

GEOHERMAL ENERGY IN TÜRKİYE

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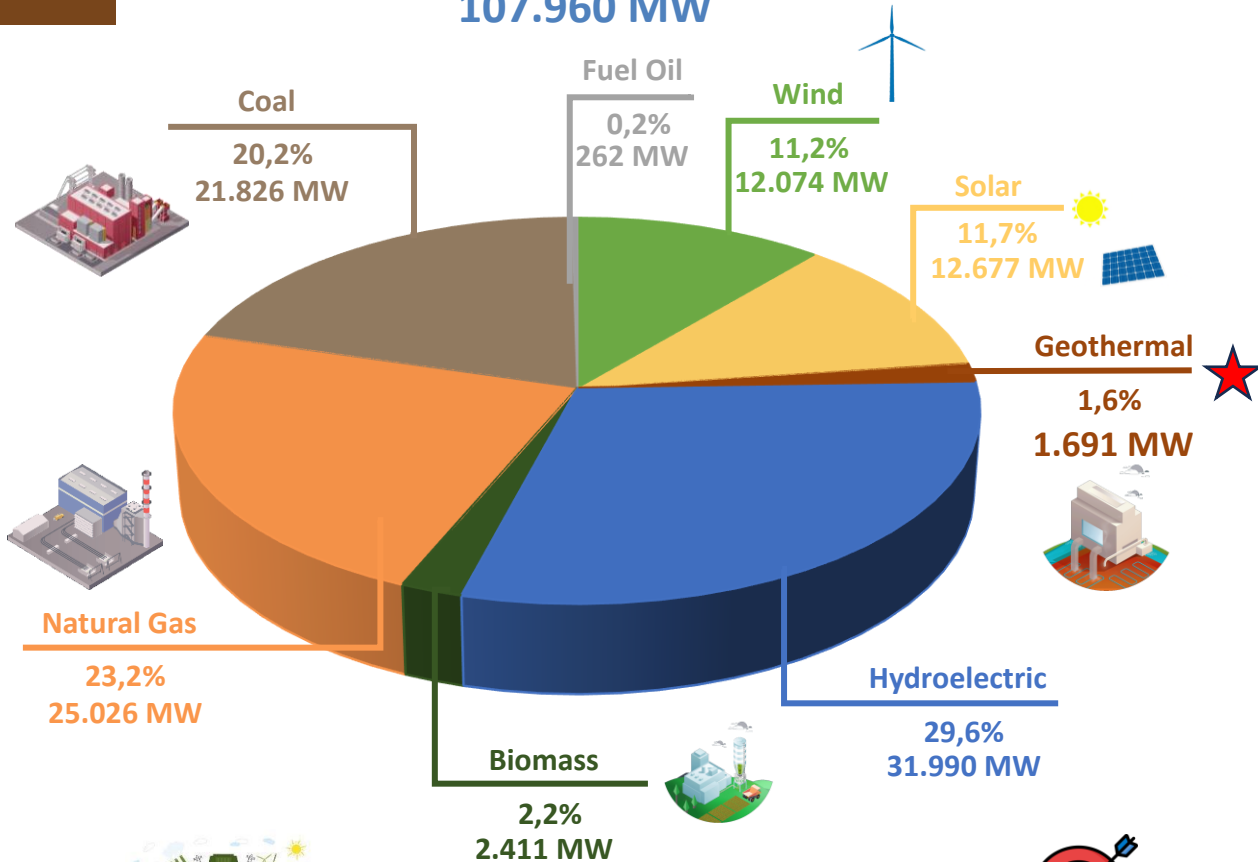
Future Targets

Türkiye Installed Capacity / Electricity Generation



Total Installed Capacity - April 2024

107.960 MW



Renewable: 56,4%

Fossil: 43,6%



2035

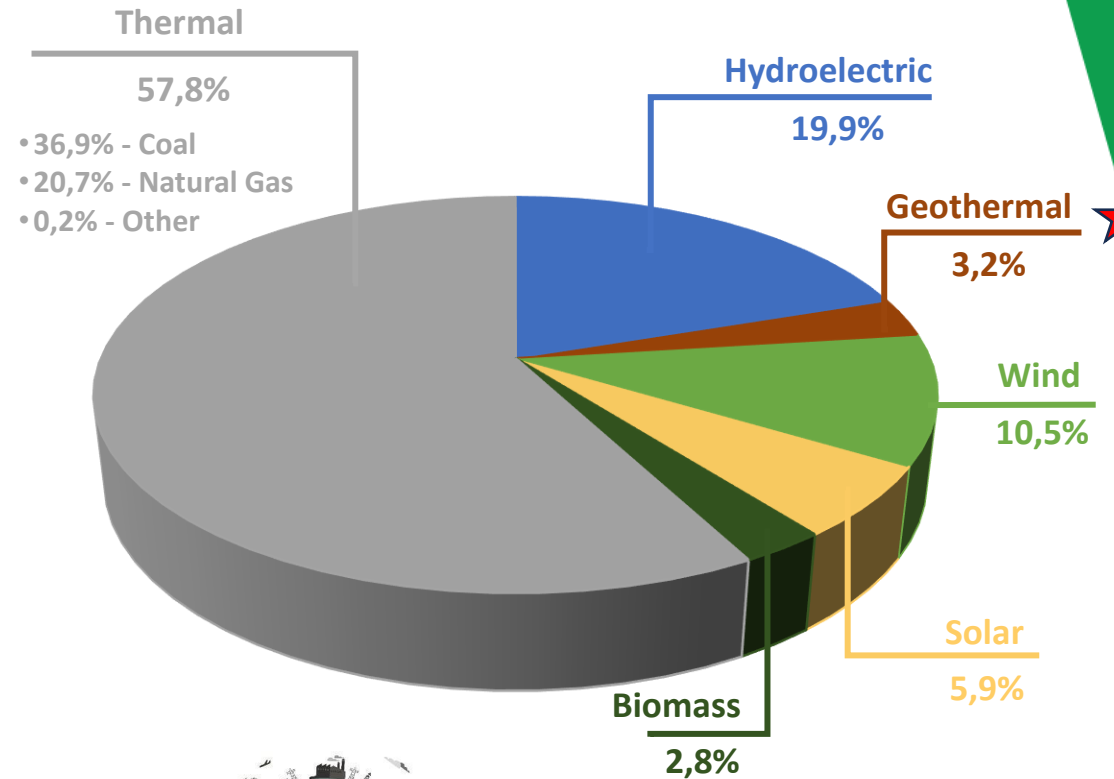
Total Installed Capacity: 189,7 GW

- 64,7% Renewables
- 52,9 GW Solar
- 29,6 GW Wind



Total Electricity Generation - 2023

320.623 GWh



- 36,9% - Coal
- 20,7% - Natural Gas
- 0,2% - Other

Fossil: 57,8%

Renewable: 42,2%

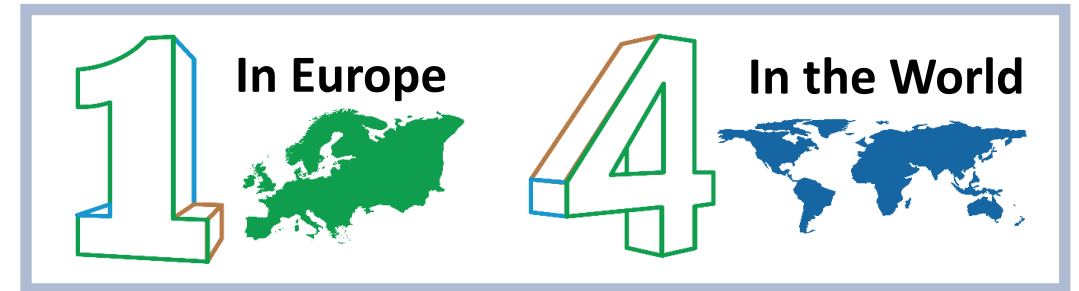
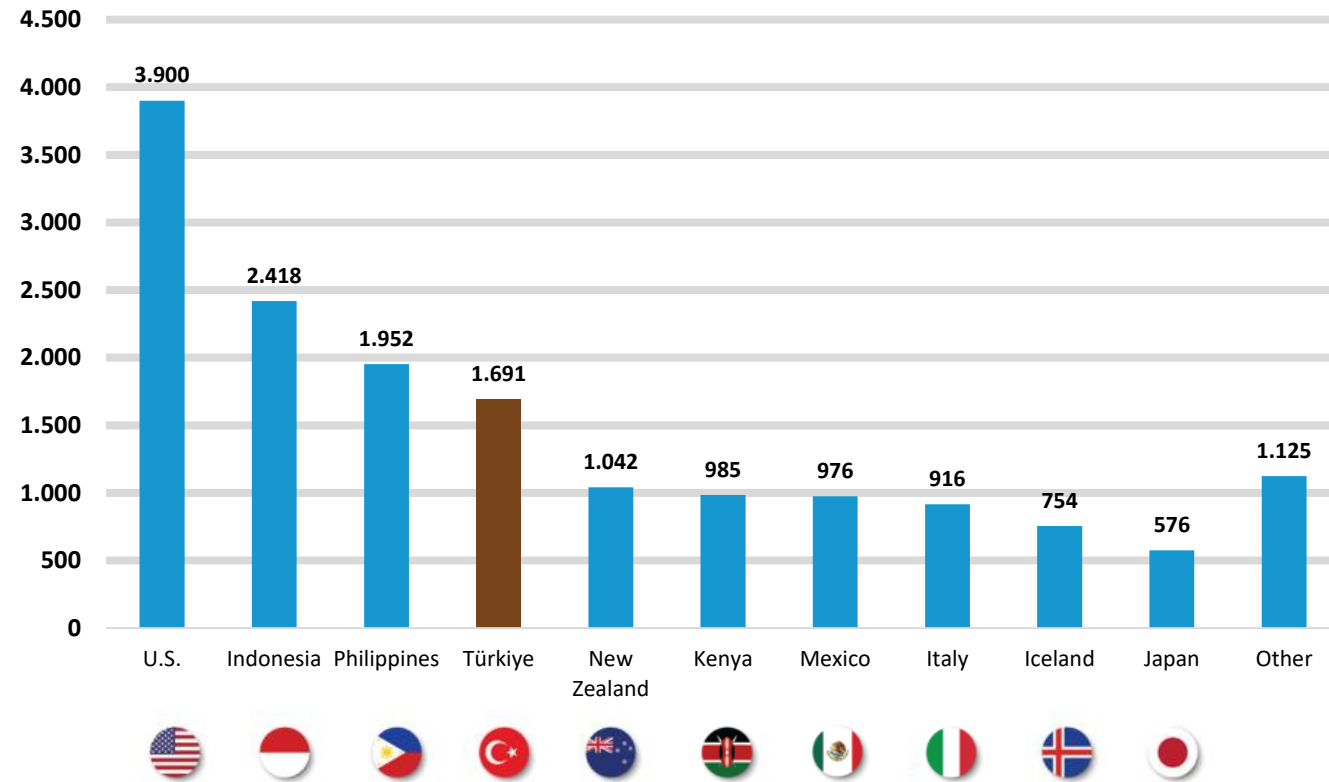


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Geothermal Energy Installed Capacity in the World



Total Installed Capacity **16.335 MW (2023)**



11% of the World Installed Power is in Türkiye
Turkish Miracle

Development of Geothermal Energy in Türkiye

1 Publication of Geothermal Resources Law and Relevant Regulations

Operational Licenses hold by,

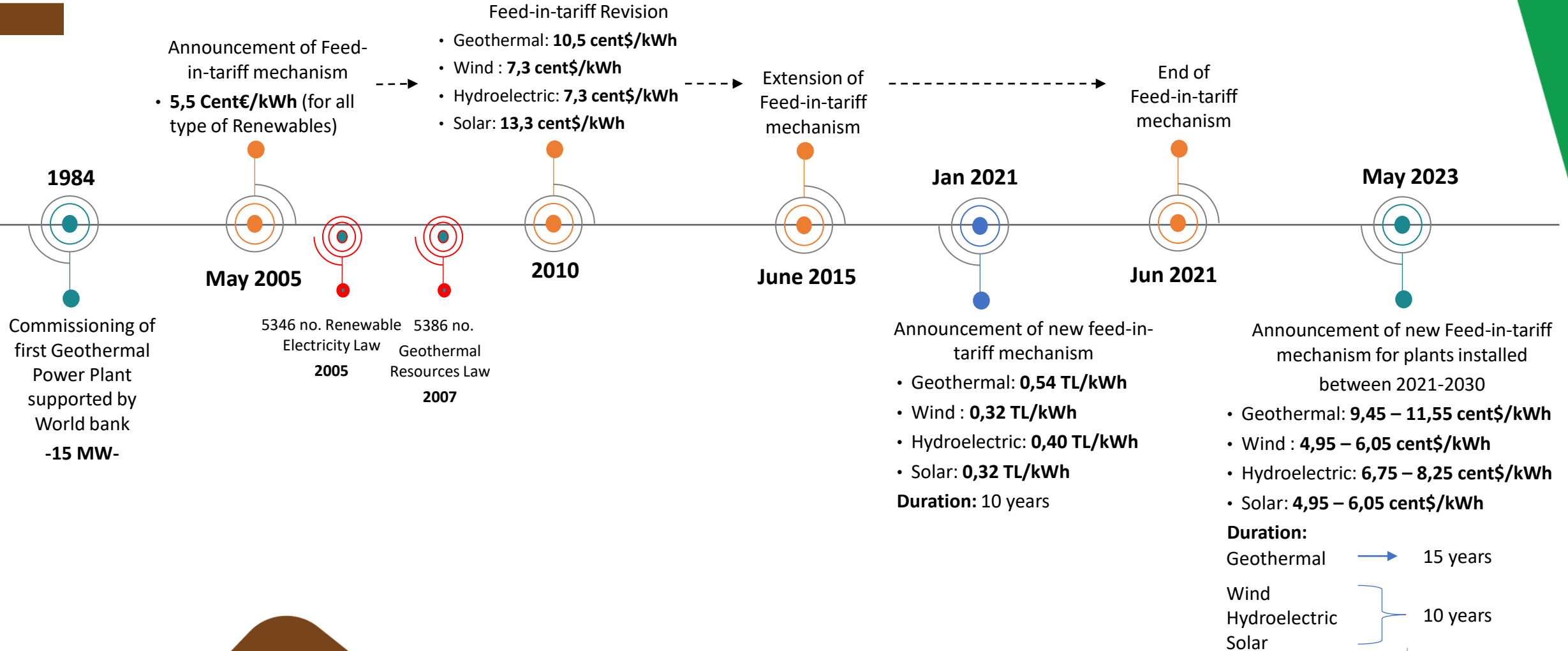
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- **General Directorate of Mineral Exploration and Research (MTA)**
 - **Special Provincial Administration**

are released to investors.

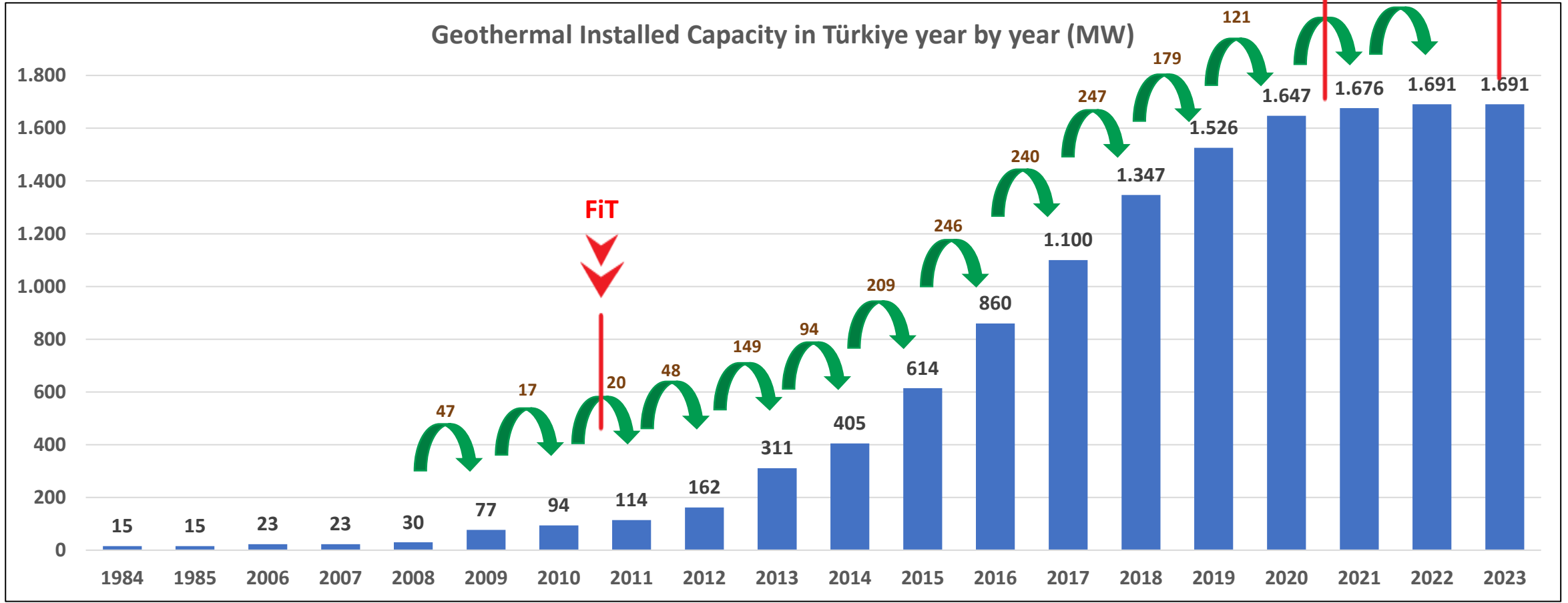
Paving the way for the licensing of unlicensed fields

3 Feed-in-Tariff (FiT) mechanism

Feed-In-Tariff Mechanism in Türkiye

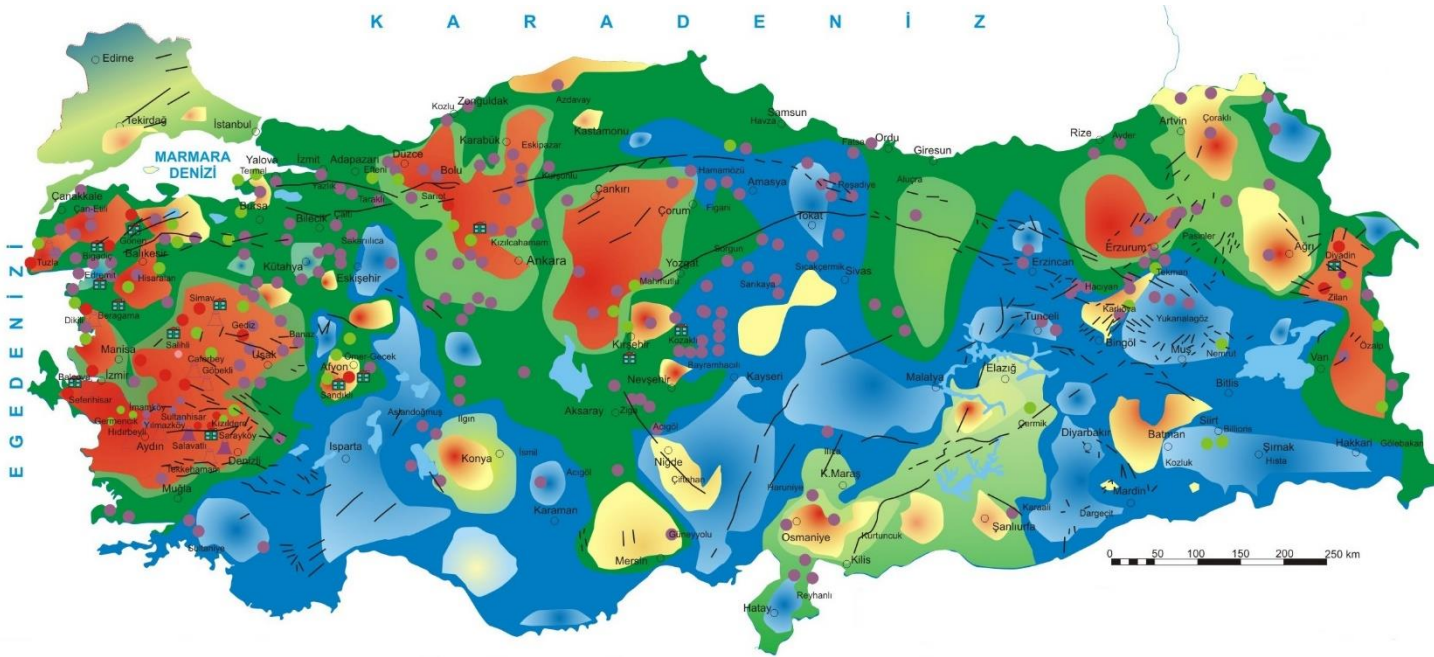


Geothermal Energy Chronology in Türkiye



FiT: Feed-in-Tariff Mechanism

Geothermal Energy Potential in Türkiye



- Geothermal Potential of Turkey is around **3,5 GWe**
- 78% of geothermal areas are located in Western Anatolia, 9% in Central Anatolia, 7% in the Marmara Region, 5% in Eastern Anatolia and 1% in the other regions
- Bottom hole temperatures vary between **40 °C** and **287 °C**
- According to «General Directorate of Mineral Exploration and Research»'s researches, Turkey has **62.000 MWt** geothermal heat source potential.

Source: General Directorate of Mineral Exploration and Research

Geothermal Heating in Türkiye

DISCOVERED GEOTHERMAL HEAT CAPACITY 62.000 MWt



Geothermal Power Plant



3.500 MWe

1.691 MWe



Greenhouse



25.000 Decares

5.290 Decares



Residential Heating

5 Million Residence

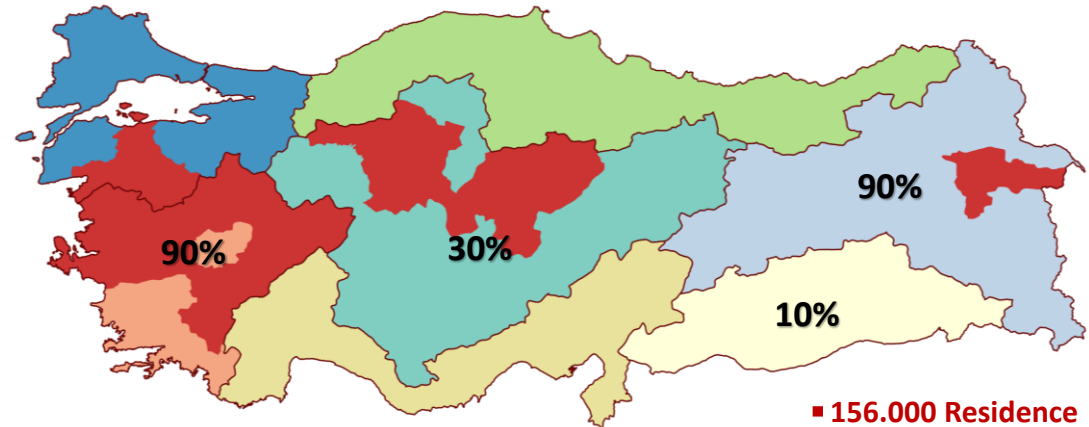
156.000 Residence



62.000 MWt Energy equivalent of potential

~50 Billion m³ natural gas / year

POTENTIAL REGIONAL GEOTHERMAL HEATING IN TÜRKİYE



Heating demand
can be covered
with geothermal



90% of Aegean Region
90% of Eastern Anatolia Region
30% of Central Anatolia Region
10% of Southeastern Anatolia Region

Geothermal Integrated Usage

INTEGRATED USAGE OF GEOTHERMAL ENERGY



Electricity Production

Renewable Energy sources

Base load



Food Drying

It provides hygienic, high-quality food production.



Heating - Cooling

It reduces foreign dependency on gas and coal with residential and building heating and cooling.

It ends the dependency on external emission generating sources such as coal and natural gas.



Thermal Tourism

10 million qualified tourists are targeted annually with over 1.500 natural exits and spas.



Greenhouse

Quality and continuous production with good agriculture for 12 months of the year with 25.000 decares of greenhouse heating.



Mining

Precious metals, especially lithium (3.679 tons per year) are obtained with 5.000 MW geothermal installed power.

Geothermal Energy Sector in Türkiye



Exploration Works

- Major developments in exploration and drilling activities with domestic facilities
- Studies with high accuracy in geological, geophysical, geochemical and analyses in cooperation with local companies and universities other than MTA



Drilling Works

- Approximately 120 km of drilling with nearly 20 drilling rigs in 2015
- Between 2011 and 2018, more than half of the rigs in Türkiye worked in this sector in line with the need for drilling, which brought local companies and new equipment to the sector.



Material/Equipment Production

- Local production of power plant equipment provided added value.
- Domestic production of drilling equipment and materials has been ensured because drilling is carried out with domestic facilities.



Operation and Maintenance

- 62 power plants and nearly 2.000 wells are operated and maintained with 100% domestic resources.

JED's Contributions for Geothermal Energy Development

The following arrangements have been requested from the Ministry to support the development of geothermal energy:

- A regulation to the FiT mechanism as 14 cent\$/kWh
- An extension of the FiT duration to 20 years (from 2030 to 2040)
- Additional support to minimise risk in exploration activities for greenfield sites
- Legal arrangements for integrated and direct usage of geothermal energy
- Providing legal regulations and incentives for new technologies such as EGS

62.000 MWt



200.000 MWt

A stylized landscape illustration featuring a large green hill on the left, a blue sky on the right, and a brown hill in the foreground. The brown hill has several trees on top. To the left of the brown hill is a line-art illustration of a factory with smokestacks and a body of water. In the bottom right corner, there are line-art illustrations of a geodesic dome and a greenhouse. The text 'THANK YOU' is written in white capital letters on the blue sky background.

THANK YOU

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