



The Safeguarding of the Environment

Istanbul Anatolian
High School



Renewable Energy

- ❖ Renewable energy is the energy that can be obtained from natural sources such as **sunlight, wind, rain, tides, waves** and **geothermal heat** and can be obtained from naturally renewable sources.

These resources can be listed as:

- ❖ Solar Energy,
- ❖ Wind Energy,
- ❖ Wave Energy,
- ❖ Geothermal Energy,
- ❖ Hydraulic Energy,
- ❖ Biomass Energy
- ❖ Hydrogen Energy.



Solar Energy

- ❖ Solar energy is the cleanest renewable energy source on earth. Most of this energy consists of hydrogen. For this reason, it is known as the cleanest renewable energy source on earth. The heat that energies released during the conversion of hydrogen in the sun to helium are called solar energy.



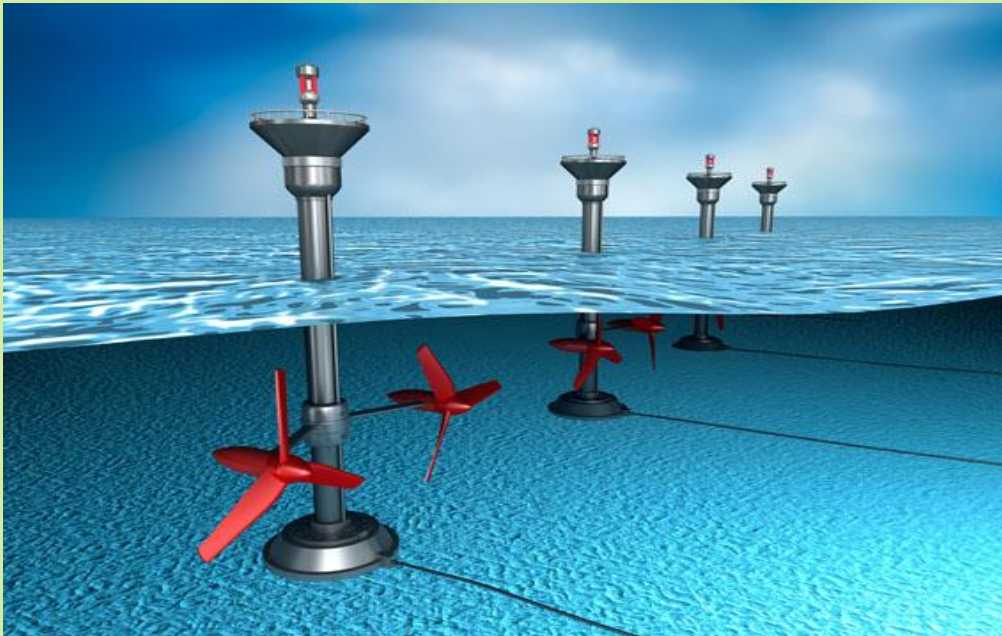
Wind Energy

- ❖ Wind energy is a renewable energy type that produces electricity by converting the kinetic energy (motion energy) of the air into electricity by use of wind turbines. The wind, which is formed as a result of air currents, starts to carry kinetic energy and wind power plants produce electricity by turning the turbines of this wind power.



Wave Energy

❖ It is a type of energy obtained from the repulsive movement of the waves formed in the seas and oceans. Wave is an unlimited and renewable energy source. In order to produce wave energy, the pressure created by the winds on the water surface and in the depths of the water is used as a source.



Geothermal Energy

❖ Geothermal energy is the internal heat radiating from the hot regions deep into the earth towards the earth. In particular, groundwater reaches the earth's surface by heating more than other areas. Such areas are called geothermal areas.

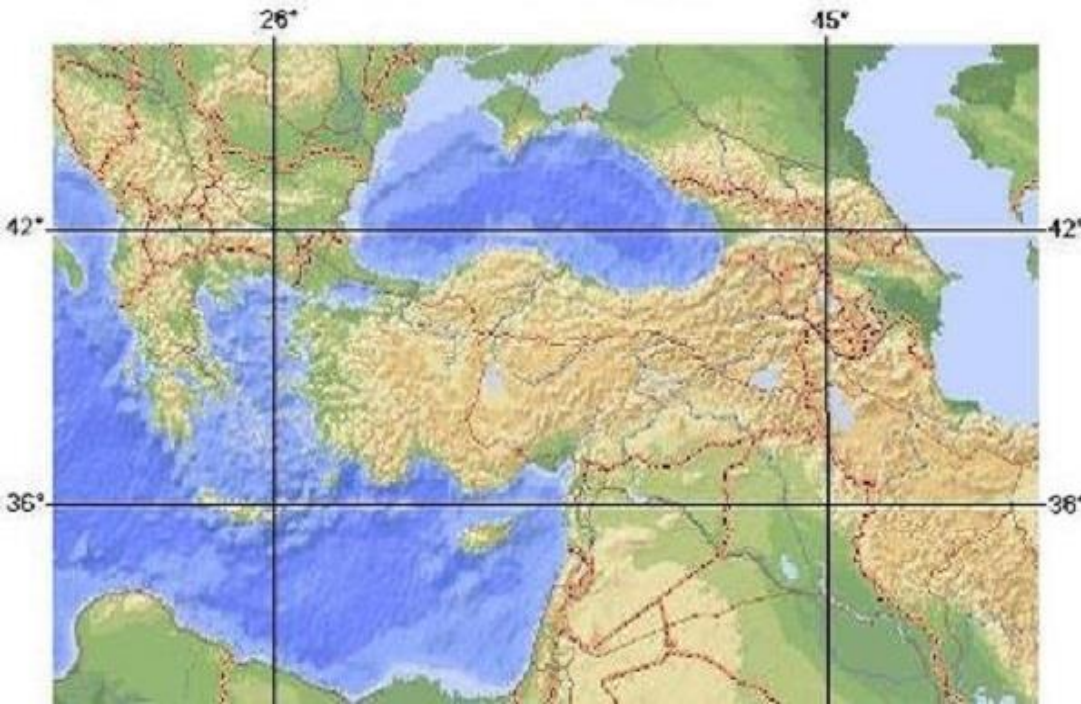


Renewable Energy Sources In Turkey

- ❖ Turkey doesn't have rich fossil energy resources. Thanks to renewable energy resources that can be used in many areas such as **heating, electricity production, transportation and industrial activities**, the foreign dependency of Turkish economy is expected to decrease. This can be an important opportunity for economic development of Turkey, which has rich opportunities to use its own natural resources.



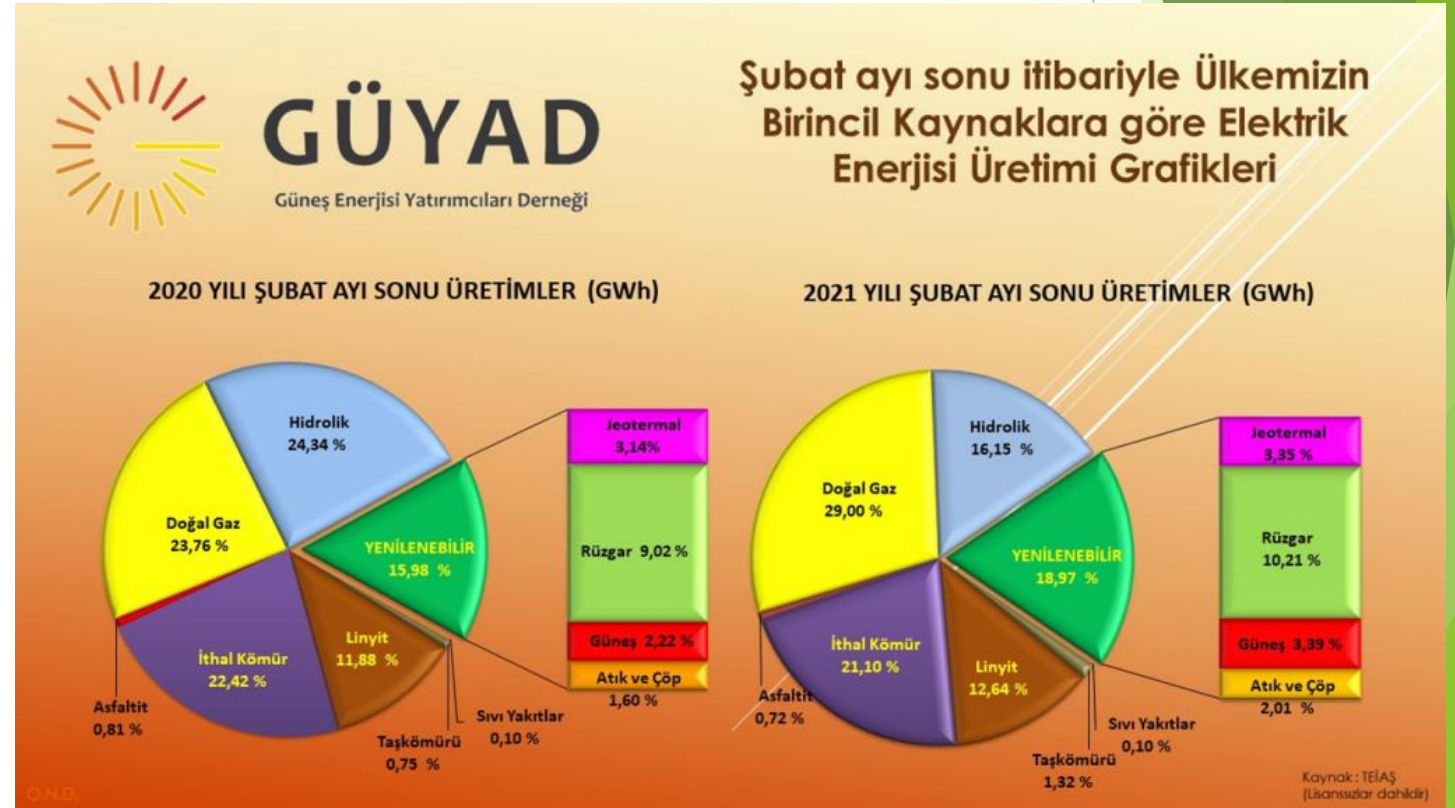
Renewable Energy Sources In Turkey



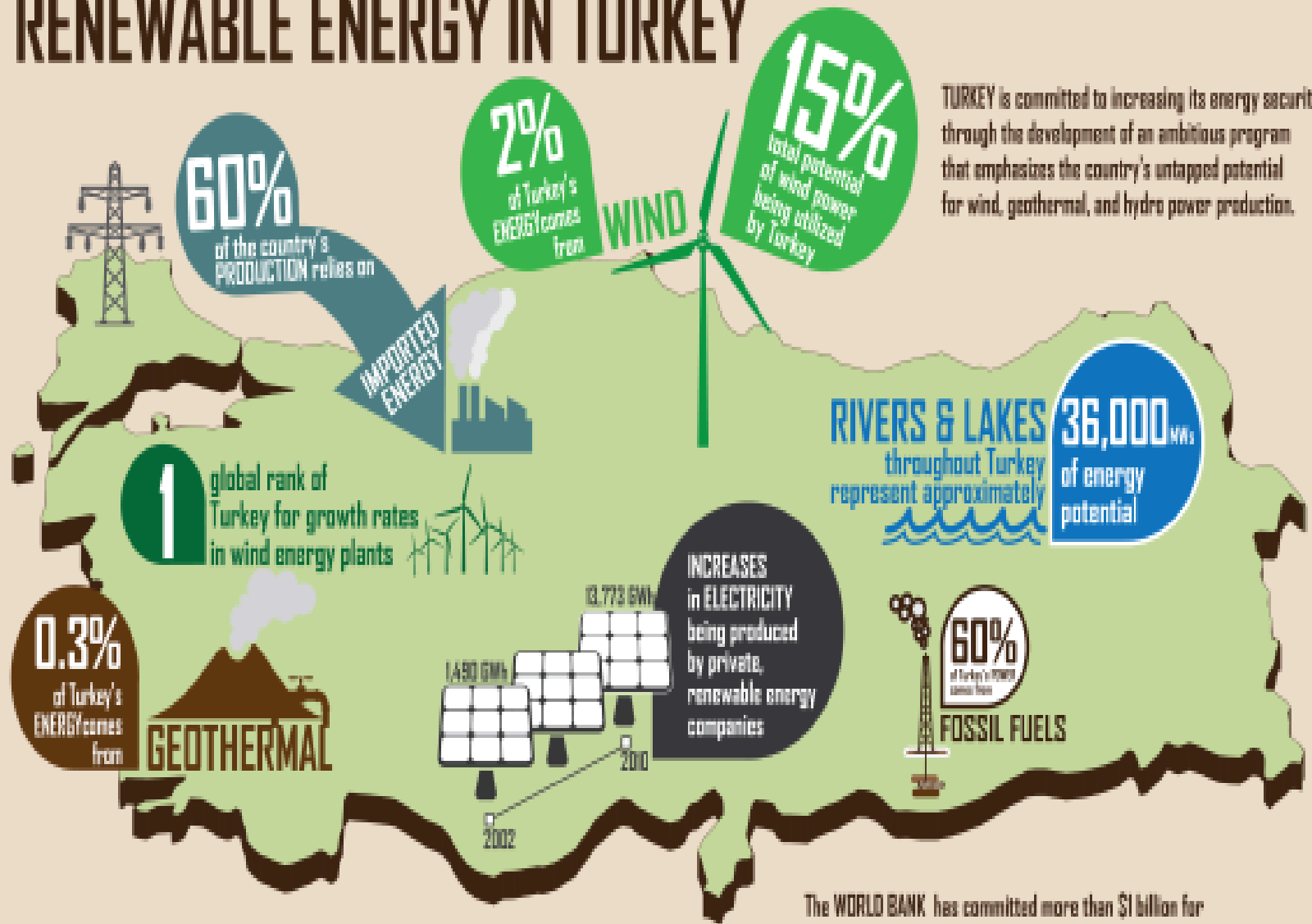
- ❖ Turkey is located between 36° - 42° south parallels and 26° - 45° east meridians. In this way, we can live four seasons. It has a high potential in terms of natural energy sources such as **solar energy**, **hydraulic energy**, **geothermal energy** and **wind energy**. As a result of the investments made in these areas, significant progress has been made in the production of renewable energy.

Renewable Energy Sources In Turkey

- ❖ Wind Energy
- ❖ Solar Energy
- ❖ Hydroelectric Energy
- ❖ Geothermal Energy
- ❖ Wave Energy
- ❖ Biomass Energy
- ❖ Hydrogen Energy



RENEWABLE ENERGY IN TURKEY



Renewable Energy Sources In The Marmara Region

- ❖ Wind Energy
- ❖ Solar Energy
- ❖ Geothermal Energy



Wind Energy

- ❖ According to the data of the Turkish Wind Energy Association, Marmara Region is ahead of other regions with **40.93%** and **2,204 MW** electricity production. Wind energy has a very common usage network like solar energy in Turkey. It is the most important production center in Turkey with **767.3 MW** production in Balıkesir and **140.55 MW** in Çanakkale.



Solar Energy

- ❖ Solar energy is one of the most widely used renewable energy sources in Turkey. Turkey is a country with four seasons and is exposed to intense sun rays, approximately **114 sunny days** a year. Thanks to the fact that the sun's rays mostly come at a right angle, energy production using this source has high efficiency. This is a pretty high figure. According to the researches, there are 7.5 hours of sunshine per day and 2,737 hours per year. Many solar power plants have been established in our country, especially in the **Southeastern Anatolia, Mediterranean, Eastern Anatolia and Marmara** regions.





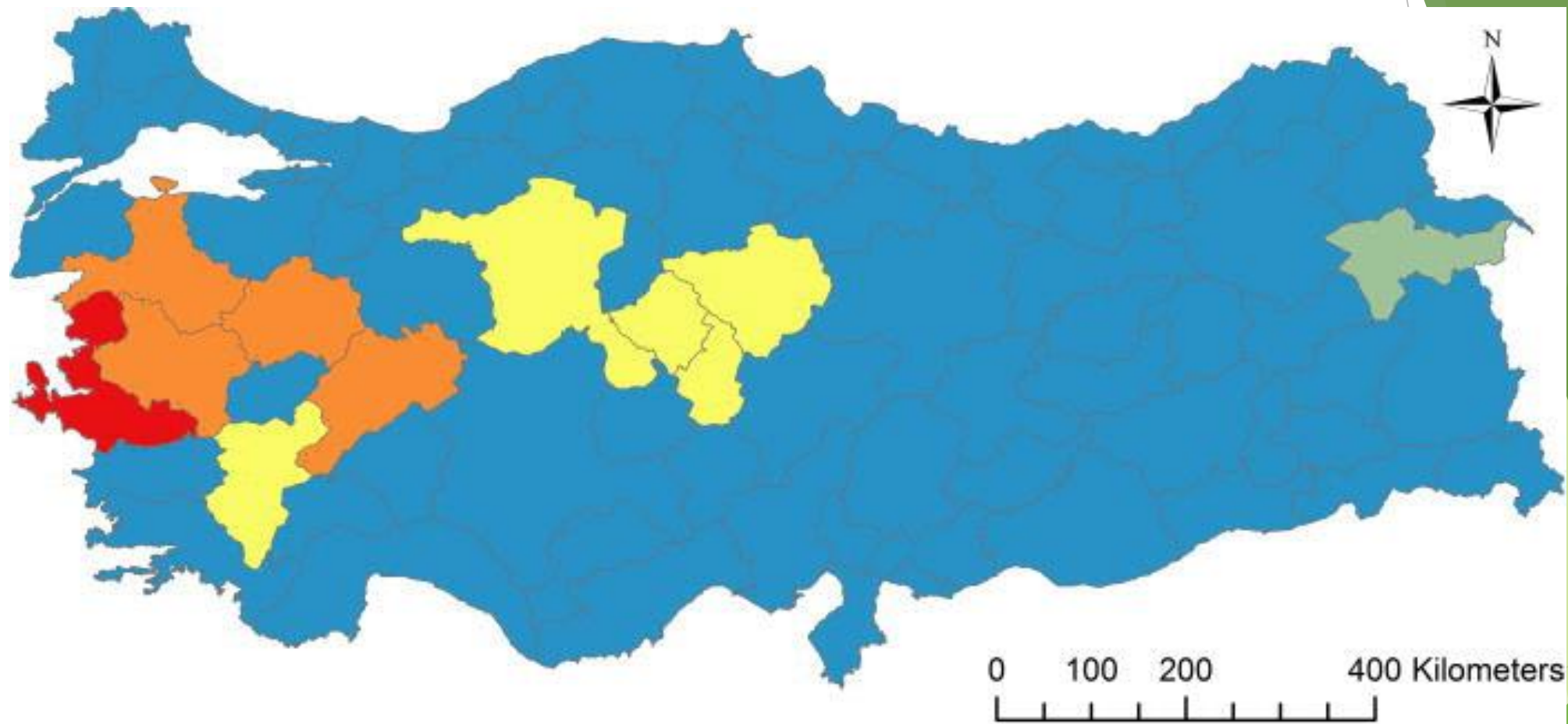
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Geothermal Energy



- ❖ It is a renewable energy source that can be used in many ways. Energy is produced by means of hot water and steam coming out of the underground. As a result of its geographical location, Turkey is located on many active fault lines. This unfortunate condition can also have a good result in terms of energy supplies. Hot water and water vapor leaking from fault lines are used in energy production. The Marmara Region and the Aegean Region are mostly rich in geothermal resources. These zones fault ruptures move continuously. Through constant streams of hot water, steam-powered tools and industrial machines are used in industrial facilities, and the heating need of the household is supplied.



Number of residences heated by geothermal energy

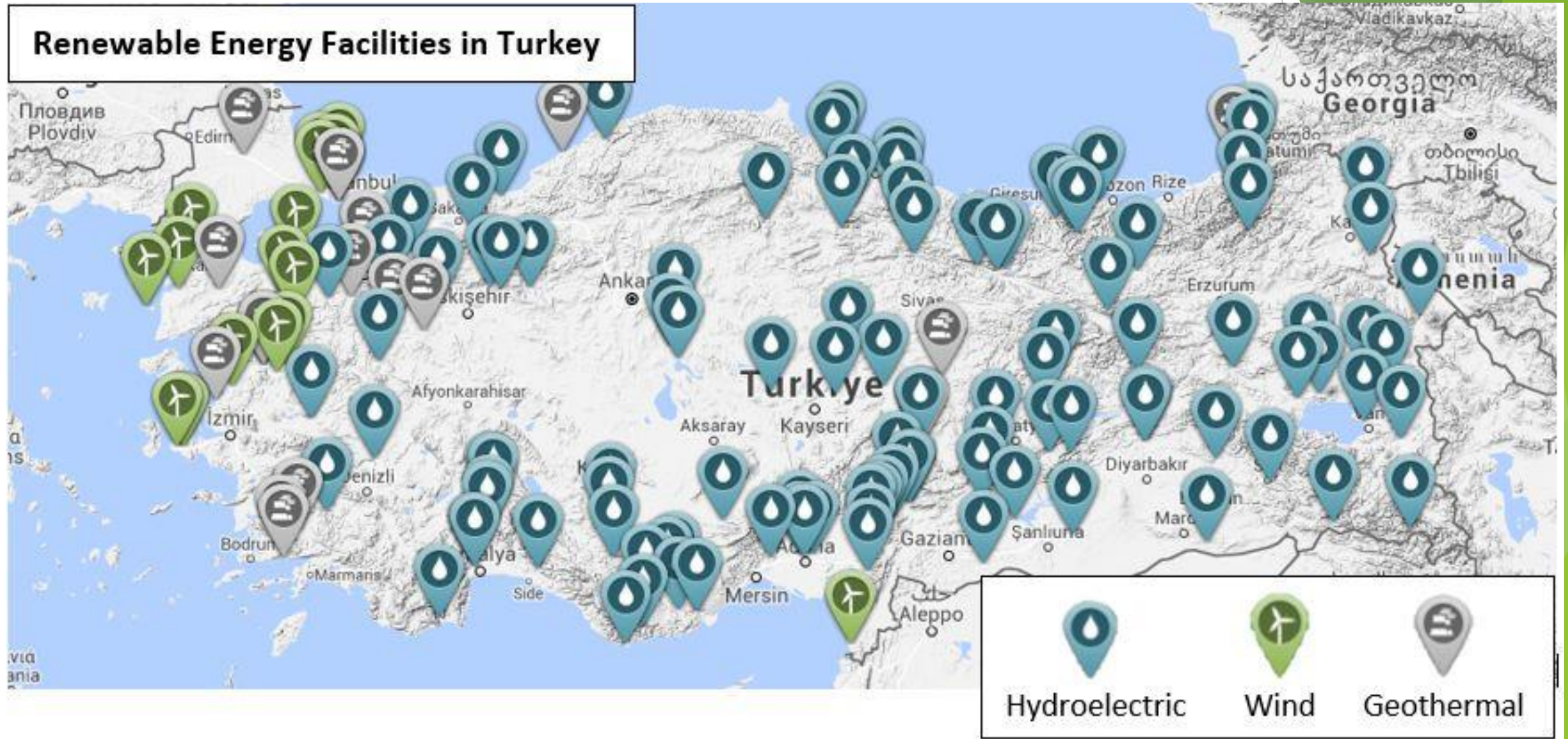


Companies That Uses Renewable Energy In Turkey

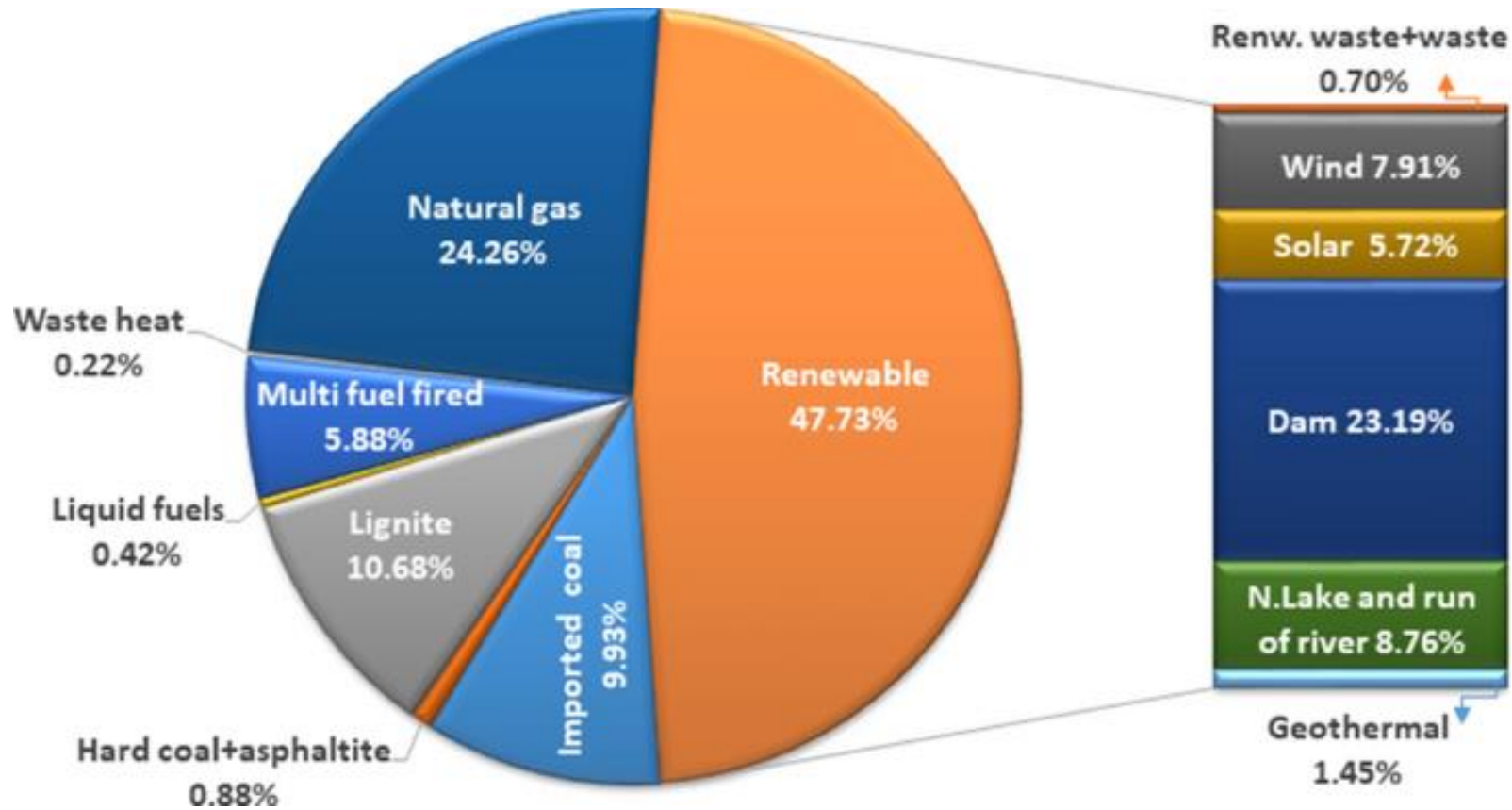
- ❖ Today, serious investment are made in renewable source area. YEKDEM is the leading organization that is run by the state provides the necessary incentives for the production of hydraulic, wind, solar and geothermal energy. Turkish state gave the guarantee of state purchase in return for production of renewable energy in order to encourage private sector to enter this area.
- ❖ YEKA is one of the leading private companies which makes its investments in solar and wind energy. It works in coordination with Ministry of Energy and Natural Resources.
- ❖ Many leading Turkish corporations are planning to invest in this area and see it profitable and its future bright.



Renewable Energy Facilities in Turkey



Today, we mainly use fossil based energy sources like coal, natural gas and crude oil. We wish a rapid transition to renewable energy sources. We can see expectation of increase in renewable energy sources usage in Turkey up to 2030 in the chart below..



Implementation of Renewable Energy Sources

- ❖ In order to implement renewable energy we must raise people's awareness, especially younger generations'. If we can show them how much fossil based energy sources destroy our ecology and how much the renewable energy systems protect our ecology, people will get more interested in these kinds of projects. Besides our ecology, fossil based energies, especially coal and crude oil, are also polluting the air and damaging health of all the living things, especially in densely populated urban areas. This can be used as an awareness raising fact. People should be informed that they have a chance to protect our mother nature while nature can do the work itself through renewable energy. And future generations can be raised environmentally conscious by educational institutions, media and nature friendly companies.

