

# THE NETHERLANDS

## KEY FACTS:

- Declining demand (dropping 23% between 2010 and 2017) and declining production overall.
- Earthquakes have significantly accelerated the decision to reduce domestic gas production.
- Groningen gas production will decrease to 12bcm in 2020 with a total phase out of the site by 2030.
- Highly-used capacity of Dutch LNG terminal (partly due to LNG prices).
- New infrastructures are being developed to counterbalance domestic production decline.
- Still a very high potential for efficiency measures (currently not ambitious).

## 1. GAS DEMAND

According to EU data:<sup>1</sup>

- Gas represented 38% of the Netherlands’s energy mix in 2016.
- The Netherlands consumed around 35.8bcm of gas in 2016.
- Gas demand dropped by 23% between 2010 and 2017.

The Ministry of Economic Affairs in the Netherlands **forecast a continuous decline** in gas demand. The current and projected decline is partly explained by the Energy Agreement, which sets efficiency (1.2% per year), renewable energy (14% by 2020) and greenhouse gas reduction targets, in line with the Netherlands’ pledge made in Paris in 2015 to totally phase out gas by 2050.<sup>2</sup>

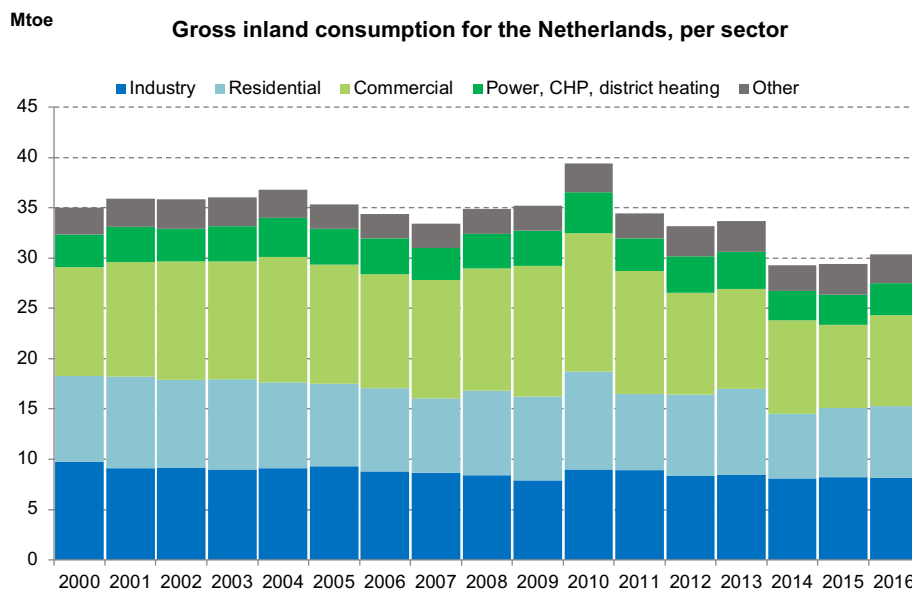
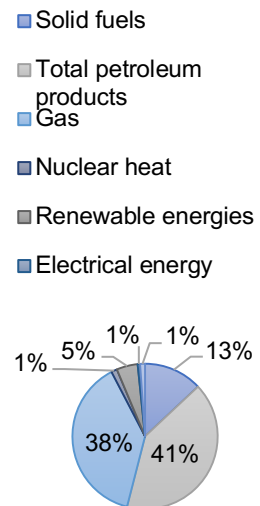


Figure 1: The Netherlands 2016 Energy Mix



## 2. GAS SUPPLY

Denmark and the Netherlands are the only net exporters of gas within the EU-28. The Netherlands, with the vast Groningen gas fields, were, until now, the **second largest gas producer in Europe, after Norway**. The country is the 5<sup>th</sup> biggest gas consumer in the EU.

In the 2012-2013 year, the Groningen gas field alone produced 53bcm of gas, equal to more than 10% of annual EU consumption.<sup>3</sup> However, due to **multiple earthquakes triggered by decades of intense gas extraction in the Groningen region**,<sup>4</sup> the Dutch Minister of Economic Affairs decided in early 2014 to cut the annual output to 40bcm by 2016 (the previous outlook was around 49bcm/y until 2020).<sup>5</sup> In September 2016, the Dutch Prime minister declared that **output in the Groningen field will be cut to 24bcm per year**.<sup>6</sup> In March 2018 the Dutch government announced its latest **plan to cut Groningen’s gas field**

<sup>1</sup> E3G compilation of data extracted from Eurostat

<sup>2</sup> [https://www.unece.org/fileadmin/DAM/energy/se/pp/geq/qif5\\_19Jan2015/s2\\_6\\_vantHof.pdf](https://www.unece.org/fileadmin/DAM/energy/se/pp/geq/qif5_19Jan2015/s2_6_vantHof.pdf)

<sup>3</sup> <http://www.worldoil.com/news/2016/9/15/netherlands-approves-stricter-caps-at-groningen-gas-field>

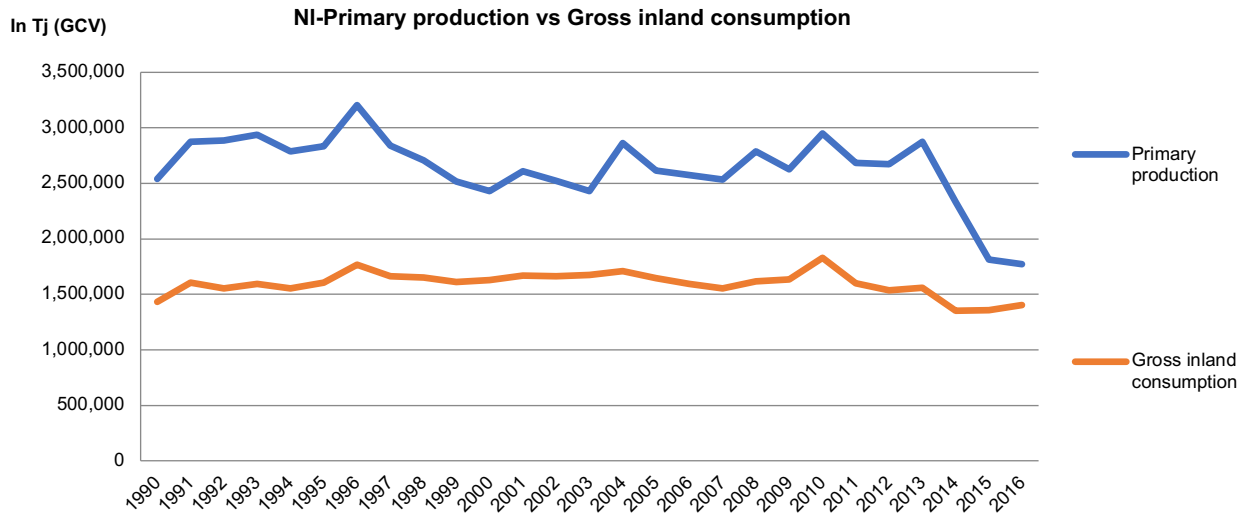
<sup>4</sup> <http://www.politico.eu/pro/the-party-is-over-for-dutch-gas-now-for-the-hangover-groningen-netherlands-energy/>

<sup>5</sup> <https://www2.deloitte.com/content/dam/Deloitte/global/Documents/Energy-and-Resources/gx-er-market-reform-netherlands.pdf>

<sup>6</sup> <http://in.reuters.com/article/netherlands-gas-groningen-idINL8N1BZ3LT>

extractions to 12bcm in 2020<sup>7</sup> from the current cap of 21.6bcm, looking to achieve a total phase out of production by 2030.<sup>8</sup> Moreover, no new home should be connected to the gas grid and should use alternative forms of energy instead.<sup>9</sup>

Thousands of home owners in the Groningen region reported damages from earthquakes (about 152,000 homes now need to be reinforced),<sup>10</sup> meanwhile health, and particularly mental health, issues are on the rise and the thousands of ongoing smaller and more sporadic larger earthquakes have significant impact on the region as a whole. The Dutch Gas company NAM does very little to protect people living in damaged houses, and the costs of work needed to make houses, schools and monuments earthquake-proof are estimated to be extremely high.



As far as shale gas is concerned, the government announced in 2015 that neither drilling, exploration nor extraction of shale gas will take place in the Netherlands over the following five years.<sup>11</sup>

The Netherlands was until recently the largest gas producer within the European Union, while in the past years the UK has started to look like it might play the role of largest EU gas producer. The Netherlands has imported and exported large volumes of gas, with roughly 40% of the total volume of gas used domestically. In 2011, 55.8bcm of fossil gas was exported (21.8bcm to Germany, 10bcm to Belgium, 8.7bcm to Italy, 7.4bcm to France and 6.7bcm to the UK) while, alternatively, it imported nearly 26bcm of gas, primarily from Norway, the UK and Russia – see chart.<sup>12</sup> Changes can however already be observed: due to production cuts, **the Netherlands were a net gas importer** in the third quarter on 2015 for the first time since gas production started,<sup>13</sup> and a net gas importer throughout the year 2017.<sup>14</sup>

In 2017, about 49% of the Netherlands's gas imports came from Norway, 17% from Russia and 15% from the UK.<sup>15</sup>

<sup>7</sup> <https://www.reuters.com/article/netherlands-groningen/update-2-substantial-cut-in-groningen-gas-output-needed-dutch-regulator-idUSL8N1P623F>

<sup>8</sup> <https://www.reuters.com/article/us-netherlands-groningen-gas/netherlands-to-halt-gas-production-at-groningen-by-2030-idUSKBN1H51PN>

<sup>9</sup> <https://www.dutchnews.nl/news/2018/03/two-million-dutch-homes-to-be-gas-free-by-2030-as-energy-transition-takes-shape/>

<sup>10</sup> <https://www.provinciegroningen.nl/actueel/nieuws/nieuwsbericht/nieuws/toon/Item/meer-duidelijkheid-over-versterken-woningen-aardbevingsgebied/>

<sup>11</sup> <https://www.government.nl/latest/news/2015/07/10/no-extraction-of-shale-gas-during-the-next-five-years>

<sup>12</sup> [https://www.iea.org/media/freepublications/security/EnergySupplySecurity2014\\_TheNetherlands.pdf](https://www.iea.org/media/freepublications/security/EnergySupplySecurity2014_TheNetherlands.pdf) &

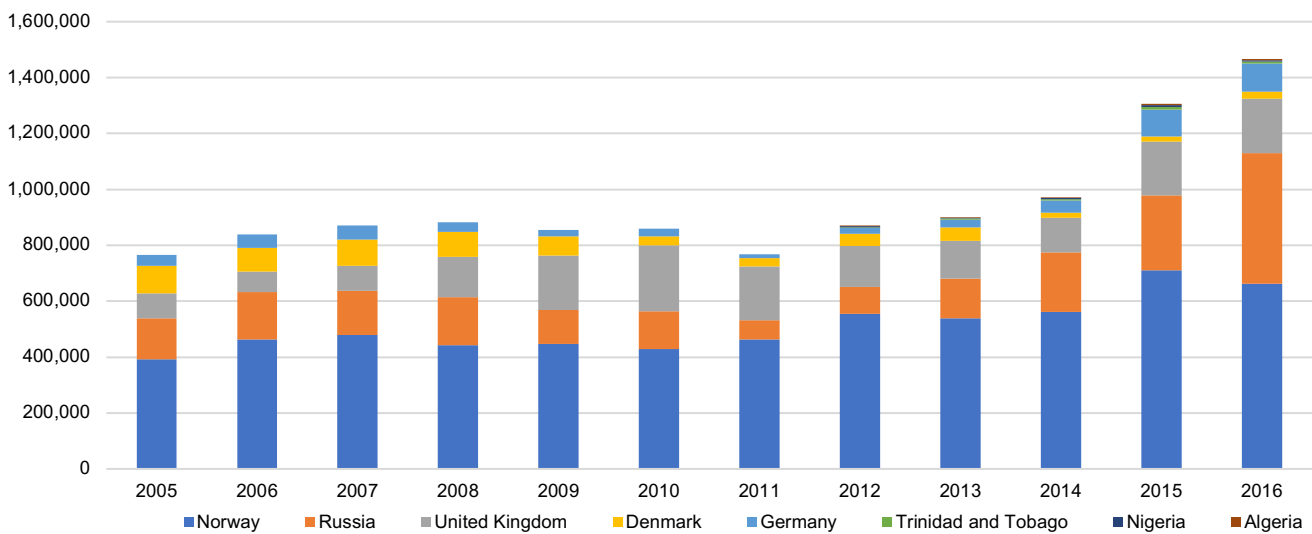
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<sup>13</sup> <http://www.platts.com/latest-news/natural-gas/london/analysis-netherlands-barely-remains-net-gas-exporter-26487802>

<sup>14</sup> <https://www.euractiv.com/section/energy/news/europe-grapples-with-dutch-gas-production-collapse/>

<sup>15</sup> <https://ec.europa.eu/eurostat/cache/infographs/energy/bloc-2c.html>

The Netherlands - Gas Suppliers (in TJ GCV)



### 3. GAS INFRASTRUCTURE

The Dutch gas network, with its 12,050km of pipelines, 50 entry points (mainly from Dutch gas fields) and 1,100 delivery stations, is very dense and is directly connected to four European countries via **25 interconnections**. It has a total import capacity per year of around 109bcm (about 3 times as much as the Netherlands consume) of gas and export capacity of nearly 200bcm/y.<sup>16</sup>

The Dutch network consists of **separate networks** in order to accommodate the transportation of the two **different qualities of gas: H-gas and L-gas**. Nearly all **residential and commercial** consumers use (blended) L-gas, while **industry** and power generators use mostly H-gas. Some L-gas used by final consumers comes from H-gas, having been converted to L-gas in blending stations. L-gas is also exported through dedicated transmission pipelines to customers in Belgium, France and Germany.<sup>17</sup> Due to declining gas production, appliances that are tailored to L-gas would need to be upgraded once import of H-gas becomes necessary – this measure could be avoided by directly investing in renewables together with proper energy efficiency arrangements. In Belgium and France, projects to adapt the gas networks currently transporting L-gas to H-gas have started and became part of the 3<sup>rd</sup> PCI list.



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The **GATE LNG terminal** was opened in 2011 with the aim to counterbalance the decline in domestic production. It initially had a **capacity of 12bcm**, but capacities could be extended to **16bcm**.<sup>18</sup> However, since its creation, the terminal has never been used at more than **18% of its capacity** and at more than **10% since 2012** (potentially due to high LNG prices).<sup>19</sup> Between January 2012 and March 2019, the terminal's utilization rate lay at only 7%.<sup>20</sup> However, particularly with regard to the relationship between Europe and Russia – **LNG is given a more important role** in order to decrease dependence from Russian gas. To secure revenues in the future, the **government established a 'gas roundabout'**, a gas trading hub, for

<sup>16</sup> <http://www.entsog.eu/maps/transmission-capacity-map>

<sup>17</sup> [https://www.iea.org/media/freepublications/security/EnergySupplySecurity2014\\_TheNetherlands.pdf](https://www.iea.org/media/freepublications/security/EnergySupplySecurity2014_TheNetherlands.pdf)

<sup>18</sup> <http://gate.nl/en/gate-terminal.html>

<sup>19</sup> <http://www.igu.org/publications/2016-world-lng-report>

<sup>20</sup> <https://alsi.gie.eu/#/>

north-western Europe (encompassing gas pipelines, with Gasunie Transport Services (GTS), gas trading through the virtual marketplace's Title Transfer Facility (TTF), ICE Endex and others, as well as gas storage).<sup>21</sup>

The shift from being a gas net exporter to a net importer will likely have significant implications on the whole energy system. As domestic gas production declines, this gives rise to **voices asking for well-timed investments in storage capacities and LNG installations** to maintain supply flexibility. At the same time, this forced shift away from domestic gas production represents a great opportunity to mark the transition towards big scale **investment in renewable energy and energy efficiency**.



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<sup>21</sup> [https://www.iea.org/media/freepublications/security/EnergySupplySecurity2014\\_TheNetherlands.pdf](https://www.iea.org/media/freepublications/security/EnergySupplySecurity2014_TheNetherlands.pdf)