



8th AIEE Energy Symposium Current and Future Challenges to Energy Security

The energy security concerns in an ever-changing geopolitical context: The EU strategy

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Padua, 28-30 November, 2024

Study published on energy system infrastructures in the EU

- Project completed for the European Parliament's Committee on Industry, Research and Energy (ITRE)
- This study analyses the present and future of the European electricity and gas infrastructure

AT A GLANCE

Requested by the ITRE Committee

Study in Focus



Energy system infrastructures and investments in hydrogen

Including an impact analysis of Ukraine's connection to the EU power grid

Check out the [original full study](#) by scanning this QR code



[Link to the full report](#)

Topics covered by the study:

- Current status of energy system infrastructure
- Future development of the EU's energy system infrastructure
- Key drivers for electricity system integration
- Hydrogen penetration on energy infrastructures
- Impact's of Ukraine's connection to the power grid

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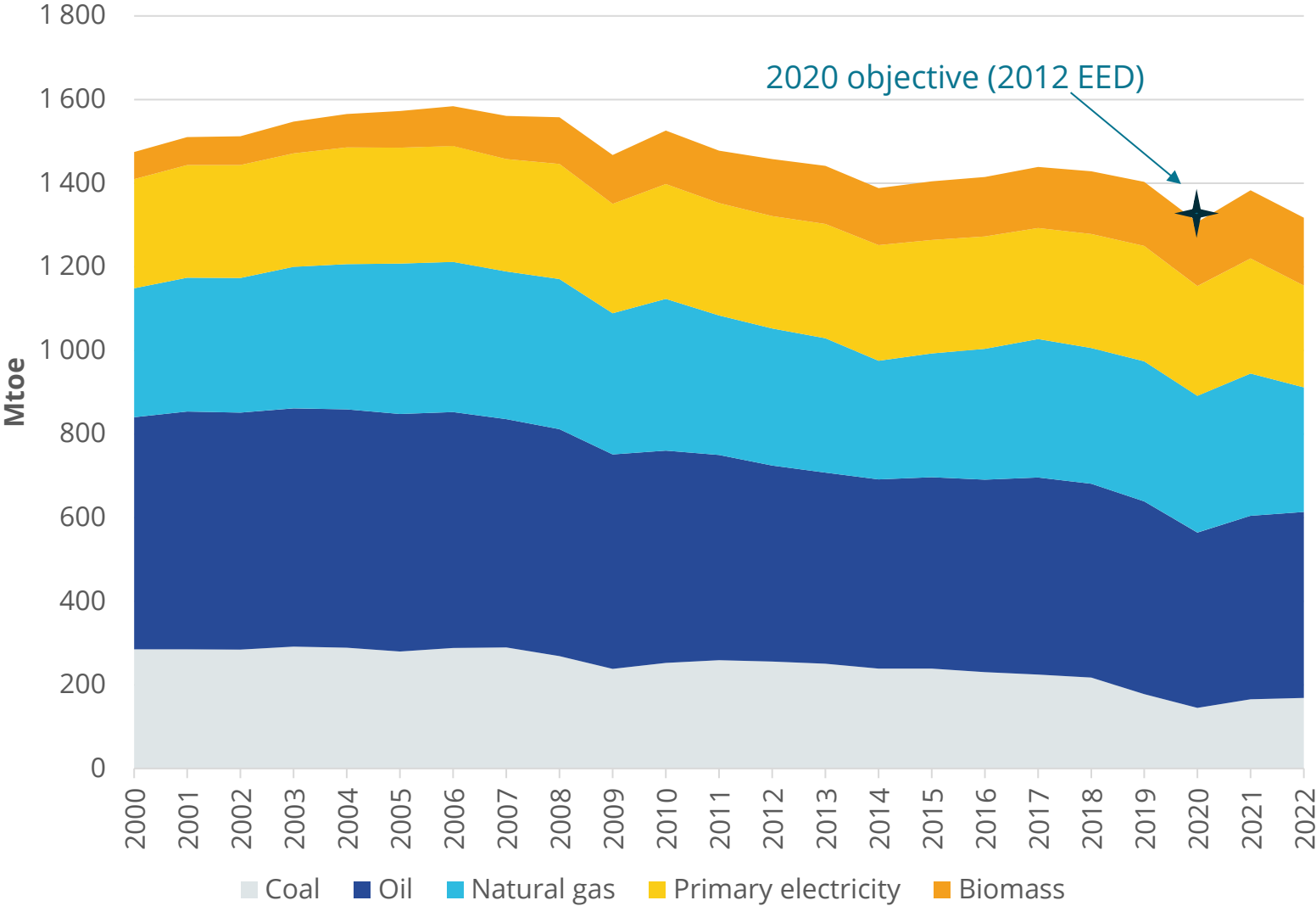
- Current status of energy system infrastructure
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Today, the presentation is focusing on:

- Evolution of EU primary energy consumption
- Evolution of energy dependency linked with this status

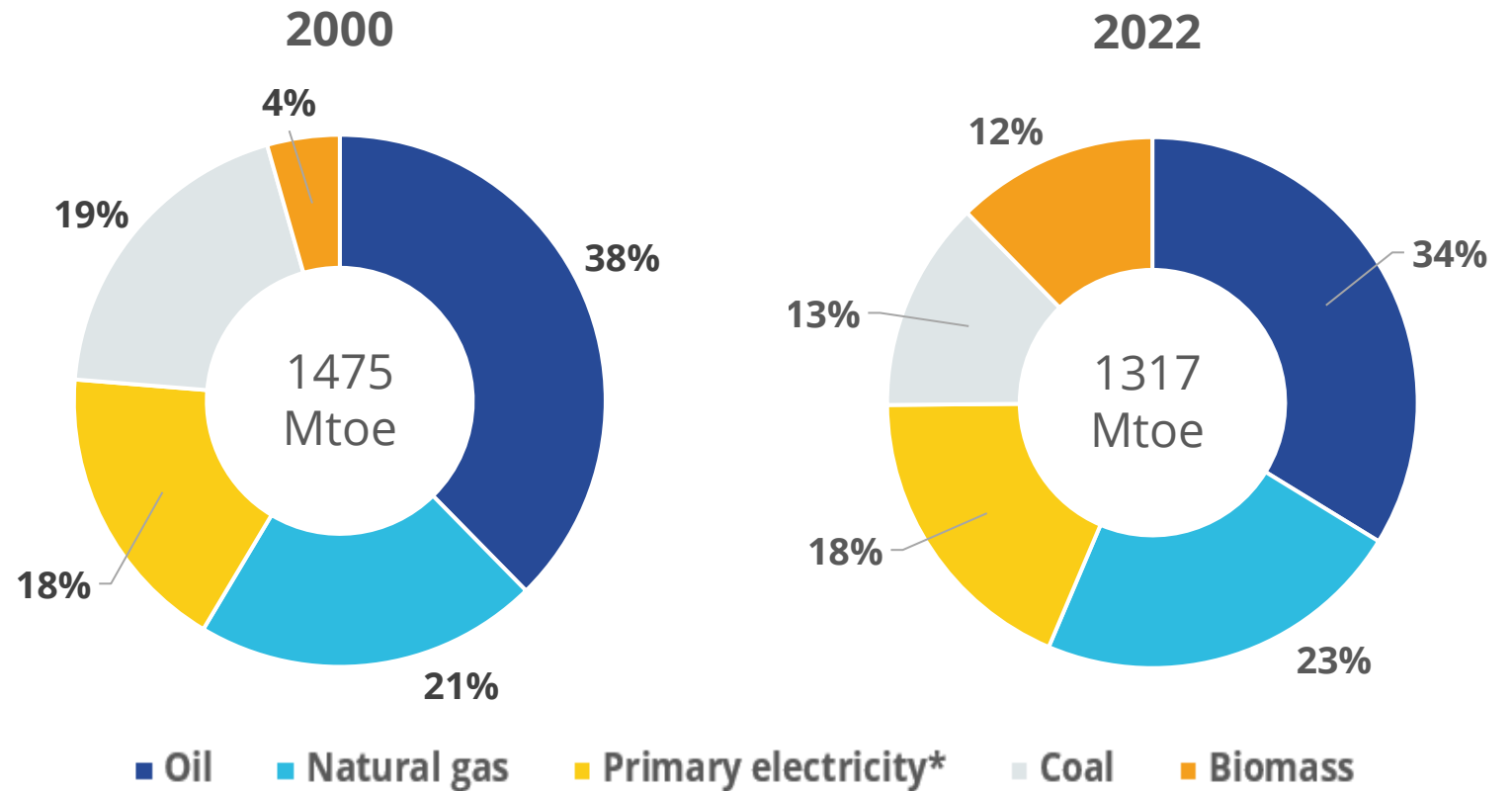
EU primary energy consumption by energy source

- Primary energy demand in the EU has decreased over the last 17 years, after reaching an absolute peak in 2006 of 1,586 Mtoe
- The European Union reached the savings target in the revised 2012 Energy Efficiency Directive (EED), equivalent to 1,312 Mtoe in 2020



EU primary energy consumption by energy source

- There has been a steady replacement of coal and oil with gas and biomass over the last two decades.
- The increase in demand for biomass was primarily driven by the transport sector (biofuel) and the residential sector (heating)
- In 2022, oil, natural gas and coal accounted for 70% of the European Union's energy demand



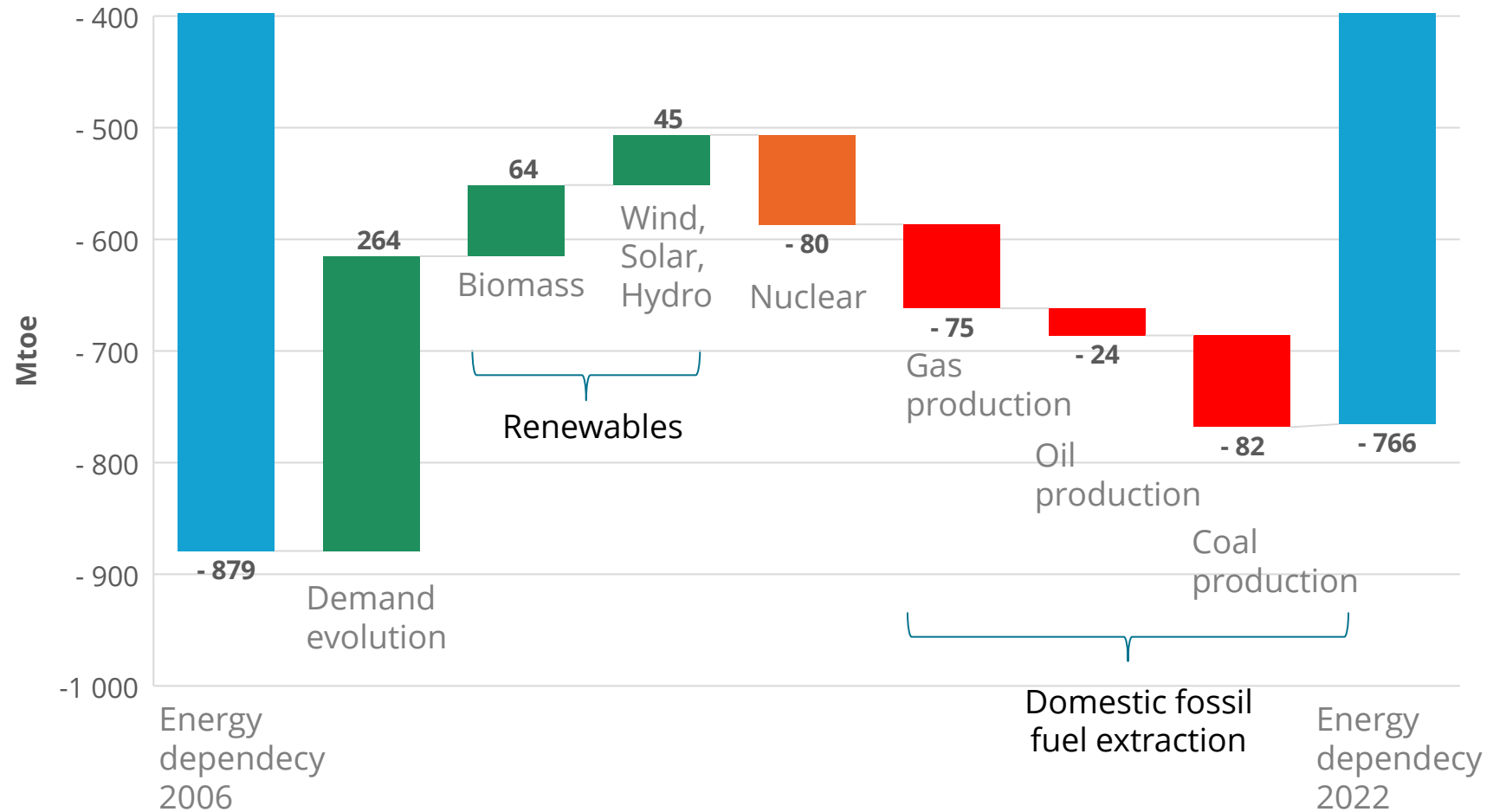
Focus on energy dependency: definition

Energy dependency is defined here as the amount of energy that needs to be imported to cover the domestic demand. It can be summarised as the EU primary energy production minus the EU primary energy consumption.

Total primary production	Total primary consumption	Energy dependency
707 Mtoe	1586 Mtoe	- 879 Mtoe

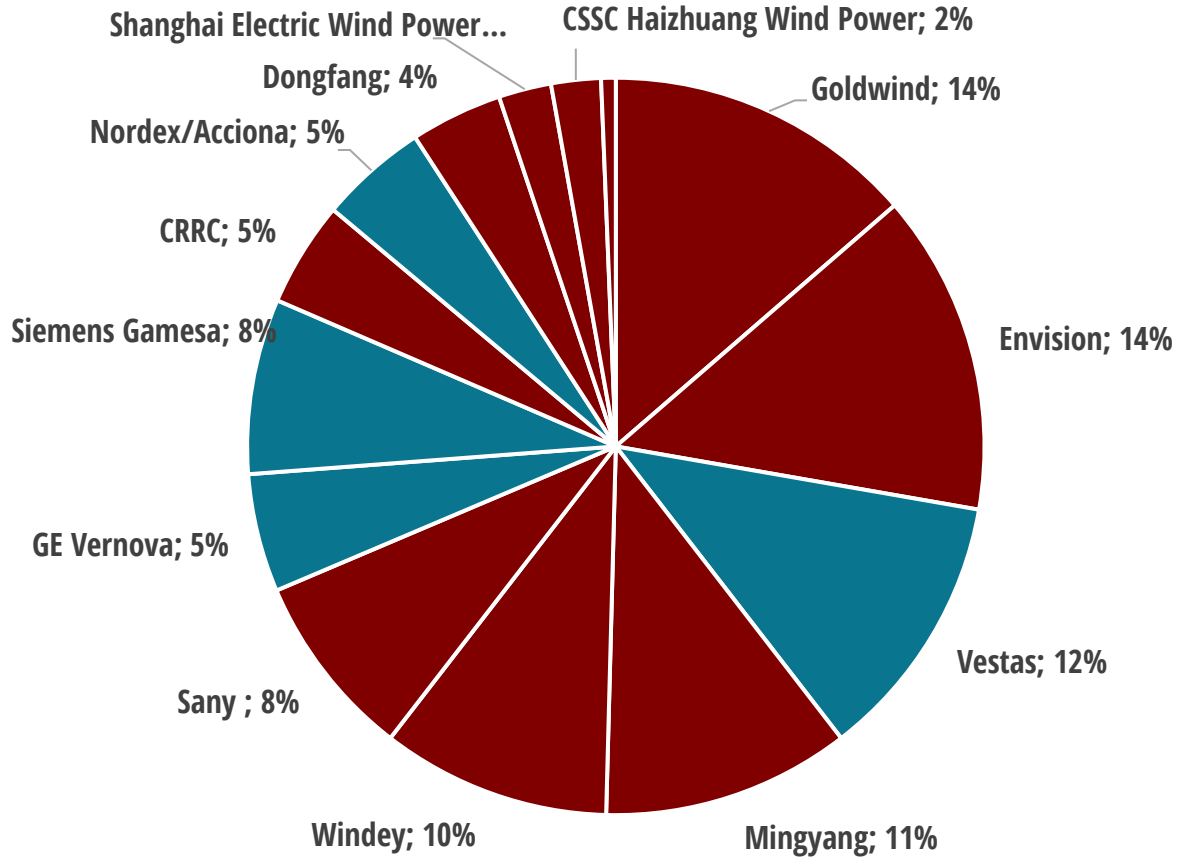
Focus on energy dependancy: breakdown

- The advancement of renewable energies and the implementation of demand reduction measures have resulted in a 13% reduction in energy dependency on non-EU countries from 2006 to 2022.
- The development of power generation production capacities has been marked by a shift from imported energy carriers (coal,oil) to more local ones (wind, solar, hydro,bioass)
- In 2022, the EU's domestic oil production only covered 4% of its consumption. Similarly, gas production within the EU meets just 12% of its demand.

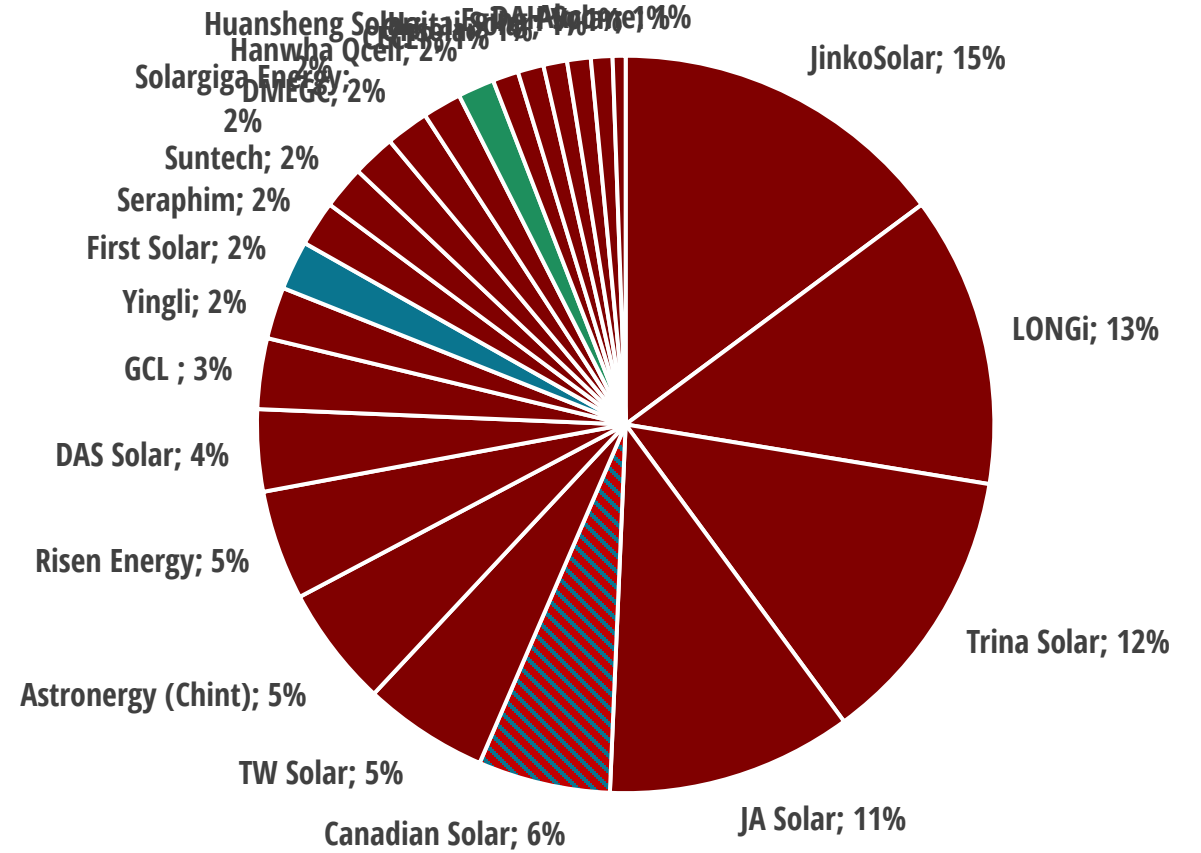


Looking ahead: risk of dependency on technology providers

Wind turbine manufacturers market shares, 2023
(by yearly intake orders)



Solar modules manufacturers market shares, 2023
(by yearly shipment)



■ Chinese companies
■ Western companies

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About Enerdata:

Enerdata is an independent research company established in 1991, specializing in the analysis and forecasting of energy and climate issues, at world and country level.

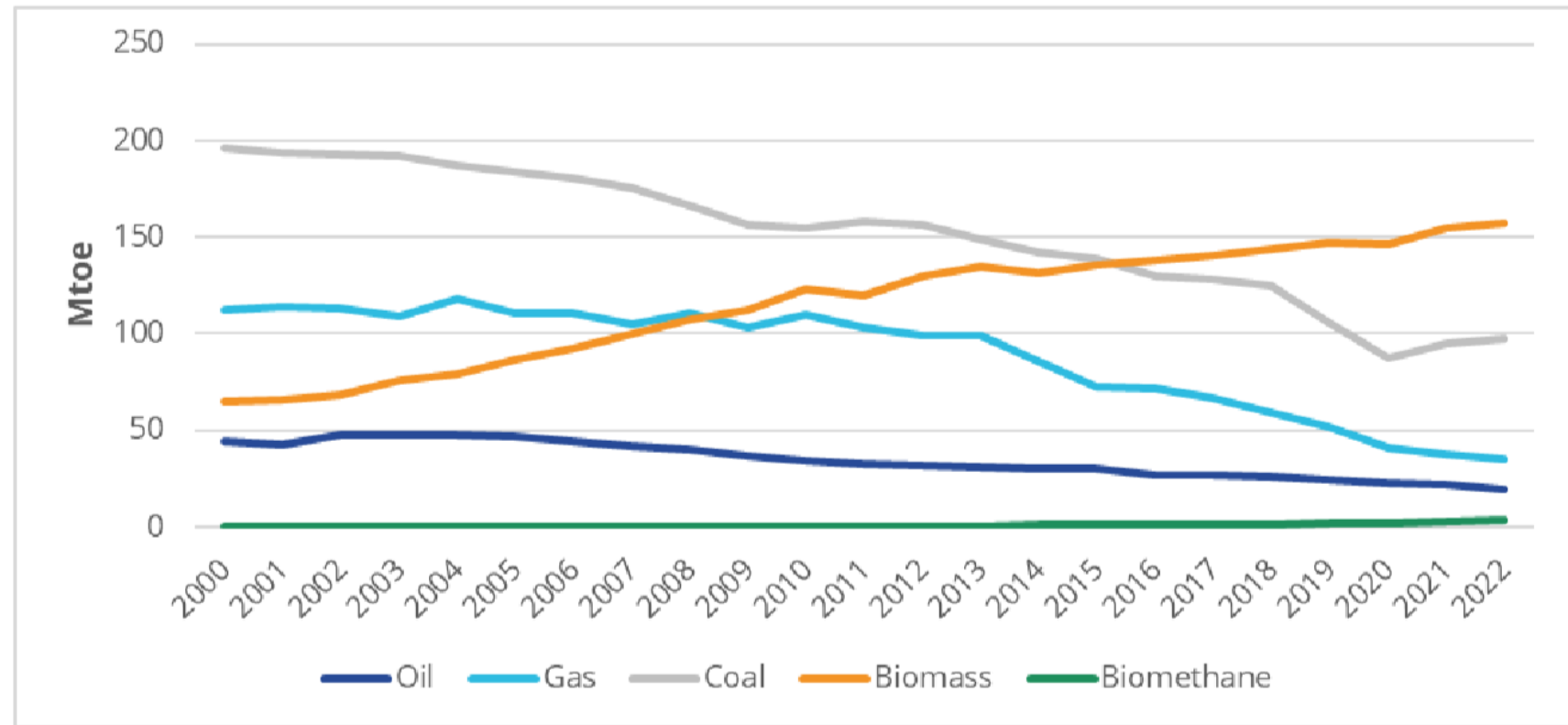
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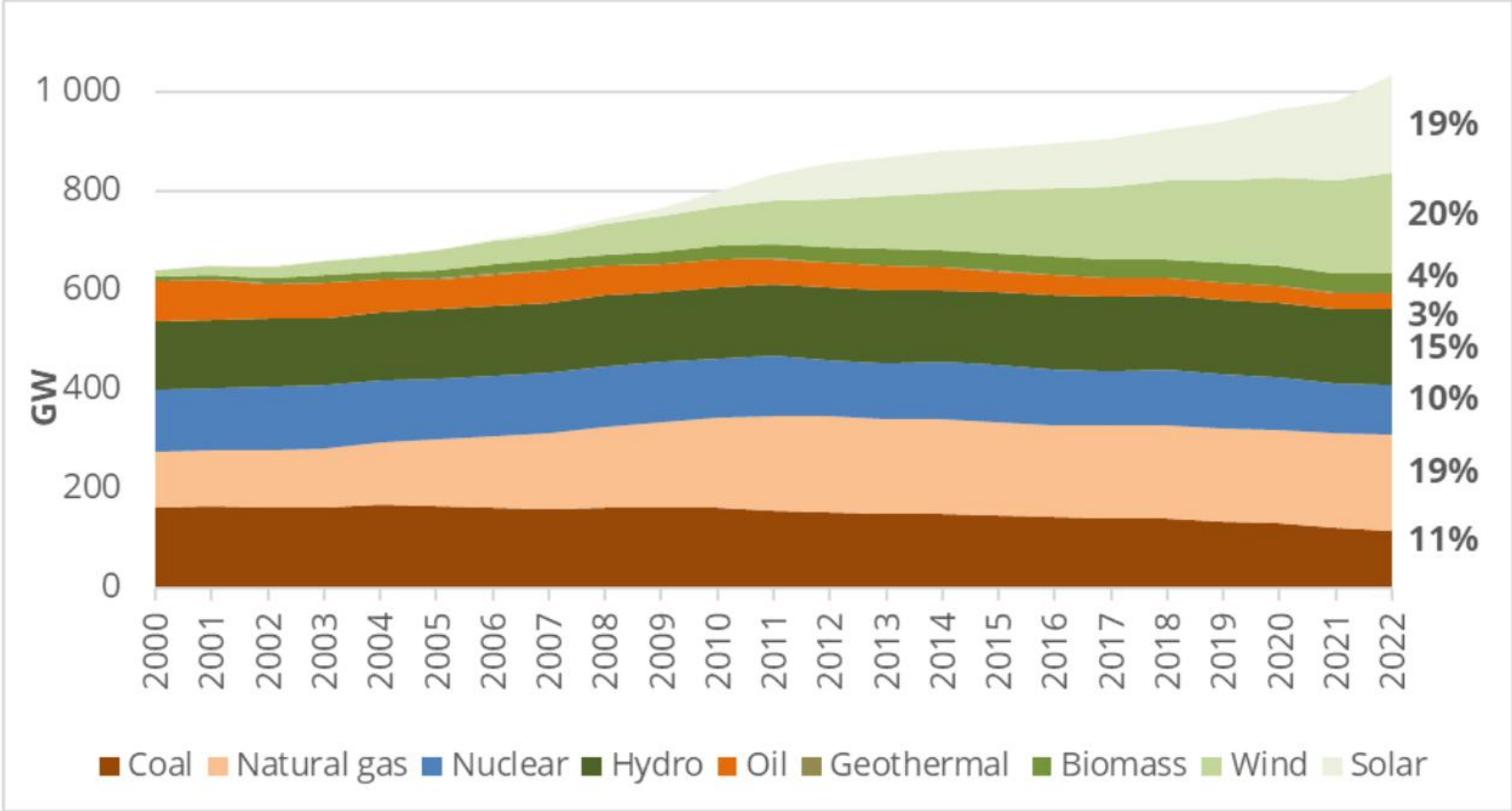
Thank you for your attention!

<https://www.enerdata.net/>

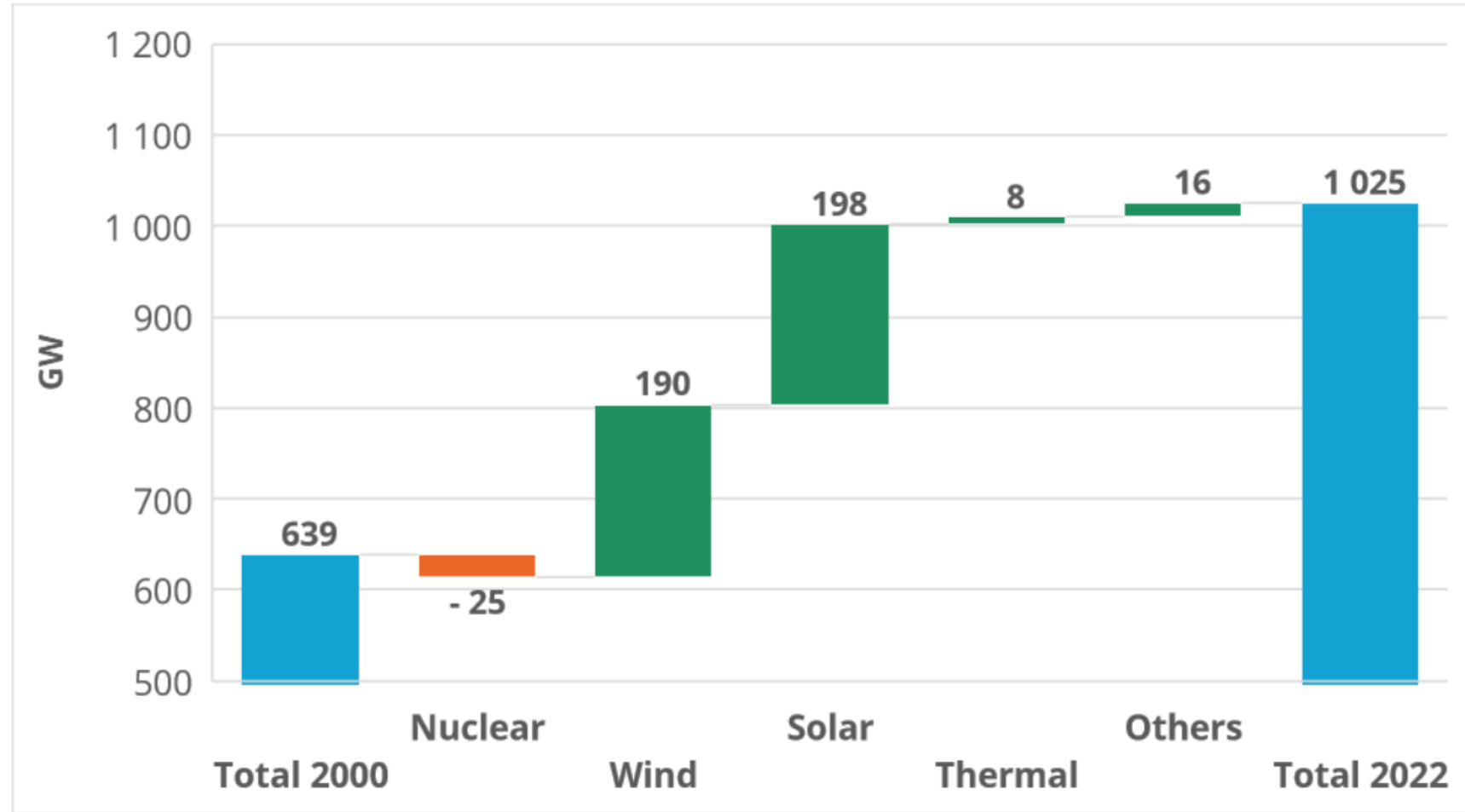
The EU's fossil fuel and biomass primary production



EU installed electric capacity



EU installed electric capacity



EU power production

