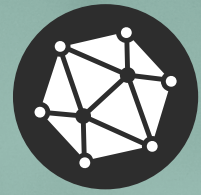


2023

Foreign  
Investors  
Council



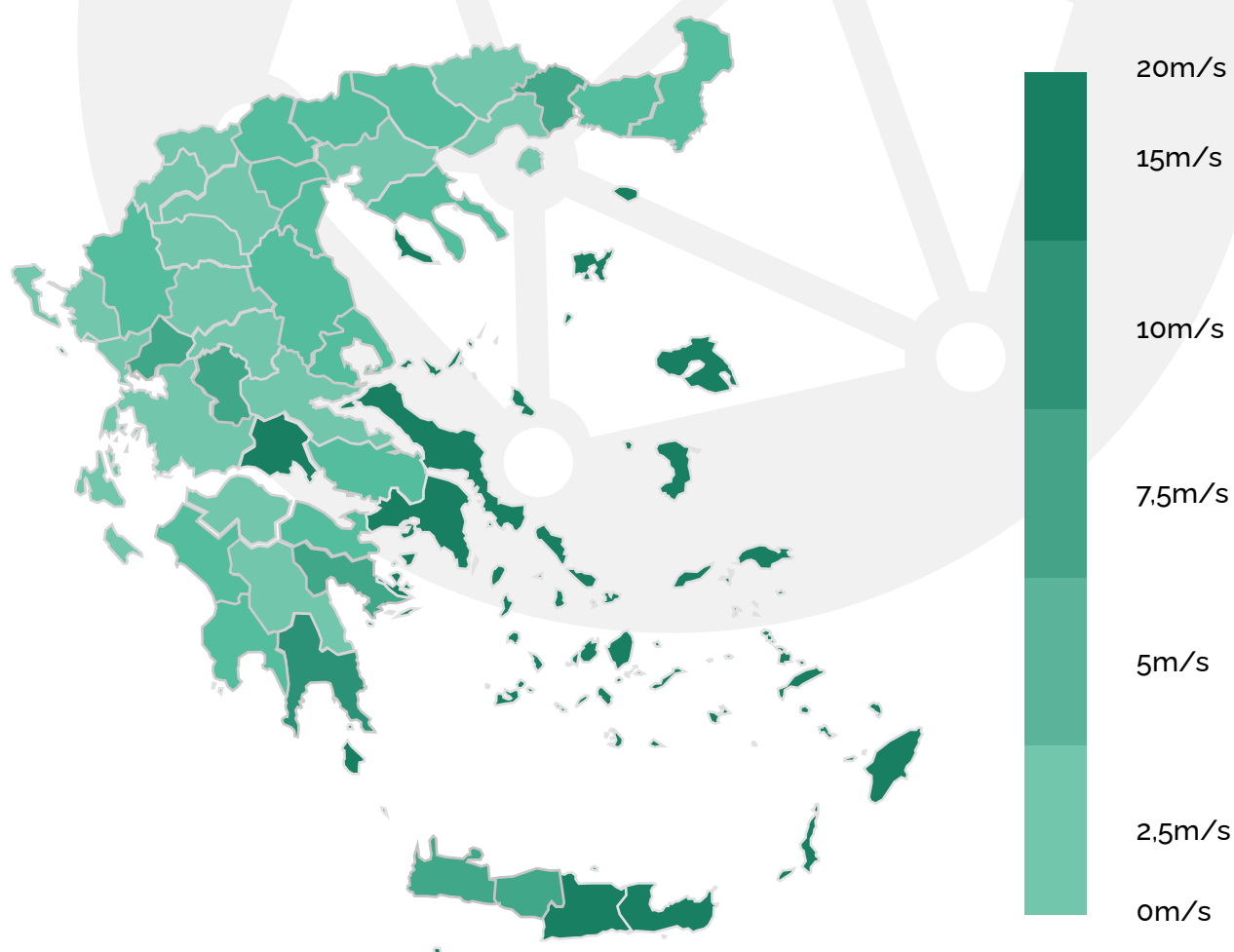
# Renewable Energy in Greece

## THE COUNTRY'S WIND POTENTIAL

The strong wind potential of the country is mainly concentrated in the Greek islands (Crete, Aegean, Evia, etc) as indicated on the map, while areas in Northern and Western Greece are also suitable for wind project development.

Further exploitation of wind power, in combination with technological improvements in the sector and modernization of current licensing legislation is expected to play a key role, enabling wind energy to make significant contributions towards sustainable development.

The lengthy licensing process for wind projects coupled with frequent interventions by the local communities, bureaucracy, and lack of a stable legal framework prevents many projects from reaching construction. According to the Hellenic Association of Wind Energy, it is evident that less than 13% of projects with a grid connection offer (or pending receipt of one) concern wind farms, while a whopping 85% corresponds to solar.

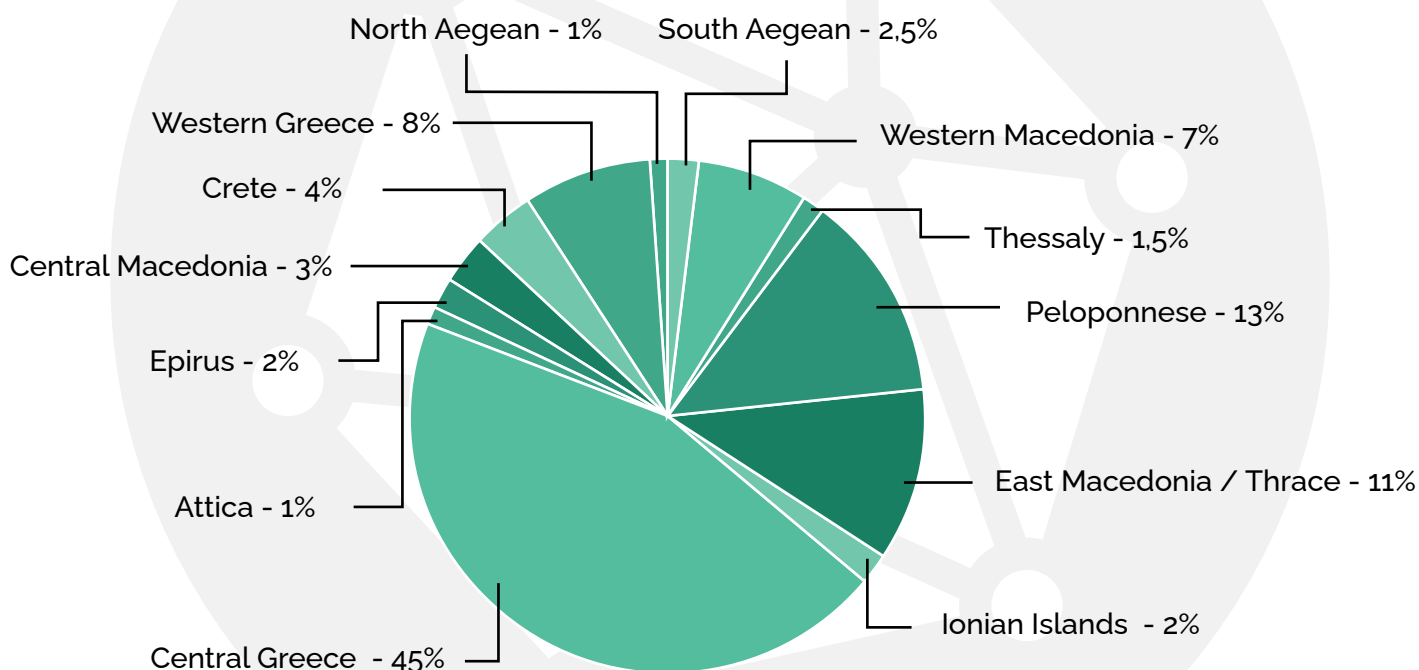


Source: RAE

## PERCENTAGE OF WIND PROJECTS INSTALLED BY REGION

Most of the country's installed wind capacity is currently located in the areas of Central Greece (2293MW), Peloponnese (639MW) and Eastern Macedonia and Thrace (534 MW). The wind dynamics of the regions in Greece are expected to change once legislation for offshore wind is in place.

The Greek Ministry of Energy along with legislators, professional bodies and other stakeholders have taken important steps in this direction, but to date, despite the country's significant sea fronts and high wind potential, Greece lags behind other EU coastal countries that are already realizing the benefits of major offshore wind projects.

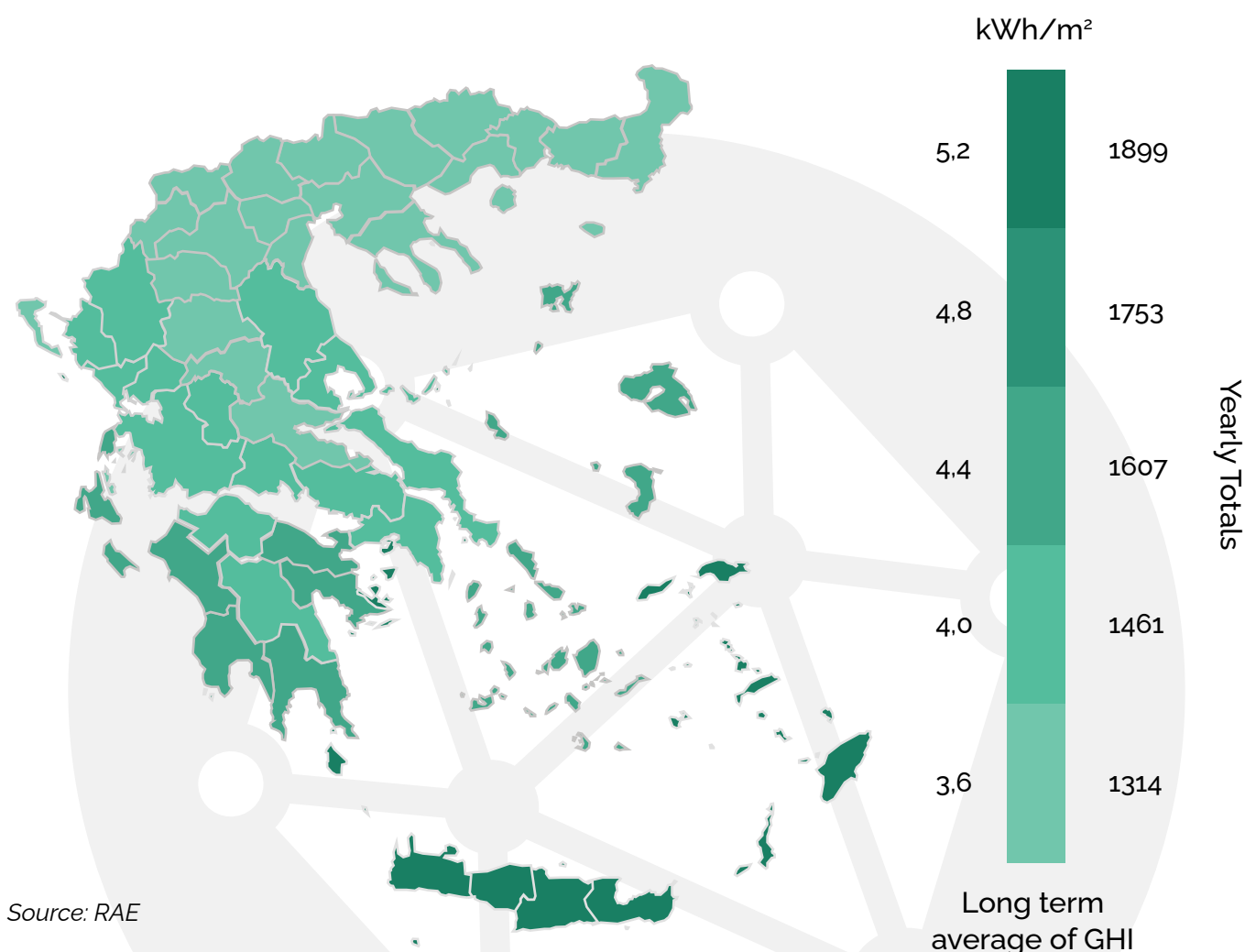


Source: ELETAEN

## THE COUNTRY'S SOLAR POTENTIAL

The prevailing conditions in Greece favour the development of solar PV mainly due to the high horizontal irradiation, which ranges between 1400-1800 kWh/m<sup>2</sup> per year, depending on the latitude and topography of each region. This is evident on the solar resource map, where Peloponnese, Crete and Dodecanese islands benefit from the highest insolation, however, the whole country offers lucrative conditions for solar PV development, boasting one of the highest irradiation levels in Europe.

The steady, year-round sunlight that peaks during the summer months, conveniently coincides with the significant incoming tourism activity during the same period offering a significant seasonal correlation between energy demand and PV power generation.



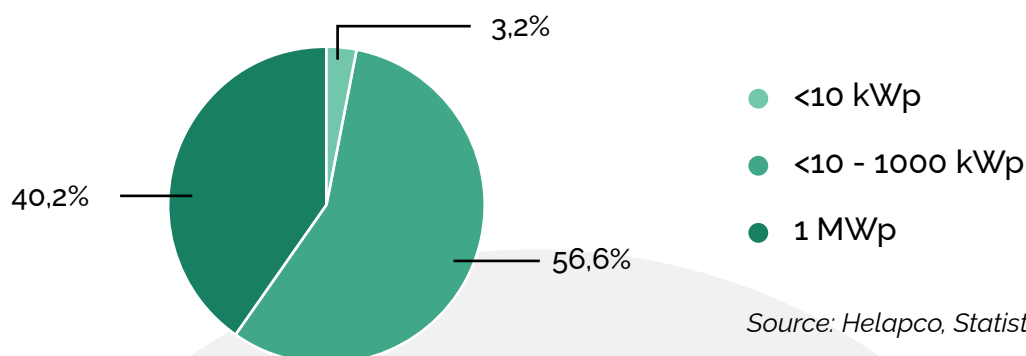
## MARKET SHARE BY SIZE

The majority of the solar production comes from small PV installations ( $P < 1000 \text{ kWp}$ ), holding a 67.6 % of the total solar capacity. However, this has significantly changed in 2023, with the percentage of the solar pv stations  $> 1 \text{ MWp}$  reaching 26% of the country's installed capacity.

This trend will change even further, as there is a shift toward utility scale projects, due to technology advancements, large foreign investors entering the Greek market and congestion of Medium Voltage lines.

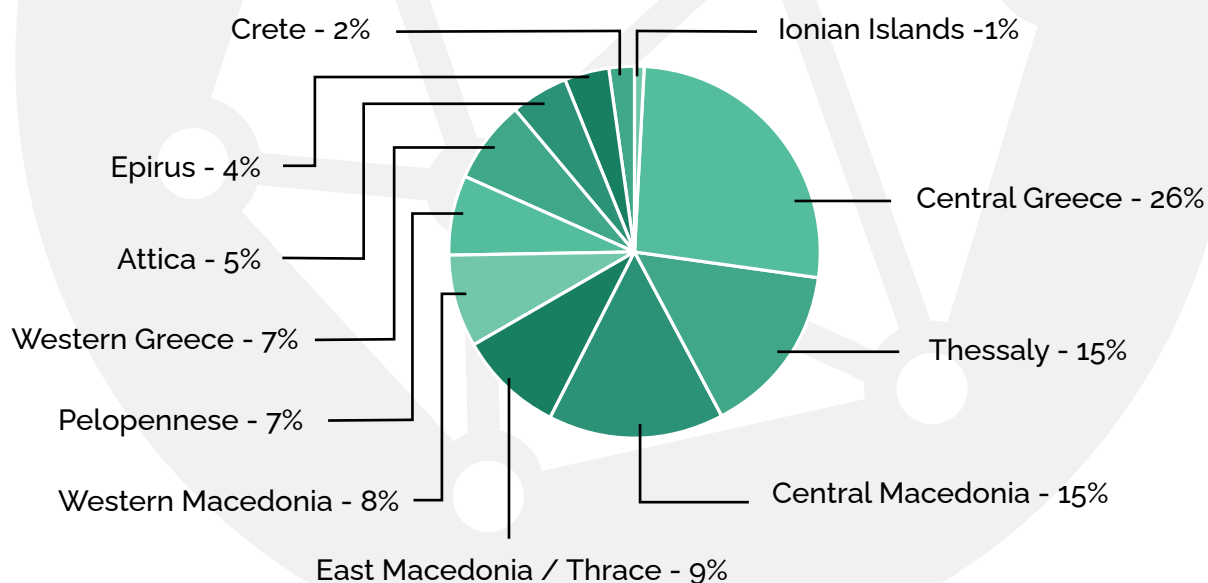


### Market share by size



### PERCENTAGE OF SOLAR PROJECTS INSTALLED BY REGION (2022)

PV installations are nearly evenly dispersed across mainland Greece, with the largest concentration of projects in Central Macedonia and Thessaly. At the end of 2019, the total installed solar capacity in Greece was 2,288 MW and only 7.6% of this amount was provided by large scale PVs (above 5 MW).

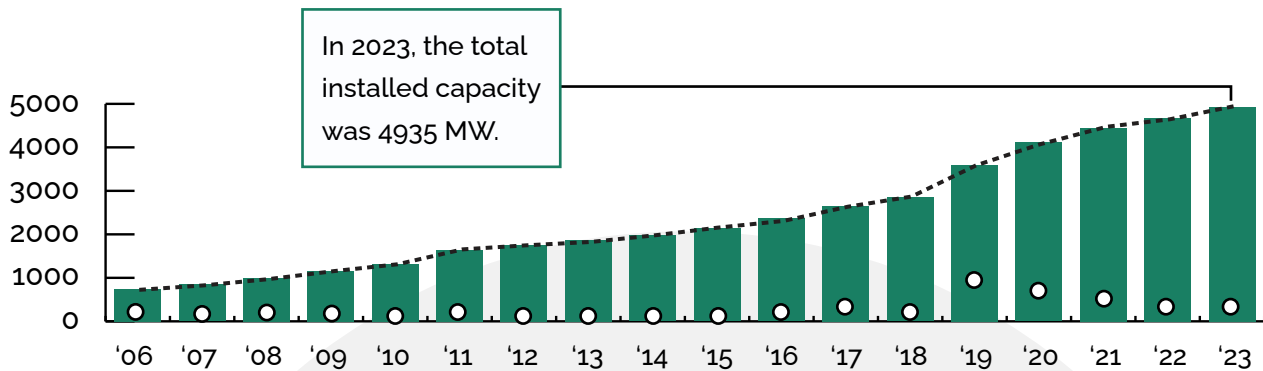


Source: Helapco, Statista

### ANNUAL WIND & SOLAR INSTALLED CAPACITY GROWTH (MW)

The growth of installed capacity for wind projects is linear, with the total installed capacity almost quadrupling during the period of 2011-2023. The capacity added each year ranges from 100MW to 500MW, with the exception of 2018 to 2020 when the new annual capacity added reached a cumulative record high of over 1400 MW.

## Total installed capacity - wind energy



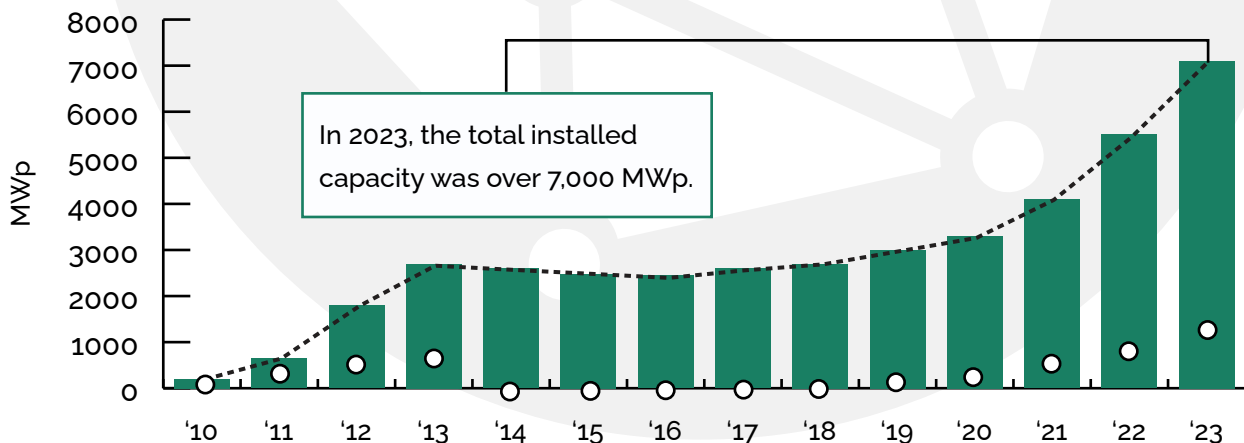
Source: Helapco, Statista

■ Total Installed ○ Annual Installed

The Greek solar industry has experienced unprecedented growth over the last decade, with the total installed capacity of Solar PV projects growing almost at an equal amount in 22/23 compared to 2021 levels.

The upward trend is set to continue over the next few years, as a large number of utility-scale projects is currently under construction or at a Ready to Build stage.

## Total installed capacity - solar energy



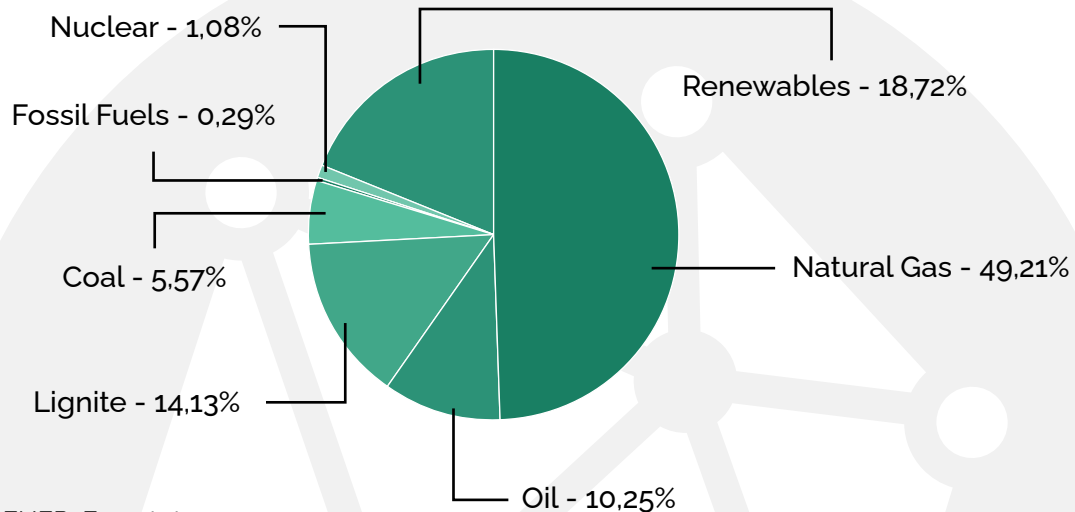
Source: Helapco, Statista

■ Total Installed ○ Annual Installed

## GREEK ENERGY AND ELECTRICITY MIX

As can be seen in this chart almost half of the energy mix in Greece is taken over by Natural Gas. Lagging far behind are Renewables and Lignite closely follows. However, lignite fired power plants are being phased out across the country by 2028.

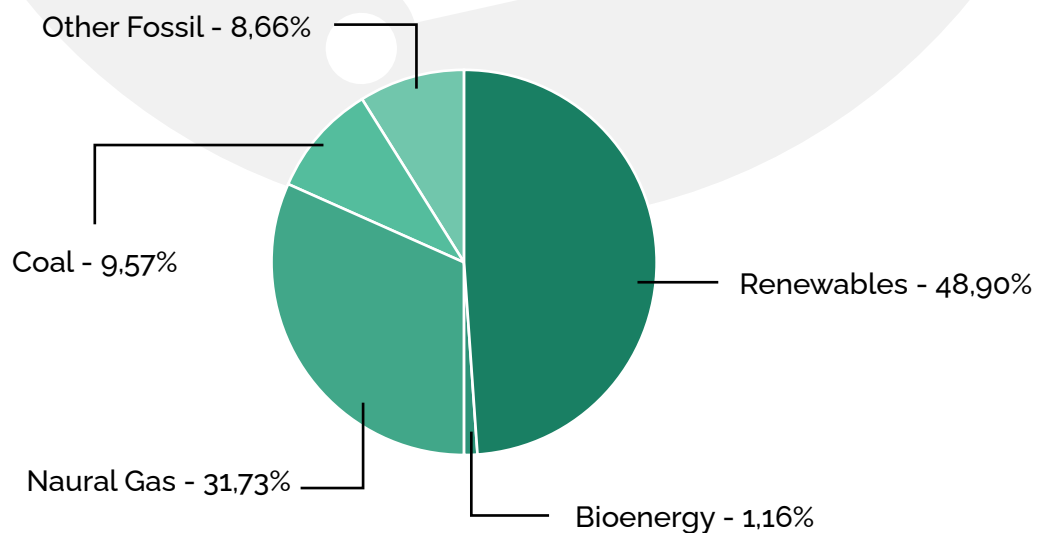
Greek Energy Mix (2023)



Source: DG ENER, Eurostat

It is evident that Natural Gas still plays a big part in electricity production in Greece, however, in 2023 renewables surpassed natural gas in electricity generation in line with the NECP of the country.

Greek Electricity Generation Sources (2023)



Source: DG ENER, Eurostat



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