

Ministry of Economic Affairs

Gas Production from the Groningen Field

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28 March 2017



Gas in the Netherlands

- Dutch gas balance 2015:
 - production: 51 bcm - export: 49 bcm
 - import: 36 bcm - consumption: 38 bcm

Production from the Groningen field: 28 bcm.

Production from 254 small fields: 9 bcm on shore and 14 bcm offshore.

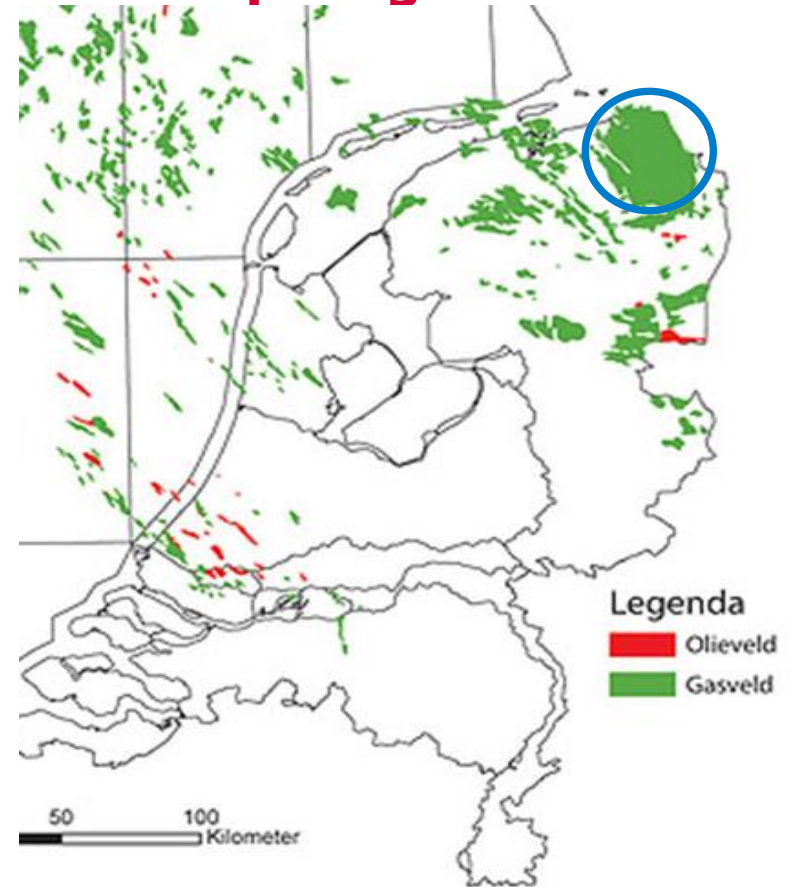
- Exports: Germany, Belgium, France, Italy, Switzerland and UK.
Imports: Norway, Russia and LNG.
- Dutch gas production includes both low calorific gas (L-gas) and high calorific gas (H-gas). Groningen gas has Wobbe $43.8 \text{ MJ/m}^3 = \text{L-gas}$
- Dutch L-gas is used in Belgium (5 bcm/year), France (5 bcm), Germany (20 bcm) and the Netherlands (30 bcm) => total demand of 60 bcm/year in a cold year.
- Groningen field is by far the largest source of L-gas. Other Dutch sources:
 - enrichment by GTS (the Dutch TSO for gas): blending H-gas into Groningen gas, but without exceeding the upper limit of L-gas bandwidth;
 - quality conversion by GTS: convert H-gas into L-gas by adding nitrogen to bring it within the L-gas bandwidth. GTS has 4 conversion stations.

These other sources can provide approximately 30 bcm/year of L-gas.



The Groningen field: grandfather of Europe's gassification

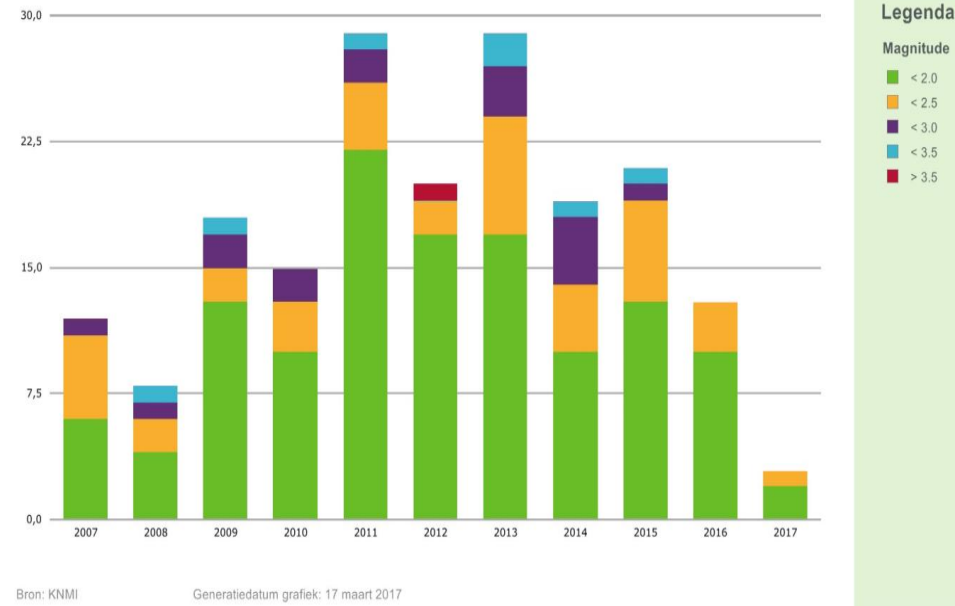
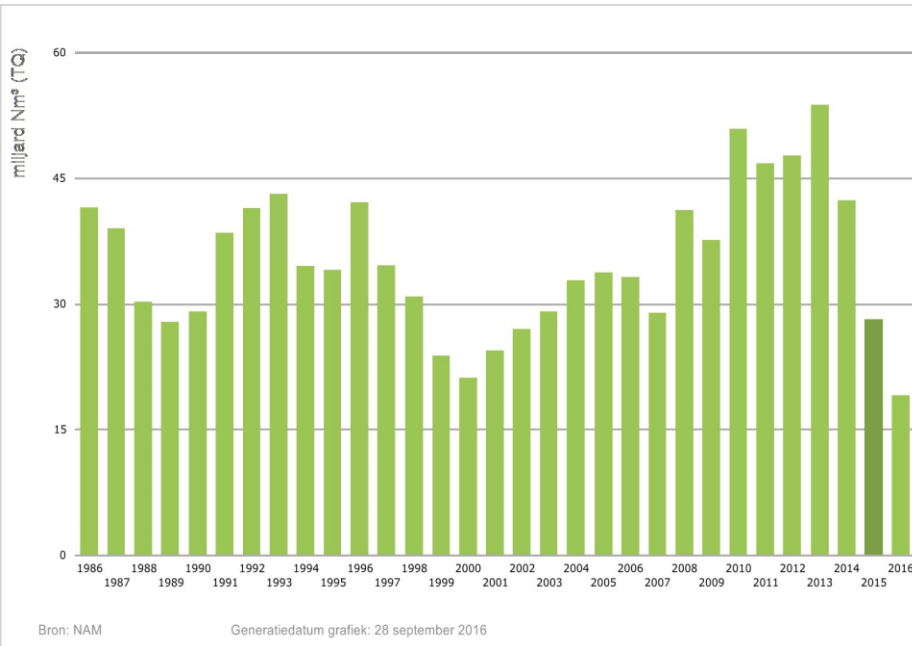
- Discovered: 1959
- Start production: 1963
- Size: 900 km²
- Initial estimate: 60 bcm
- Adjusted to 150 bcm and possible 400 bcm
- Today's estimate: 2,800 bcm
- Number of wells: 300 (20 production clusters)
- Production:
 - 2016: 27 bcm
 - 2014: 42 bcm
 - 2013: 54 bcm
 - 2010: 51 bcm
 - 2005: 34 bcm
 - 2000: 21 bcm
 - 1995: 34 bcm
 - 1985: 52 bcm
 - 1975: 84 bcm
 - 1965: 1 bcm
- Remaining reserve: around 600 bcm





Earthquakes in the Groningenfield

- 6 August 2012: earthquake with a magnitude of 3.4 (Richter); more damages reported then ever before.
- Subsequent studies show correlation gas production and earthquakes: no. of earthquakes increased significantly since 2000 due to increased production, from 25 bcm to 50 bcm/year.
- Overview of production (2175 bcm since 1963) and earthquakes:





Typical damages





Pressure to substantially reduce the production

Since 2014 until today additional earthquakes and increasing concerns about safety of the inhabitants of Groningen lead to (political) pressure to substantially reduce the production:
Resulted in:

- limit production to what is needed to meet **physical** L-gas demand (security of supply);
- make far better use of the quality conversion installations of GTS;
- call to reduce the exports => intensified already ongoing discussions with Belgium, France and Germany on market conversion to H-gas as L-gas is not available elsewhere;
- call to reduce domestic consumption => phase out gas consumption in residential areas between 2030 – 2050; encourage industry to use other sources of heat.

Subsequent production decisions by the Minister of Economic Affairs halved the production from 54 bcm in 2013 to 27 bcm in the gas year 2015/16.



30 September 2016: decision Dutch Cabinet

- Level of Groningen production: 24 bcm per gas year (exclusive of a back-up of 0.5 mcm/h and 1.5 bcm/gas year to deal with technical problems in the system).
- Only in cold years additional Groningen production is allowed (up to 6 bcm) in line with heating degree days formula developed by GTS.
- Decision covers period until October 2021, *but every year an assessment of the allowed production level will have to be made before 1 October.*

Next steps:

- Appeal against the decision was filed at the Dutch Council of State (highest administrative court of the Netherlands). Hearing foreseen for May. Verdict by August/September 2017.
- In parallel: gas production may be (= will be) a topic during the formation of a new Dutch Cabinet (currently ongoing).



More information (in Dutch) can be found on:

<http://www.rvo.nl/subsidies-regelingen/gaswinning-groningen>

<https://www.rijksoverheid.nl/onderwerpen/aardbevingen-in-groningen>

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