

DENMARK

KEY FACTS:

- Gas consumption has been in steep decline since 2010 with a very slight downward trend towards 2014.
- Danish gas demand declined by 35% from 2010 to 2017.
- Denmark is self-sufficient in gas but production has been in steep decline since 2005.
- Questionable ability to replace depleting reserves.
- Important geographical location for delivering gas to Sweden, Germany and the NL.
- Concerns around problematic new gas PCI infrastructure.

1. GAS DEMAND

According to EU data:¹

- Gas represented 17% of Denmark's energy mix in 2016.
- Gas demand dropped by 35% from 2010 to 2017.²
- After a steep decline in gas demand between 2010 and 2014, gas demand stabilised in 2014 at around 2.9bcm³.

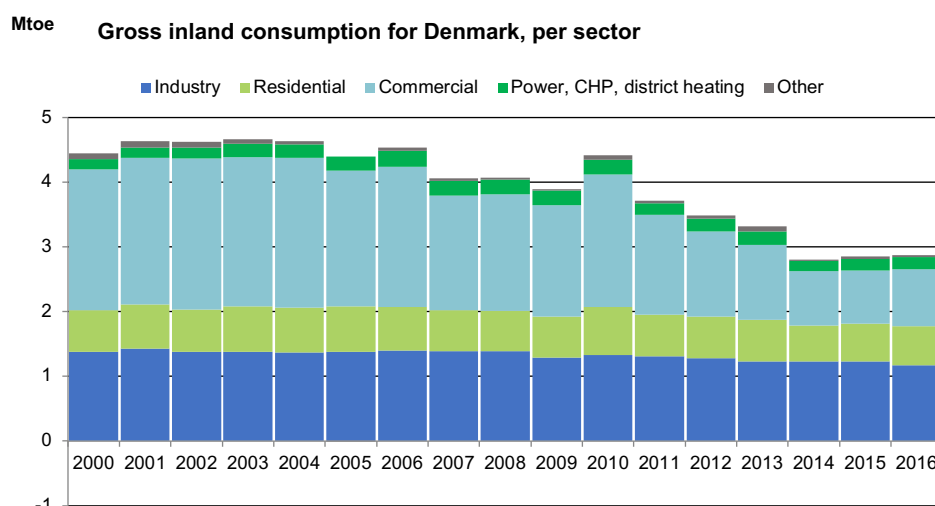
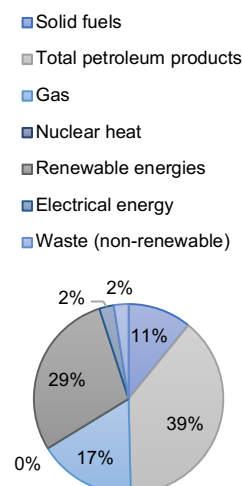


Figure 1: Denmark 2016 Energy Mix



2. GAS SUPPLY

Since the beginning of fossil gas production in the North Sea in 1984, Denmark has been self-sufficient in gas and has been a net exporter ever since. The International Energy Agency projects it to remain so at least until 2020.⁴ However, gas production peaked in 2005 (with a total of 10.4bcm/y produced) and has been quickly depleting since then (5.36bcm was produced in 2016), and the downward trend continues [status: 2018].

Also, gas exports decreased rapidly, particularly between 2008 and 2014. Danish gas mostly went to Sweden, the Netherlands and (although slightly less since 2013) Germany. Denmark also occasionally imports gas which comes from Norway and Germany— see graph.⁵ In 2017, ~80% of the gas Denmark imported came from Norway, ~20% from Germany.⁶

While some experts announced a few years ago that new discoveries in the North Sea could help offset the decline in old historical reserves, this has not yet materialized. Attempts by Total to explore the onshore shale gas potential of the country between 2014 and 2016 found strong public opposition which forced the company to stop its activities in the country.

¹ E3G compilation of data extracted from Eurostat

² http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=nrg_cb_gas&lang=en

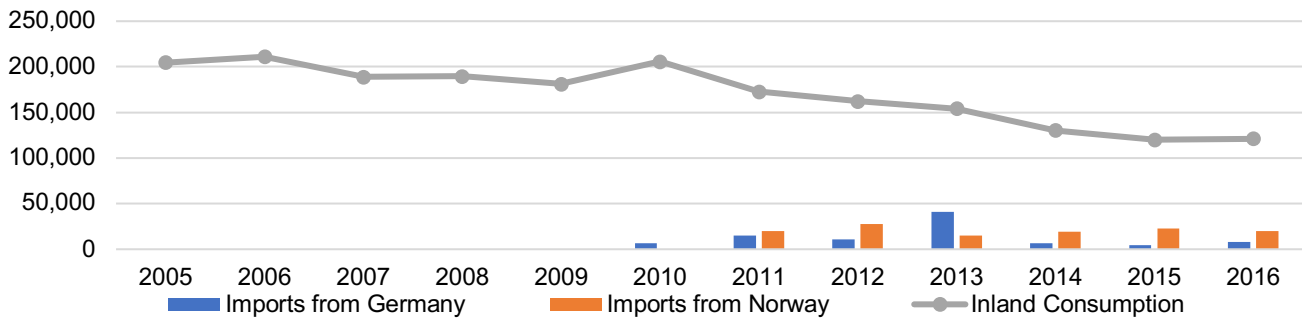
³ <https://ens.dk/en/our-services/statistics-data-key-figures-and-energy-maps/annual-and-monthly-statistics>

⁴ https://www.iea.org/media/freepublications/security/EnergySupplySecurity2014_Denmark.pdf

⁵ <file:///Users/erobb/Downloads/Gas%20report%202017.pdf> (p35) & http://ec.europa.eu/eurostat/statistics-explained/index.php/Energy_production_and_imports

⁶ <https://ec.europa.eu/eurostat/cache/infographs/energy/bloc-2c.html>

Denmark - Gas Demand and Imports (in TJ GCV)



3. GAS INFRASTRUCTURE

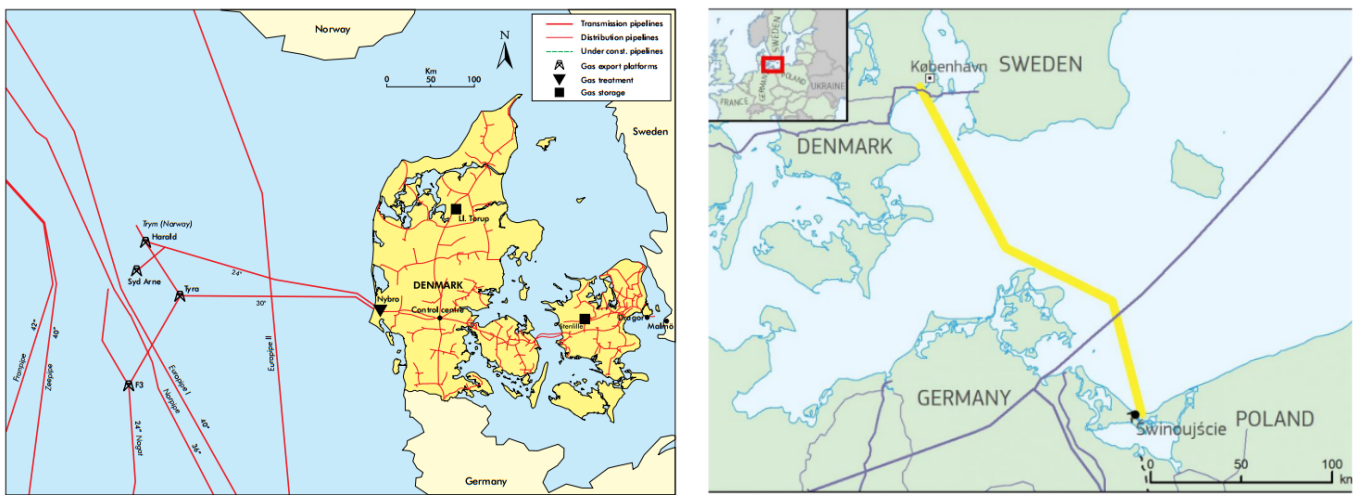
The Danish gas transmission system consists of upstream pipelines in the Danish part of the North Sea and onshore transmission pipelines.

The Danish gas transmission grid is directly connected to the German gas transmission grid (at Ellund) and to the Swedish gas system (at Dragør): It is worth noting that Sweden is solely supplied with pipeline gas via the Danish gas system alongside its’ operational LNG import terminals.

Fossil gas from the Danish section of the North Sea is transported through two offshore pipelines from the Tyra and Syd Arne Fields (see map): The Tyra-Nybro pipeline has a capacity of approximately 10bcm per year; the Syd Arne-Nybro pipeline capacity is around 5bcm per year (gas volumes can be stored in the actual pipelines for use in the event of disruptions and emergency situations).

In 2004, another pipeline was built to be connected to the Northern Offshore Gas Transport (NOGAT) pipeline to the Netherlands for the purpose of selling gas to the Dutch market and feed into the “gas roundabout” the Dutch gas hub created in the last years.

Map 4.6.2 Gas infrastructure of Denmark



In a political context, encouraging Member States to diversify their gas supplies, Denmark’s geographical situation attracts the interest of some Eastern Europe countries: Poland in particular has been strongly lobbying to build the **Baltic Pipe project, a bidirectional gas pipeline partially under water connecting Poland to Denmark** (see map) so Poland and the Baltic States can receive **up to 10bcm of Norwegian gas each year**, while, in the other direction, about 3bcm of Russian gas and excess gas from the Swinoujście LNG terminal could go to Denmark.⁷ The project received financial support under the Connecting Europe Facility (CEF) worth €215 million in 2019.⁸

⁷ <https://circabc.europa.eu/ui/group/3ba59f7e-2e01-46d0-9683-a72b39b6decf/library/cc16bb46-608d-4edc-8d5c-7ed90cfa4926/details>

⁸ https://ec.europa.eu/info/news/energy-union-commission-endorse-baltic-pipe-project-pipeline-unites-creating-new-gas-supply-corridor-european-market-2019-apr-15_en

The Baltic Pipe is planned to connect Denmark to the Norwegian gas system, notably the Europipe II in the North Sea.⁹ It is planned to contain the following elements:

- A 105-110km long, new offshore gas pipeline from Norway's pipeline Europipe II in the North Sea to a receiving terminal.
- Expansion of the Danish transmission system with a new gas pipeline, approximately 210km long.
- A compressor station in Zealand. The compressor station increases the pressure of the gas in the pipeline in the Baltic Sea.
- A 260-310km long offshore gas pipeline in the Baltic Sea between Denmark and Poland.
- General expansions of Poland's transmission system.¹⁰

The project is not legitimate: **Denmark is currently self-sufficient in gas and Poland is already well-diversified in terms of gas suppliers.** Due to its connections with Germany, its domestic production and its new LNG Terminal, Poland meets the diversification criteria (at least 3 different suppliers). The necessity to build this project is therefore strongly disputable. Its **economic viability is unsurprisingly challenged** by many, including by Norway itself which believes that a "new pipeline is not necessary to manage gas exports" and fears that current decreasing EU gas demand weakens the commercial viability of the project.¹¹ However, discussions continue and Poland is continuing to push hard to make it happen. The construction (partly paid with tax payers' money) would **not address any needs for Poland** and would **risk locking Denmark (a country well-advanced in renewable energy development) into a long-term fossil fuel cycle.**

While the project has received political support (particularly from the EU: it is part of the current List of Projects of Common Interest)¹² and received significant financial support, its economic viability remains strongly questioned.



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⁹ <https://www.baltic-pipe.eu/the-project/>

¹⁰ <https://en.energinet.dk/Infrastructure-Projects/Projektliste/BalticPipe>

¹¹ <http://www.politico.eu/pro/poland-turns-to-norwegian-gas-to-trump-russia-nord-stream-2/>

¹² <https://circabc.europa.eu/ui/group/3ba59f7e-2e01-46d0-9683-a72b39b6decf/library/cc16bb46-608d-4edc-8d5c-7ed90cfa4926/details>