

 Ministry of Economic Affairs

Gas Production from the Groningen Field

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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 MJ/m³ = 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): adding H-gas to 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.

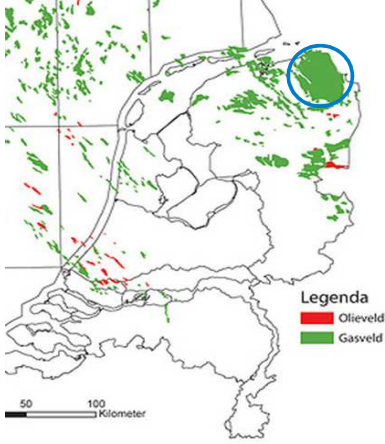
These other sources can provide for approximately 30 bcm of L-gas.


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The Groningen field: grand father of Europe's gassification

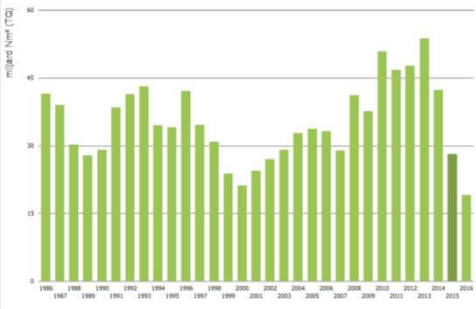
- Discovered: 1959
- Start production: 1963
- Size: 900 km²
- Initial estimate: 60 bcm;
- Adjusted to 150 bcm and possible 400 bcm;
- Today's estimate: 2,800 bcm.
- Number of wells: 300 (20 production clusters)
- Production:
 - 2015: 28 bcm
 - 2014: 42 bcm
 - 2013: 54 bcm
 - 2010: 51 bcm
 - 2005: 34 bcm
 - 2000: 21 bcm
 - 1995: 34 bcm
 - 1985: 52 bcm
 - 1975: 84 bcm
 - 1965: 1 bcm
- Remaining reserve: 650 – 700 bcm



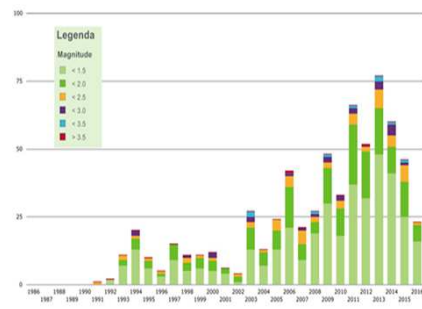


Earthquakes in the Groningen field

- 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 (1,090 bcm) and earthquakes in the period 1986-2016:




Bron: NAM
Generatiedatum grafiek: 28 september 2016




Bron: INBO
Generatiedatum grafiek: 1 september 2016


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Typical damages



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Pressure to substantially reduce the production

During 2014 and 2015 additional earthquakes and increasing concerns about safety of the inhabitants of Groningen lead to (political) pressure to substantially reduce the production:

- limit production to what is needed to meet **physical** 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;
- call to reduce domestic consumption => phase out gas consumption in residential areas.

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.

Decisions were challenged before the Dutch Council of State which ruled in November 2015:

- the Minister had the right to decide on the level of production;
- the Minister had rightfully taken into account the need for Dutch L-gas in other countries;
- production after 1 October 2016 is only allowed on the basis of a new ministerial decision which has to be taken before that date.

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Towards a new Ministerial decision by 1 October 2016

- 1 April: NAM, the owner and operator of the field, submits a new exploration plan:
 - specified production level for gas year 2016/17: 27 bcm;
 - upper limit of production level: 33 bcm;
 - stable monthly production volumes (~ 20% variation).
- May: advice from State Supervision of the Mines on safety (seismicity):
 - avoid (seasonal) fluctuations in the production as they have an influence on earthquakes;
 - a production level lower than 27 bcm/year is to be recommended;
 - a level of 24 bcm/year is a well substantiated production level.
- May: advice from GTS on security of L-gas supply:
 - a production level of 24 bcm/year ensures security of supply in an average year (and 30 bcm/year in a cold year);
 - a formula based on the number of heating degree days can be used to determine if a production of more than 24 bcm was needed.
- 24 June: draft decision with an allowed production of 24 bcm/gas year until 2021 was published for consultation
 - 4,809 opinions have been submitted of which 252 are unique;
 - 30 reactions from governments are received (including German government).

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30 September 2016: final 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 formula developed by GTS.
- Decision covers period until 1 October 2021, *but every year an assessment of the allowed production level will have to be made before 1 October.*
- NAM to submit a new exploration plan by 1 October 2020 in order to allow for a new decision by 1 October 2021.

Next steps:

- Anyone who submitted an opinion during the consultation can file an appeal against the decision at the Dutch Council of State within 6 weeks.
- ???

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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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