

CZECH REPUBLIC

KEY FACTS:

- Gas demand dropped by 11% between 2010 and 2017
- Supply of gas is reliant on imports, almost entirely from Russia (+99%)
- New infrastructure receives gas from Western Europe (via the Brotherhood and Gazelle pipelines)
- However, 3 new important gas PCI projects are planned to connect Czech Republic to Austria and Poland. These projects have a high risk of replacing coal dependence by gas addiction.

1. GAS DEMAND

According to EU data:¹

- Gas represented 17% of Czech Republic's energy mix in 2016.
- Czech Republic consumed around 8.35bcm of gas in 2016
- Gas demand dropped by 11% since 2010²

Gross inland consumption for Czech Republic, per sector

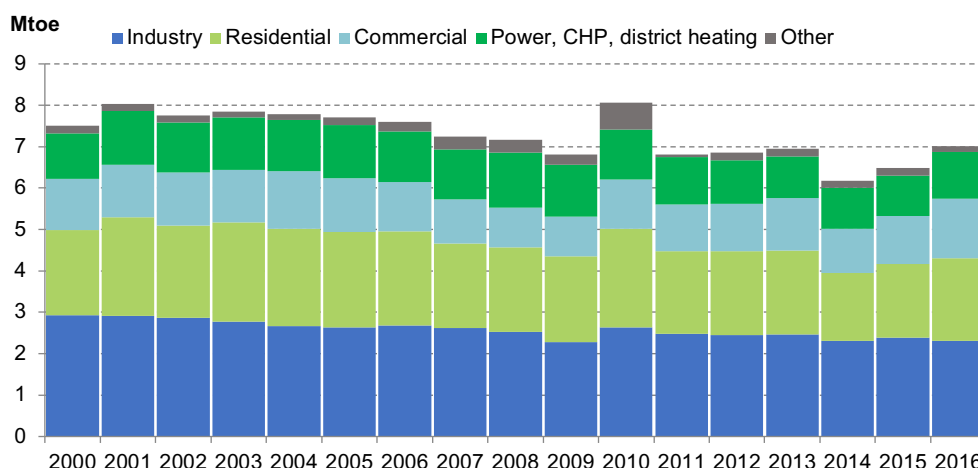
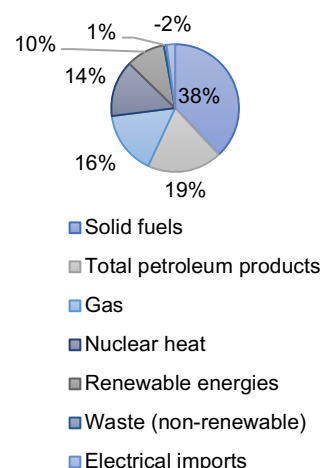


Figure 1: Czech Republic 2016 Energy Mix



2. GAS SUPPLY

In 2016, oil represented 19% of the Czech Republic's total primary energy supply (TPES) and **gas 16%**, while coal accounted for the largest share of TPES at 38% - see chart above.³ In 2016 more than 50% of energy consumption in the Czech Republic was covered by domestic primary energy sources. The **import energy dependence indicator** (including nuclear fuel) is therefore **less than 50% and is one of the lowest in the EU**.⁴

The Czech Republic is fully self-sufficient in the production of electricity and heat. The structure of electricity sources is stable. The Czech energy sector is dominated by **coal-fired installations** which, as base load plants, **supply almost 60% of electricity and a large proportion of heat** (through district heating).⁵

Over the next two decades, the country aims to reduce its reliance on coal, while maintaining its status as a net exporter of electricity by increasing their use of nuclear and renewable energy. **Nevertheless, gas is estimated to play a growing role in the country's future supply mix**.⁶

While the Czech Republic produces some gas domestically (in the South Moravian Region and Northern Moravia)⁷, this represents a very marginal share of its annual needs (3.2% in 2015).⁸ Gas supplies are

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://www.iea.org/statistics/?country=CZECH&year=2016&category=Energy%20supply&indicator=TPESbySource&mode=chart&dataTable=BALANCES>

⁴ https://ec.europa.eu/energy/sites/ener/files/documents/NEEAPCzechRepublic_en2014.pdf

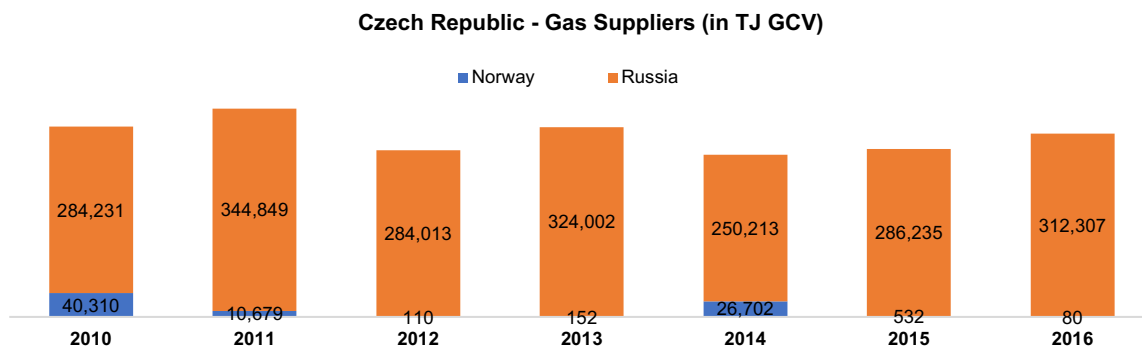
⁵ https://ec.europa.eu/energy/sites/ener/files/documents/NEEAPCzechRepublic_en2014.pdf

⁶ https://www.iea.org/media/freepublications/security/EnergySupplySecurity2014_TheCzechRepublic.pdf

⁷ https://www.iea.org/media/freepublications/security/EnergySupplySecurity2014_TheCzechRepublic.pdf

⁸ Eurostat (http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=nrg_103m&lang=en)

therefore almost entirely dependent on imports. The structure of gas importations has been evolving in the last 5 years **with Norway's share shrinking, letting Russia fulfill 99.7% of the country's gas demand in 2016.**⁹



3. GAS INFRASTRUCTURE

The Czech Republic maintains a **high degree of gas supply security** through a combination of several measures: including using long-term supply contracts and a relatively high capacity of underground commercial gas storage.

RWE Transgas Net, the Czech Republic's transmission system operator, manages a domestic and transit pipeline network with three interconnection points. This is used both to transport fossil gas for consumption in the Czech Republic and for transit of around 30bcm/y of Russian gas to other end-user markets further west. Transit gas arrives at the incoming transfer stations of Lanžhot and Olbernhau and departs from the outgoing transfer stations in Waidhaus and Hora Svaté Kateriny.

The country lost a large proportion of its core transit business in November 2011 when deliveries of Russian gas to Germany and France, flowing to Western Europe through the Brotherhood pipeline, were diverted via the Nord Stream pipeline (44bcm/y of Russian gas used to flow from East to West through the Brotherhood pipeline in 2010).¹⁰ However, the Czech Republic found new opportunities to improve its energy security.

In 2012, the **GAZELLE gas pipeline** (capacity of 30bcm/y) was completed to connect to the OPAL and MEGAL gas pipelines that expand to the transmission system **supplying Germany and France**. Also, in **2012, the interconnector between the Czech and Polish gas transmission systems, known as the STORK project** (1bcm/y CZ -> PL) was completed.¹¹ Capacity to **transmit gas from West to East** (Slovakia and Ukraine) was then significantly increased through the **Brotherhood reverse flow pipeline** (~28bcm/y CZ -> SK) in mid-2011.¹² Consequently and since the take-or-pay clause was removed from the Czech contract with Gazprom, the Czech Republic is largely importing gas for its own needs from German hubs or from Norway.¹³ Czech consumers cannot only source non-Russian gas from Germany, they also have the option to choose the route for their gas supplies from Russia. They can import Russian gas either from Ukraine and Slovakia or from Nord Stream via Germany. The Czech Republic has in fact become an important hub for Nord Stream gas.¹⁴

Moreover, gas storage capacity has been significantly expanded: capacity at three of the country's eight underground storage sites has been raised to a total of 3.5bcm/y (from a previous total of 2.9bcm/y) and the total withdrawal capacity increased from 56.2mcm/d to 65.6mcm/d. This compares to the country's winter consumption range of 30-65mcm/d and a single day record high of 67.6mcm/d. When completely full, storage is able to supply peak demand for approximately 50 days.¹⁵

⁹ https://ec.europa.eu/energy/sites/ener/files/documents/2014_countryreports_czechrepublic.pdf

¹⁰ <http://energypost.eu/quiet-revolution-central-eastern-european-gas-market/>

¹¹ https://ec.europa.eu/energy/sites/ener/files/documents/2014_countryreports_czechrepublic.pdf

¹² <http://www.visegradexperts.eu/data/uploaded/Finals/Tomasz%20Daborowski.pdf>

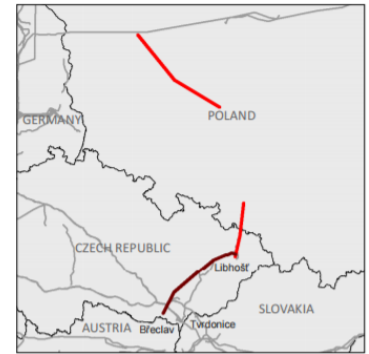
¹³ <http://energypost.eu/quiet-revolution-central-eastern-european-gas-market/>

¹⁴ <http://www.theenergycollective.com/energy-post/2397066/gazprom-plays-ball-the-depoliticization-of-the-european-gas-market>

¹⁵ https://www.iea.org/media/freepublications/security/EnergySupplySecurity2014_TheCzechRepublic.pdf

These recent upgrades and renovations of the Czech transmission system have not however stopped the country's ambition to further develop its gas infrastructure. Several projects in the current PCI List could benefit the Czech Republic:

A second pipeline between the Czech Republic and Poland – The Stork II project – with bidirectional capacity of 13.7mcm/day PL -> CZ (~5bcm/y) and 19.6mcm/day CZ -> PL (~7.1bcm/y), planned to start operation in 2019.¹⁶



The necessity of this project should be seriously questioned considering that both the Czech Republic and Poland benefit from infrastructure able to ensure energy security and diversity. Thanks to its link to Germany, the Czech Republic can import significant quantities of competitive and diversified volumes of gas while **Poland now has a transmission system able to obtain over 90% of its natural gas import needs from the West and the South** (i.e. other than Russia).¹⁷

The Bidirectional Austrian-Czech interconnection (BACI)¹⁸

This 500km+ pipeline would be the first connection between these two countries and would have the capacity to daily transmit, both ways, 18mcm of gas (~7bcm/y). However, apart from further densifying the gas grid in the middle of the continent, this project raises many questions: both countries already have significant transmission capacity which largely exceed their domestic consumption and existing infrastructure could easily already now meet the current gas demand of the region. Austria and the Czech Republic have connections to similar countries and therefore benefit from similar gas suppliers, which the BACI won't change. The Czech energy regulator strongly opposes this project which has also faced several delays so far.



However, this interconnection could, in the long run, be connected to an even bigger project connecting Austria to the Southern Gas Corridor mega-pipeline project which would bring gas from Azerbaijan (see map).¹⁹ While this might contribute to further diversification of gas supplies for countries in the region, it would not increase the Czech Republic's energy security. The risk is high that, while the Czech Republic strives to decrease its dependence on coal, this cluster project would significantly contribute to create a new carbon lock-in by building a whole new range of long-lasting fossil fuel infrastructures.



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¹⁶ <https://circabc.europa.eu/ui/group/3ba59f7e-2e01-46d0-9683-a72b39b6decf/library/e1fd3867-2971-463e-aec5-2b3c603a0c4f/details>
¹⁷ <http://energypost.eu/quiet-revolution-central-eastern-european-gas-market/>
¹⁸ <https://circabc.europa.eu/ui/group/3ba59f7e-2e01-46d0-9683-a72b39b6decf/library/e1fd3867-2971-463e-aec5-2b3c603a0c4f/details>
¹⁹ <https://circabc.europa.eu/ui/group/3ba59f7e-2e01-46d0-9683-a72b39b6decf/library/9fd8175a-e8e0-4b15-a297-89929115a415/details>