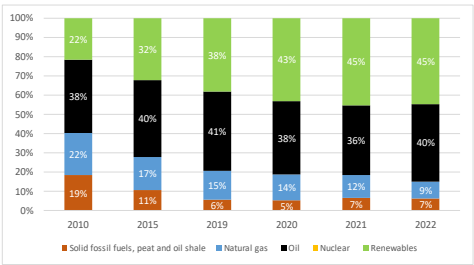
REPowerEU Two Years on_Denmark

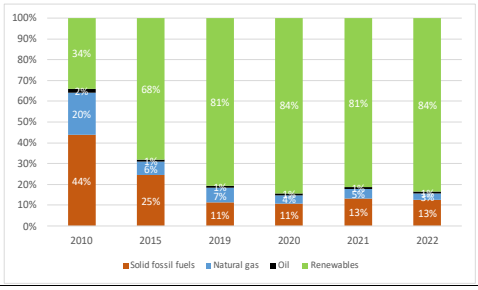
Key energy figures

Graph 1: **Energy mix**



Source: Eurostat

Graph 2: **Electricity mix**



Source: Eurostat

Save energy

1. KEY ENERGY SAVINGS MEASURES

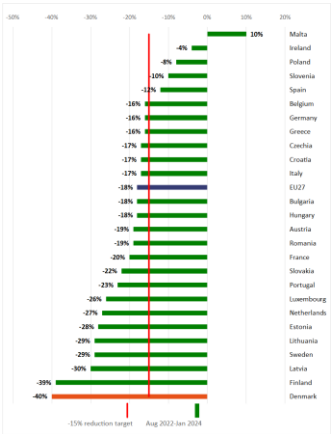
Denmark has been implementing energy efficiency measures to contribute further to energy security, such as:

- **Communication campaign** "Én ting er sikkert. Og det er grønt" towards consumers and commercial sector.
- **Digital tools focusing on behavioural change** to promote flexible electricity consumption and energy savings (website SparEnergi.dk). Energy saving information is also included in advertisements.
- **Support from the Danish Energy Agency** to other State institutions (e.g. workshops on development of energy efficiency plans and roadmaps for phasing out fossil fuels).
- Denmark also adopted **behavioural measures which are mandatory for State institutions** but recommended for other public buildings: the temperature in buildings had to be lowered to 19 degrees Celsius from October 1st. Certain buildings and zones are exempt (e.g. hospitals). All unnecessary outdoor lighting of public buildings had to be switched off.
- A EUR 33.6 million fund was also rolled out to support the expedited replacement of individual gas heating systems.

2. GAS DEMAND REDUCTION

Denmark has reduced its gas consumption by **40%** in the period **August 2022 – January 2024**, above the decrease achieved at EU level (18%) and the 15% voluntary gas demand reduction agreed at the EU level [(1)].

Graph 3: **Natural gas demand reduction (August 2022 – January 2024)**



(1) Cyprus does not use natural gas
Source: Eurostat, DG ENER calculations

(1) Council Regulation (EU) 2023/706 of 30 March 2023, amending Regulation (EU) 2022/1369

Diversify energy supplies

1. KEY ACTIONS

While already being one of the EU countries with the lowest exposure to Russian gas, Denmark has increased its security of gas supply by boosting its own production capacity and set itself the bold ambition of phasing out natural gas by 2030.

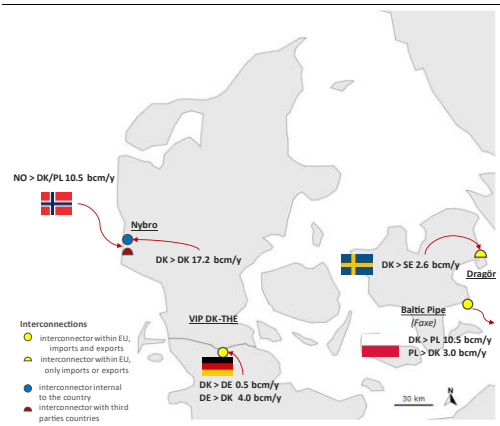
2. GAS INFRASTRUCTURE DEVELOPMENTS

While indigenous gas production has been strongly reduced in the past years, the progressive reopening of the Tyra field, started in March 2024, will make Denmark a net exporter of gas again (annual production should reach 2.8 bcm a year by 2026, according to TotalEnergies).

Furthermore, Denmark is making significant efforts to replace natural gas by electrification and gas of biogenic origin by 2030 and plans to phase out gas for household heating by 2035.

In 2023, biomethane already accounts for nearly 30% of domestic gas demand. Also, Denmark's gas infrastructure plays a crucial role in regional natural gas security, thanks to storage capacities of around 1 bcm and interconnections with the Dutch, German, Polish and Swedish gas systems.

Map 1: **Cross-border gas infrastructure**



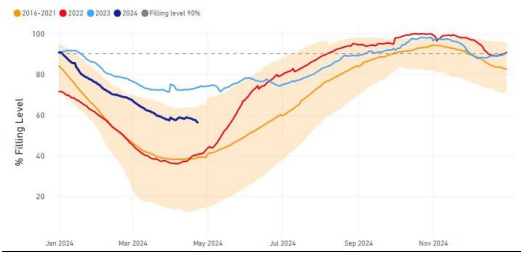
Source: European Commission map recreation (based on ENTSO- G)

3. GAS STORAGE

Denmark has a gas storage facility at Lille Torup and another one at Stenlille managed by Gas Storage Denmark. It operates with a combined capacity of 0.85 bcm, corresponding to approximately 36% of Danish consumption (2.37 bcm).

Denmark fulfilled its gas storage obligations last winter, reaching 96.4% by 1 November 2023 [2], and ended the winter season with a storage filled at 58.67% by 1 April 2024.

Graph 4: **Storage levels in Denmark**



Source: JRC calculation based on AGSI+ Transparency Platform, 2024

Energy platform

- In the **four EU tenders** for joint gas purchase organised **under AggregateEU in 2023**, 113 companies across the EU expressed gas demand of over 54 bcm. 48 suppliers replied with bids of more than 61 bcm, resulting in **over 42 bcm of demand matched**.
- In the **first mid-term tender of 2024**, 19 companies expressed 34 bcm of gas demand for the next 5 years, with **97.4 bcm offered by suppliers**.
- According to the indicative data obtained through AggregateEU, companies from **Denmark** aggregated gas demand of **0.00 bcm** in 2023 under the EU Energy Platform.

Produce clean energy

1. INSTALLED RENEWABLE ELECTRICITY CAPACITY, IN WIND AND SOLAR

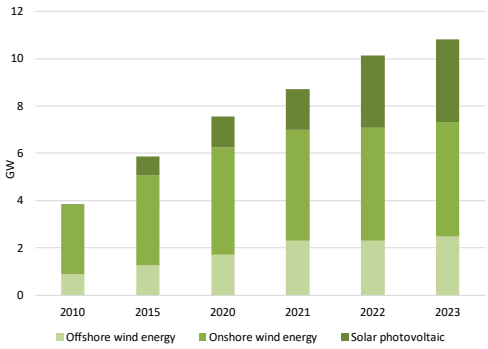
In **2023**, Denmark installed around 681 MW of renewable electricity capacity, bringing the total to **12.8 GW** (vs. 10.9 GW in 2021).

In **2023**, the annual growth rate of installed renewables power capacity stood at **5.6%** compared to 12.5% in 2021 [3].

[2] Regulation (EU) 2022/1032 of the European Parliament and of the Council of 29 June 2022 amending Regulations (EU) 2017/1938 and (EC) No 715/2009 with regard to gas storage.

[3] International Renewable Energy Agency (2024). Renewable capacity statistics 2024

Graph 5: **Installed solar and wind power capacity (in GW)**



(1) The renewable power capacity data reflects the capacity installed and connected at the end of the calendar year. Commission estimate was derived from the data provided in the IRENA's Renewable Capacity Statistics 2024 report. The total installed renewable capacity of 13,024 MW for the year 2023, as indicated in the report, includes the "Vesterhav Nord" offshore wind farm (176 MW), which came online with some delay in February 2024 while being initially planned for December 2023.
(2) In 2023, Denmark installed 222 MW of wind power capacity (vs. 745 MW in 2021), not including the "Vesterhav Nord" offshore wind farm.
(3) In 2023, Denmark installed 459 MW of solar photovoltaic capacity (vs. 400 MW in 2021).
Source: IRENA, Renewable capacity statistics, 2024

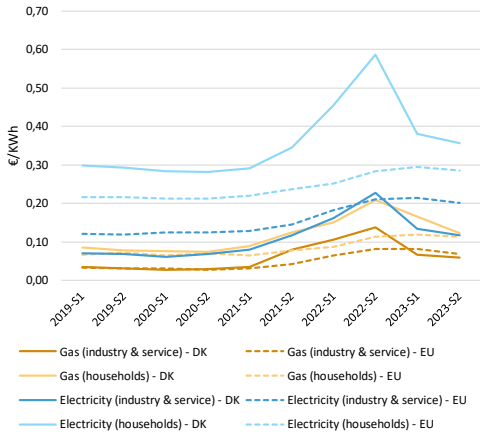
2. ELECTRICITY INFRASTRUCTURE DEPLOYMENT

Denmark increased its cross-border capacity in 2023, while additional investment needs to be made on transmission, to enable greater uptake of renewable electricity. Denmark is interconnected with Germany, the Netherlands, Sweden, Norway and (as of December 2023) the UK, following the entry into operation of the interconnector Viking Link, Project of Common Interest (PCI) co-financed by the EU through the Connecting Europe Facility.

Denmark is further developing PCIs, including the Bornholm Energy Island hybrid offshore interconnector and the hydrogen interconnector HyperLink III with Germany, the Triton Link offshore hybrid interconnector with Belgium, the North Sea Wind Power Hub for interconnectors with the Netherlands and Germany as well as a Danish Hydrogen Storage. In 2023, Energinet announced an investment plan of DKK 41 billion (EUR 5.5 billion) for 2023-26, with 100-200 foreseen grid expansions to adapt the network to the large uptake of new solar PV and onshore and offshore wind.

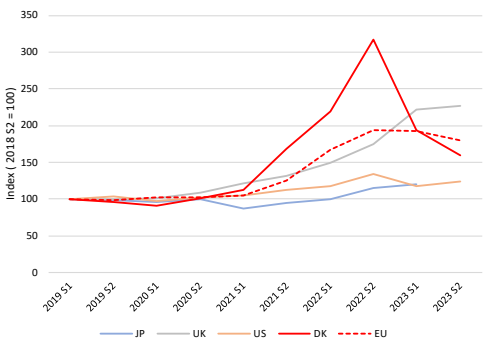
Energy price developments

Graph 6: **Denmark's energy retail prices for households and industry & service**



(1) For industry, consumption bands are I3 for gas and IC for electricity, which refer to medium-sized consumers and provide an insight into affordability
(2) For households, the consumption bands are D2 for gas and DC for electricity
(3) Industry prices are shown without VAT and other recoverable taxes/levies/fees as non-household consumers are usually able to recover VAT and some other taxes
Source: Eurostat

Graph 7: **Trends in electricity prices for non-household consumers (EU and foreign partners)**



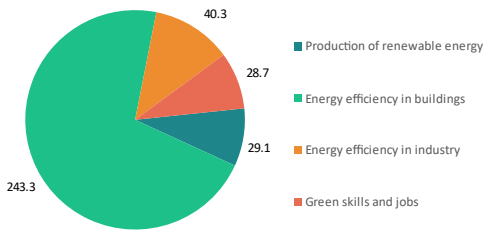
(1) For Eurostat data (EU and DK), the band consumption is ID referring to large-sized consumers with an annual consumption of between 2 000 MWh and 20 000 MWh, such as in electricity intensive manufacturing sectors, and gives an insight into international competitiveness
(2) JP = Japan
Source: Eurostat, IEA

Smartly combine investments and reforms in the RRP

Amended Recovery and Resilience Plan (RRP), including a REPowerEU chapter:

- Approved by Council: on 9 November 2023
- Total amount: EUR 1.6 billion
- Amount allocated for energy: EUR 0.34 billion
- Climate tagging: RRP: 68.8 %; REPowerEU chapter: 100 %

Graph 8: **Energy-related investments in the RRP (in EUR million)**



Source: European Commission

Tangible results: reforms & investments

- **Energy efficiency in households:** Energy renovations in at least 6 125 housing units, and 21 200 oil burners and gas furnaces replaced with heat pumps or district heating.
- **Energy efficiency in industry:** 16 PJ of energy saved.
- **Renewables:** At least one call for tender for 4 GW offshore wind.

Highlights of the National Energy and Climate Plan

- The **draft updated NECP** was submitted to the European Commission in June 2023.
- Member States are due to submit their **final updated NECP by 30 June 2024**, taking into account the Commission recommendations.
- For more information see the dedicated webpage of the European Commission on the NECPs.

Strengthening competitiveness with the Net Zero Industry Act

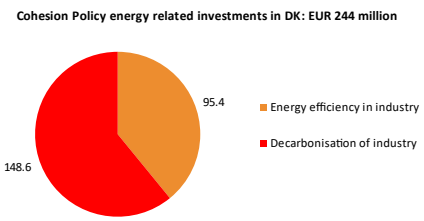
Denmark is a global leader in producing wind-based electricity, and aims to remain at the forefront of the development of clean technologies. Generally, it has a traditionally strong manufacturing base of low-carbon technologies and components, especially in the wind energy sector, where it continues to be the global leader in integrating wind power into the electricity grid. Denmark is home to one of the world's leading HVDC cable manufacturers and the country has the highest number of wave energy device developers in the EU. Despite not having domestic producers of large solar collectors, the country is the leading player in the large-scale solar district heating market in the EU, in terms of total installed capacity and system size. Favourable policy and market conditions have led to booming sales of heat pumps, a trend that is likely to continue with the implementation of the REPowerEU plan. Denmark is home to promising initiatives in the green hydrogen supply chain, including a 400 MW/y alkaline electrolyser manufacturing plant in Kolding and a large-scale manufacturing unit for hydrogen refuelling stations, operated in Herning by a leading Norwegian player. Supported by an EUR 94 million grant from the EU Innovation Fund, a Danish-operated 500 MW/y Solid Oxide Electrolyzer Cell (SOEC) manufacturing facility is expected to come online in Herning in 2024. The reported expansion plans of both companies could raise Denmark's electrolyser manufacturing capacity to over 1.5 GW per year by 2030.

Other EU initiatives

Cohesion Policy provides significant support to REPowerEU in all EU MS, with a total of EUR 89 billion worth of investments focusing on regions most in need in the energy transition.

Most resources concentrate on energy efficiency in the buildings sector (i.e. 720 000 dwellings across the EU will be renovated and public buildings will decrease their energy consumption by 6000 GWh/year) and on energy infrastructure (i.e. 4.9 GWh of additional electricity storage deployed), followed by renewables (e.g. 9.5 GW of additional renewable energy capacities installed).

Graph 9: **2021-2027 energy-related investments in the Cohesion Funds supporting REPowerEU**



Source: Cohesion Open Data[4]

[4] https://cohesiondata.ec.europa.eu/d/hgyj-gyin