



Energy Transition of Türkiye and a Glimpse of Turkish Power System

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TEİAŞ

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TURKISH POWER SYSTEM

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- Installed Power
- Electricity Generation

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ENTSO-E Connection



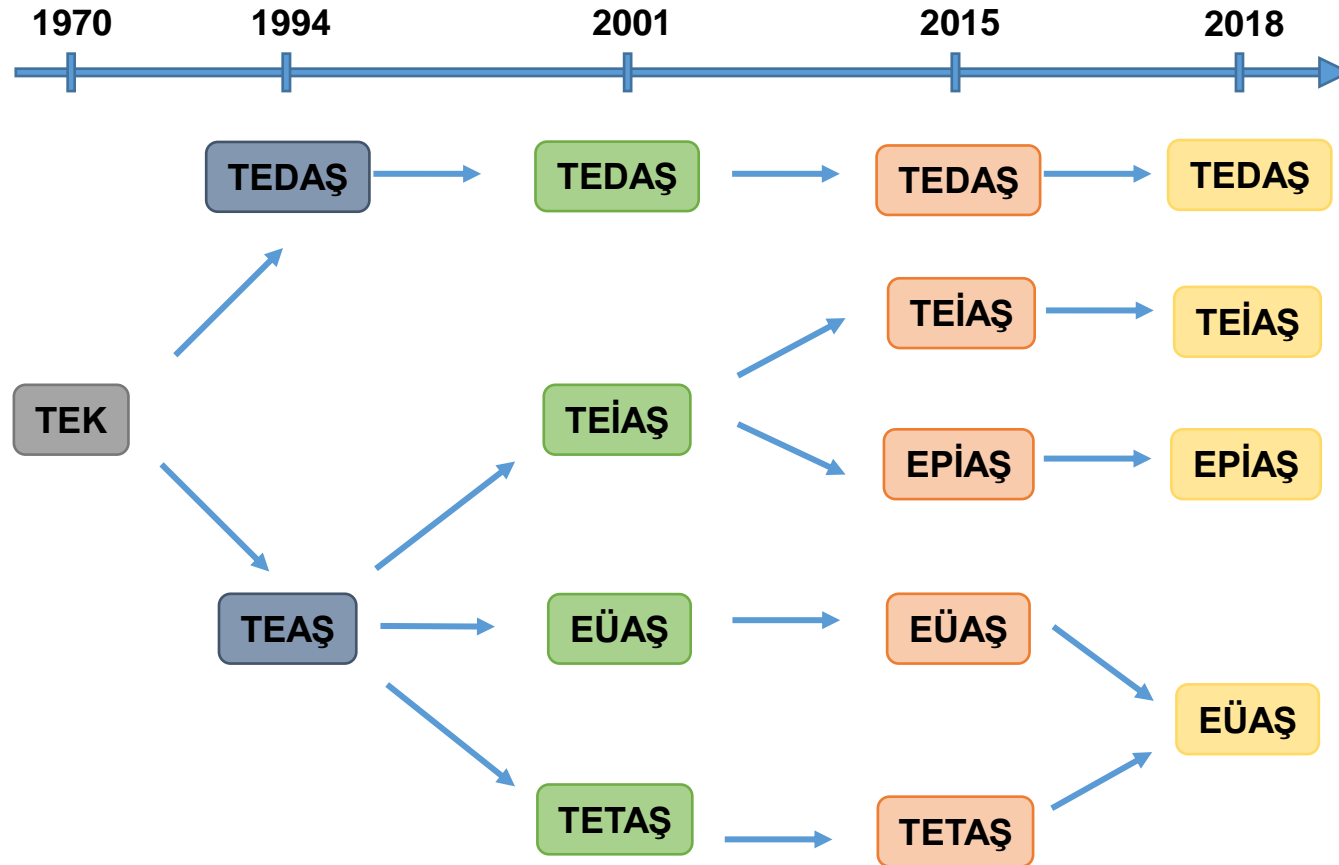
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STAKEHOLDERS

- Subsidiaries
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TEİAŞ, solely owner and operator of the transmission grid. TEİAŞ, is totally state owned company.

ELECTRICITY MARKET LAW (Law Nr. 6446)

ENERGY MARKET REGULATORY AUTHORITY (EMRA)

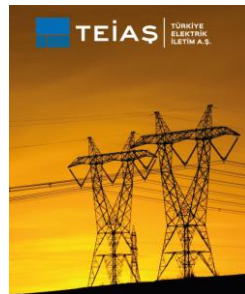
GENERATION

Private Companies
(-w/ License or
-w/o License)

EÜAŞ
(State owned)

TRANSMISSION

TEİAŞ



DISTRIBUTION

Private Distribution Companies
(in 21 Regions)

TRADING

Private Companies

MARKET OPERATOR

EXIST (EPIAŞ)

A Brief Overview of the Sector and Our Position in the Sector

TEİAŞ constitutes the interaction infrastructure between generation and consumption in the Turkish Electricity Sector



TEİAŞ, as the transmission system operator, plays a critical role in the electrical energy value chain:

- ← Network connection of generation/consumption facilities,
- 🌿 Providing grid infrastructure suitable for renewable energy generation,
- ⚡ Realization of investments that allows the increase in installed capacity,
- ⚖️ Balancing the system,
- 🔧 Implementing new technologies for a more effective operation.

OUR MISSION

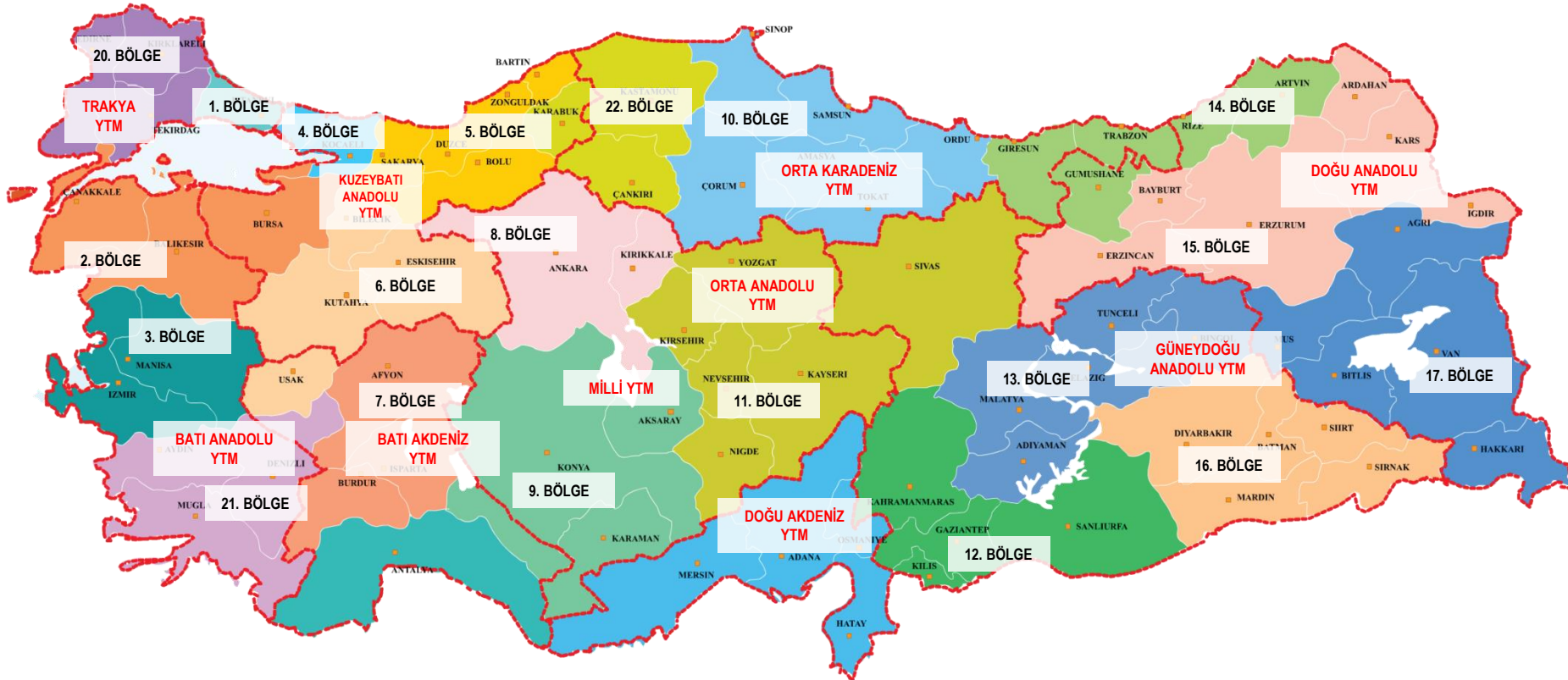
To make a system and network management which is compatible with the energy markets for the transmission of the electrical energy in accordance with the national energy policies and in a sustainable, high quality and environmentally friendly way.

OUR VISION

To be a pioneer system and network operator in accordance with national energy policies integrated to international energy market.

OUR VALUES

- Innovation
- Transparency
- Reliability
- Efficiency
- Employee Satisfaction
- Environmental Awareness
- Teamwork
- Safety



- ❑ 22 Regional Directorates
- ❑ 9 Load Dispatch Operation Directorates
- ❑ 1 National Load Dispatch Center
- ❑ ~17.600 employee (TEİAŞ own ~ 8.200)

Total Substation	797 (225.055 MVA)
Total Length of Lines (2023)	74.442 Km
Total Number of Towers	165.214
Total Installed Generation Capacity (2023)	106,15 GW
Total Consumption (2023)	330,3 TWh
Peak (2023)	55,119 GW
Total Length of Fiber Infrastructure	37.604 Km
Transmission Loss	%1,93
International Interconnections	15



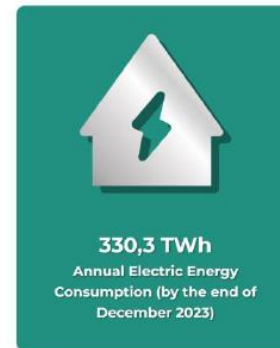
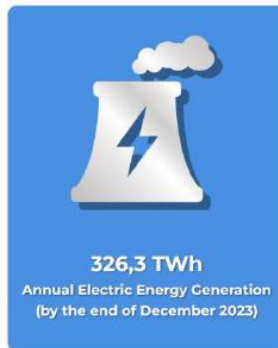
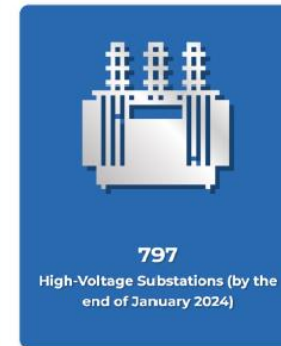
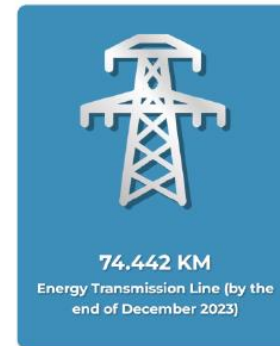
Turkish Power System

Electricity Transmission in Türkiye by the end of 2023



330,3 TWh
Total Consumption
in 2023

55,119 GW
INSTANTANEOUS PEAK
(July 2023)



~ **Renewables %56**

~30% hydro

~11% wind

~11% pv

~4% other

~ **Fossil Fueled % 44**

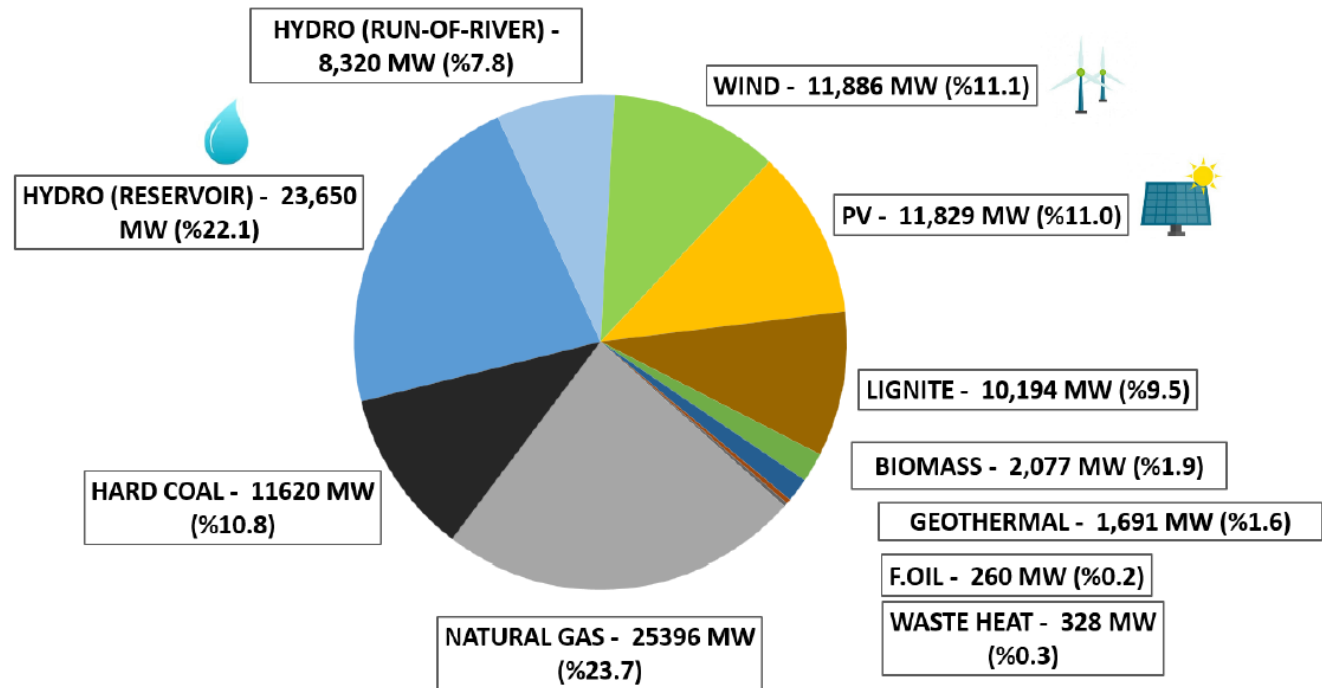
~24% gas

~20% coal+lignite

TOTAL

~ 107 GW

TÜRKİYE ELECTRICITY INSTALLED CAPACITY (JANUARY 2024) (MW)



Electricity Generation of Türkiye

Renewable % 42

~20% hydro

~10.5% wind

~6% pv

~3.5% geothermal

~2.5% biomass

Fossil Fueled % 58

~21% gas

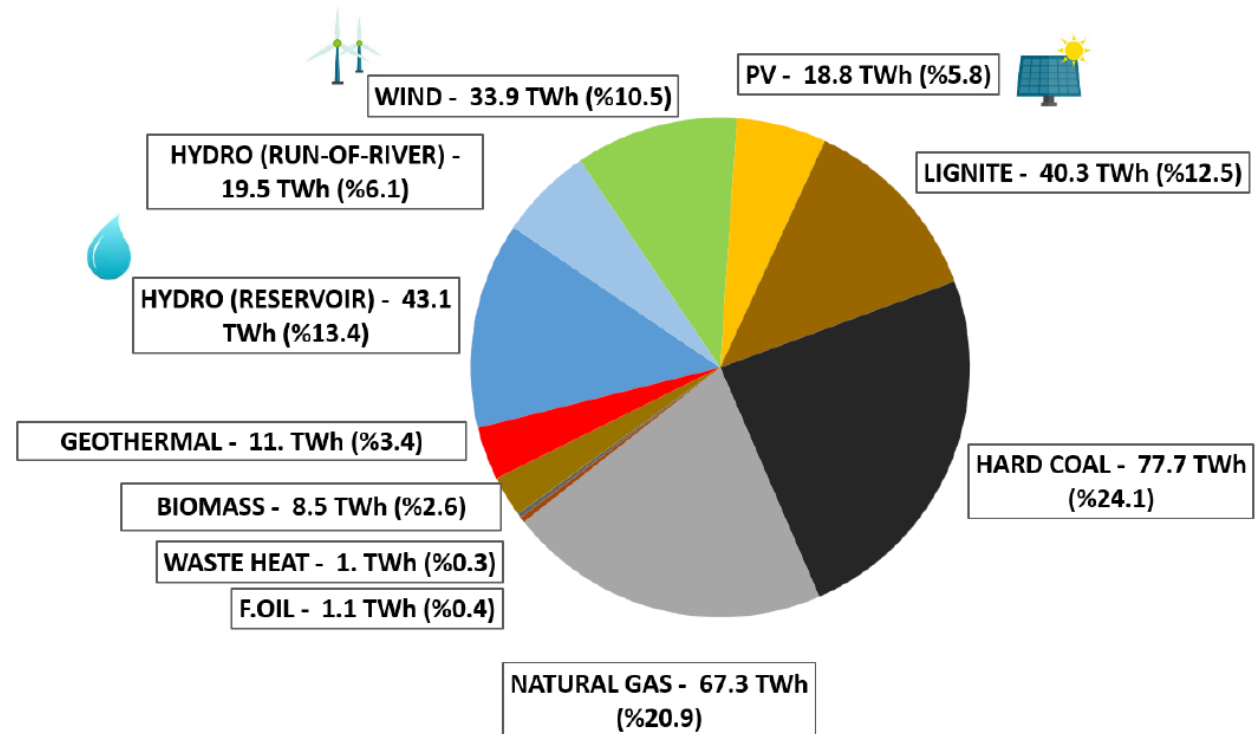
~36% coal+lignite

~1% other

TOTAL

~323 TWh

TÜRKİYE ELECTRICITY GENERATION IN 2023 (TWh)

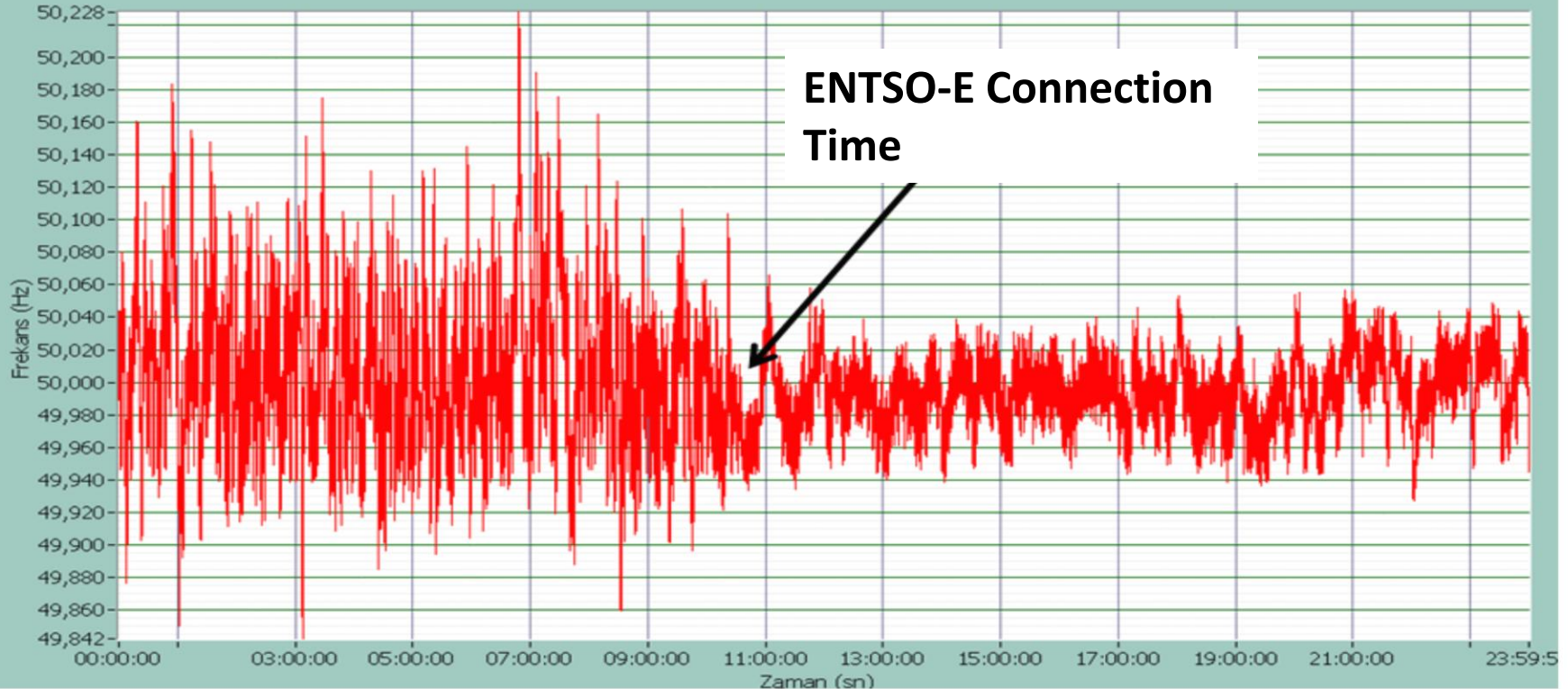




ENTSO-E Connection

One of the Largest Electricity Grid of Europe

- ❑ Synchronization with ENTSO-E Grid @18-09-2010; 10:25 TLT
- ❑ Observer Member of ENTSO-E Grid
- ❑ TEİAŞ has been working synchronously with ENTSO-E CESA since 2010



Interconnections (Existing & Planned)



	Existing 400kV OHL		HVDC Back to Back (Existing)
	Existing 220kV OHL		HVDC Back to Back (Planned)
	Existing 154kV OHL		
	Existing 66kV OHL		
	Planned 400 kV OHL		
	Planned 154 kV OHL		

- ❑ In the upcoming years, the transfer capacities of existing interconnections between Turkey-Greece, and Turkey-Bulgaria are planned to be **increased** by additional two lines.
- ❑ In 2020, the preliminary studies for new lines were completed and agreed upon by the parties.
- ❑ Beneficial to balance the variability of intermittent generation of wind & solar generation, synchronous interconnections are critical.





Cooperation with Countries

Export-Import in 2023

Country	Total Capacity (import)	Total Capacity (export)	Import (MWh)	Export (MWh)
Bulgaria	434 MW	334 MW	783.081	642.473
Greece	216 MW	166 MW	161.265	402.248
Georgia	700 MW	700 MW	4.735.697	-
Syria	-	300 MW	-	537.589
Iran	40 MW	-	-	-
Iraq	120 MW	630 MW	-	-
Nakhchivan (Azerbaijan)	-	-	-	-
Armenia	-	-	-	-
TOTAL	1510 MW	2130 MW	5.680.043	1.582.210

Relations with Our Neighbours



Electricity trade continues with Greece over the existing line.

A new 400 kV Nea Santa-Babaeski interconnection line project is planned



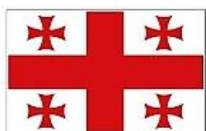
Electricity trade continues on two existing lines.

A new 400 kV Maritsa 2-Vize Havza interconnection line project is planned.



Electricity trade has not been carried out with Iran over the two existing lines since 2015.

The 400 kV Van-Khoy interconnection line project and Van DC Back to Back station facilities have been completed and are planned to be put into operation in the near future.



Electricity trade continues with Georgia over the existing line. 400 kV Tortum-Ahıska and 154 kV Batum-Muratlı interconnection line projects are planned.

Technical studies are also carried out within the framework of working groups within the scope of cooperation with the Georgian side.



The 400 kV Mosul-Cizre interconnection line is also planned to be put into operation in the near future.



Electricity trade has not been carried out since 2014 over the two existing lines.

Studies are carried out within the scope of the electricity export demand of the Nakhchivan Autonomous Republic.



Electricity trade continues with Syria over the existing lines since 2021.



Affiliates and Organizations



Eltemtek which carries out engineering, consultancy and project activities in the electricity sector, TEİAŞ has 47% of its shares.



EPIAŞ is responsible for managing and operating energy markets. TEİAŞ has 30% of its shares.



With the company established by 8 transmission system operators in the Southeast European Region, it is aimed to tender the interconnection capacities between countries from a single center regionally. TEİAŞ has 12.5% of its shares.

Memberships

Organizations Included in the Scope of MENR

IEA-International Energy Agency

ECO-Economic Cooperation Organization

BSEC-Black Sea Economic Cooperation Organization

UfM-Union For The Mediterranean

The Electrical Interconnection Among The Eight Countries Project



International Organizations Membership at Transmission System Operators Level

ENTSO-E
European Network of Transmission System Operators for Electricity

CIGRE
International Council on Large Electric Systems

Med-TSO
Mediterranean Transmission System Operators

EURELECTRIC
The Union of the Electric Industry

SEE CAO
Southeast Europe Coordinated Auction Office

WEC
World Energy Council



Thank You

