Press release

Renewable electricity generation helped the EU boost underground gas storage by 14% since start of 2022

HELSINKI, 30 May 2023 - Increases in renewable electricity generation helped EU countries to boost underground gas storage levels by 14 percentage points from the beginning of January 2022 until March this year, displacing gas consumption equal to Belgium’s total annual usage. The growth in renewable energy improved the union’s energy security and lessened Russia’s grip on Europe in the energy sector, according to new analysis from The Centre for Research on Energy and Clean Air.

The savings made in 2022/2023 due to solar and wind mean that next winter’s heating season is starting with gas stocks already at 57%, which is 15% more than it would be without the boost from solar and wind.

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Source: CREA analysis based on the data from Gas Infrastructure Europe
In 2022, solar and wind generated 22% of Europe’s electricity compared to fossil gas at 20%. 2023 also started on a positive trend, with solar and wind generating 32% more electricity than gas in the EU in the first quarter of 2023. Wind generated 141 TWh and, despite the winter season, solar also produced 34 TWh in the same period, totalling 175 TWh versus fossil gas at TWh 119. The year-on-year increase in renewable power generation avoided the need for 14 bcm of fossil gas in 2022, corresponding to 12% of total underground gas storage (UGS) capacity, and another 2% or 2.25 bcm in January-March 2023.

The increase in renewables in Europe has an impact on the EU’s reliance on Russian gas and is paving the way for energy security. Russia’s energy blackmail allowed them to increase their gas revenues by 42% from 2021 to 2022 despite reducing exports by 46%, and EU payments to Russia in 2022 for pipeline gas and LNG amounted to a total of EUR 75 bn combined.

While the value of the EU’s imports of Russian gas has come down from the heights of 2022, the EU still paid Russia almost as much for gas in the first quarter of 2023 as in the same period in 2021, despite receiving only a quarter of the gas.
ʻThe writing is on the wall, there can be no doubt that wind and solar provide energy security and protection against energy blackmail, the devastating consequences of which we have all witnessed in the last couple of years in the hands of Putin and his allies;ʻ said Petras Katinas, energy analyst and author of the report.

Given the findings in this analysis, CREA policy recommendations include the following:

- EU governments should further invest in clean energy and clean heating, to reduce dependence on fossil fuels and their imports from third countries. This helps not only to decrease dependence on other regions and increases the EU’s energy security but helps to achieve net-zero greenhouse gas emissions faster.
- The industrial sector, affected by high fossil gas prices in 2022, should reduce its dependence on fossil fuels in industrial processes through electrification and by switching to clean energy sources.
- EU governments should institute price caps and/or import restrictions for pipeline gas and LNG from Russia.

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Note to editors

The CREA report related to this press release can be found here. All CREA publications can be found here: energyandcleanair.org/publications

About CREA

The Centre for Research on Energy and Clean Air (CREA) is an independent research organisation focused on revealing the trends, causes, and health impacts, as well as the solutions to air pollution. CREA was founded in December 2019 in Helsinki and has staff in several Asian and European countries. The organisation’s work is funded through philanthropic grants and revenue from commissioned research.

www.energyandcleanair.org

About the methodology

The period analysed in this review is from 1 January 2022 to 31 March 2023. The data used for electricity generation by fuel type is from EMBER. Gas-fired power generation is assumed to have an average net thermal efficiency of 50%. Therefore, an electricity output of 1 MWh implies a 2 MWh gas demand. Gas imports from Russia to the EU are calculated for pipelines and liquefied fossil gas. Gas imports into the EU are estimated on the basis of data from the ENTSOG and KPLER platforms and prices are calculated using the CREA pricing model.
The gas storage capacity data is extracted from Gas Infrastructure Europe (gie.eu). Calorific value of 35.7 MJ/m³ is used in all calculations.