CHART OF THE MONTH

Vol.8

Energy Crisis: Tracking the electricity mix in Europe

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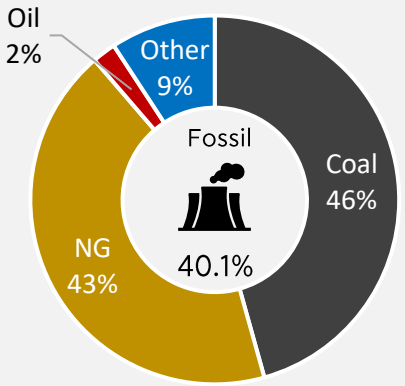
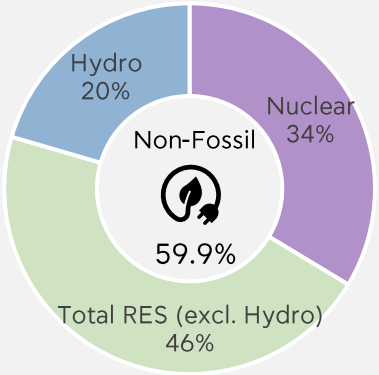
Energy Crisis: Tracking the electricity mix in Europe

Share of fossil and non-fossil electricity production technologies

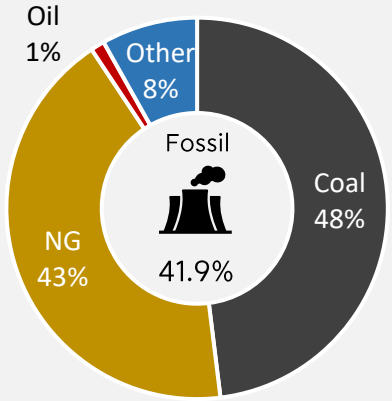


1st Jan - 5th Sept
2021

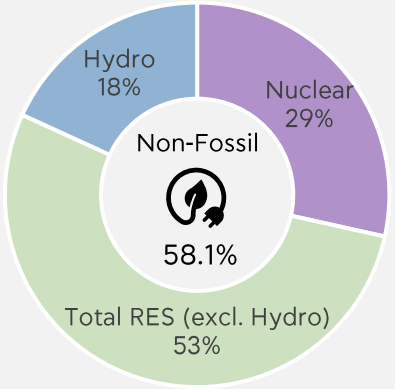


2021	TWh
Fossil	1318
Non-fossil	1968

2022	TWh
Fossil	1455
Non-fossil	2021



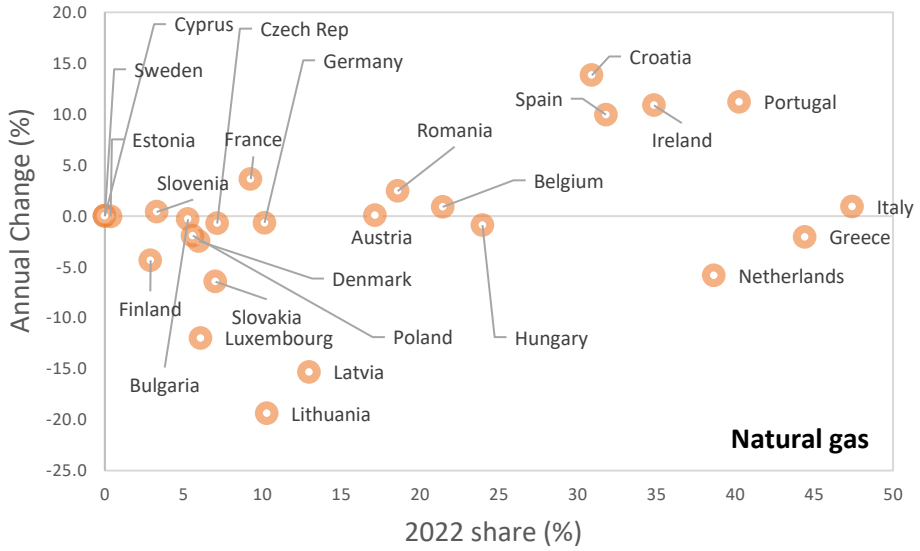
1st Jan - 5th Sept
2022

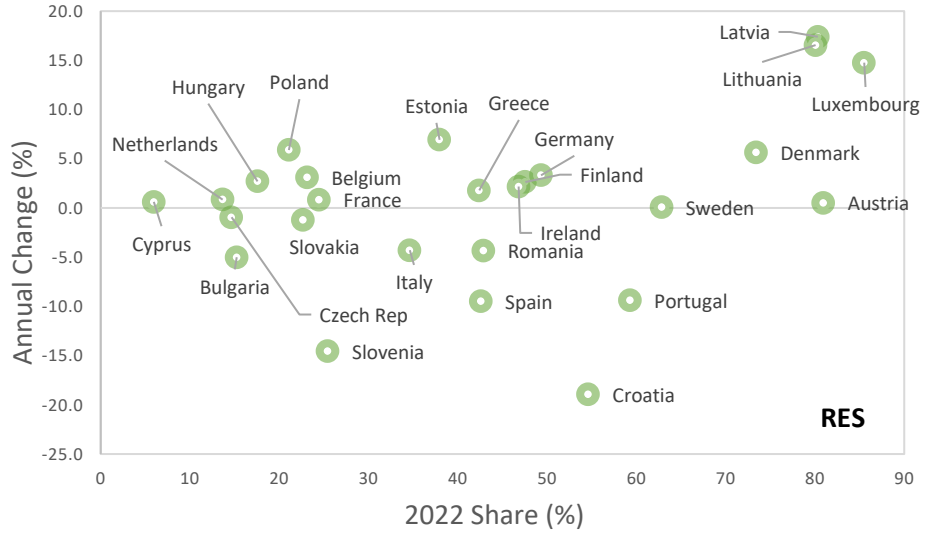


Actual change of electricity production per technology (in % and TWh) in 2022 compared to 2021 [1/1 – 5/9 period)

+16%	+9%	-38%	-13%	-9%	+19%
+97 TWh	+53 TWh	-10 TWh	-87 TWh	-36 TWh	+175 TWh

NG, RES Change (%) in 2022 compared to 2021 (1/1-5/9) vs their 2022 share (%) per EU country





Source: Entso-e, HAEE Analysis

Fossil and non-fossil electricity production technologies – EU level

Despite the mobility on policy levels to shift into alternative energy sources, **European electricity supply is substantially dependent on natural gas electricity production**. More specifically, the EU natural gas share **remained at 43%** for the **same time period (1/1 until 5/9) in 2021 and 2022**, while its EU electricity production in absolute numbers **increased by 53 TWh** in 2022**,** highlighting the still strong reliance on the fuel.

Given the geopolitical context, many countries have extended the phase-out periods of coal power plants, with coal production projected to offer (at least) a short-term substitute for natural gas. As a result, **EU's coal electricity production has increased by 16% and 197 TWh**, **in-line with IEA's published estimations**.

Despite the fact **nuclear** energy is considered a key low carbon alternative to support the baseload electricity demand, its power plant fleet in EU has aged considerably, exhibiting serious durability/maintenance issues during 2022. Electricity production from nuclear **dropped by 13% or 87 TWh, reducing its share in the overall mix by 5%.**

EU's Renewable Energy Sources increased their share from 46% to 53%. The change in production levels between the given dates amounted to an **increase of 19% and 175 TWh**, signaling a promising development towards green energy transition. On the other hand, **hydro-electricity reduced** its share by **2%** and its production in absolute numbers by **9% and 36 TWh**.

Fossil and non-fossil electricity production – Country level

A helpful way to track and compare the electricity mix of different countries is to plot the changes of specific production technologies vs their current electricity mix. The case in study includes Natural Gas and RES and illustrates the large differences in the electricity mix and developments amongst EU-27.

Natural gas use increased substantially in Spain, Croatia, and Portugal in 2022, countries who exhibit also a high percentage of NG in their respective electricity mix. The strategic position of Spain and Portugal, in terms of LNG terminals, is likely to have played an important role.

Most countries have increased their RES electricity production in 2022, with Latvia, Lithuania, and Luxembourg leading at growth levels above 10%, and a number of countries following at the 5% mark. Bottom four countries, which have decreased RES electricity production up to 20%, include Portugal, Croatia, Spain and Slovenia.

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