



• Vol.24

A New Electricity Market for a High-RES Energy System

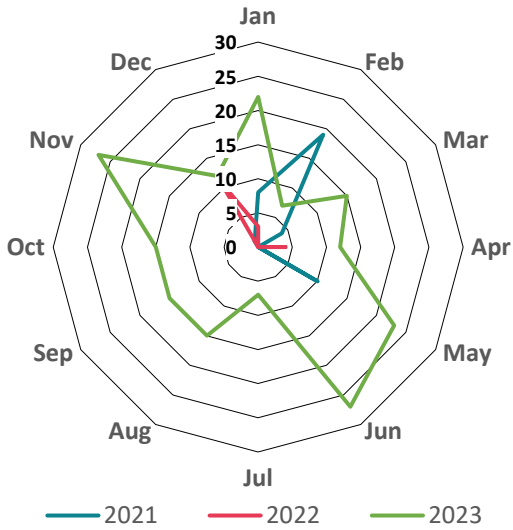


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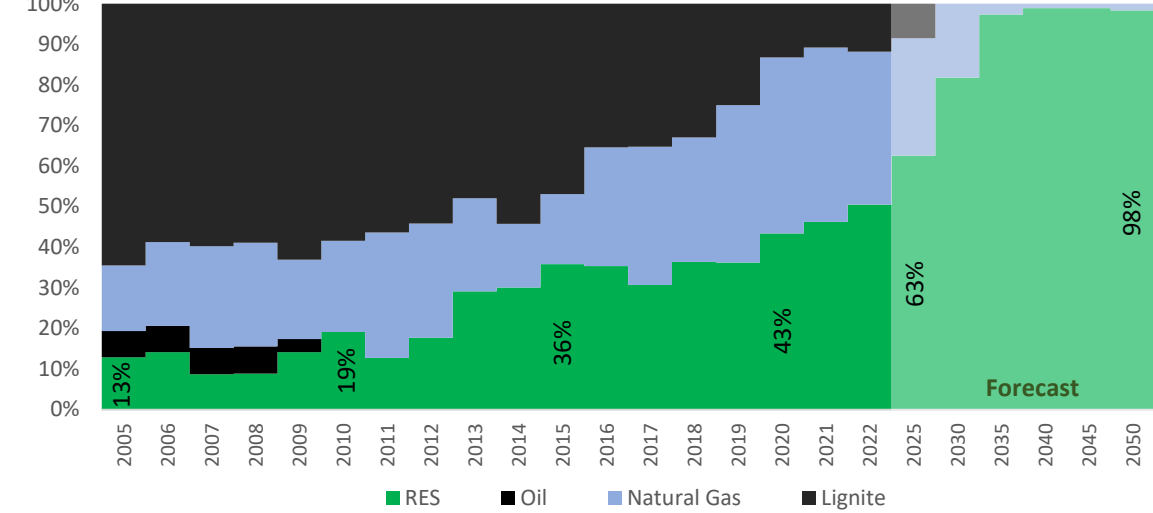
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Hours of Electricity Price below 10€/MWh

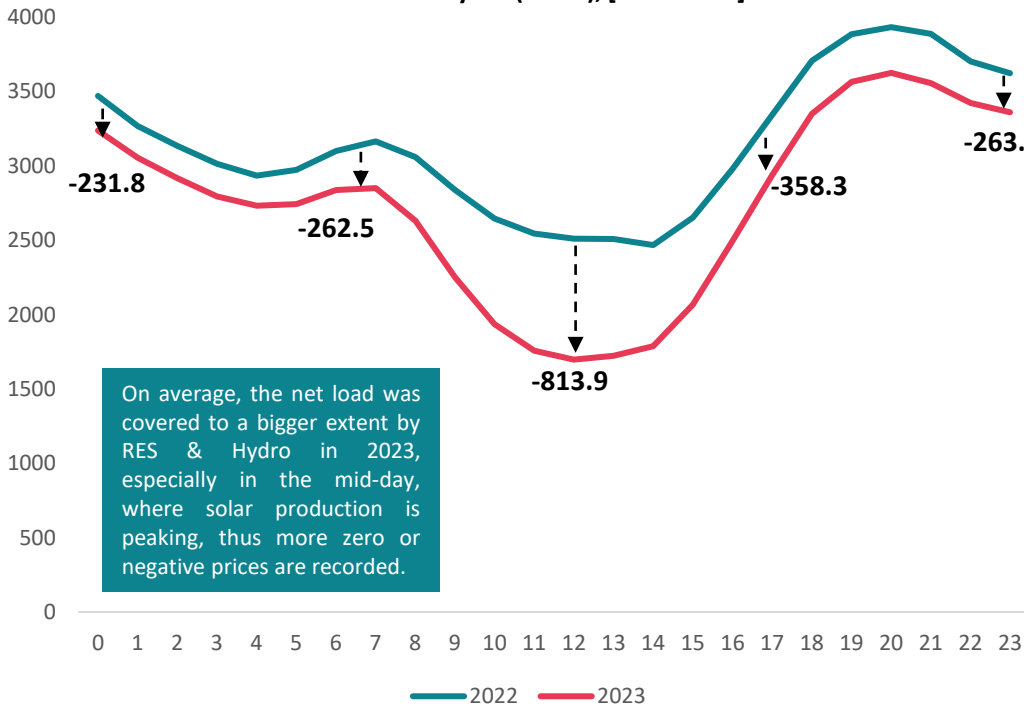


The **growing penetration of RES** in the electricity mix, has led into the Net Load shift of dispatchable units to lower levels, resulting in an increase in the **hours of nearly zero or 0 €/MWh** electricity prices, and even whole **days that the demand is met solely by RES.**

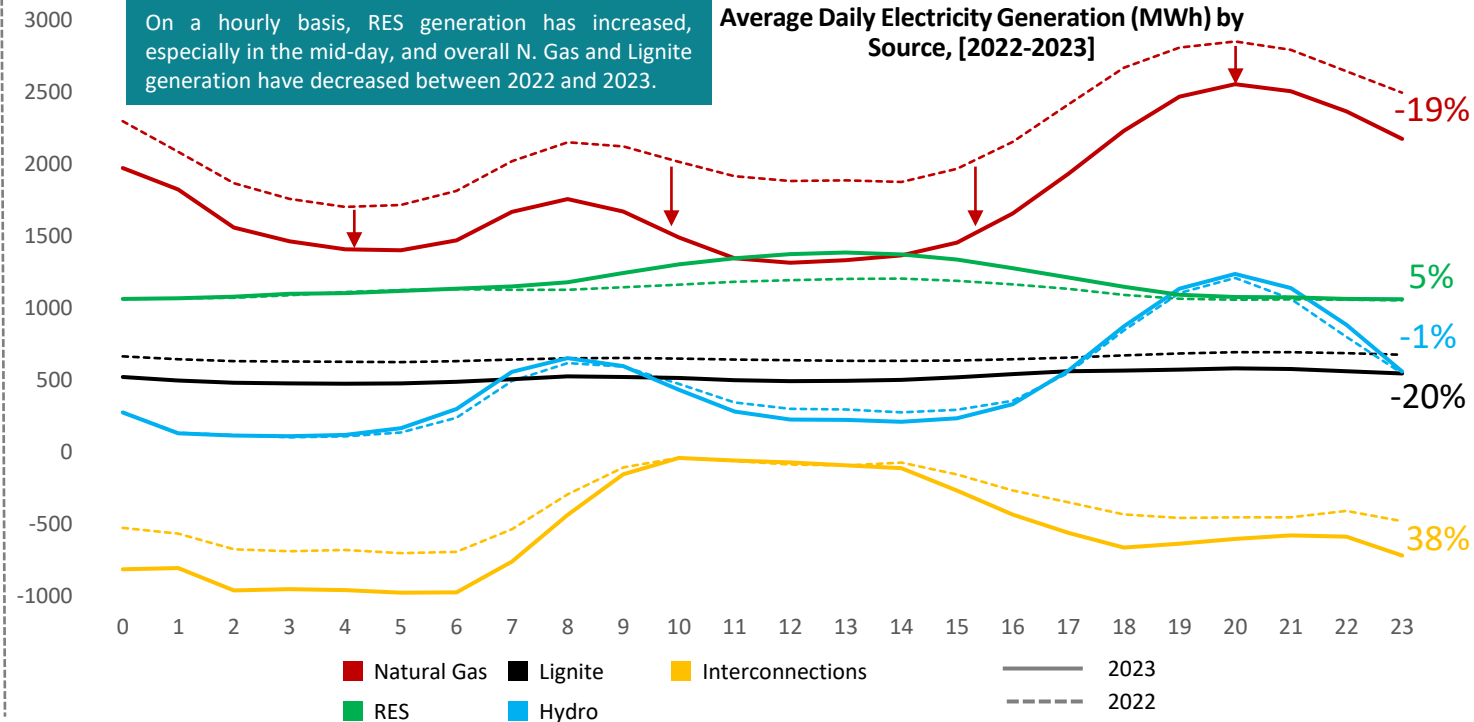
Greek Electricity Mix, [2005-2050]



Hourly average Net Load covered by dispatchable units, excluding RES and Hydro (MWh), [2022-2023]



Average Daily Electricity Generation (MWh) by Source, [2022-2023]



In 2023, RES and Hydro contributed to a larger portion of the Net Load on an average hourly basis, particularly in mid-day, which coincides with more frequent occurrences of close to 0 €/MWh electricity prices.

Moreover, the **duck curve effect** is visibly **more noticeable** for 2023.

Furthermore, DAM Prices **dropped to zero or negative for 11 consecutive hours** in 2024. The evident trend of zero/negative prices is expected to increase over the next years.

The **cannibalization effect** and the **duck curve effect** will be more visible as the RES evolve and **contribute more to the electricity mix**.

In the expected energy system of the future that entails **high-RES penetration**, there will be a strong **need for a restructuring of the energy market**.

The new market shall include installations of **energy storage systems** in order to **cover the needs in all hours** of the day.

The need for energy storage systems is recognized and supported from the state, as evidenced by the **two already-completed auctions** and the **planned three**, for a total of **1.7GW** of storage.

Moreover, the **focus** is clearly placed **on BESS** as the NECP projections indicate that by 2050, **22.6 GW** of **BESS** will be installed.

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