



RYSTAD ENERGY

THE ROLE OF RUSSIAN GAS IN THE EUROPEAN ENERGY TRANSITION

RISK MANAGEMENT IN ENERGY 2021

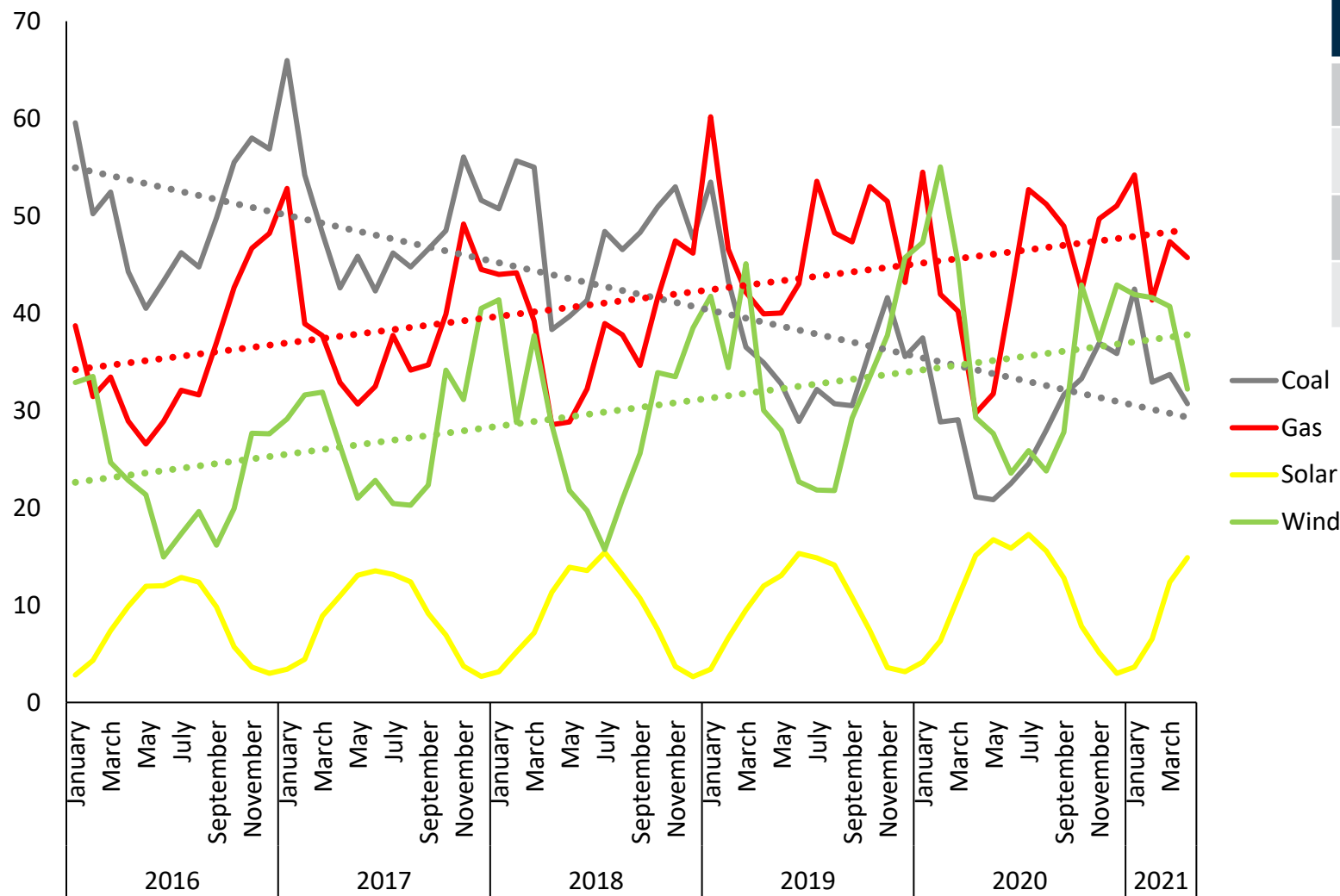
CARLOS TORRES-DIAZ, HEAD OF GAS AND POWER MARKETS

18 May, 2021

Wind and gas generation have started to displace coal

Europe power generation by source (gas, coal, wind, solar)

TWh

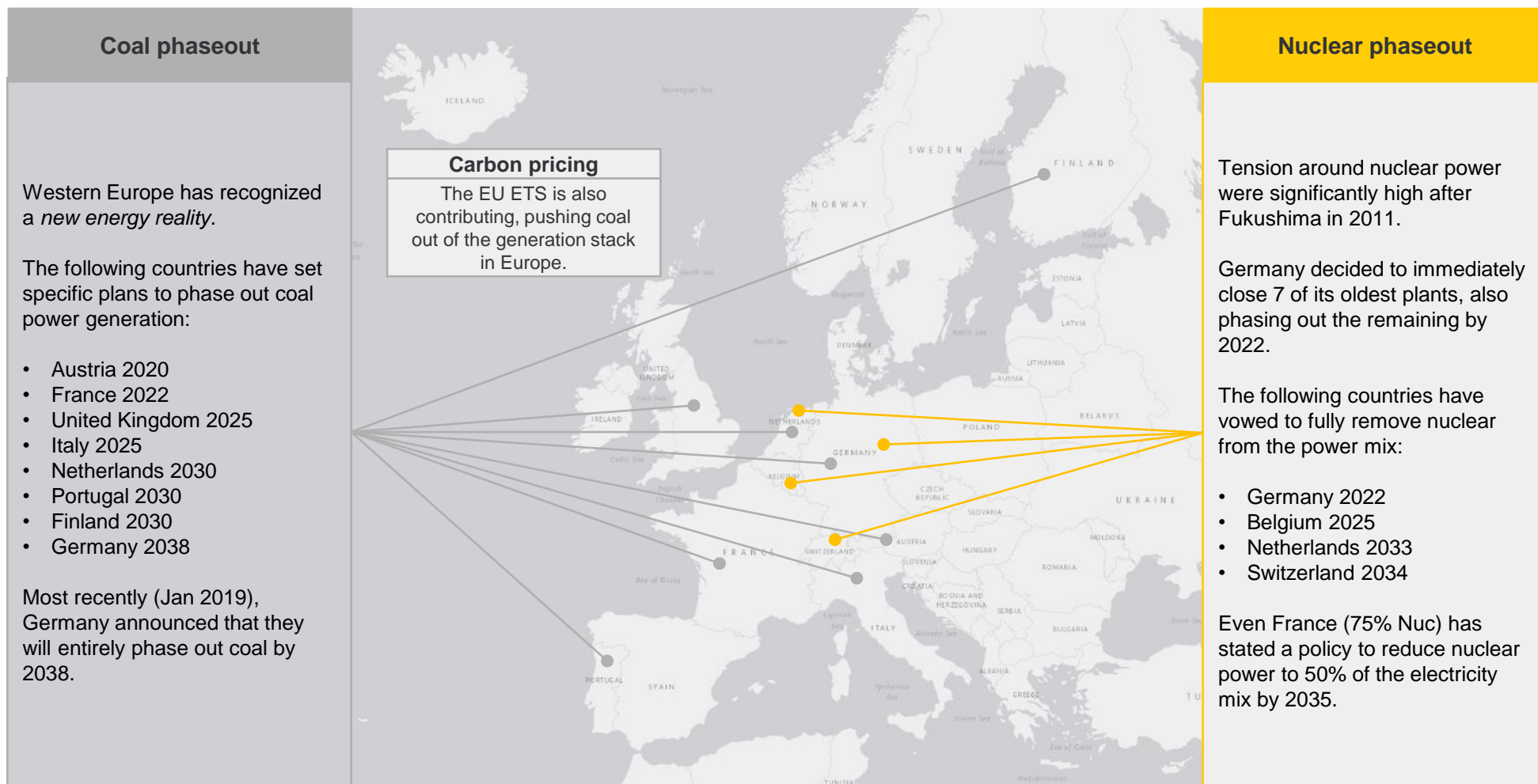


Change 2016 – 2020

Coal	-42%
Gas	+26%
Wind	+54%
Solar	+36%

Source: Rystad Energy research and analysis, Entsoe

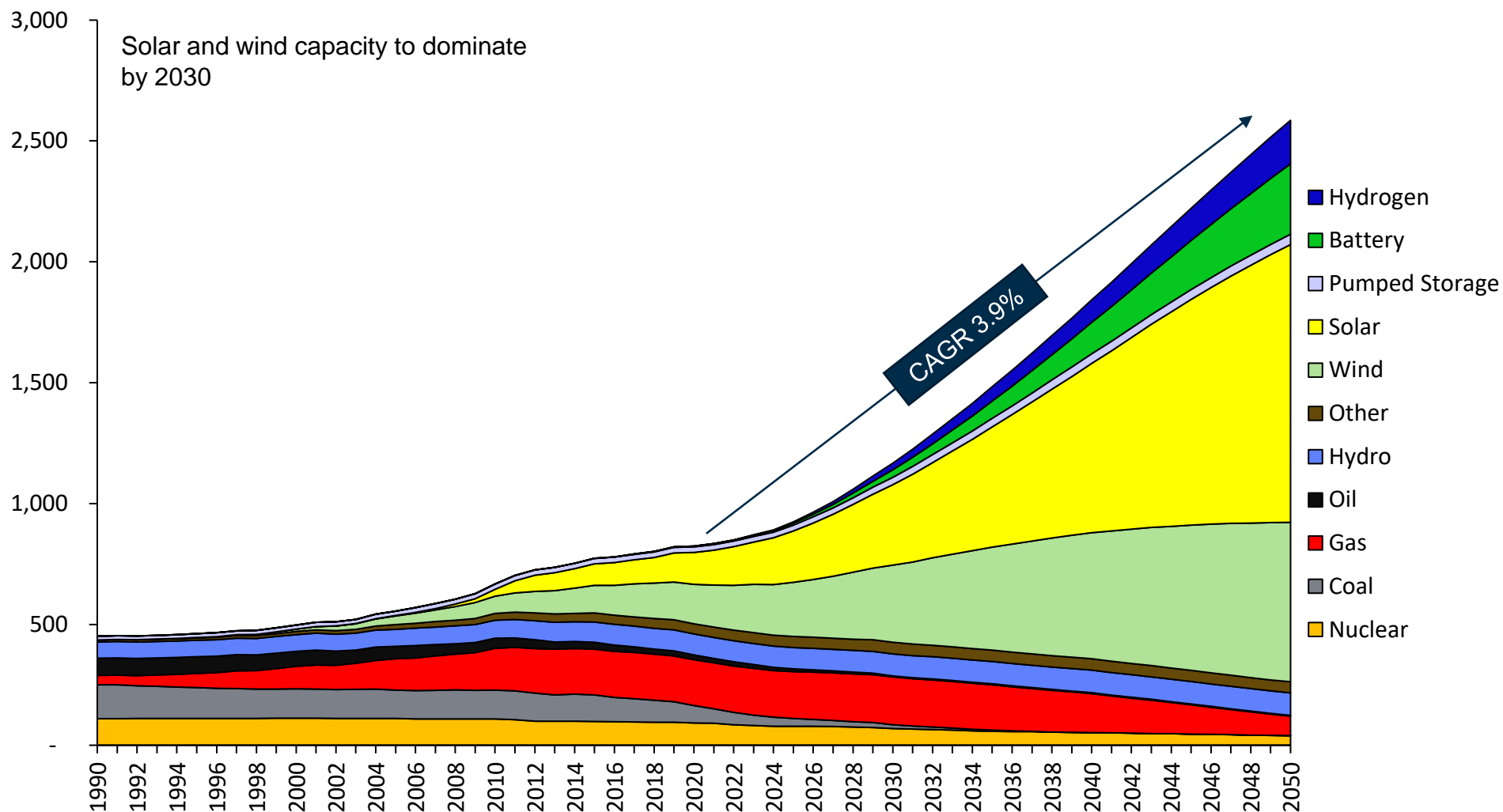
Extensive coal and nuclear phaseouts – increase the need for gas and renewables



Source: Rystad Energy research and analysis; Agora Energiewende; Sandbag; Reuters. *International Nuclear and Radiological Event Scale.

Massive capacity growth needed to decarbonize the power sector

EU9* installed power generation capacity 2010-2050
GW

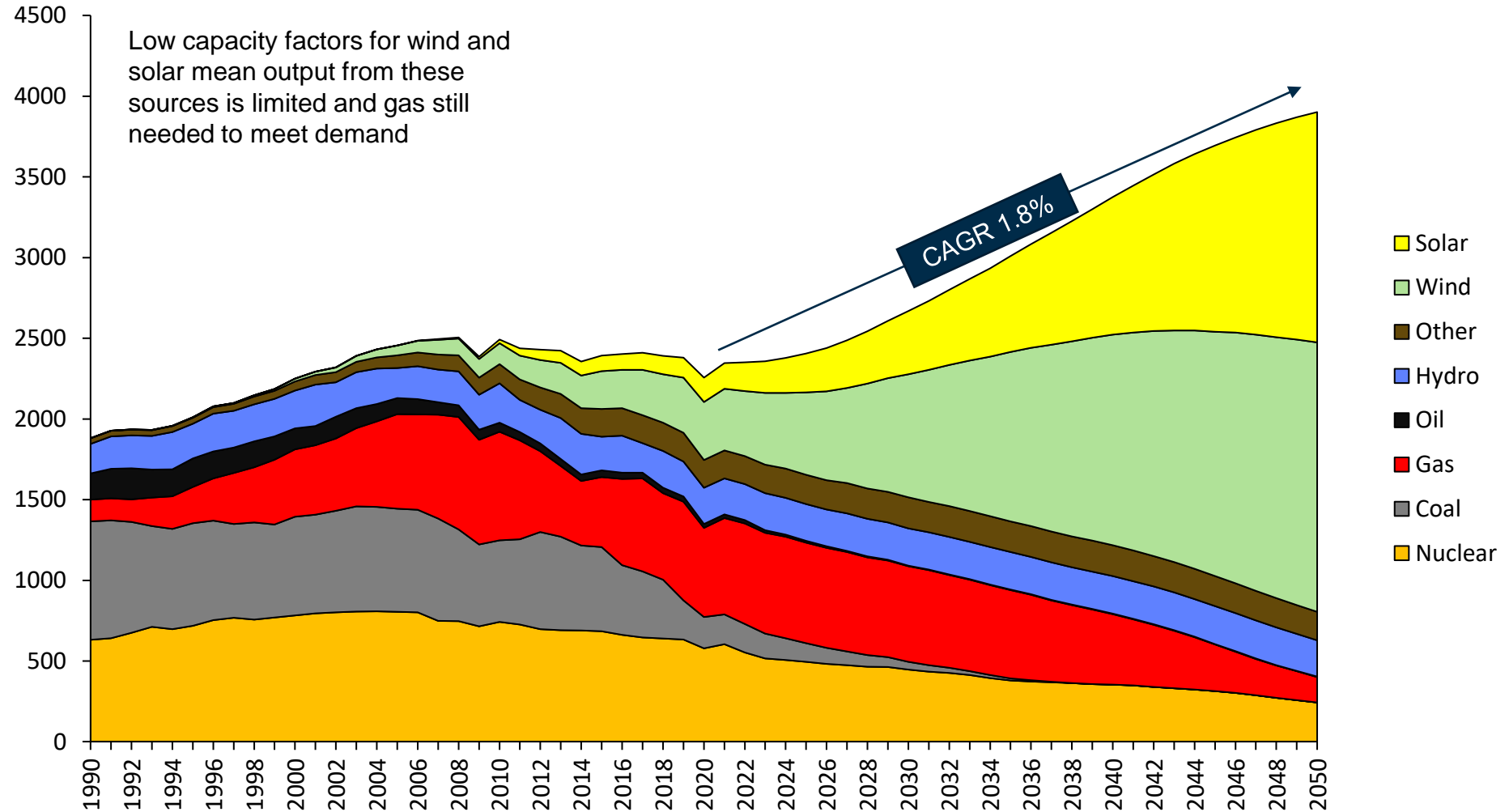


Source: Rystad Energy research and analysis, Rystad Energy RenewableCube, Eurostat, IEA

* EU9 included the following countries: UK, NL, BE, FR, DE, IT, ES, AU, PT

Strong generation growth needed to meet demand, solar and wind to dominate generation in 2050

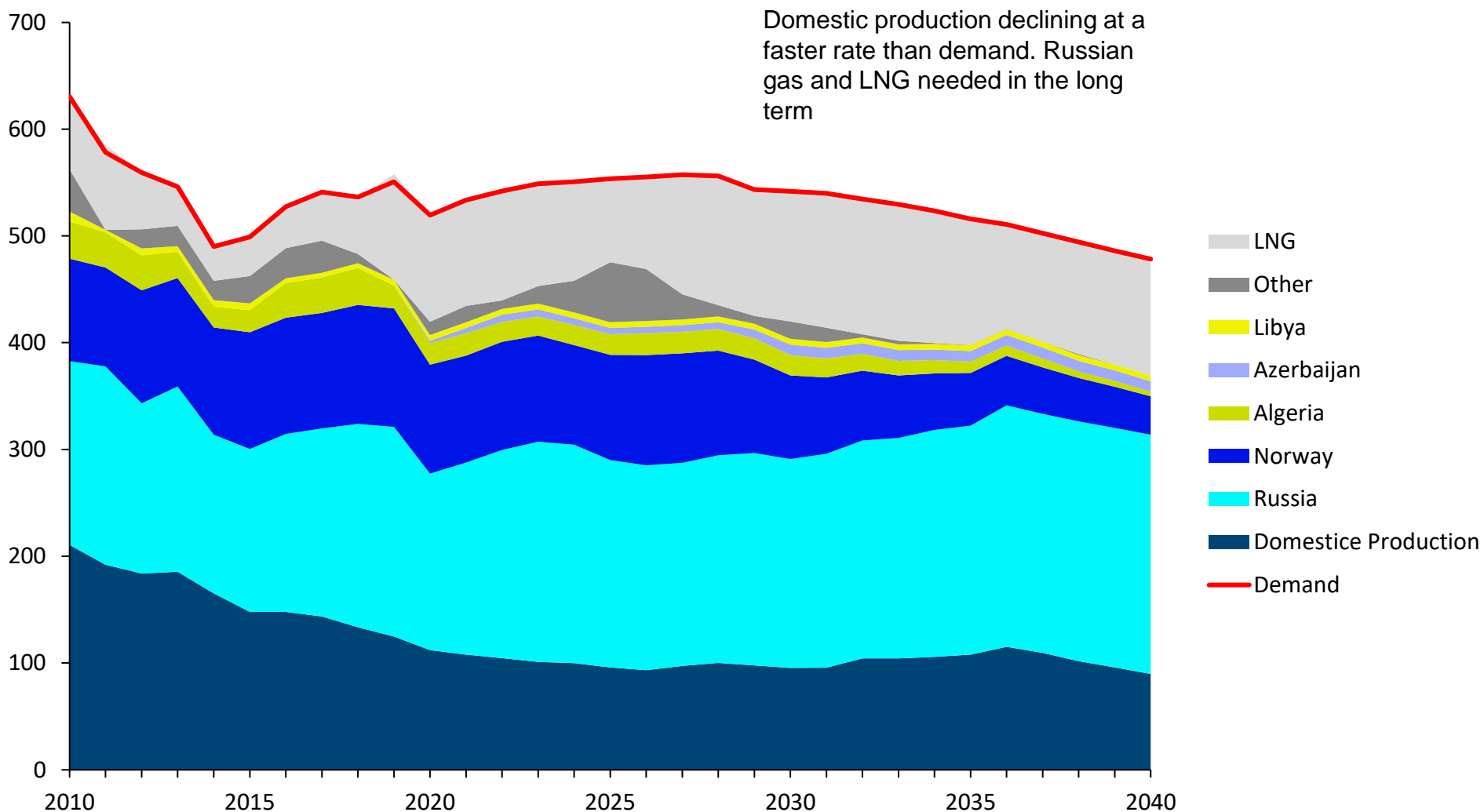
EU9* Gross Power Generation by energy source 1990-2050
TWh



Source: Rystad Energy research and analysis, Rystad Energy RenewableCube, Eurostat, IEA
* EU9 included the following countries: UK, NL, BE, FR, DE, IT, ES, AU, PT

Russian gas to be needed in the long term to help balance the European market

Europe natural gas balance
Billion cubic meters

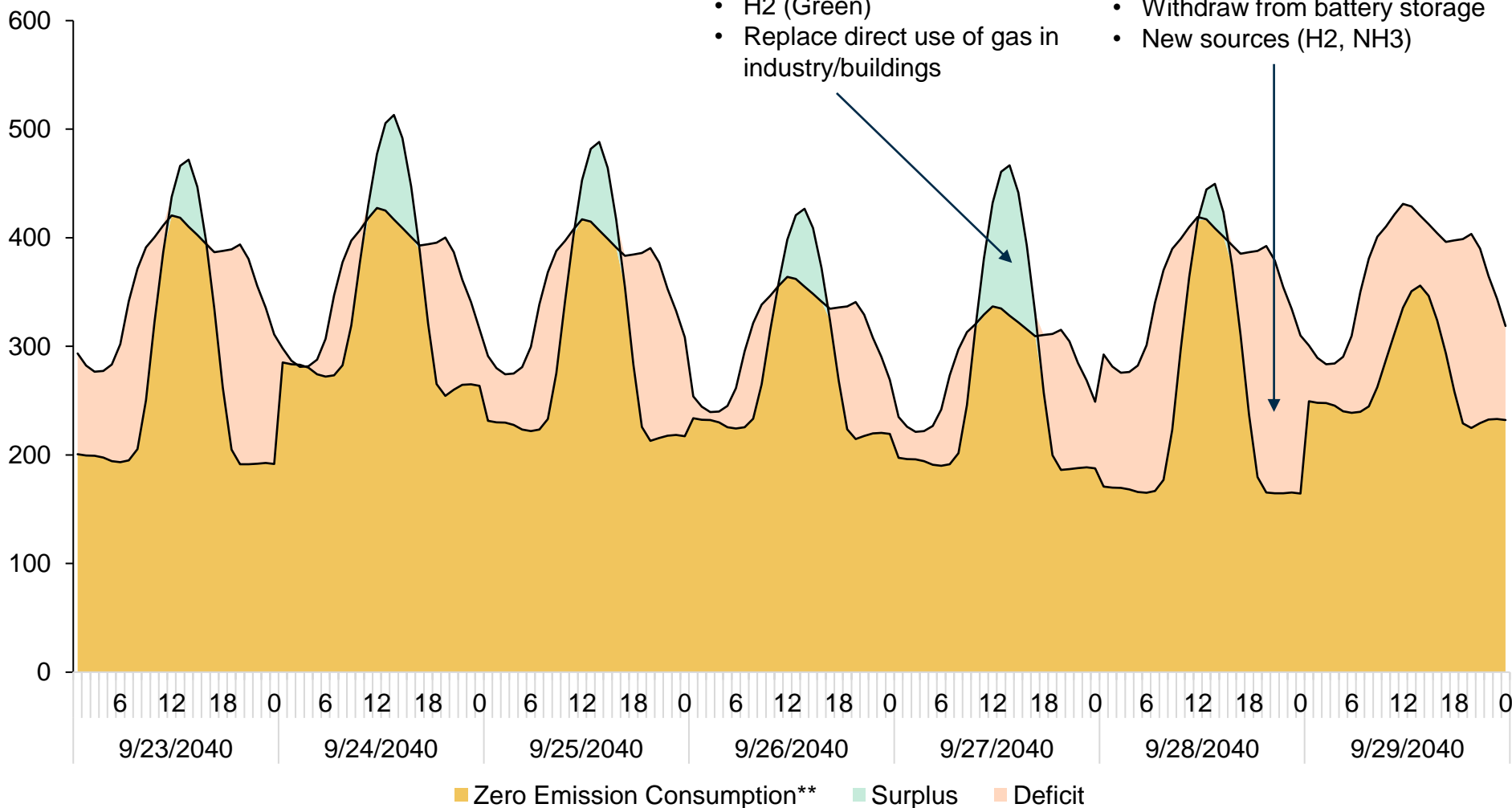


Source: Rystad Energy GasMarketCune

Gas power, batteries and hydrogen needed for peak shaving

EU* power generation balance, 2040

GW

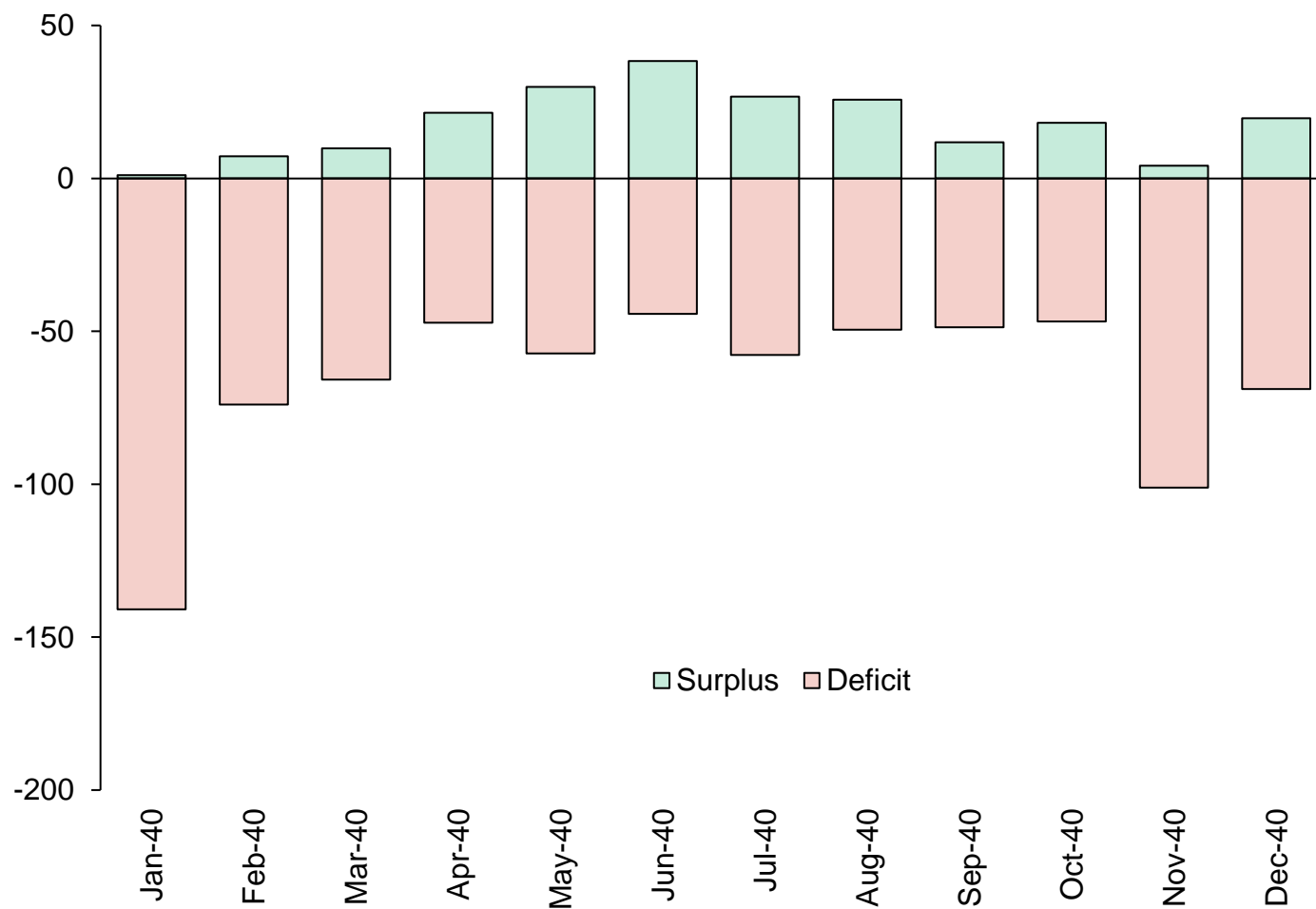


*) EU27 + UK **) Includes Nuclear power generation
Source: Refinitiv, Rystad Energy Research and Analysis

Net deficit of 580 TWh to be met by gas-fired generation or storage

EU* power generation balance, 2040

TWh



Surplus

2040: 215 TWh of surplus potentially replacing gas in buildings and industrial sector

Deficit

2040: 800 TWh of fossil fuel fired generation needed to meet electricity demand

*) EU27 + UK

Source: Refinitiv, Rystad Energy Research and Analysis



RYSTAD ENERGY

Rystad Energy is an independent energy consulting services and business intelligence data firm offering global databases, strategy advisory and research products for energy companies and suppliers, investors, investment banks, organizations, and governments. Rystad Energy's headquarters are located in Oslo, Norway.

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