


Generation

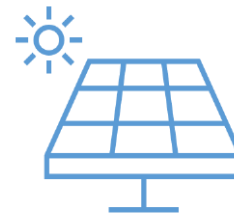
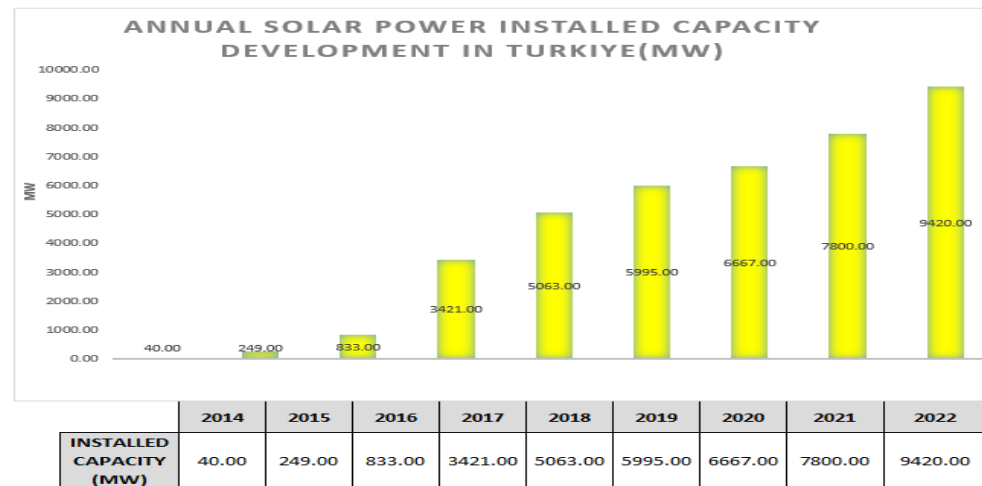
- Total Generation: 326,3 TWh
- Renewable: 42%
- Solar+Wind:16%
- Gas+Coal: 58%



Wind and Solar in Türkiye



**11.885
MW**



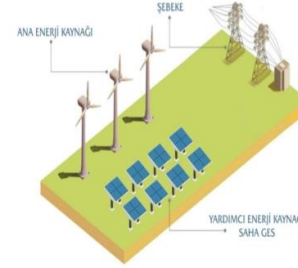
**11.831
MW**

- Special Support For Wind and Solar (YEKA)
- Domestic Technology
- Special Zones
- «No Tax» up to 5 MW

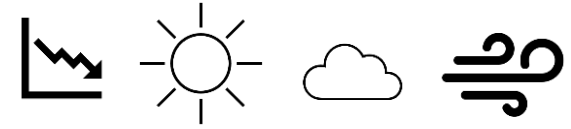
FUTURE GRID



Advanced Wind and PV
Monitoring and Forecast
Needs



Hybrid Power Plants



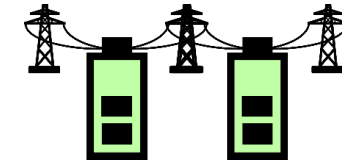
Higher Flexibility Needs
& Stability Concerns



Digitalising The System
Smart Demand Technologies



Electrical Vehicles



Battery Storage and
Pumped Storage

- Capacity
- Generation
- Consumption
- Flexibility
- Efficiency

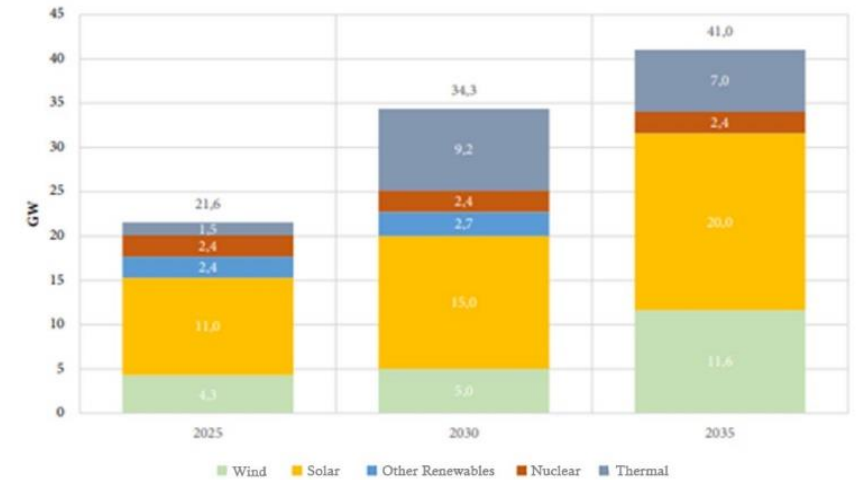
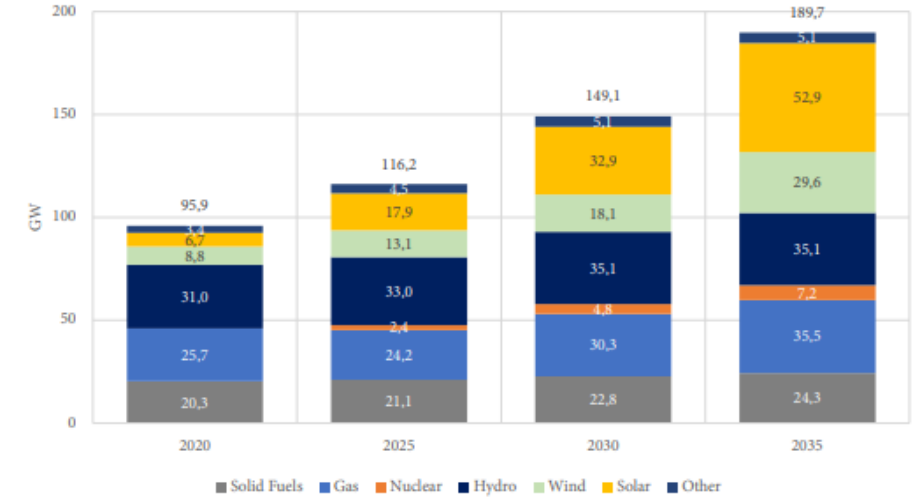


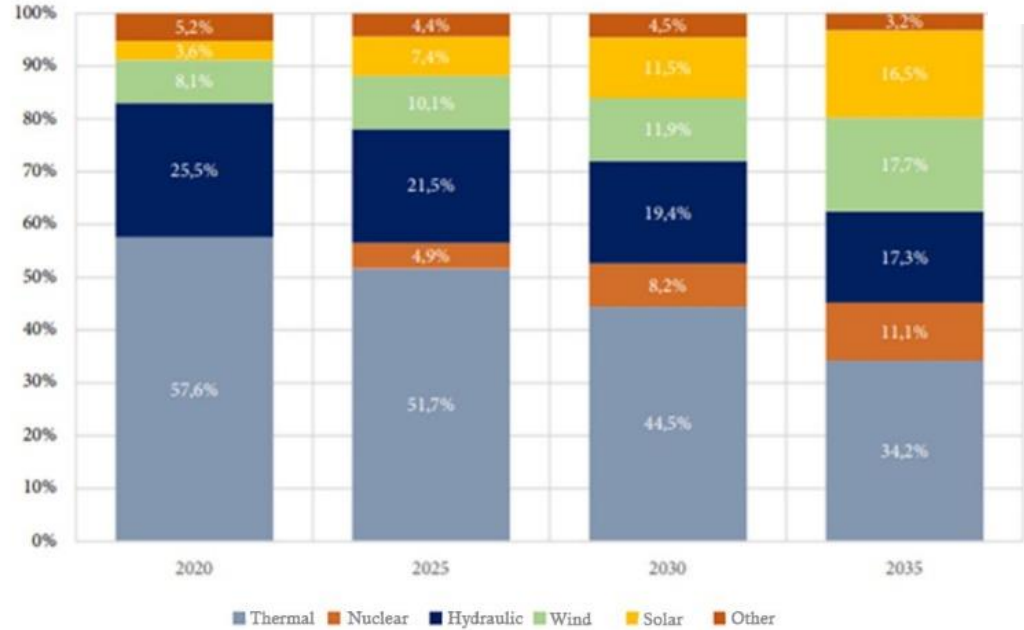
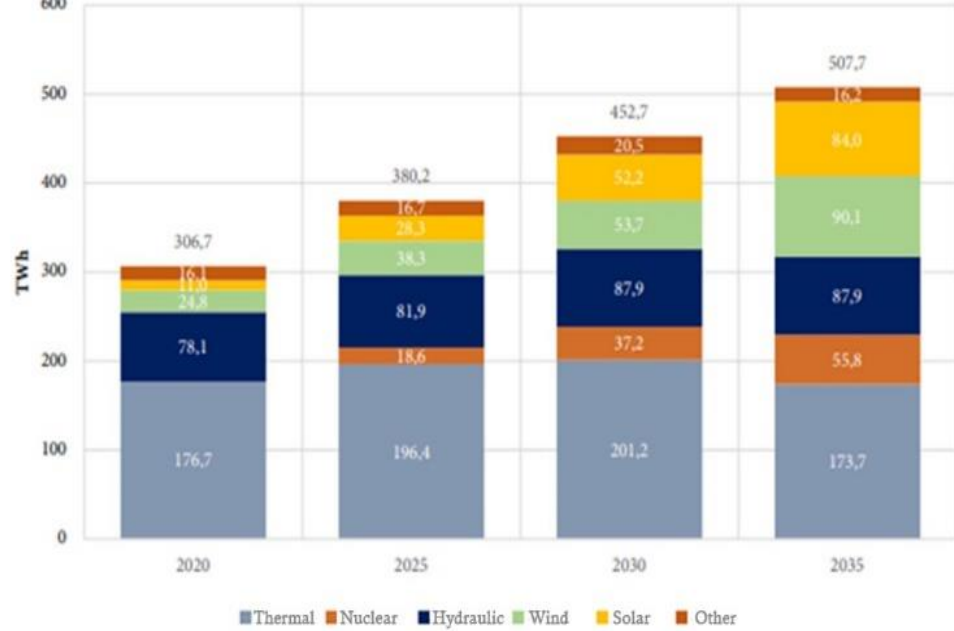
**REPUBLIC OF TÜRKİYE
MINISTRY OF ENERGY AND
NATURAL RESOURCES**

TÜRKİYE NATIONAL ENERGY PLAN

Capacity

- Solar will be doubled in 2030, and tripled in 2035.
- Wind will be doubled in 2035.
- Solar+Wind: 31,6 GW
- Nuclear as a new player
 - First NPP of Türkiye: Akkuyu
 - 4,8 GW (4 Reactors)



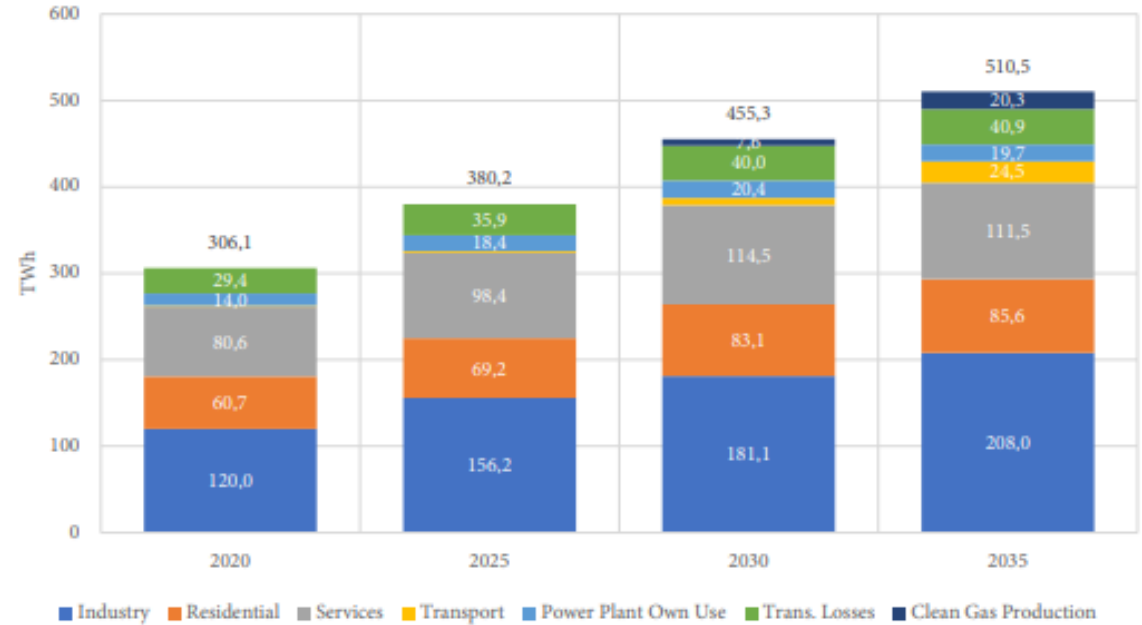
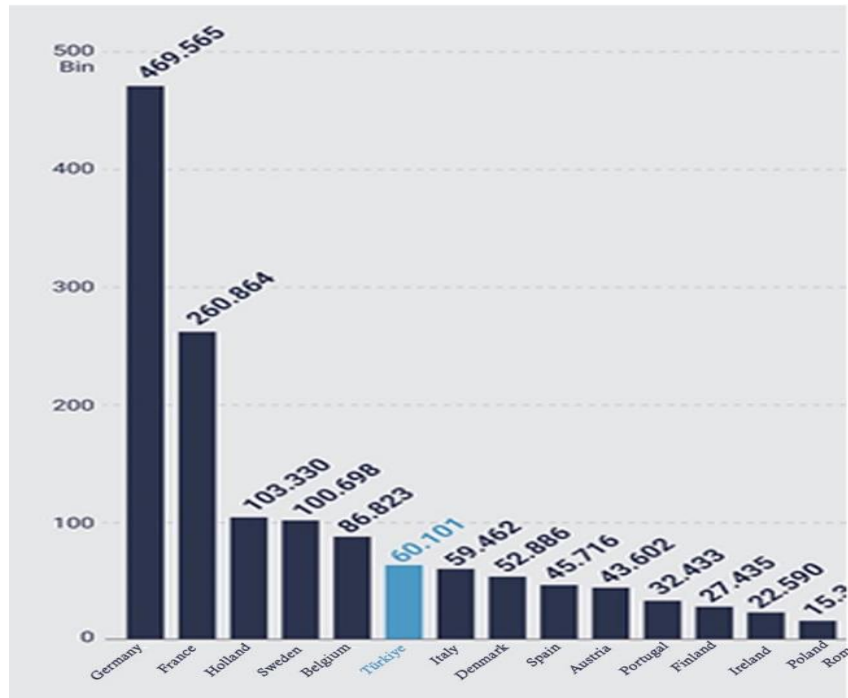


Generation

- Solar will be doubled in 2035.
- Wind will be doubled in 2035.
- Solar+Wind: 174,1 TWh
- Thermal: 173,7 TWh
- Nuclear full capacity.

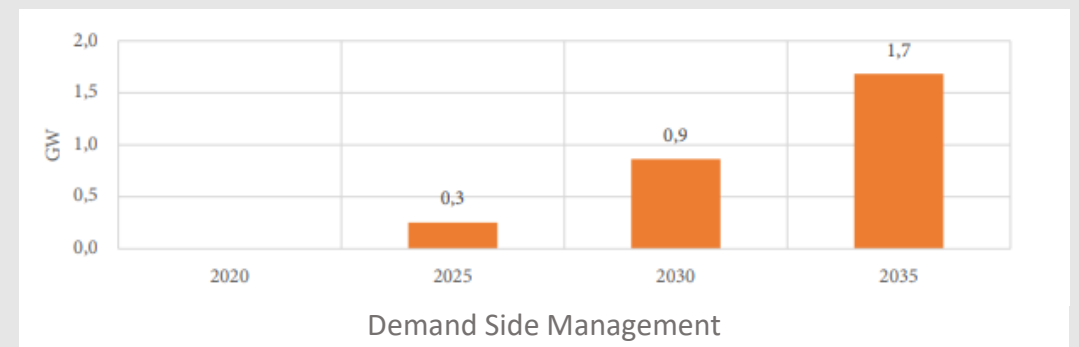
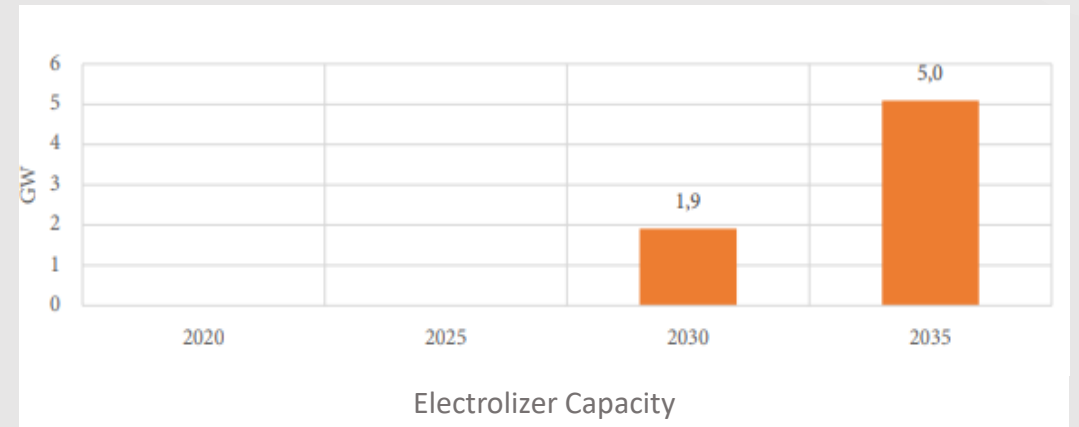
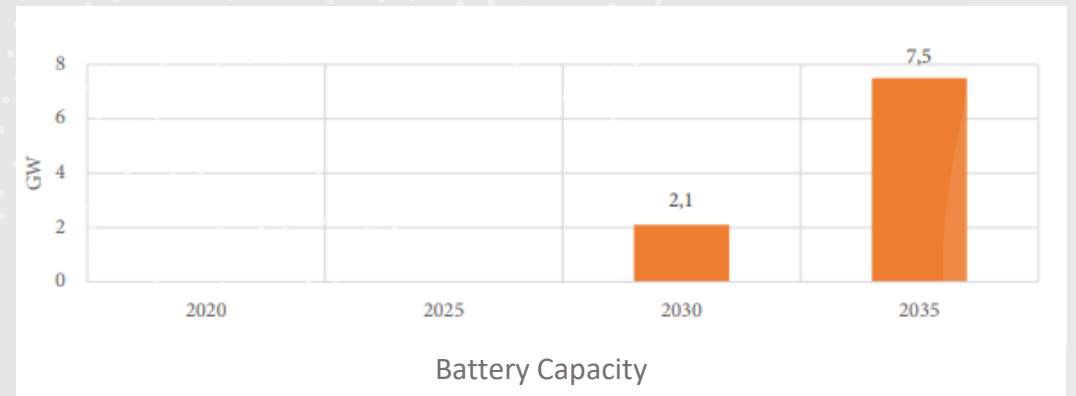
Consumption

- Residential and Industry is limited
- E Vehicles
- Transmission Losses



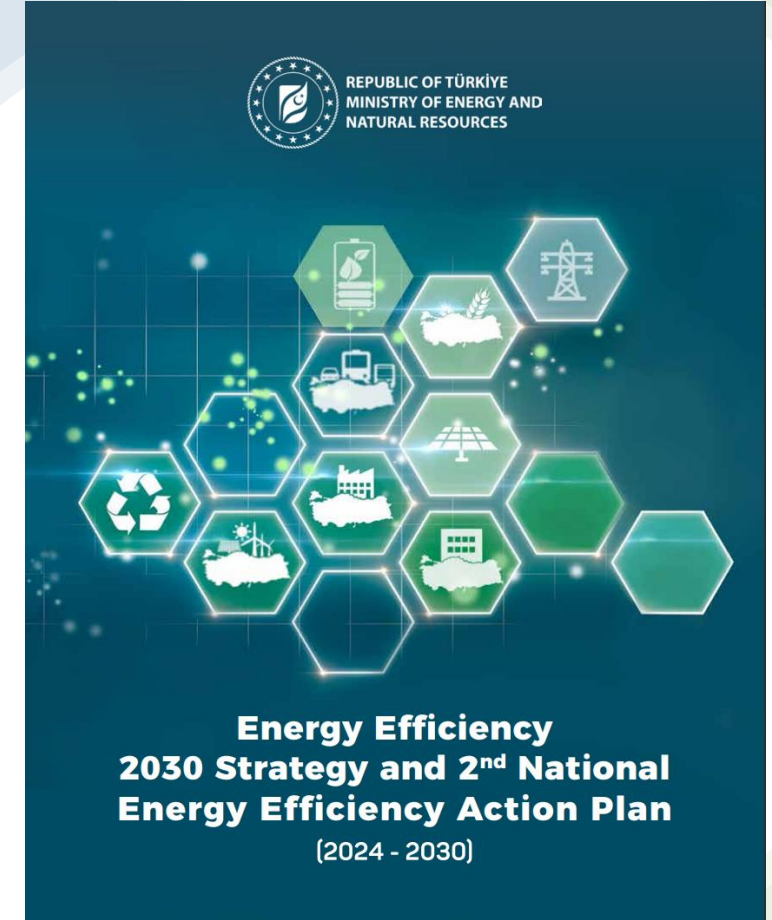
Flexibility Of Grid

- Battery Capacity
- Electrolizer Capacity
- Demand Side Management



Energy Efficiency 2030 Strategy and 2nd National Energy Efficiency Action Plan

- Efficiency in all processes from energy production to final consumption
- Investment of 20.2 billion USD
- Final energy saving of 37.1 MTOE
- 100 million tons of CO₂ eq. greenhouse gas reduction
- Building and Services, Industry, Energy Sector Transportation and Agriculture





Regional Integration

- 14 existing line (154, 220, 400 kV)
- 3 planned lines (400 kV)
- 1 existing, 1 under construction, 1 planned HVDC

Thank you...



South East European
Regional Council