ERRATUM JAARVERSLAG 2019
ERRATUM ANNUAL REPORT 2019

Onderwerp: Erratum Jaarverslag 2019 – Delfstoffen en aardwarmte in Nederland
Erratum Annual report 2019 – Natural resources and geothermal energy in the Netherlands

Datum
6 oktober 2020

Onze referentie
AGE 20-10.084

E-mail
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Geachte lezer,

Ondanks alle zorgvuldigheid is er een onvolkomenheid geconstateerd in het Jaarverslag 2019 – Delfstoffen en aardwarmte in Nederland. Met dit erratum stellen we de lezer op de hoogte dat de waardes van de kolom “Totaal” in de laatste 2 regels van de tabel **Aardgasproductie (in miljoen Nm^3)** in Overzicht B van het jaarverslag gewijzigd dienen te worden in:

Jaar	* Territoir	Continentaal plat	Totaal
2019	19.663,1	9.775,9	**29.439,0**
Totaal	2.765.547,0	782.983,0	**3.548.530,1**

In de digitale versie van het jaarverslag op nlog.nl/jaarverslagen genaamd “jaarverslag_delfstoffen_aardwarmte_2019_nl_25-9-2020.pdf” is deze wijziging al doorgevoerd.

English translation:
Dear reader,

Despite all due care, a mistake was found in the 2019 Annual Report – Natural resources and geothermal energy in the Netherlands. With this erratum, we inform the reader that the values of the column “Total” in the last 2 lines of the table ***Production of natural gas (in million Nm^3)*** *in Overview B of the annual report should be changed to:*

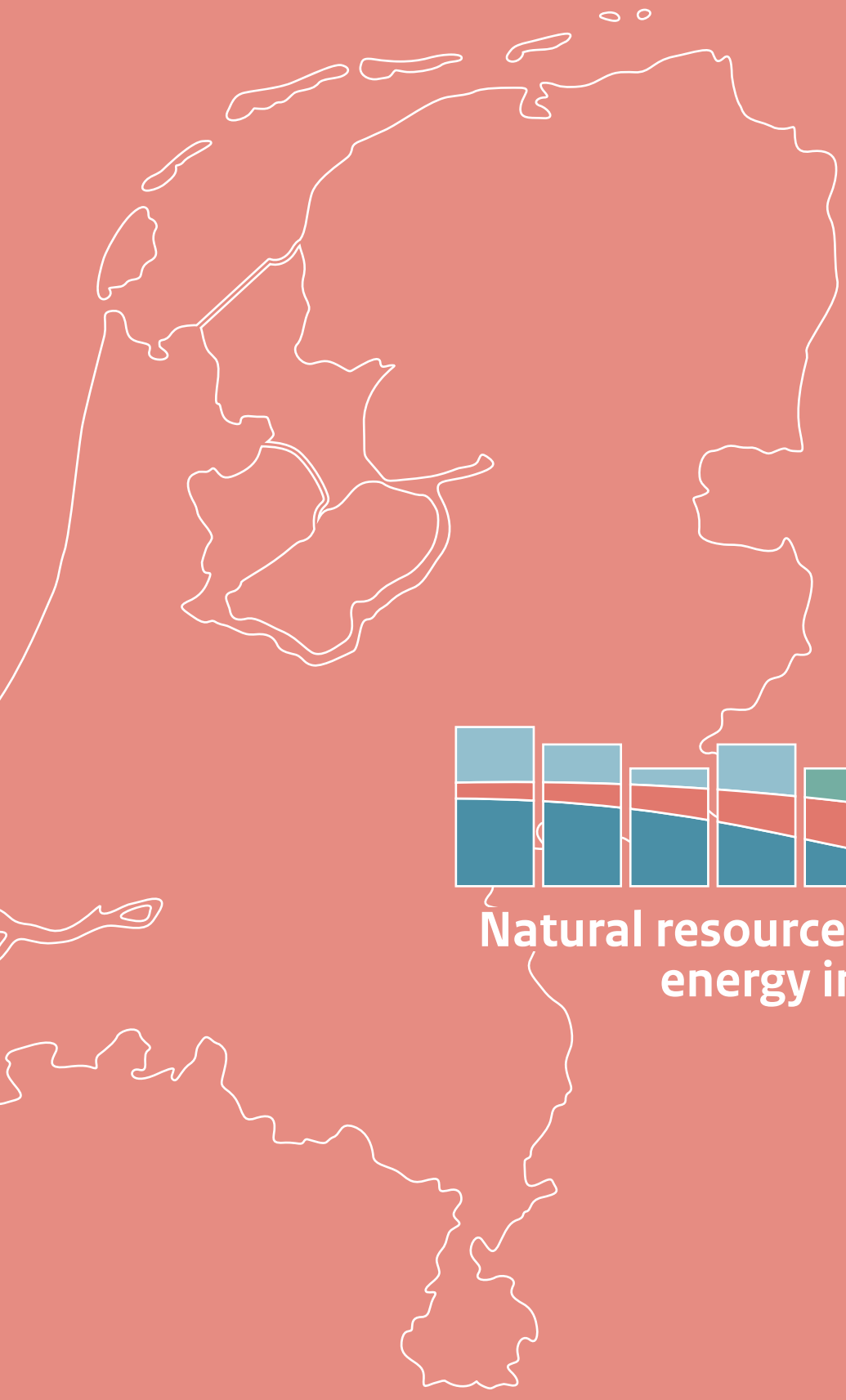
Year	* Territory	Continental shelf	Total
2019	19,663.1	9,775.9	**29,439.0**
Total	2,765,547.0	782,983.0	**3,548,530.1**

This change has already been made in the digital version of the annual report on nlog.nl/en/annual-reports called “annual_review_2019_natural_resources_and_geothermal_energy_en_25-09-2020”.

Hoogachtend,
Yours sincerely,

W.W. van Driel
Project-leider jaarverslag / *Project manager Annual report*
TNO Adviesgroep Economische Zaken / *TNO Advisory Group for Economic Affairs*

Ministry of Economic Affairs and Climate Policy



Natural resources and geothermal energy in the Netherlands

Annual review 2019

NATURAL RESOURCES AND GEOTHERMAL ENERGY IN THE NETHERLANDS

2019 Annual review

An overview of exploration, production and subsurface storage.

Preface

As well as reporting on the exploration and production of hydrocarbons, rock salt and geothermal energy in the Netherlands, this annual review entitled 'Natural Resources and Geothermal Energy in the Netherlands' also reports on the subsurface temporary storage (natural gas, oil, nitrogen) and permanent storage (brine and CO_2). In so doing it covers all the exploration, production and storage activities in onshore Netherlands and in the Dutch part of the continental shelf that fall under the Mining Act.

The first section of this annual review deals with developments during the year 2019. The second part of this report comprises annexes giving an overview of the situation as at 1 January 2020, and the developments during preceding decades.

Chapters 1 and 2 review the changes in the estimates of natural gas and oil resources in 2019 and the resulting situation as at 1 January 2020.
These chapters also present a prognosis for the gas (small fields) and oil production for the next 25 years. The remaining volumes of natural gas and oil are reported in accordance with the Petroleum Resource Management System (PRMS). For the Groningen gas field production profiles are reported as per the latest communication of the Minister of Economic Affairs and Climate Policy to the House of Representatives. The small fields are discussed in more detail.
Chapter 3 provides an overview of the produced natural gas, oil and condensate. Chapter 4 reports on the developments regarding subsurface storage. Chapters 5, 6 and 7 give an overview of the developments regarding geothermal energy, rock salt and coal respectively. Chapters 8, 9 and 10 contain information on developments relating to offshore and onshore licensing and company changes. Chapters 11, 12 and 13 report on seismic surveys, (hydrocarbon) drilling activities, and changes regarding mining installations (e.g. platforms and pipelines).

This report has been compiled by TNO-Advisory Group for Economic Affairs, at the request of the Directorate General of Climate and Energy of the Dutch Ministry of Economic Affairs and Climate Policy. It includes data that the Minister of Economic Affairs and Climate Policy is required to supply to both Chambers of the Dutch Parliament in accordance with article 125 of the Mining Law. The digital version of this review can be found on: www.nlog.nl.

The volumes of gas and oil have been expressed in accordance with article 11.3.1. of the Mining Regulations: gas in normal cubic metres and oil (a liquid) in standard cubic metres.

The Hague, July 2020.

Contents

Note:

In this annual report, the natural gas volumes are given in normal cubic metres (Nm^3).
'Normal' relates to the reference conditions 0 °C and 101.325 kPa. 1 Nm^3 = 0.9457 Sm^3.

In a few instances, the volumes of natural gas are given in Groningen gas equivalents (m^3 Geq) of 35.17 megajoules gross calorific value per m^3 at 0 °C and 101.325 kPa.
This is explicitly indicated in the text.

Volumes of oil and condensate are given in standard cubic metres (Sm^3). 'Standard' relates to the reference conditions 15 °C and 101.325 kPa.

Key figures

Natural gas and oil resources

The natural gas resources as at 1 January 2020 are estimated at 172 billion Nm^3, of which 18 billion Nm^3 are in the Groningen gas field. This major reduction compared to 1 January 2019 is due to the write-down of the Groningen reserves (40 billion Nm^3), production (29 billion Nm^3) and re-evaluations in the small fields (5 billion Nm^3). The small fields in Netherlands territory contain 49 billion Nm^3 natural gas; those on the Netherlands continental shelf contain 66 billion Nm^3 natural gas.
Oil resources at 1 January 2020 were 21.9 million Sm^3, of which 13.6 million Sm^3 are in onshore oilfields and 8.3 million Sm^3 in fields on the continental shelf.

Natural gas production

In 2019 the volume of natural gas produced from Dutch fields was 29.4 billion Nm^3. Onshore gas fields accounted for 19.6 billion Nm^3. 4.0 billion Nm^3 came from small fields and 15.6 billion Nm^3 from the Groningen gas field. The gas fields on the continental shelf produced 9.8 billion Nm^3. As a result, total production in 2019 dropped by 16.2 % compared to 2018. For details, see Chapter 3.

Oil production

In 2019 a total of 0.90 million Sm^3 oil was produced, this is 15.3 % less than in 2018. Territory fields accounted for 0.41 million Sm^3, which is 18.6 % less than in 2018. Production on the continental shelf was 0.49 million Sm^3, a decrease of 12.4 %. Average daily oil production in 2019 was 2468 Sm^3. For details, see Chapter 3.

Subsurface storage

In 2019 one new application for storage licence was granted for the storage of brine. Two licence applications submitted previously are still in the procedure. See chapter 4 for details.

Geothermal energy

In 2019 one geothermal well was realised and one geothermal installation was installed. As at 1 January 2020 there are 25 production installations, of which 21 are currently producing. The cumulative reported annual production in 2019 was 5.6 PJ. For details, see Chapter 5.

Rock salt

As at 1 January 2020 there were 16 production licences and no exploration licences in force. One application for a production licence submitted previously is in procedure. The production of rock salt in 2019 was 5.9 million tonnes. For details, see Chapter 6.

Coal

There are no developments to report for 2019. There are still five coal production licences in force. For details, see Chapter 7.

Hydrocarbon licences

Five exploration licences and 2 production licences are pending for the Netherlands territory. In 2019, 2 exploration licences were prolonged. One production licence was split and one was reduced in size.
On the continental shelf, 14 exploration licences and 4 production licences are pending. 13 exploration licences and one production licence were prolonged on the continental shelf.

In 2019 one production licence was awarded on the continental shelf; N4, N5 & N8 for ONE-Dyas. Four production licences were extended and four reduced in size. For details, see Chapters 8 and 9.

Geothermal licences

In 2019 15 new applications for exploration licences were published. 18 exploration licences were awarded. 11 exploration licences were prolonged, and four exploration licences were relinquished or withdrawn.
In 2019 4 applications for production licences were submitted. Ten production licences were awarded in 2019. For details, see Chapter 8.

Oil and gas wells

In total, 14 wells were drilled for oil and gas in 2019, 1 more than in 2018. Four exploration wells were drilled. Of these all found gas, thus the technical success rate was 100 %. In addition, 7 production wells were drilled. For details, see Chapter 12.

1. Natural gas resources and future domestic production

1.1 Introduction

This chapter reports on the natural gas resources in the Netherlands and in the Dutch part of the continental shelf. First, it presents estimates of the natural gas resources as at 1 January 2020 and the changes compared to the resources as at 1 January 2019. Prognoses are then given for the annual production of Dutch natural gas in the next 25 years (2020–2044).

Figures

In accordance with the Mining Act (article 113, Mining Decree), every year operators of production licences report their estimates of remaining resources, per accumulation, and their expected annual production. These data are used to estimate the domestic resources of natural gas and the future production of natural gas from domestic reserves. The data on the natural gas resources are required to be reported in accordance with the Petroleum Resource Management System (PRMS)[1], enabling a uniform classification of the resources (See Appendix 3 for explanation).

The gas resources pictured along the vertical axis are split into three main classes: reserves, contingent resources and prospective resources (Figure 1.1). Each of the main classes is subdivided into three subclasses. This annual review reports on the reserves (main class level). The contingent resource subclasses 'unclarified' or 'on hold' and 'development not viable' have not been included in the recoverable gas resources, considering the uncertainty whether these projects will be realised. The prospective resources are reported at the level of prospects only.

Since oil and natural gas are physically located underground at great depths, hydrocarbon resources are estimated by evaluating the data on the amounts present. All resource estimates have an intrinsic uncertainty. The PRMS resource classification takes account of this uncertainty in its central framework by classifying the gas resources for each project according to the likelihood of recovery. This is depicted along the horizontal axis (Figure 1.1). The Dutch gas resources reported here comprise the total volume of the reserves (2P) and the contingent resources (2C), insofar that these belong to the subclass 'development pending'.

[1] Guidelines for application of the PRMS, Society of Petroleum Engineers, 2012.

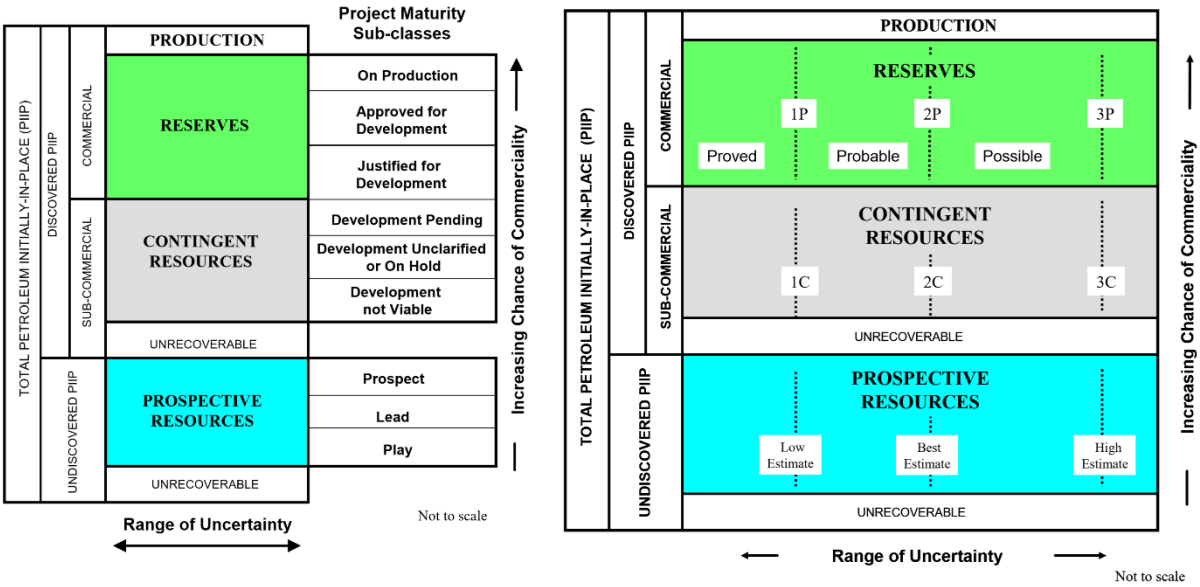


Figure 1.1 Schematic representation of the PRMS classification (Appendix 3).

Restriction to conventional accumulations of gas

The estimates of resources in this review relate solely to resources that are proven plays, and thus the review is limited to conventional natural gas accumulations. Shale gas is excluded, as exploration and production of shale gas has been banned by implemented policy (Structuurvisie Ondergrond 2018, Minister van Infrastructuur en Waterstaat and Minister van Economische Zaken en Klimaat).

1.2 Resources

As at 1 January 2020, there were 492 proven accumulations of natural gas in the Netherlands (see Table 1.1) and almost half (216) were in production. A further four gas fields were being used to store gas (in addition to the one gas storage facility in a salt cavern). The remaining 114 accumulations were not developed, but it is expected that 28 of them will be brought into production in the next five years (2020–2024). It is uncertain whether the remaining 86 will be developed. 157 of the accumulations that were not producing at the time, had been producing previously but their exploitation had been (temporarily) ceased. The total number of fields increased by 6 compared to 1 January 2019. This includes one new discovery and five accumulations which were re-evaluated and are now assumed to have economical potential. During 2019, a total of four fields on the territory and five on the continental shelf ceased production and were abandoned (see Table 3.2). A complete list of all fields, grouped according to status and with information on operators and licences, is presented in Annex A.1.

Table 1.1 Proven natural gas accumulations as at 1 January 2020, classified according to their status.

Status of gas accumulation	Territory	Continental shelf	Total
I. Developed			
a. Producing	87	129	216
b. Natural gas storage	5	0	5
II. Undeveloped			
a. Production to start 2020-2024	9	19	28
b. Other	35	51	86
III. Production ceased			
a. Temporarily ceased	16	11	27
b. Ceased	54	76	130
Total	206	286	492

* Including gas storage in caverns.

1.3 Resource estimates

Gas resources as at 1 January 2020

On 1 January 2020 the total gas resource in developed and undeveloped accumulations was 171.6 billion Nm^3 (Table 1.2).

Reserves and contingent resources

The remaining reserves totalled 132.6 billion Nm^3: 17.5 billion Nm^3 reserves in the Groningen field and 115.0 billion Nm^3 in the remaining (small) fields. The major reduction in reserves of the Groningen field is due to the decision of the government to discontinue its production in 2022. This decision is prompted by safety issues associated with induced seismicity (Letter to the House of Representatives, 29 March 2018).

That part of the contingent resources which is likely to be produced, is partly in currently producing accumulations but the greater share is in as yet undeveloped accumulations. All in all, the small fields contain contingent resources of 20.5 billion Nm^3 on the territory (onshore) and 18.5 billion Nm^3 on the continental shelf (offshore). As described above the Groningen field does not contain any contingent resources.

Table 1.2 Netherlands natural gas resources as at 1 January 2020, in billion Nm^3.

Area	Reserves	Contingent resources (development pending)	Total
Groningen	17.5	-	17.5
Other territory	48.7	20.5	69.2
Continental shelf	66.3	18.5	84.8
Total	132.6	39.0	171.6

In order to incorporate volumes of natural gas of different qualities in calculations, they have been converted to Groningen gas equivalents (Geq) based on their calorific value (Table 1.3). The Groningen gas equivalent used to be calculated relative to a calorific value of 35.17 MJ/Nm^3, the calorific value of the original content of the Groningen field. Since 2010, however, a calorific value of 35.08 MJ/Nm^3 has been assigned to the volume of gas still to be produced from the Groningen field, to reflect a slight change in the composition of the gas produced from this field.

Table 1.3 Netherlands natural gas resources as at 1 January 2020, in billion m^3 Geq.

Accumulations	Reserves	Contingent resources (development pending)	Total
Groningen	18.4	-	18.4
Other territory	53.3	22.4	75.7
Continental shelf	75.3	21.3	96.5
Total	147.0	43.7	190.6

Table 1.4 shows the estimates for the Dutch natural gas resources after revision to account for

- Re-evaluations of previously proven accumulations including new discoveries
- Production during 2019.

Table 1.4 Revised estimates of expected natural gas resources compared to 1 January 2019, in billion Nm^3.

Area	Re-evaluation	Production	Total
Groningen	-39.9	-15.6	-55.4
Other territory	3.1	-4.0	-0.9
Continental shelf	-8.2	-9.8	-18.0
Total	-45.0	-29.4	-74.3

The net result is a decrease of the resource by 74.3 billion Nm^3 compared to 1 January 2019. Production in 2019 is described in detail in Chapter 3.

Re-evaluation

Operators periodically evaluate the gas fields in technical and economic terms. New developments and insights may lead to revised estimates of the resources. As a result of such re-evaluations of producing and non-producing fields, the estimates of resources were adjusted downward by 74.3 billion Nm^3 in 2019. The revision is largely in the Groningen field (39.9 billion Nm^3). For the re-evaluation of the small fields upward and downward revisions of the resources occurred. In total for all the small fields this results in a net decrease of 5.1 billion Nm^3.
The resources have been adjusted on the basis of production performance and the implementation of technical modifications. The latter include the drilling of new wells and the application of techniques to prolong production.

Two exploration wells have found gas: Maasmond-01 en Weststellingwerf-01-S1. Maasmond-01 also encountered oil. Weststellingwerf-01-S1 discovered gas in a fault block that eventually has been included in the existing Weststellingwerf field because of the shared infrastructure (Table 1.5). The locations of the new discoveries are indicated by asterisks in Figure 1.2. The gas resources in these new accumulations have been taken into account in the re-evaluation (Table 1.4).

Table 1.5 Natural gas accumulations discovered in 2019.

Accumulation	Discovery well	Licence [Type]	Operator
Q16-Maasmond	Maasmond-01	Q16b & Q16c-diep [pl]	ONE-Dyas B.V.
Weststellingwerf	Weststellingwerf-01-S1	Gorredijk [pl]	Vermilion

pl: production licence

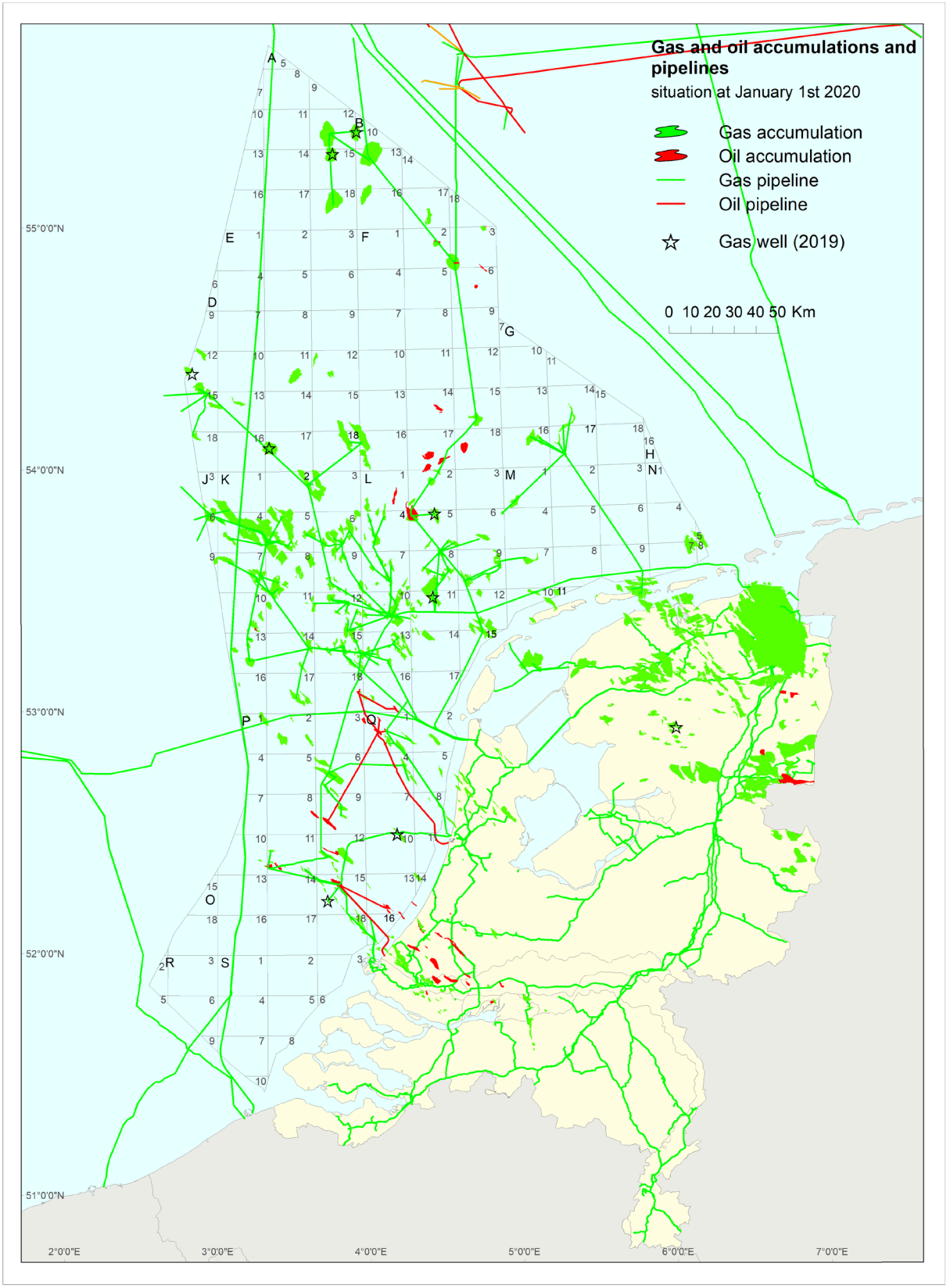


Figure 1.2 Map showing oil and gas accumulations in the Netherlands as at 1 January 2020.

1.4 Exploration potential

Policy

Current Dutch government policy is aimed at maintaining domestic gas production, especially in the North Sea. This is in view of the rapid decrease in production from the Groningen field and (for the time being) still high domestic gas demand. Natural gas from the Netherlands has a lower carbon dioxide footprint than imported gas and it substantially contributes to the Dutch economy. Moreover, gas produced from the North Sea has less impact on society than gas extraction on land. At sea, on the other hand, the time pressure caused by the dismantling or conversion of the infrastructure must be taken into account. Due to the depletion of an increasing number of gas fields, the existing infrastructure is gradually abandoned and removed or possibly reused for transport of CO_2 to underground storages in empty gas fields. In addition, there may be future developments such as the transport of hydrogen from wind farms to the coast. The lack of an available gas infrastructure that can be shared makes it more difficult and probably economically (much) less attractive to develop new gas fields.

The next sections will successively deal with the gas production from the Groningen gas field and the production from the other (small) gas fields, divided into land and sea. This subdivision stems from the specific dynamics that characterise these areas.
The plans for production from the Groningen gas field are based on the cabinet's intention of 29 March 2018 (letter to the House of Representatives, DGETM-EI / 18057375). The reporting on the small fields is largely composed of data from the operators. The reference date for the report is 1 January 2020.

The expected developments in the supply of Dutch natural gas (domestic production) concern the next 25 years (2020 to 2044).

Groningen gas field

Because the consequences of gas production in Groningen were no longer socially acceptable, the Cabinet decided in 2018 to phase out gas extraction as soon as possible. In this way, the cause of the earthquake risk is eliminated. To this end, the Mining Act has been amended, so that no more gas will be produced from the Groningen field than necessary.
Due to the reduction in demand for the low calorific Groningen gas and the availability of alternatives, the required quantity of Groningen gas is further reduced every year. The amount of gas production will be issued by decree annually and started in 2019.

End of production in 2022

The Minister of Economic Affairs and Climate Policy has indicated (letter to the House of Representatives, DGKE-PGG / 20164742, June 19, 2020) that gas extraction from the Groningen field will no longer be necessary in from mid-2022. In addition, a further reduction in extraction in the current gas year (2019/2020) is possible from 11.8 to 9 billion Nm^3 due to the warm winter. GTS indicates that if the phase-out proceeds according to plan, the field can be closed permanently in 2025/2026. In the next gas year 2020/2021, the Groningen production required for security of supply will further decrease to 9.3 billion Nm^3. Production is being phased out faster than originally thought. The production of 2020/2021 will be four billion Nm^3 lower than foreseen in the base path of March 29, 2018.

Necessary preconditions for phasing out production in Groningen

The analyses show that gas extraction from the Groningen field will no longer be necessary from mid-2022. A number of preconditions must be met to end gas production in a responsible manner:

1. Timely completion of Zuidbroek nitrogen installation.
2. Sufficient progress in reducing the demand for L gas (Low calorific Groningen gas).
3. Gas storage facilities at Norg must remain available.
4. Sufficient supply of high-calorific gas for conversion.

The production from the Groningen field is given per 'gas years' that run from October to October. For gas year 20/21, an average gas production of 9 billion Nm^3 is expected, in gas year 21/22 production will cease completely. The annual productions mentioned are based on an average year, which may be higher or lower in the case of a cold or warm year, respectively.

The small fields

The small fields include all Dutch gas fields, except the Groningen gas field (which is approximately 40 times larger than the second largest gas field).

Technical and economic subdivision

TNO calculates the expected annual gas production based on the data supplied by gas producers (ex Article 113 of the Mining Decree). As previously described, the gas supply is divided into three main classes in accordance with the Petroleum Resource Management System (PRMS); reserves, contingent resources and prospective resources. The numbers mentioned are based on the expected values, the low and high estimates are disregarded:

a. Reserves; the part of which production is ongoing or where the (investment) decision to start production has been taken. According to the current estimate, the reserves comprise a total gas volume of 129 billion m^3 Geq (4,523 PJ).
b. Contingent resources (development pending): the less certain part of resources in proven occurrences. This requires greater certainty regarding the technical, economic and / or legal conditions before investing in gas production. According to the current

Resources in the Gas Storage Facilities

The original gas supply from the gas storage facilities (36 billion Nm^3 of gas originally in place, that was still present in the reservoir when converted into the gas storage) will still be produced upon discontinuation of the storage activities. The role of the gas storage in the Groningen system will also change with the cessation of production from the Groningen gas field. It is not yet clear when and how production will materialise. These resources are therefore not yet included in the small fields production profile as shown.

estimate, contingent resources comprise a total of 44 billion m^3 Geq (1,537 PJ). Contingent resources in subclasses of which the development is still uncertain, on hold or currently considered unviable according to PRMS, are not included in the profiling. This is due to the great uncertainty whether they will ever put into production.

c. Prospective resources: resources that have not yet been proven, but which are expected to be present and to be considered economically viable on the basis of technical data. Actual production can only be started if these expectations have been positively proven by an exploration well. TNO has calculated an exploration scenario based on the expected gas resources as supplied by the operators (see box). In the next 25 years a cumulative gas production is expected of 49 billion m^3 Geq (~ 1719 PJ) for both land and sea.

Factors for successful production

In addition to the usual technical and economic factors, the probability of successful gas production is also determined by a number of other factors. Recently, these factors have resulted in a decrease in gas production:

a. Low gas price leads to a smaller net portfolio of economically recoverable resources. The long-term effect is currently highly uncertain.
b. Abandonment of infrastructure, especially at sea, leads to increase in development costs.
c. PAS (Programma Aanpak Stikstof /*Nitrogen Approach Program*) leads to delays due to restrictions on drilling locations. The long-term effect is currently uncertain.
d. Postponement of the extended marginal fields scheme[2] lead to investments being postponed, particularly at sea
e. The embargo on new exploration permits on land leads to a reduction in prospective resources.
f. The negative image of fossil fuels among investing parties may lead to a restriction of investment opportunities for the operators.
g. The local societal resistance to the (re-) development of gas fields leads to greater uncertainties regarding feasibility, especially on land, and also to delays in activities due to longer (permit) procedures.

How do we calculate the production from unproven accumulations (prospects)?

1. Data of prospects, from the TNO database (based on art. 113 Mining Decree).
2. Expected timing and size of production from reserves and contingent resources (edited profiles from art. 113).
3. Number of expected future exploration wells to be drilled per year (4 at sea, 1 on land).
4. Long-term gas price at 12 ct per Nm^3.
5. Economic analysis (risked value to investment ratio greater than 10 %) per prospect based on expected gas production, possibility of success, resource volume, distance to infrastructure. Based on current reserves and infrastructure.
6. Multiple draws of "most likely" projects (stochastic).
7. Based on time to development and technical production rate per occurrence and platform / mining installation.
8. Cumulative production profile based on the most likely scenario (mean value). This is a production profile with great uncertainty.
9. Analysis shows that there is a structural overestimation of 30 % of the expected gas volumes in the supplied data. Therefore, the expected value is corrected accordingly.

Note: We calculate a techno-economic probability of gas production. Any change in, for example, political, societal support or investment climate may result in a different realisation.

[2] Letter to the House of Representatives: "De rol van gas in het energiesysteem van nu en de toekomst" dd. 30 maart 2020. Tweede Kamer, vergaderjaar 2019–2020, 32 813, nr. 486

Expected gas production from small fields on land

In 2020, the production of the reserves from the currently producing small fields on land (green) is expected to be 4 billion m^3 Geq per year. A cumulative production from reserves of 29 billion m^3 Geq from the small fields on land will be realised until 2035.

The contingent resources are expected to come production (yellow) gradually, which offsets the decrease in production from the reserves for some time. The profile initially shows a constant production around 4 billion m^3 Geq. However, annual production from contingent resources will also gradually decline from 2027 onwards. As of 2042, gas production on land is expected to source from gas fields that are not yet in production (yellow and white). Ultimately, up to and including 2044, 16 billion m^3 of Geq will be produced from the contingent resources.

The total potential of prospective resources (light yellow) that are considered economically attractive amounts to 53 billion m^3 Geq. Given the current economic conditions and social acceptance it remains uncertain whether these will actually be developed. Based on the scenario calculations (see box), we expect that with an average of 1 exploration well per year on land for the next 25 years, a total production of 8 billion m^3 of Geq can be realised from undiscovered gas fields.

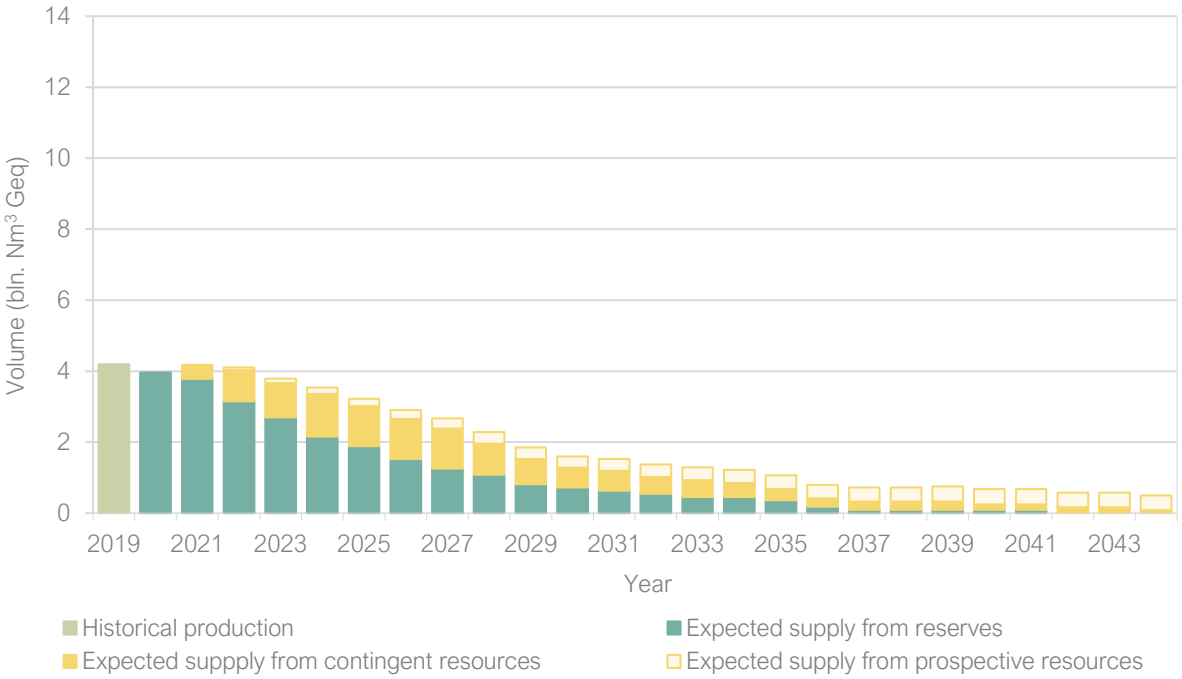


Figure 1.3 Actual production in 2019 and expected production of natural gas from the small fields on land from 2020 to 2044. Production from the Groningen field is excluded. The data underlying this profile are given in Overview B.

Compared to previous years, expected production from prospective resources on land has been reduced, in particular by:

- A sharp reduction of the expected number of exploration wells to one per year (from four wells six years ago to one now).
- An adjustment of 30 % of the expected prospective resources due to structural overestimation of gas volumes by mining companies.
- The assumption of a lower future gas price (now 12 cents, as opposed to 17.5 cents last year).

Expected gas production from small fields at sea

In 2020 the annual production of reserves from the producing small fields at sea (green) is estimated to be 11 billion m^3 Geq decreasing to one billion m^3 Geq in 2035. In total, 75 billion m^3 Geq of reserves are expected to have been produced by 2035.

As usual, the contingent resources will come into production with a slight delay (yellow). This initially compensates for the decrease in production from the reserves. But these resources also show a gradual decrease from 2027 onwards. In total, the contingent resources amount to 21.3 billion m^3 Geq. The contingent resources are expected to last until 2043.

Consequently, from 2030 onwards, gas production at sea will have to come mainly from gas fields that have not yet been discovered (light yellow). In total, in the known prospective resources, there is a potential of economically attractive resources of 75 billion m^3 Geq. Based on a scenario with four exploration wells per year, a total production of 42 billion m^3 Geq may be realised in the next 25 years.

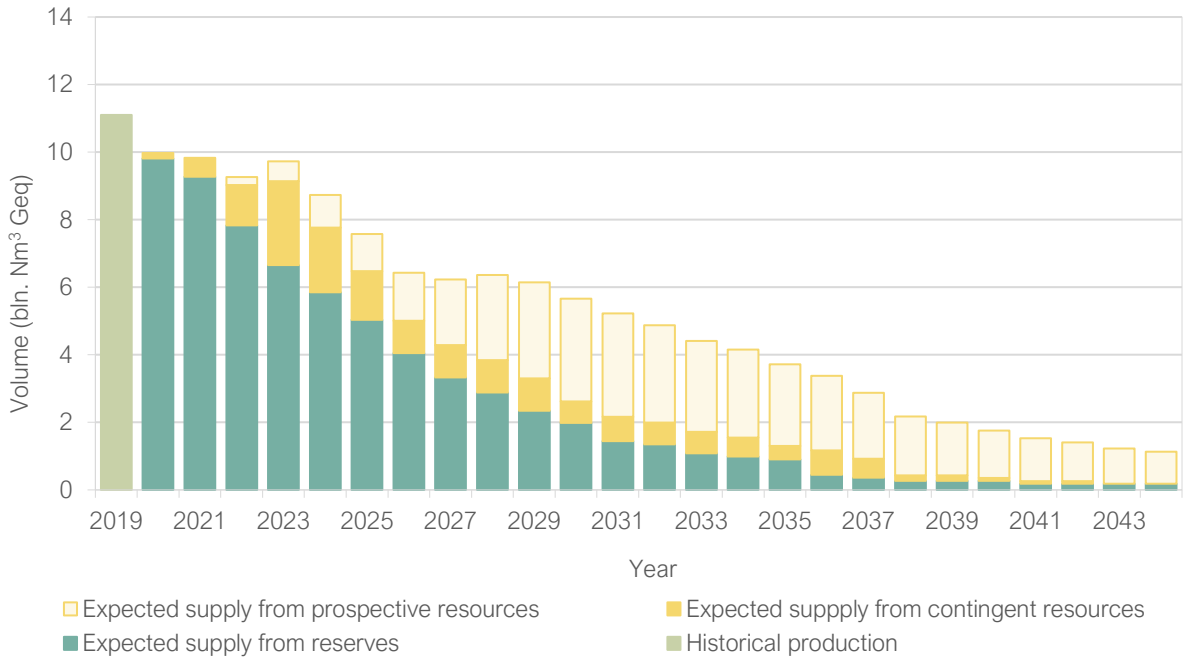


Figure 1.4 Actual production in 2019 and expected production of natural gas from the small fields at sea from 2020 to 2044. The data underlying this profile are given in Overview B.

From the scenario's a decrease in gas production at sea is expected in the coming decades compared to previous years due to:

- A decreased gas price (12 cents this year, was 17.5 cents last year), which means that very few projects are economically attractive. At sea, developments are very sensitive to the gas price due to the relatively high investment costs.
- A decrease in the number of exploration wells per year (from 5 to 4).
- An adjustment of 30 % of the expected prospective resources due to structural overestimation of gas volumes by mining companies.

Expected total gas production from the small fields

Figure 1.5 shows the cumulative forecast of the gas production from the small fields for both land and sea (addition of production profiles shown in Figures 1.3 and 1.4)

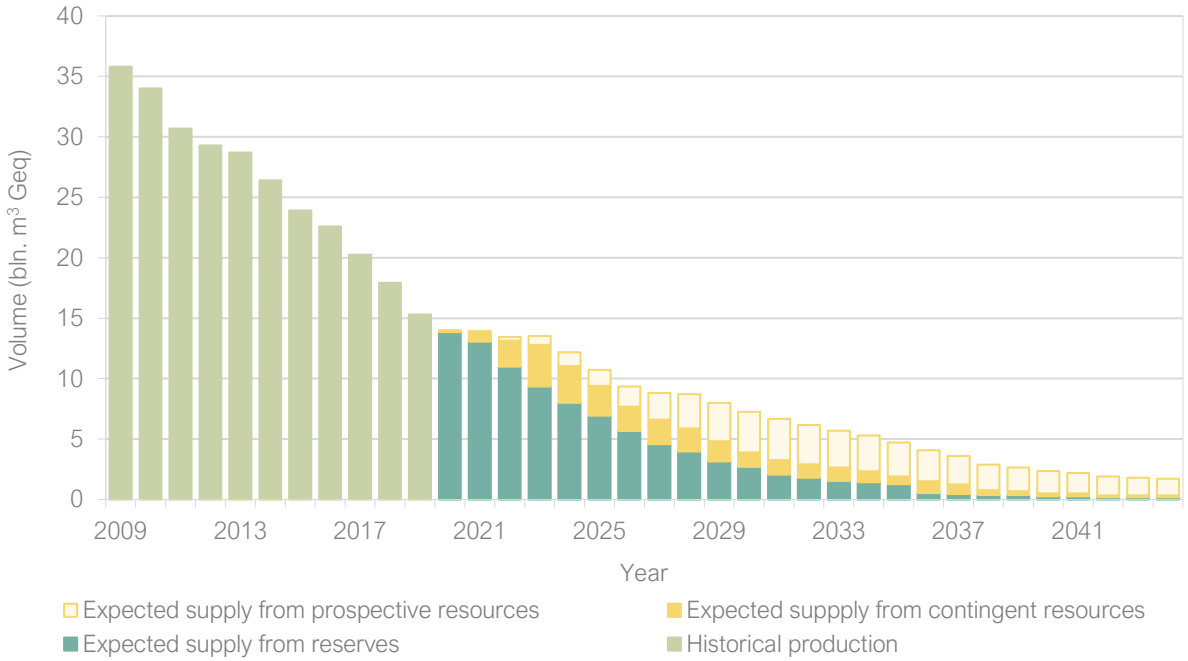


Figure 1.5 Actual production in 2019 and expected production of natural gas from the small fields (excluding the Groningen field) from 2020 to 2044. For the conversion from volume unit to energy unit, 1 billion m^3 Geq equals approximately to 10 TWh or 35 PJ. The data underlying this profile are given in Overview B.

2. Oil resources

On 1 January 2020 53 proven oil accumulations were known in the Netherlands (see Table 2.1). Eleven of these oil accumulations were in production. No new accumulations were discovered in 2019. All oil fields are listed in Annex A.2. They are classified by status and reported with their current or last operator and licence name.

Table 2.1 Number of proven oil accumulations as at 1 January 2020.

Status of oil accumulation	Territory	Continental shelf	Total
I. Developed			
Producing	3	8	11
II. Undeveloped			
a. Production start 2020 - 2024	0	7	7
b. Other	10	13	23
III. Production ceased			
a. Temporarily ceased	0	0	0
b. Ceased	8	4	12
Total	21	32	53

Oil resources as at 1 January 2020

For the developed fields, the resource estimates are based on data and information submitted by the operators in accordance with the Mining Act. The estimates follow the Petroleum Resource Management System (PRMS) (SPE, 2011). Table 2.2 shows the reserves (i.e. part of the resources that can be produced commercially and have been qualified as such by the operators) and the subclass 'production pending' of the contingent resources, for which it may be reasonable to consider as commercially recoverable, but do not yet meet all the criteria). The remaining subclasses of the contingent resources that have a greater uncertainty regarding the eventual realisation (i.e. On hold, unclarified or unviable) are not included in Table 2.2. Because the PRMS is a project-based resource classification, both reserves and contingent resources may be present in one accumulation.

The total oil resources as at 1 January 2020 amounts to 30.3 million Sm^3, made up of 21.9 million Sm^3 in reserves and 8.4 million Sm^3 in contingent resources (development pending).

Table 2.2 Oil resources in million Sm^3 as at 1 January 2020.

Area	Reserves	Contingent resources (development pending)	Total
Territory	8.3	6.7	15.0
Continental shelf	13.6	1.7	15.2
Total	21.9	8.4	30.3

Revised estimates of the oil resources compared to 1 January 2019

Table 2.3 shows the adjustments in the Dutch oil resources as a result of:

- Re-evaluation of previously proven accumulations
- Production during 2019

Oil reserves have increased compared to 2018 due to the re-evaluation on the continental shelf. The increase in reserves due to re-evaluation on the continental shelf is almost eight times larger than the corresponding production in 2019.

Table 2.3 Revised estimates of oil reserves compared to 1 January 2019, in million Sm^3.

Area	Re-evaluation	Production	Total
Territory	-1.4	-0.4	-1.8
Continental shelf	3.9	-0.5	3.5
Total	2.5	-0.9	1.7

Figure 2.1 and Table 2.4 show the realised oil production from 2010 to 2019 and the expected oil production for the next 25 years. The forecast is based on the operators' annual reports. Relative to the expected production for 2019 (1.1 million Sm^3) the realised production fell short by -18 %. The delay in the development of some oil fields explains why the production forecast of the corresponding reserves and contingent resources show an increase by 2024. The abrupt decrease in production in 2041 is due to the fact that production forecast of some reserves and contingent resources for a number of fields is limited to the year 2040.

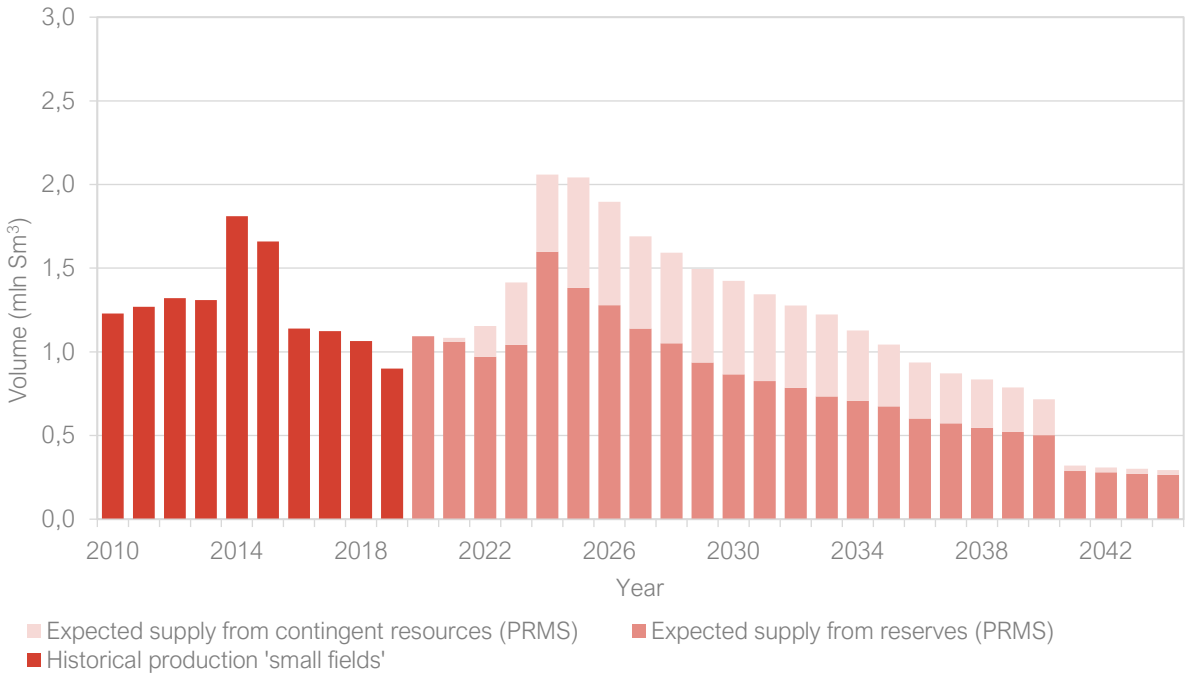


Figure 2.1 Historical oil production and prognosis for production until 2044 (in million Sm^3).

3. Production of natural gas, oil and condensate

During the year 2019, the following fields have been brought into production (Table 3.1) or ceased production (Table 3.2).

Table 3.1 Field production start in 2019.

Field	Production start	Year discovery	Producing
Q10-A	February	1962	Gas

Table 3.2 Field production ceased in 2019.

Field	Production ceased	Year discovery	Producing
Slootdorp	January	1965	Gas
K12-S3	September	2001	Gas
L04-D	April	1981	Gas
P09-A	August	2000	Gas
P11-12	September	2016	Gas
Q16-Maas	March	2011	Gas

The table below shows the aggregated production figures for natural gas, oil and condensate in 2019. Condensate is considered a by-product of oil or gas production. The changes compared to 2018 are shown in both absolute and percentage terms. The tables are based on production data provided by the operators.

The decrease in gas production compared to 2018 is again mostly related to the reduction in production from the Groningen field, although the production from the small gas fields also shows a decline as a result of their advanced stage of depletion (Table 3.3).
The fall in the total oil production mostly took place onshore. During 2018 there was an increase of 21.3 %, in 2019 a decrease of -18.6 % is observed (Table 3.4). This decrease in oil production is mostly related to licences of Rijswijk (-21.1 %) and Schoonebeek (-17.0 %).

Overview production in 2019 and changes compared to 2018.

Table 3.3 Natural gas production in 2019 and changes compared to 2018.

Gas	Production 2019	Changes compared to 2018	
	(10^9 Nm^3)	(10^9 Nm^3)	%
Groningen field	15.6	-3.2	-17.0
Territory other fields	4.0	-1.1	-21.6
Territory (subtotal)	19.6	-4.3	-18.0
Continental shelf	9.8	-1.3	-11.7
Total	29.4	-5.7	-16.2

Table 3.4 Oil production in 2019 and changes to 2018

Oil	Production 2019	Changes compared to 2018	
	(10^3 Sm^3)	(10^3 Sm^3)	%
Territory	413	-95	-18.6
Continental shelf	487	-69	-12.4
Total	901	-163	-15.3
Average oil production per day	2.468		

Table 3.5 Condensate production in 2019 and changes compared to 2018

Condensate	Production 2019	Changes compared to 2018	
	(10^3 Sm^3)	(10^3 Sm^3)	%
Territory	87	-38	-30.5
Continental shelf	84	-61	-42.2
Total	171	-99	-36.8

3.1 Natural gas production in 2019, Netherlands territory

The table below gives monthly production figures per production licence. The production per licence is a summation of well production of those wells with surface locations within the licence area. The information is based on figures supplied by the operators.

Annexes B and D give the historical annual figures for the production of natural gas and oil. Annual totals may differ slightly due to the rounding off of the monthly production totals.

Table 3.6 Natural gas production in 2019 per licence, Netherlands territory (million Nm^3)

Licence *	Operator	Total	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Alkmaar	TAQA	-	-	-	-	-	-	-	-	-	-	-	-	-
Andel Va	Vermilion	11.9	0.2	-	-	-	-	1.3	1.9	2.0	1.7	1.7	1.6	1.5
Beijerland	NAM	13.6	2.2	1.6	2.0	1.4	1.3	0.7	0.7	1.4	0.8	0.2	1.0	0.2
Bergen II	TAQA	46.1	3.5	4.1	4.6	4.5	4.1	3.8	3.7	3.7	1.5	4.2	4.2	4.4
Botlek III	NAM	180.8	22.9	17.3	20.5	17.3	14.3	12.0	11.4	15.9	13.3	11.6	13.8	10.6
Botlek-Maas	ONE-Dyas	3.3	3.1	0.1	-	-	-	-	-	-	-	-	-	-
Donkerbroek	Tulip Oil	-	-	-	-	-	-	-	-	-	-	-	-	-
Drenthe IIa	Vermilion	-	-	-	-	-	-	-	-	-	-	-	-	-
Drenthe IIb	NAM	82.3	14.2	5.6	3.9	4.0	4.1	3.9	2.8	7.6	6.5	6.7	8.3	14.6
Drenthe IV	Vermilion	1.7	0.4	0.1	-	-	-	-	-	-	-	-	0.6	0.7
Drenthe V	Vermilion	13.4	1.6	1.3	1.6	1.2	0.5	0.2	1.1	1.9	1.6	1.5	-	0.8
Drenthe VI	Vermilion	365.3	36.6	33.2	35.5	30.8	32.3	30.8	31.1	30.5	14.2	30.7	29.4	30.2
Gorredijk	Vermilion	17.4	0.6	0.4	0.5	3.6	3.7	2.8	2.3	1.3	0.1	-	0.3	1.7
Groningen	NAM	16,201.2	1,966.4	1,623.4	1,649.6	1,285.8	1,571.4	1,347.5	1,223.7	1,303.6	1,188.6	691.3	1,145.9	1,204.1
Hardenberg	NAM	22.3	2.1	2.3	2.4	2.2	2.3	2.4	1.8	1.7	1.8	1.8	0.2	1.2
Leeuwarden	Vermilion	46.8	4.4	3.7	4.2	4.1	4.3	4.2	4.0	4.2	1.7	4.5	3.9	3.6
Middelie	NAM	291.6	30.6	26.7	29.9	28.3	28.9	23.5	26.2	22.6	26.1	4.3	20.5	24.0
Noord-Friesland	NAM	1,600.7	165.7	141.3	147.1	124.9	138.2	121.0	127.5	137.7	127.5	129.3	120.5	120.1
Oosterend	Vermilion	-	-	-	-	-	-	-	-	-	-	-	-	-
Rijswijk	NAM	148.3	15.6	14.0	12.4	16.3	10.6	6.7	6.7	10.0	13.1	11.9	14.4	16.4
Schoonebeek	NAM	317.1	28.6	30.3	32.1	32.0	31.8	28.0	23.4	30.8	30.9	31.7	2.8	14.6
Slootdorp	Vermilion	-	-	-	-	-	-	-	-	-	-	-	-	-
Steenwijk	Vermilion	152.2	13.7	12.5	13.7	13.3	13.7	13.1	13.5	13.5	6.4	13.1	12.8	12.8
Tietjerksteradeel II	Vermilion	86.2	6.3	5.6	6.0	8.9	8.8	7.6	7.5	7.3	7.3	7.2	6.7	6.9
Tietjerksteradeel III	NAM	42.3	3.0	2.9	2.7	2.6	2.9	2.3	2.4	5.0	4.2	5.1	4.3	5.0
Waalwijk	Vermilion	18.6	2.1	1.6	2.1	2.2	1.6	1.6	1.6	1.4	0.3	-	1.7	2.4
Zuidwal	Vermilion	-	-	-	-	-	-	-	-	-	-	-	-	-
	Total	19,663.1	2,323.8	1,927.9	1,971.1	1,583.4	1,875.0	1,613.5	1,493.2	1,602.0	1,447.6	956.7	1,393.0	1,475.9

* Excluding the production of gas ('co-produced gas') produced within production licences for geothermal energy.

Production from small fields per stratigraphic reservoir, Netherlands territory

Figures 3.1 and 3.2 show the contribution to the total gas production of the small fields onshore per stratigraphic reservoir level. Production from fields with multiple reservoir levels are shown in hatched colours. The Groningen field production, which is not included in the figures, is produced from a Rotliegend reservoir.

Figure 3.1 shows that the largest contribution to gas production from the small fields comes from the Rotliegend and Triassic reservoirs. The sharp decrease in production of about -10 % per year over the period 2003 to 2006 reversed in 2007, mainly due to the start of natural gas extraction from fields under the Wadden Sea. From 2008 the annual production continued to drop by about 5 % per year until 2012. In 2013 the annual production again deviated from this trend with a slight increase. Yet the downward trend resumed after 2013 and has become more pronounced in recent years. Production decreased by 12 % and 15 % in respectively 2017 and 2018 and has decreased even further to by 22 % in 2019 due to the significant production decline of the Rotliegend fields of Nes, Bedum and Diever.

The Rotliegend and Triassic reservoirs are not included in Figure 3.2 to emphasise the contribution of the natural gas production of the Cretaceous, Zechstein and Carboniferous reservoirs. Note that there is no production from any Jurassic reservoir onshore. The production from the largest groups of reservoirs generally show a downward trend, except for the period between 2012 to about 2016 when production remained stable. The increase in production in the Rotliegend/Zechstein group of reservoirs in 2016 was caused by an increase in production from the Middelie field from 29 to 161 million Nm^3, and the reclassification of the Slootdorp field due to the start of production from the Rotliegend (in the past, production was allocated only to the Zechstein reservoir group). Since 2017, natural gas production again shows a rapid continuous decline due to the advanced degree of pressure depletion of many of the existing fields.

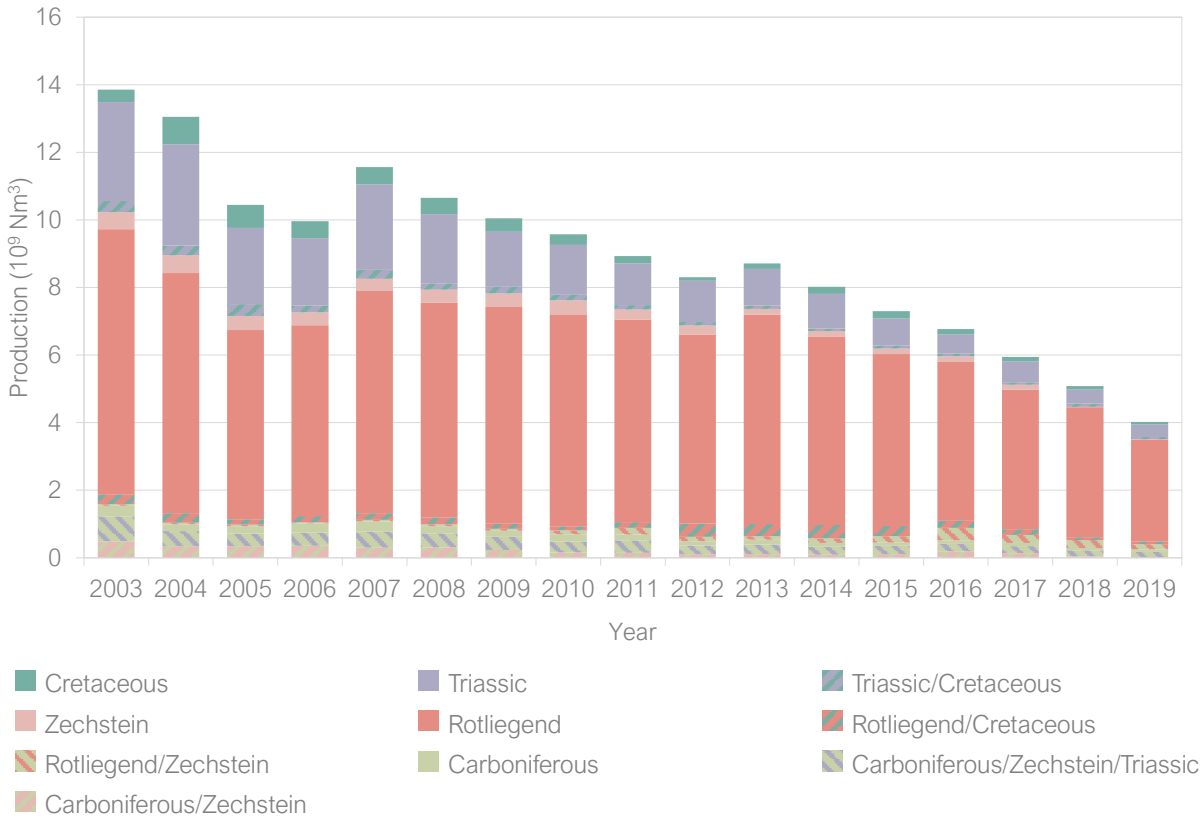


Figure 3.1 Gas production per reservoir, Netherlands territory (excluding the Groningen field).

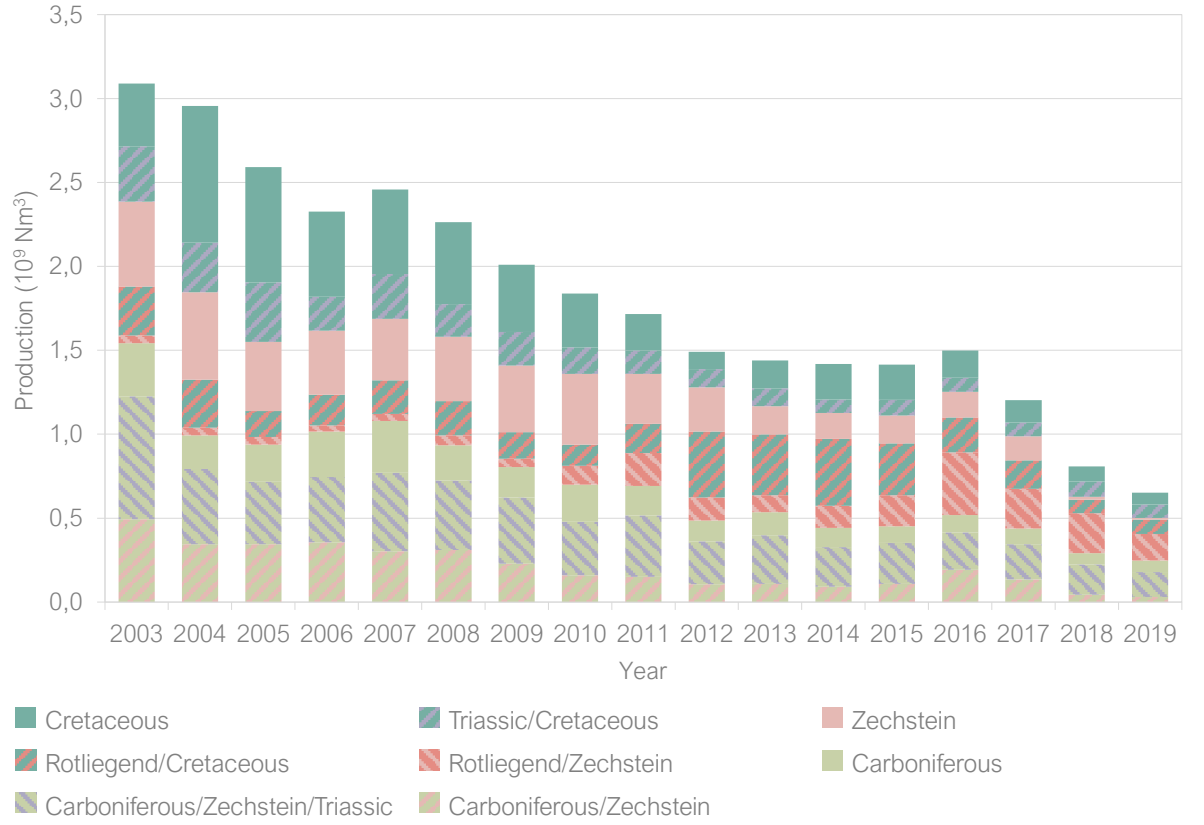


Figure 3.2 Gas production per reservoir, Netherlands territory (excluding the Groningen field and the Rotliegend and Triassic reservoirs).

3.2 Natural gas production in 2019, Netherlands continental shelf

The total production is the sum of the individual production from those wells with surface locations located within each licence. The produced volumes are based on data supplied by the operators.

Table 3.7 Natural gas production in 2019 (million Nm^3), Netherlands continental shelf

Licence	Operator	Total	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
A12a	Petrogas	270.6	25.2	23.0	24.4	20.5	25.8	24.5	18.7	19.1	11.8	25.3	26.7	25.5
A18a	Petrogas	650.8	62.2	52.3	62.8	55.0	62.8	60.3	47.2	49.7	27.8	60.8	56.8	53.3
B10c & B13a	Petrogas	213.2	22.6	18.7	22.0	18.5	20.9	19.2	15.2	15.9	6.7	20.0	17.7	15.8
D12a	Wintershall	20.8	5.6	4.4	1.8	0.3	0.2	4.2	0.1	-	-	-	0.6	3.6
D15a & D15b	Neptune	-	-	-	-	-	-	-	-	-	-	-	-	-
D18a	Neptune	13.3	1.7	1.2	1.5	1.4	1.4	1.3	0.9	0.9	0.7	0.6	-	1.8
E17a & E17b	Neptune	489.4	45.4	38.1	45.9	39.1	30.6	31.2	28.5	38.8	38.3	48.4	51.9	53.1
F02a	Dana	20.8	0.8	3.4	2.6	1.4	2.9	1.2	1.6	1.6	0.9	1.1	2.1	1.3
F03a	Spirit	-	-	-	-	-	-	-	-	-	-	-	-	-
F03b	Neptune	147.2	19.0	12.5	16.0	16.3	17.2	15.0	9.3	-	0.4	14.5	12.6	14.5
F15a	Total	0.1	-	-	-	-	-	-	-	-	-	-	-	0.1
F16a & F16b	Wintershall	76.2	7.2	6.1	7.2	6.6	6.6	5.6	6.6	6.2	5.2	6.4	6.2	6.4
G14 & G17b	Neptune	297.4	33.0	35.0	18.0	17.8	25.0	24.4	22.2	23.2	25.5	24.5	24.8	23.9
G16a	Neptune	240.0	25.3	21.6	20.8	16.1	15.0	18.9	18.2	20.4	20.2	21.0	21.4	21.2
G17c & G17d	Neptune	87.8	8.9	8.4	8.0	6.0	5.3	7.6	6.6	7.3	8.1	6.5	7.8	7.4
J03b & J06a	Spirit	73.3	8.4	7.8	8.4	7.5	4.1	3.0	6.3	2.0	4.8	7.4	5.6	7.8
K01a	Total	176.9	17.5	14.6	17.3	16.0	15.6	13.1	15.7	7.7	14.4	16.0	13.0	15.9
K02b	Neptune	137.1	9.9	10.9	13.2	9.8	13.3	10.0	14.3	12.2	12.3	8.1	12.7	10.3
K04a	Total	333.2	34.2	31.5	34.9	32.5	33.7	27.9	25.9	16.8	24.7	22.7	19.6	28.8
K04b & K05a	Total	694.6	64.5	56.9	63.2	60.1	62.2	60.4	59.0	40.6	58.3	59.3	54.7	55.4
K05b	Total	62.0	6.0	5.0	5.3	5.2	5.9	5.5	5.2	3.8	5.3	5.1	4.9	4.9
K06 & L07	Total	249.9	23.6	18.9	20.5	22.2	18.3	16.2	21.6	21.3	21.6	22.8	22.1	20.8
K07	NAM	78.7	4.4	3.9	5.9	6.8	7.0	3.1	8.1	8.8	8.7	7.5	7.5	7.0
K08 & K11a	NAM	282.6	24.7	19.0	20.6	23.9	28.3	19.6	25.9	23.9	21.3	25.5	26.3	23.7
K09a & K09b	Neptune	30.8	4.9	5.3	4.1	4.6	4.8	5.1	1.1	0.1	0.9	-	-	-
K09c	Neptune	40.7	3.3	5.5	5.9	5.4	5.4	3.8	4.2	2.9	4.4	-	-	-
K12	Neptune	341.6	30.9	18.1	34.0	29.3	31.5	29.1	30.5	29.4	28.7	27.0	24.9	28.1
K14a	NAM	105.7	14.3	11.2	13.5	13.8	7.3	8.3	8.0	7.1	6.7	5.3	4.1	6.0
K15	NAM	443.1	41.0	38.7	40.8	16.1	42.5	38.7	43.8	40.0	27.3	32.6	40.2	41.3
K17	NAM	61.3	5.8	4.3	5.1	6.2	6.0	5.7	5.1	6.2	4.8	2.9	5.8	3.5
K18b	Wintershall	277.4	27.2	23.8	24.1	25.4	24.8	22.7	24.1	23.6	21.3	13.6	23.3	23.5

Licence	Operator	Total	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
L02	NAM	279.5	28.1	22.7	26.7	25.5	24.3	25.4	23.6	20.9	10.6	22.4	24.4	25.0
L04a	Total	190.8	16.9	15.7	16.6	17.5	16.9	8.5	15.8	18.4	16.7	16.6	15.6	15.9
L05a	Neptune	244.4	35.6	30.0	33.2	14.4	10.8	9.5	12.4	10.4	13.6	27.7	26.7	20.2
L05b	Wintershall	101.5	5.8	8.8	10.4	7.0	10.1	8.3	9.6	8.9	7.2	8.5	8.8	8.1
L06a	Wintershall	109.6	7.8	11.9	12.3	7.5	11.2	9.9	10.1	9.2	7.8	7.9	7.3	6.7
L08b & L08d	Wintershall	75.0	4.6	7.8	8.4	5.0	8.1	7.3	5.6	6.0	5.6	5.6	6.0	5.0
L09	NAM	301.9	30.5	23.6	29.9	29.2	29.1	27.1	25.9	20.7	9.7	27.4	26.3	22.4
L10 & L11a	Neptune	372.8	41.0	16.9	36.6	33.1	35.6	28.7	32.2	36.3	30.8	28.3	27.8	25.4
L11b	ONE-Dyas	130.5	15.8	13.2	12.4	14.2	12.1	8.8	12.2	9.9	7.7	2.1	10.6	11.3
L12b & L15b	Neptune	246.3	26.2	11.3	27.0	24.7	21.9	23.0	18.0	16.2	13.4	21.0	20.2	23.3
L13	NAM	337.7	33.9	27.3	29.8	27.5	28.9	29.1	28.9	27.2	24.8	20.6	31.2	28.6
M07	ONE-Dyas	131.1	13.4	9.0	5.5	12.9	12.1	12.0	11.8	9.6	3.6	14.1	13.8	13.2
P06	Wintershall	95.7	8.9	8.0	8.0	8.7	8.7	5.6	7.0	8.7	8.1	8.0	8.0	7.9
P09a. P09b & P09d	Petrogas	0.4	-	-	-	-	-	0.3	0.1	-	-	-	-	-
P09c. P09e & P09f	Petrogas	1.0	-	0.1	-	0.1	0.1	0.1	0.1	-	0.1	-	0.2	0.1
P11a	ONE-Dyas	85.3	16.1	17.5	13.4	2.3	-	-	-	12.8	-	9.9	7.1	6.2
P11b	Dana	117.1	11.7	10.5	11.6	11.2	11.6	1.4	0.4	13.6	0.8	14.7	13.8	15.9
P15a & P15b	TAQA	6.4	1.8	1.3	0.2	-	-	-	-	0.6	0.2	1.4	0.4	0.4
P15c	TAQA	-	-	-	-	-	-	-	-	-	-	-	-	-
P18a	TAQA	63.9	8.5	8.7	8.3	1.4	-	-	-	8.8	0.1	7.5	8.8	11.7
Q01a-ondiep & Q01b-ondiep	Petrogas	2.7	0.1	0.1	0.1	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.6	0.4
Q01-diep	Wintershall	146.0	10.7	7.0	11.1	9.4	4.7	6.4	10.3	13.0	18.9	19.1	15.7	19.7
Q04	Wintershall	184.5	17.4	17.0	18.1	16.9	13.6	13.4	17.0	14.7	13.8	14.1	13.9	14.6
Q07 & Q10a	Tulip Oil	588.7	-	16.7	32.5	11.6	8.2	60.3	80.3	92.2	42.1	90.7	78.7	75.4
Q13a	Neptune	9.8	1.5	1.3	1.1	0.2	-	-	-	1.3	0.4	1.4	1.3	1.3
Q16a	ONE-Dyas	36.8	5.1	4.6	4.3	0.8	-	-	-	5.4	-	6.4	4.8	5.2
Total		9,775.9	918.9	791.6	905.2	765.0	792.6	771.0	795.3	794.7	647.0	860.4	865.3	868.8

Production from small fields per stratigraphic reservoir, continental shelf

Figure 3.3 depicts the total annual natural gas production from the different reservoir groups. It shows a similar trend to the territory with the contribution of the Rotliegend and Triassic reservoirs being dominant. Natural gas production from these two reservoirs increased slightly from 2003 to 2007, after which it started to decline. In 2011, the production of the continental shelf fell below 20 billion Nm^3 per year for the first time. Since then the decline has been constant by roughly 7 % per year.

The Rotliegend and Triassic reservoirs are not included in Figure 3.4 to emphasise the contribution of other reservoir groups to natural gas production. Over the period 2005-2007, the contribution from fields with

combined Carboniferous/Rotliegend reservoirs almost tripled. However, since 2008 production from this reservoir group started to gradually decrease again. Notable is the start of production from the so-called "shallow gas" (Tertiary) deposits in the northern offshore area in 2008. Their natural gas production still remains reasonably stable thanks to the production start of field B13-A in 2015. In 2019, the production start of Q10-A has caused a slight divergence in the existing downward trend over the past three years.

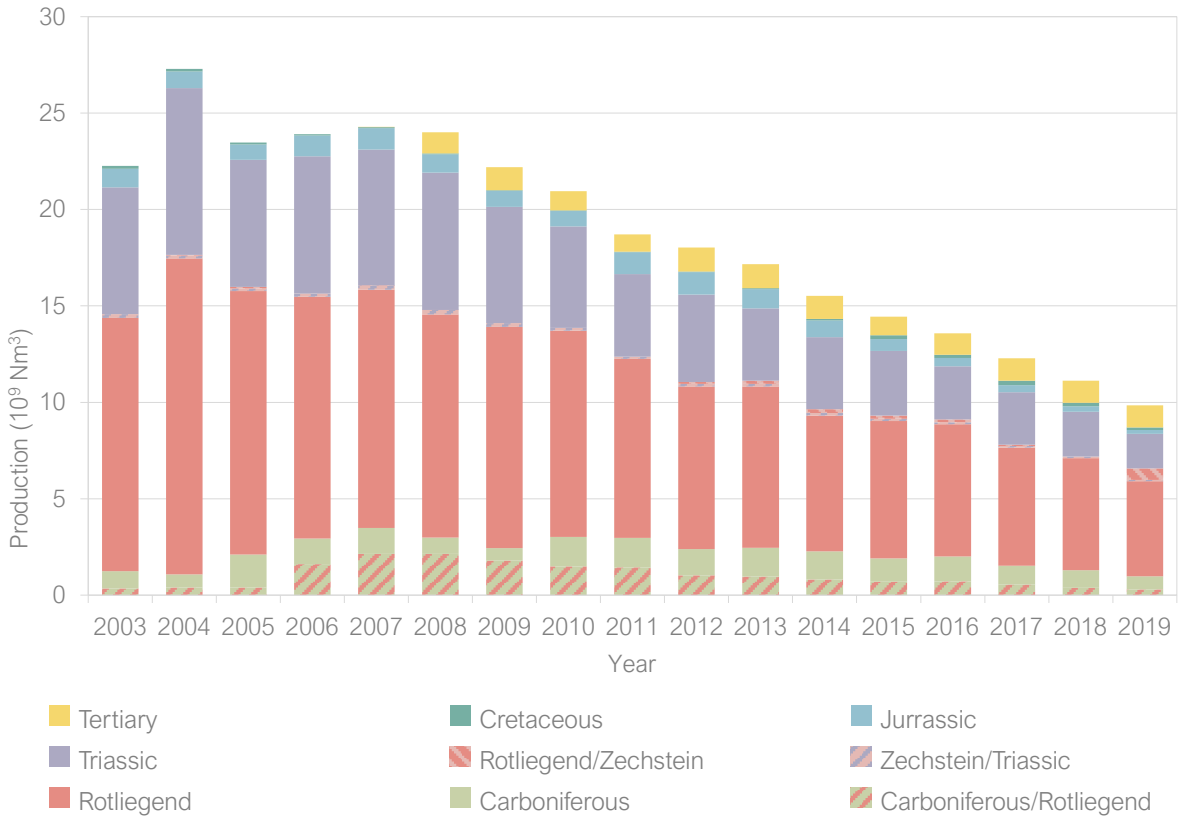


Figure 3.3 Gas production continental shelf per reservoir.

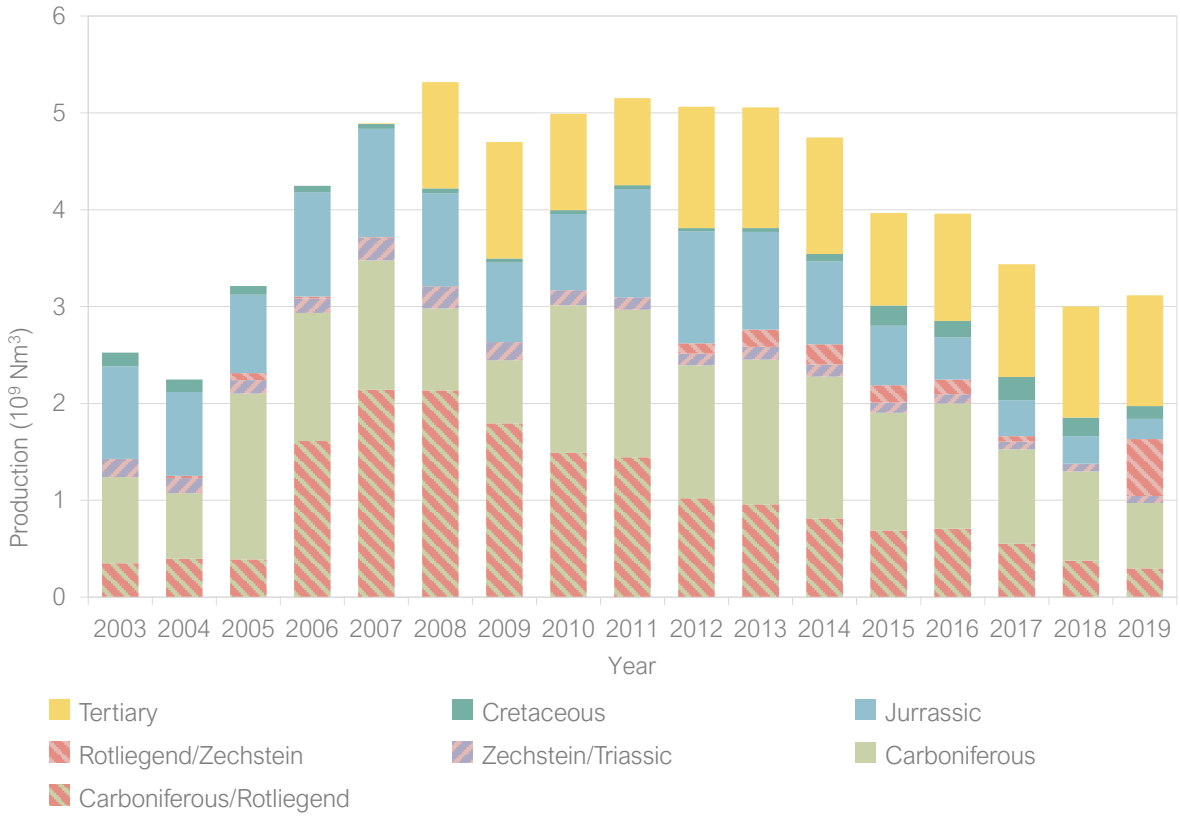


Figure 3.4 Gas production continental shelf per reservoir (excluding Triassic and Rotliegend reservoirs).

3.3 Oil and condensate production in 2019

Table 3.8 Oil production in 2019 (in 1000 Sm^3)

Licence *	Operator	Total	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Botlek III	NAM	0.2	-	0.2	-	-	-	-	-	-	-	-	-	-
Rijswijk	NAM	102.2	11.2	10.3	5.7	8.9	12.1	11.4	12.0	10.4	9.1	7.1	-	4.1
Schoonebeek	NAM	311.1	30.1	24.3	26.7	27.8	27.2	24.9	24.9	29.1	26.0	23.2	21.9	25.1
F02a	Dana	137.0	1.0	18.4	15.6	13.1	11.1	11.5	12.3	9.4	8.3	11.7	12.0	12.5
F03b	Neptune	46.8	4.6	3.2	6.8	6.7	8.9	3.9	2.4	0.1	0.1	3.5	3.2	3.7
P09c, P09e & P09f	Petrogas	14.5	2.1	1.9	0.3	2.2	1.2	1.5	1.0	0.5	1.1	0.7	1.0	0.9
P11b	Dana	73.1	7.3	6.5	7.1	4.5	6.8	5.4	2.4	6.7	4.5	7.1	7.7	7.0
P15a & P15b	TAQA	25.9	2.9	2.4	2.3	0.4	-	-	-	2.5	2.5	4.5	3.9	4.4
Q01a-ondiep & Q01b-ondiep	Petrogas	56.5	4.9	4.7	5.0	4.5	2.0	5.4	5.2	4.7	5.3	4.8	5.1	4.9
Q13a	Neptune	133.4	20.3	17.8	15.6	2.7	-	-	-	18.7	5.4	18.9	16.8	17.2
	Total	900.7	84.4	89.7	85.2	70.7	69.3	63.9	60.2	82.1	62.3	81.5	71.6	79.8

* Excluding the production of oil ('co-produced oil') produced within production licences for geothermal energy.

Table 3.9 Condensate* production in 2019 (in 1000 Sm^3)

Licence **	Total	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Fields territory ***	86.8	10.0	7.2	8.8	8.1	7.2	4.9	5.3	6.8	6.2	7.7	6.7	8.0
Fields continental shelf	83.9	8.9	7.1	8.6	6.6	6.1	6.5	6.1	7.1	5.3	7.7	7.0	6.8
Total	170.7	18.9	14.3	17.4	14.8	13.4	11.4	11.4	13.9	11.5	15.4	13.6	14.8

* Condensate is also referred to as natural gasoline or natural gas liquids (NGL).

** Excluding the production of condensate ('co-produced condensate) produced within production licences for geothermal energy.

*** Excluding the production of condensate from the storage Alkmaar, Bergermeer, Grijpskerk and Norg (see Chapter 4).

4. Subsurface storage

The seasonal variation in gas demand (winter/summer) was balanced by adjusting the gas production of the Groningen field during several decades. An important reason for this was that the small fields could be produced continuously (as part of the small fields policy). As the pressure in the Groningen field decreased over time the flexibility of the Groningen field gradually declined accordingly. In order to maintain sufficient flexibility to be able to balance the fluctuation in gas demand and thus guarantee the security of gas supply, four underground gas storage facilities have successively been put into operation since 1997. Together with a storage facility that operates on the gas market on its own initiative, five natural gas storage facilities are currently operational in the Netherlands.

The graph below shows the volume of natural gas from the 5 natural gas storage facilities from 2003 to 2019. It can clearly be seen that from 2015 the used capacity of the storage in Norg has risen sharply after the production and swing capacity of Groningen was reduced.

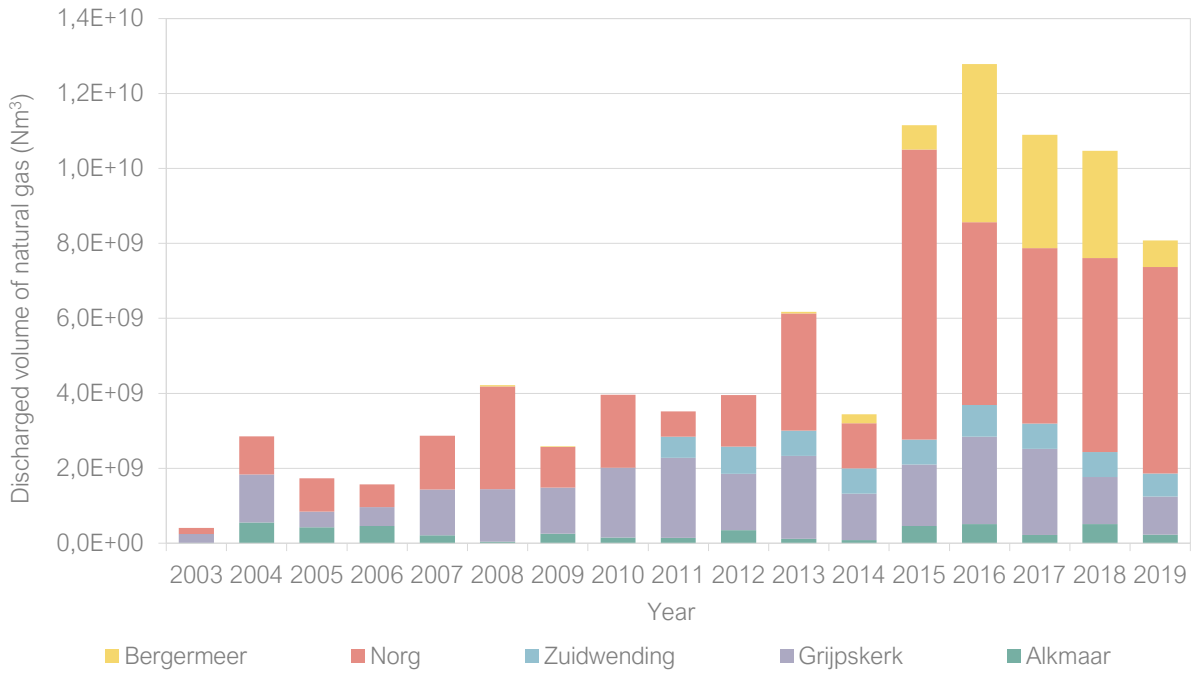


Figure 4.1 Discharged volume of natural gas per UGS over 2003 to 2019.

In addition to the underground storage facilities for natural gas, liquefied natural gas (LNG) is stored in tanks at surface at terminal on the Maasvlakte. This terminal, owned by Gasunie and Vopak, also plays a role in gas supply in times of high peaks in gas demand, for example on very cold winter days.

In the Netherlands, the subsurface is used for the storage of other substances as well. This concerns, for example, the salt caverns that are used for the storage of nitrogen and oil. There are advanced plans to use depleted natural gas fields offshore in the coming years to provide significant capacity for the permanent storage of CO_2. A storage permit has already been granted for the gas field P18-4.

4.1 Overview licences

In 2019 there were no new requests for storage licences. A licence application for the storage of brine was awarded. This licence Andijk is intended for the permanent storage of the filter residue from the purification of surface water into drinking water. This concentrated saline water will be pumped into groundwater aquifer. Because storage takes place at a depth greater than 100 meters a storage permit is required according to the Mining Act.

As at 1 January 2020, there were nine storage permits in force and one storage permit for CO_2 had been granted but was not yet in force. An overview of all storage permits can be found in the table below, in Annex I and Annex Q.

Five of these storage permits concern the underground storage of natural gas (Underground Gas Storage - UGS). The UGS of Norg and Grijpskerk have served as a buffer for the Dutch gas system to cope with seasonal fluctuations in demand since 1997. With increased demand, particularly in the winter, extra natural gas is supplied from Norg and Grijpskerk. The UGS in Alkmaar and Zuidwending is primarily to accommodate peak demands of one or more days. Bergermeer is essentially focused on gas trading. The gas is stored in (former) gas fields, except in Zuidwending where storage takes place in salt caverns.

Storage licences, Netherlands territory and Netherlands continental shelf

Licence	Awarded	Operator	Product	State
Alkmaar	01-04-2003	TAQA	Gas	Effective
Bergermeer	08-01-2007	TAQA	Gas	Effective
Grijpskerk	01-04-2003	NAM	Gas	Effective
Norg	01-04-2003	NAM	Gas	Effective
Zuidwending	11-04-2006	EnergyStock	Gas	Effective
Twenthe-Rijn de Marssteden	02-10-2010	Nouryon Salt B.V.	Oil	Effective
Winschoten II	15-11-2010	Gasunie (GTS)	Nitrogen	Effective
Winschoten III	15-11-2010	Nouryon Salt B.V.	Nitrogen	Effective
Andijk	12-12-2019	PWN	Saline water	Effective
P18-4	20-07-2013	TAQA	Carbon dioxide	Awarded

In Twente (Twenthe-Rijn de Marssteden storage licence) a strategic oil supply is stored in one of the salt caverns, while in Winschoten (Heiligerlee) nitrogen used to convert high-calorific gas to low-calorific Groningen quality gas is stored.

A licence has been issued for the permanent storage of CO_2 in the depleted gas field P18-4, located just off the coast of Zuid-Holland. This licence is not yet in force.

Two license applications from previous years are still pending as at 1 January 2020. One storage licence is intended for the permanent storage of the filter residue from the purification of saline groundwater into drinking water. The second storage license pending concerns the storage of a filler in an abandoned salt cavern, which will serve to stabilize the cavern.

4.2 Subsurface storage in 2019

The monthly quantities of natural gas and nitrogen that were stored in the subsurface and recovered from the subsurface in 2019, are listed per licence in the tables below. The information has been provided by the license holders.

Stored natural gas (in million Nm^3)

Licence	Operator	Total	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
Alkmaar	TAQA	98	-	-	-	-	-	79	18	-	-	-	-	-
Bergermeer	TAQA	1,831	-	-	346	253	337	385	128	183	66	19	48	66
Grijpskerk	NAM	1,041	-	-	225	149	183	272	134	68	-	-	-	12
Norg	NAM	4,340	-	-	-	348	659	906	931	946	549	-	-	-
Zuidwending	Gasunie	675	62	27	24	60	96	76	37	46	64	51	50	82
Total		7,888	62	27	595	810	1,274	1,639	1,231	1,243	680	70	98	160

Discharged natural gas (in million Nm^3)

Licence	Operator	Total	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
Alkmaar	TAQA	230	81	-	-		-	-	-	-	-	-	73	75
Bergermeer	TAQA	711	-	355	13	7	-	-	11	16	31	52	108	118
Grijpskerk	NAM	1,013	623	259	-	47	-	-	17	50	-	-	-	17
Norg	NAM	5,504	1,251	689	732	167	-	-	-	-	-	222	1,179	1,263
Zuidwending	Gasunie	621	62	56	88	56	36	20	21	45	41	74	67	56
Total		8,079	2,017	1,359	833	277	36	20	50	111	72	348	1,427	1,529

Stored nitrogen (in million Nm^3)

Licence	Operator	Total	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
Winschoten II	Gasunie	67.7	4.8	9.2	9.8	2.8	5.1	0.7	8.5	9.4	1.0	6.3	5.1	5.1

Discharged nitrogen (in million Nm^3)

Licence	Operator	Total	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
Winschoten II	Gasunie	72.7	11.0	0.9	2.6	4.8	6.1	16.2	0.2	0.1	13.3	5.0	6.1	6.4

5. Geothermal Energy

5.1 Preface geothermal energy

In 2019 there were 15 new applications for exploration licences for geothermal energy, of which one was also withdrawn in 2019. As at 1 January 2020 a total of 24 geothermal energy exploration licences were in the process of application. During 2019 18 geothermal exploration licences were awarded. One exploration licence was split and eight were spatially restricted. Two exploration licences were merged into one exploration licence. Further, 11 geothermal exploration licences were extended, and 4 licences expired, were withdrawn or relinquished. Five pre-2019 applications for an exploration licence were withdrawn in 2020. As at 1 January 2019 there were a total of 58 geothermal energy exploration licences in force (see Figure 5.1).

In 2019 there were 4 new applications for a production licence for geothermal energy, resulting in a total of 4 applications (as at 1 January 2020). In 2019 10 production licences were awarded. Resulting in 22 effective geothermal energy production licences as at 1 January 2020 (see Figure 5.1).

Changes in the licences for the exploration and production of geothermal energy which took place during 2019 are listed in the tables in Chapter 8. Graph 5.1 shows the development of licences for geothermal energy, for the year 2019 the number of applications is presented as well.

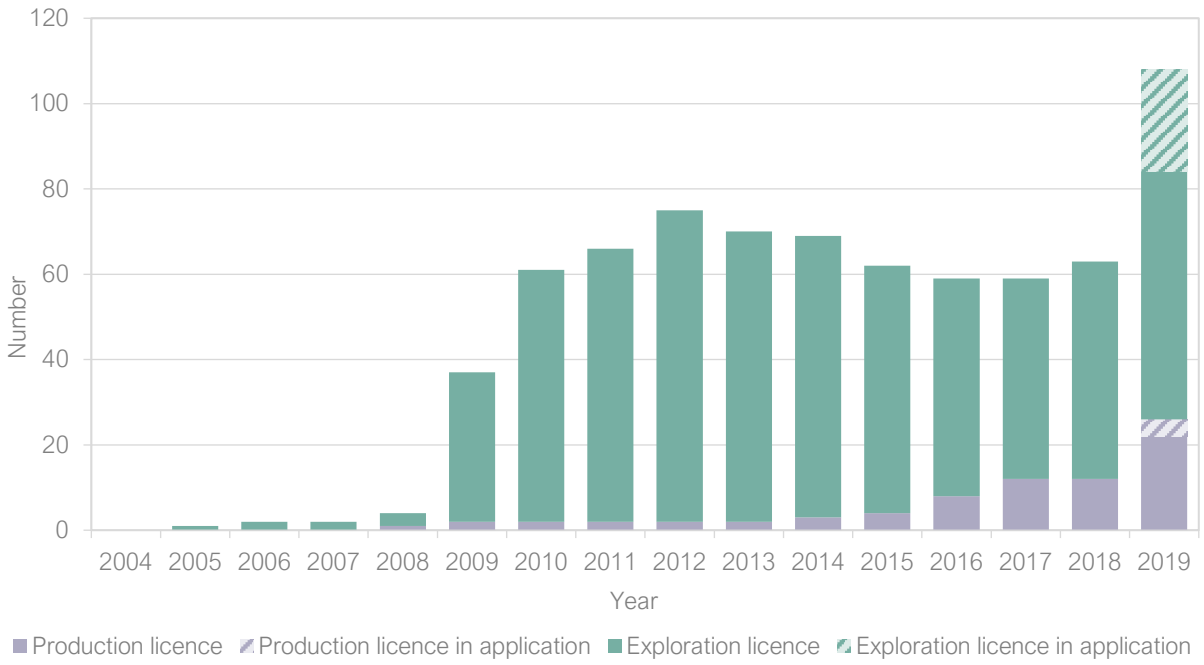


Figure 5.1 Number of licences for geothermal energy in force per year. For the year 2019 the number of applications is presented as well.

5.2 Geothermal wells and production installations as at 1 January 2020

In 2019 one geothermal well was completed (see Table 5.1 and Figure 5.2). This concerns the well within the licence Pijnacker-Nootdorp 4. This well is a side-track of the PNA-GT-05 well drilled in 2018. Due to complications it was necessary to side-track the well in 2019. This leads to an adjustment of the number of successfully completed geothermal wells drilled in 2018, from 12 to 11 (Figure 5.1). Realising the PNA-GT-05-S1 well completes the new doublet in Pijnacker-Nootdorp 4. This doublet replaces the existing doublet in the Pijnacker-Nootdorp 4 licence.

As at 1 January 2020 there were a total of 25 geothermal production installations, of which the installation of Mijnwater Energiecentrale Heerlen is actually a heat/cold storage facility and as such will not be included in the following overview. The other 24 geothermal installations (will) produce heat from the deep subsurface. In general, these installations are named doublets as they consist of two wells. One well pumps up the warm water and after extracting the heat, the second well injects the cooled down water back into the aquifer. 21 of these 24 geothermal production installations were operational with reference to the fact that they provide (energy) production figures according to art. 111 and 119 of the Mining Decree.

Table 5.1 Geothermal wells completed in 2019.

	Name of well	Geothermal energy licence	Operator
1	PNA-GT-05-S1	Pijnacker-Nootdorp 4	Ammerlaan Geothermie B.V.

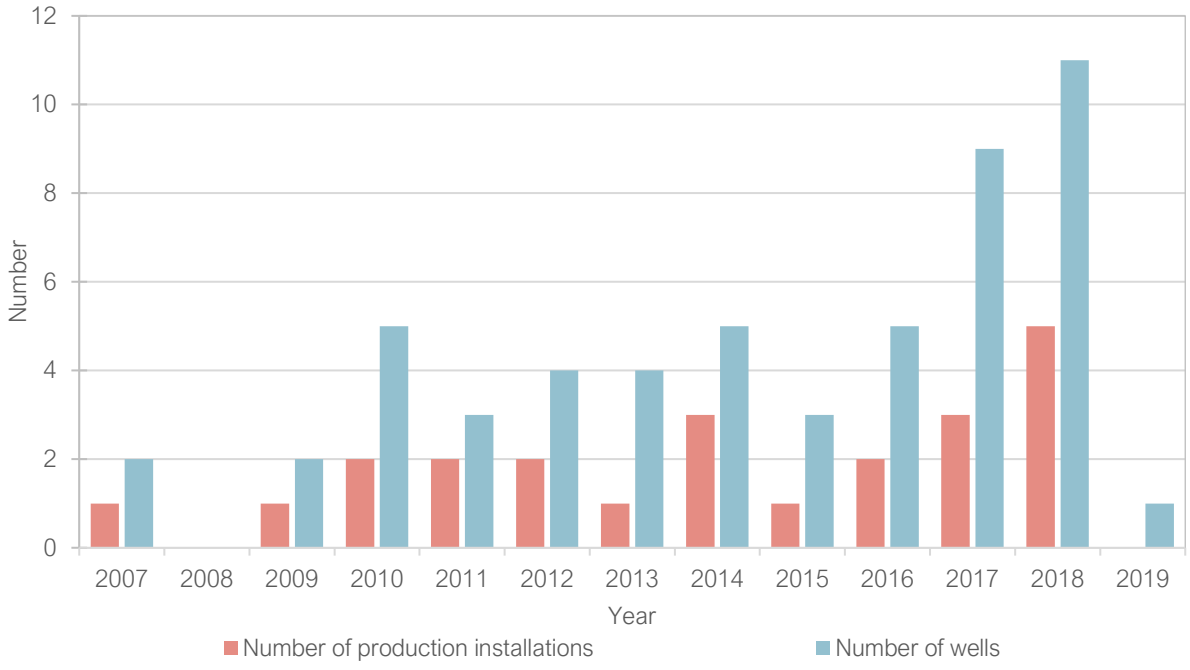


Figure 5.2 Number of geothermal wells completed (side-tracks excluded) per calendar year and number of installations completed since 2007. All of the operational installations operate under a formal production licence (as at 1 January 2020). At the end of 2019 all not yet producing operators owned a formal production licence or had applied for one.

The heat is produced from depth intervals between 700 and 2800 meter and from various geological units (Figure 5.3a and b). The depth of the mid of the producing zone is displayed in Figure 5.3 b. Most of the geothermal energy is produced from rocks in the Upper-Jurassic and Lower-Cretaceous in the southwest of the Netherlands. One other installation in the southwest of the Netherlands produces from Triassic strata. The eight production installations in Noord-Holland, Overijssel and Flevoland produce from Rotliegend strata, whereas two installations in North-Limburg produce from Lower Carboniferous to Devonian strata. One geothermal energy production installation in Noord-Brabant produces water from the Lower North Sea Group.
The produced heat is mainly used to heat commercial greenhouses. One project also supplies heat to a public utility facility and several buildings. Another project will supply heat to a heating network in an urban area (Figure 5.3 c).

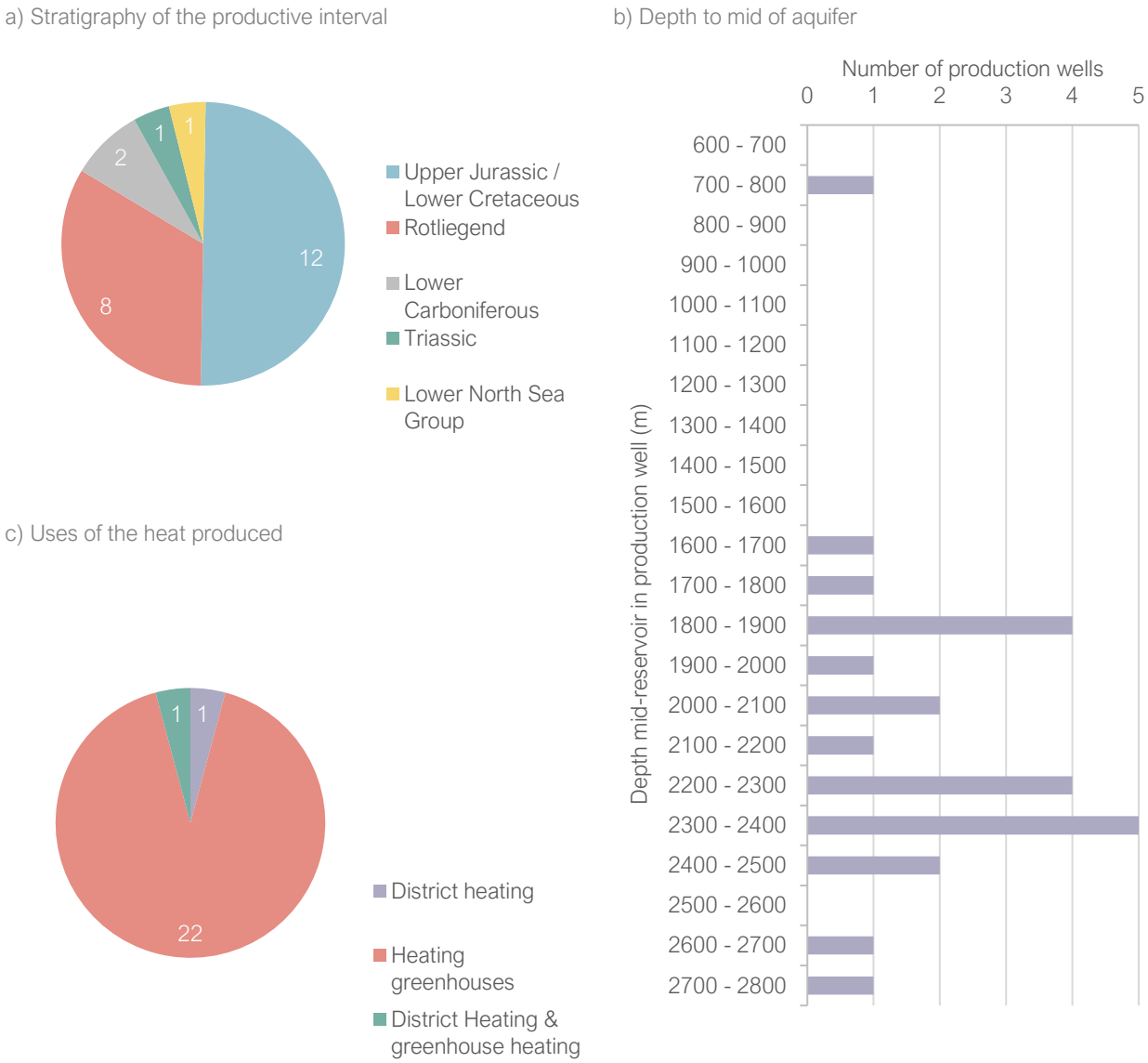


Figure 5.3. a) Stratigraphy of the productive interval, b) Depth to mid of aquifer, c) Uses of the heat produced.

5.3 Production of geothermal energy in 2019

Of the 24 geothermal installations (Mijnwater Energiecentrale Heerlen excluded) 21 were operational in 2019 (Table 5.2). These operational installations have submitted the obligatory monthly production figures. Of the 3 remaining non-operational installations 1 was temporarily closed in. The other 2 non-operational geothermal energy production installations were shut down in 2018. Further research into these two geothermal installations has to show if future production within these systems can continue.

Table 5.2 Geothermal installations.

	Name geothermal energy installation	Wells	Geothermal energy licence	Operational in 2019
1	Californië Geothermie	CAL-GT-1,2&3	Californië IV	No, shut down in May-18
2	De Lier Geothermie	LIR-GT-1&2	De Lier	Yes
3	Honselersdijk Geothermie	HON-GT-1&2	Honselersdijk	Yes
4	Installation Berkel en Rodenrijs	VDB-GT-3&4	Bleiswijk-1b	Yes
5	Installation Bleiswijk	VDB-GT-1&2	Bleiswijk	Yes
6	Koekoekspolder Geothermie	KKP-GT-1&2	Kampen	Yes
7	Mijnwater Energiecentrale Heerlen	HLH-G-1&2	Heerlen	Yes, WKO
8	Pijnacker-Nootdorp Geothermie	PNA-GT-5&6	Pijnacker-Nootdorp-4	yes
9	Pijnacker-Nootdorp Zuid Geothermie	PNA-GT-3&4	Pijnacker-Nootdorp-5	Yes
10	-	HAG-GT-1&2	Den Haag	Temporarily closed in
11	Heemskerk Geothermie	HEK-GT-1&2	Heemskerk	Yes
12	MDM-GT-02 /MDM-GT-05	MDM-GT-2&5	Middenmeer I	Yes
13	MDM-GT-04 / MDM-GT-03	MDM-GT-3&4	Middenmeer II	Yes
14	Vierpolders	BRI-GT-1&2	Vierpolders	Yes
15	Californië Lipzig Gielen	CAL-GT-4&5	Californië-V	No, shut down in aug-18
16	Poeldijk	PLD-GT-1&2	Honselersdijk-2	Yes
17	Kwintsheul Geothermie	KHL-GT-1&2	Kwintsheul II	Yes
18	Lansingerland	LSL-GT-1&2	Lansingerland	Yes
19	MDM-GT-06 / MDM-GT-01	MDM-GT-6&1	Middenmeer I	Yes
20	Maasland	MLD-GT-1&2	Maasland	Yes
21	Naaldwijk	NLW-GT-1&2	Naaldwijk	Yes
22	Zevenbergen	ZVB-GT-1&2	Zevenbergen	Yes
23	Andijk-GT-01/02	ADK-GT-1&2	Andijk	Yes
24	Andijk-GT-03/04	ADK-GT-3&4	Andijk	Yes
25	Luttelgeest	LTG-GT-1,2&3	Luttelgeest	Yes

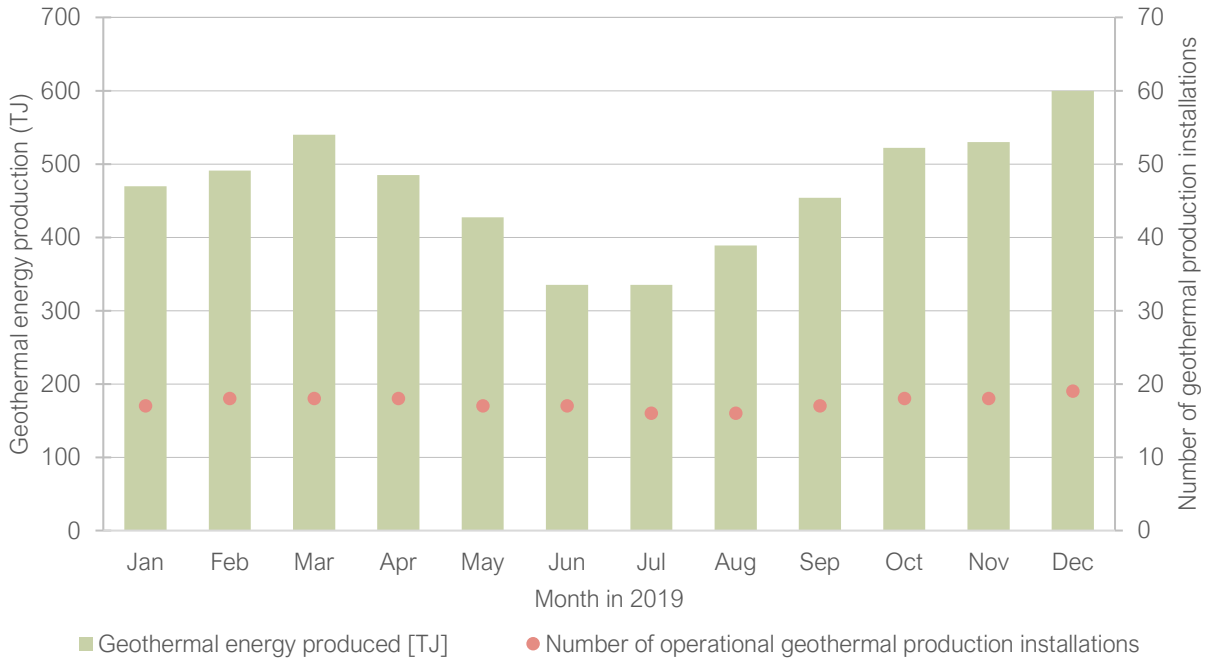


Figure 5.4 Monthly production of geothermal energy in terajoules and the number of geothermal energy production installations contributing to the reported production (Mijnwater Energiecentrale Heerlen excluded).

Figure 5.4 shows the aggregate production of geothermal energy per month in TJ (x10^{12} Joule) and the number of installations contributing to the monthly total. Not all installations were operational throughout the year. The cumulative reported annual production is 5.58 PJ in 2019 (Figure 5.5).

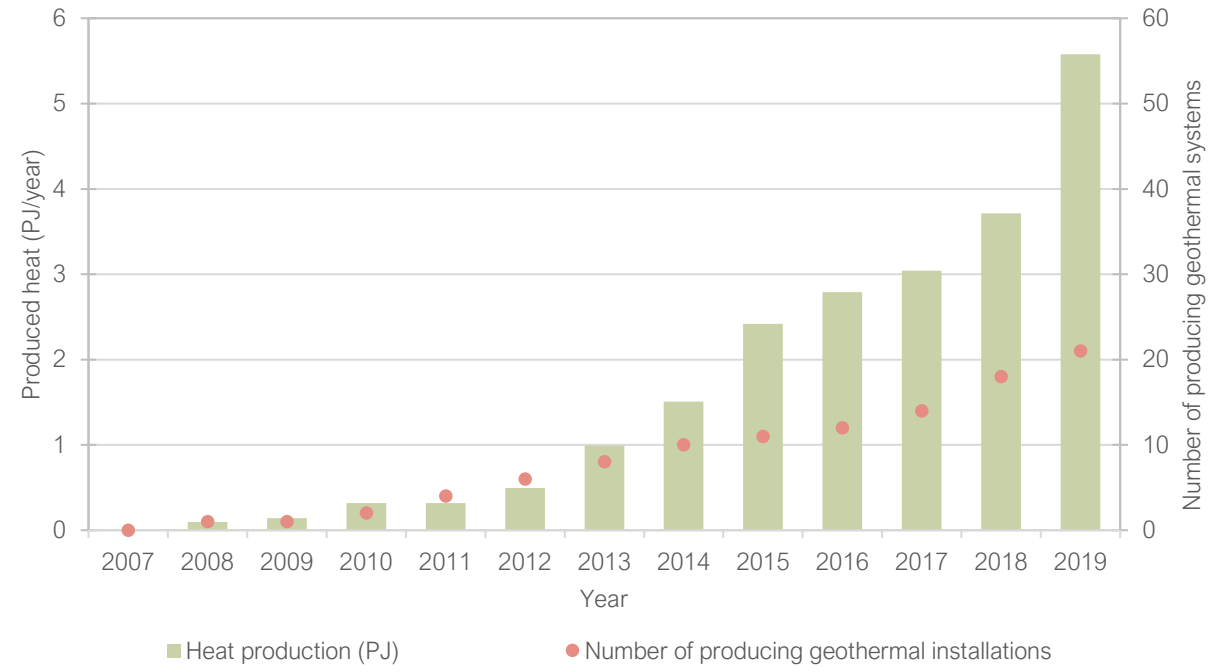


Figure 5.5 Annual production of geothermal energy (PJ/year).

Small amounts of hydrocarbons are co-produced with the geothermal energy. In most installations the hydrocarbon is gas (Figure 5.6). The gas is usually dissolved in the formation water and released when the pressure of the production water in the production installation falls below the 'bubble point'.
Table 5.3 gives an overview of the produced geothermal energy, co-produced gas and co-produced oil per year since 2008. Until March 2017 there was one installation where oil co-produced.

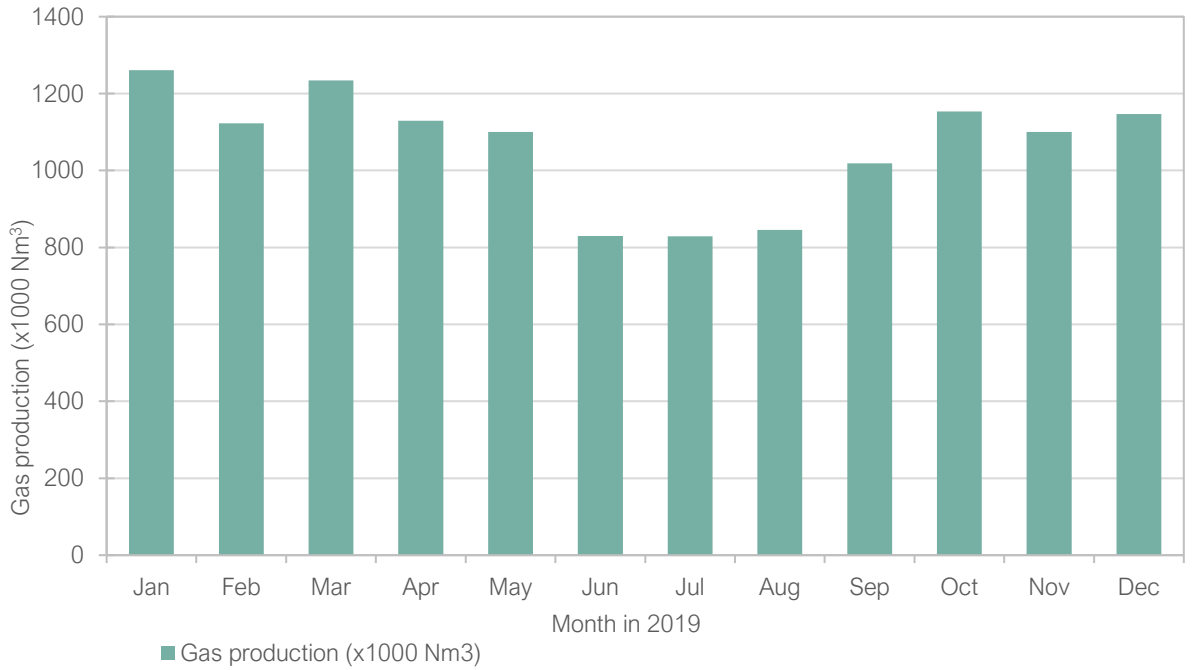


Figure 5.6 Volumes of hydrocarbons co-produced with geothermal energy. Gas in 1000 Nm^3.

Table 5.3 Overview of produced geothermal energy, co-produced gas and co-produced oil.

Year	Produced geothermal energy (TJ)	Co-produced gas (x1000 Nm^3)	Co-produced oil (Sm^3)
2008	* 96	-	-
2009	* 142	-	-
2010	* 318	-	-
2011	* 316	-	-
2012	* 495	-	-
2013	* 993	-	-
2014	1,509	3,267	429
2015	2,417	4,378	186
2016	** 2,792	7,670	130
2017	3,042	8,100	31
2018	3,714	10,676	-
2019	5,578	12,772	-

* Figure derived from: *Hernieuwbare energie in Nederland 2013*. Statistics Netherlands, The Hague/Heerlen, 2014. ISBN: 978-90-357-1857-9.

\- No value reported

** Adjustment of reported figure in Natural resources and geothermal energy in the Netherlands, Annual review 2016.

6. Rock salt

On 1 January 2020 sixteen production and no exploration licences were in force. In 2019 no new licence applications were submitted. However, one application for a production licence from a previous year is still pending. A complete list of all production licences is to be found in Annex M.
The licence areas for rock salt are all located in the north and east of the country because in this area salts from Zechstein and Triassic age are present in the underground.

In 2019 three salt production wells were drilled by Nouryon. They were drilled in the western part of the production area Ganzebos (production licence Twenthe-Rijn). See table below and Figure 6.2.

Wells ceased in 2019

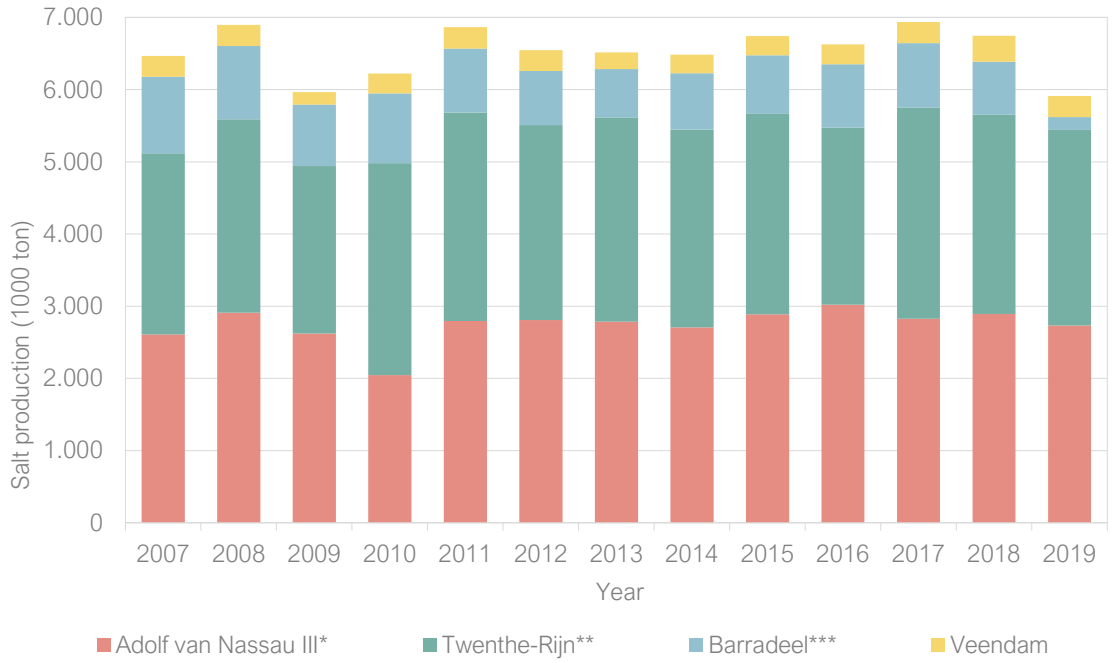
	Name of well	Licence	Operator	Function
1	Twente-Rijn-547	Twenthe-Rijn	Nouryon Salt B.V.	Production
2	Twente-Rijn-549	Twenthe-Rijn	Nouryon Salt B.V.	Production
3	Twente-Rijn-558	Twenthe-Rijn	Nouryon Salt B.V.	Production

The table below shows the production data of rock salt per licence during 2019. During 2019, production was constant at approximately 500,000 tons per month.

Rock salt production in 2019 (in 1000 ton)

Licence	Operator	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Adolf van Nassau III	Nouryon	73	71	83	67	64	100	119	94	76	82	102	117	1,048
Barradeel	Frisia	0.3	0.4	0.1	0.2	0.9	0.1	0.3	0.1	0.1	0.1	0.0	0.1	3
Barradeel II	Frisia	5	37	16	12	11	11	15	13	16	14	9	10	171
Twenthe-Rijn	Nouryon	156	131	173	156	164	158	169	155	123	165	159	158	1,868
Tw-Rijn Helmerzijde	Nouryon	28	23	15	6	6	3	-	17	14	19	17	20	167
Tw-Rijn Oude Maten	Nouryon	2	2	3	4	5	5	5	6	3	-	3	20	58
Uitbreiding AvN III	Nouryon	150	127	140	138	122	144	149	145	140	137	146	152	1,687
Uitbreiding Tw-Rijn	Nouryon	60	48	58	51	58	41	64	61	44	54	38	41	617
Veendam	Nedmag	28	25	26	25	25	24	26	24	23	24	23	24	296
	Total	502	466	514	458	455	486	547	515	439	495	496	541	5,914

Figure 6.1 shows the production of rock salt from 2007 to 2019. During this period, the rock salt production is constant, on average between 6 and 7 million tons per year. In 2019 total salt production is slightly below 6 million tons. This is mainly because production from the Barradeel production licences has decreased compared to previous years. Frisia started drilling the first well for the production licence Havenmond, which was not ready for production in 2019.
The production data is based on information supplied by the operators.



Figuur 6.1 Salt production 2007 – 2019.

* Including Adolf van Nassau III.

** Including Uitbreiding Twenthe-Rijn, Twenthe-Rijn Helmerzijde en Twenthe-Rijn Oude Maten.

*** Including Uitbreiding Barradeel II.

Storage caverns 'Aardgasbuffer Zuidwending'

Since 2007 Nouryon (former Akzo Nobel) leaches storage caverns in the municipality of Veendam for the "Aardgasbuffer Zuidwending". In 2019 leaching of caverns A1 and A5 took place. The leaching of cavern A1 was completed in 2019. This cavern has a volume of one million m^3 and is the sixth storage cavern in Zuidwending.

The production from the storage caverns belong to the production licence 'Uitbreiding Adolf van Nassau II'. Only brine production data has been reported. In the period from 2007 to 2019 a total of approximately 39 million m^3 brine has been produced from these caverns. After development by Nouryon the caverns are handed over to the storage licence Zuidwending owned by EnergyStock. For more information about storage see Chapter 4.

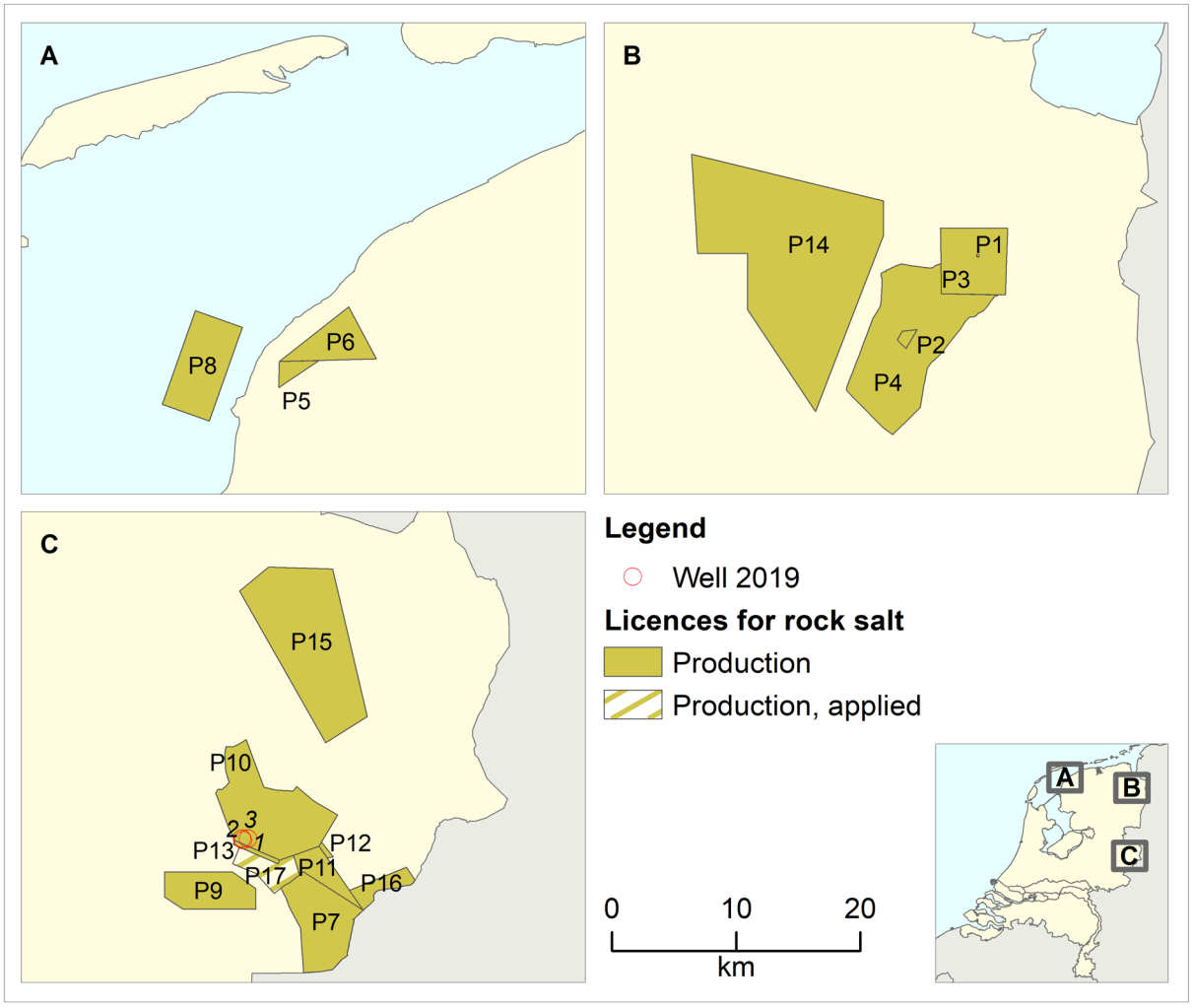


Figure 6.1 Licence for rock salt production as at 1 January 2020.

Names of rock salt production licences on the Netherlands territory, as indicated on the map in Figure 6.2.

	Production licence for rock salt		
P1	Adolf van Nassau II	P9	Isidorushoeve
P2	Uitbreiding Adolf van Nassau II	P10	Twenthe-Rijn
P3	Adolf van Nassau III	P11	Uitbreiding Twenthe-Rijn
P4	Uitbreiding Adolf van Nassau III	P12	Twenthe-Rijn Helmerzijde
P5	Barradeel	P13	Twenthe-Rijn Oude Maten
P6	Barradeel II	P14	Veendam
P7	Buurse	P15	Weerselo
P8	Havenmond	P16	Zuidoost-Enschede
	Applied production licence for rock salt		
P17	Twenthe-Rijn Welen Mos		

7. Coal

On 1 January 2020 there were five production licences for coal in force. In 2019 there were no mining activities in the licence areas.

Production licences as at 1 January 2020, Netherlands territory

	Licence	Licence holder	Effective from	km²
P1	Staatsmijn Beatrix	Koninklijke DSM N.V.	27-09-1920	130
P2	Staatsmijn Emma	Koninklijke DSM N.V.	26-10-1906	73
P3	Staatsmijn Hendrik	Koninklijke DSM N.V.	08-08-1910	24
P4	Staatsmijn Maurits	Koninklijke DSM N.V.	12-03-1915	51
P5	Staatsmijn Wilhelmina	Koninklijke DSM N.V.	08-01-1903	6
			Total	284

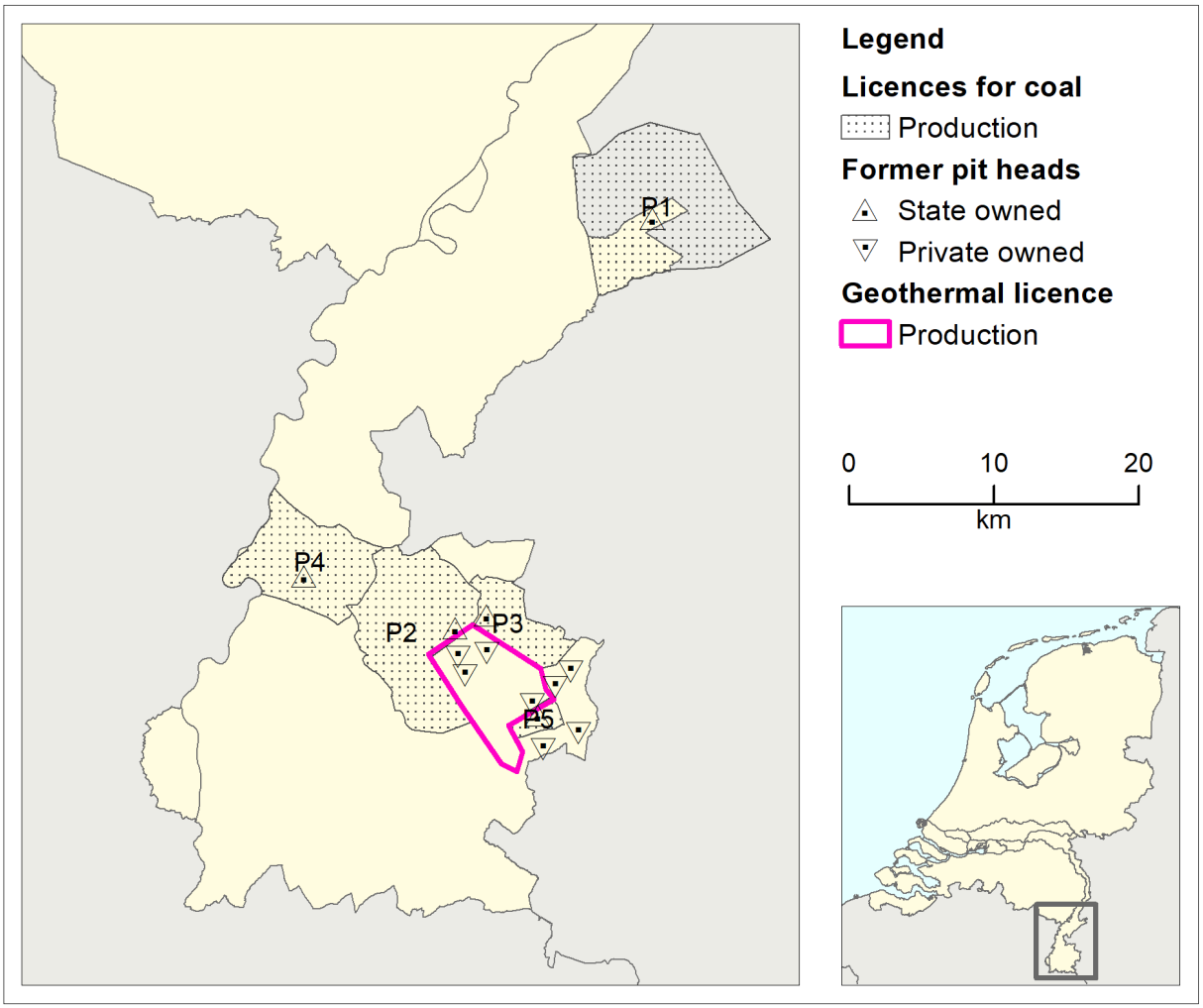


Figure 7.1 Licences for coal as at 1 January 2020.

8. Licences, Netherlands territory changes in 2019

Changes in the onshore licences for hydrocarbon exploration and production, which took place during 2019, are listed in the tables below. This also includes all pending applications for permits.

8.1 Exploration licences hydrocarbons

Applied for

Licence	Official Journal of the EU	Date	Closing date	Staatscourant	Applicant(s)
De Kempen *	C 174	15-06-2011	14-09-2011	11 021	Basgas Energia, Cuadrilla Brabant
Breda-Maas *	C 178	18-06-2011	19-09-2011	11 810	Cuadrilla Brabant
Waskemeer *	C 84	22-03-2014	23-06-2014	10 937	NAM
Slootdorp-Oost *	C 55	14-02-2015	18-05-2015	10 234	Vermilion
Brielle *	C 170	23-05-2015	24-08-2015	15 891	Oranje-Nassau cs, Vermilion

* Application ongoing, published in an earlier annual review.

Prolonged

Licence holder	Licence	Effective from	Effective till
Vermilion Energy Netherlands B.V.	IJsselmuiden	09-01-2019	16-01-2024
Vermilion Energy Netherlands B.V.	Opmeer	09-01-2019	18-12-2024
Vermilion Energy Netherlands B.V.	Engelen	24-11-2018	In application
Vermilion Energy Netherlands B.V.	Oosterwolde	24-11-2018	In application
Vermilion Energy Netherlands B.V.	Utrecht	24-11-2018	In application

8.2 Production licences hydrocarbons

Applied for

Licence	Publication	Date	Closing date	Applicant(s)
Terschelling-Noord *	-	10-11-2014	-	Tulip Oil
Akkrum *	-	02-06-2016	-	Vermilion

* Application ongoing, published in an earlier annual review.

Split

Licence holder	Licence	Effective from	km²
Originally			
Nederlandse Aardolie Maatschappij B.V.	Botlek II	-	232
After split			
Nederlandse Aardolie Maatschappij B.V.	Botlek II	10-07-2019	228
Nederlandse Aardolie Maatschappij B.V.	Botlek Maasmond	10-07-2019	3
		Total	232

Restricted

Licence holder	Licence	Effective from	km²
Nederlandse Aardolie Maatschappij B.V.	Rijswijk	20-12-2019	1,094

Area

Total area Netherlands territory	Under licence for hydrocarbons
42,203 km²	17,016 km² (40,3 %)

8.3 Subsurface storage licences

Applied for

Licence	Staatscourant	Date	Closing date	Storage of	Applicant(s)
Luttelgeest *	5 395	04-03-2013	03-06-2013	Brine	Leo Hoogweg B.V.
Twenthe-Rijn Boeldershoek *	-	24-01-2014	-	Filling	AkzoNobel

* Application ongoing, published in an earlier annual review.

Awarded

Licence holder	Licence	Effective from	km²
N.V. PWN Waterleidingbedrijf Noord-Holland	Andijk	12-12-2019	5

Change in remittance

Licence holder	Licence	Effective from	km²
TAQA Piek Gas B.V. cs	Alkmaar *	01-01-2018	12

* Remittance to the State will be relinquished; decree has a retroactive effect from 1 January 2018.

8.4 Exploration, production and storage licences

Names of exploration, production and storage licences for hydrocarbons on the Netherlands territory as show in Figure 8.1.

Exploration licence					
E1	Akkrum	E5	IJsselmuiden	E9	Schagen
E2	Engelen	E6	Lemsterland	E10	Terschelling-Noord
E3	Follega	E7	Oosterwolde	E11	Utrecht
E4	Hemelum	E8	Opmeer		

Exploration licence as applied for					
E12	Breda-Maas	E14	De Kempen	E16	Waskemeer
E13	Brielle	E15	Slootdorp-Oost		

Production licence					
P1	Akkrum 11	P15	Drenthe IIb	P29	Rijswijk
P2	Alkmaar	P16	Drenthe IIIa	P30	Rossum-De Lutte
P3	Andel Va	P17	Drenthe IV	P31	Schoonebeek
P4	Andel Vb	P18	Drenthe V	P32	Slootdorp
P5	Beijerland	P19	Drenthe VI	P33	Steenwijk
P6	Bergen II	P20	Gorredijk	P34	Tietjerksteradeel II
P7	Bergermeer	P21	Groningen	P35	Tietjerksteradeel III
P8	Botlek III	P22	Hardenberg	P36	Tubbergen
P9	Botlek-Maas	P23	Leeuwarden	P37	Twenthe
P10	Botlek-Maasmond	P24	Marknesse	P38	Waalwijk
P11	De Marne	P25	Middelie	P39	Zuid-Friesland III
P12	Donkerbroek	P26	Noord-Friesland	P40	Zuidwal
P13	Donkerbroek-West	P27	Oosterend		
P14	Drenthe IIa	P28	Papekop		

Production licence as applied for			
P41	Terschelling-Noord	P42	Akkrum

Storage licence					
S1	Alkmaar	S4	Norg	S7	Winschoten III
S2	Bergermeer	S5	Twenthe-Rijn De Marssteden	S8	Zuidwending
S3	Grijpskerk	S6	Winschoten II		

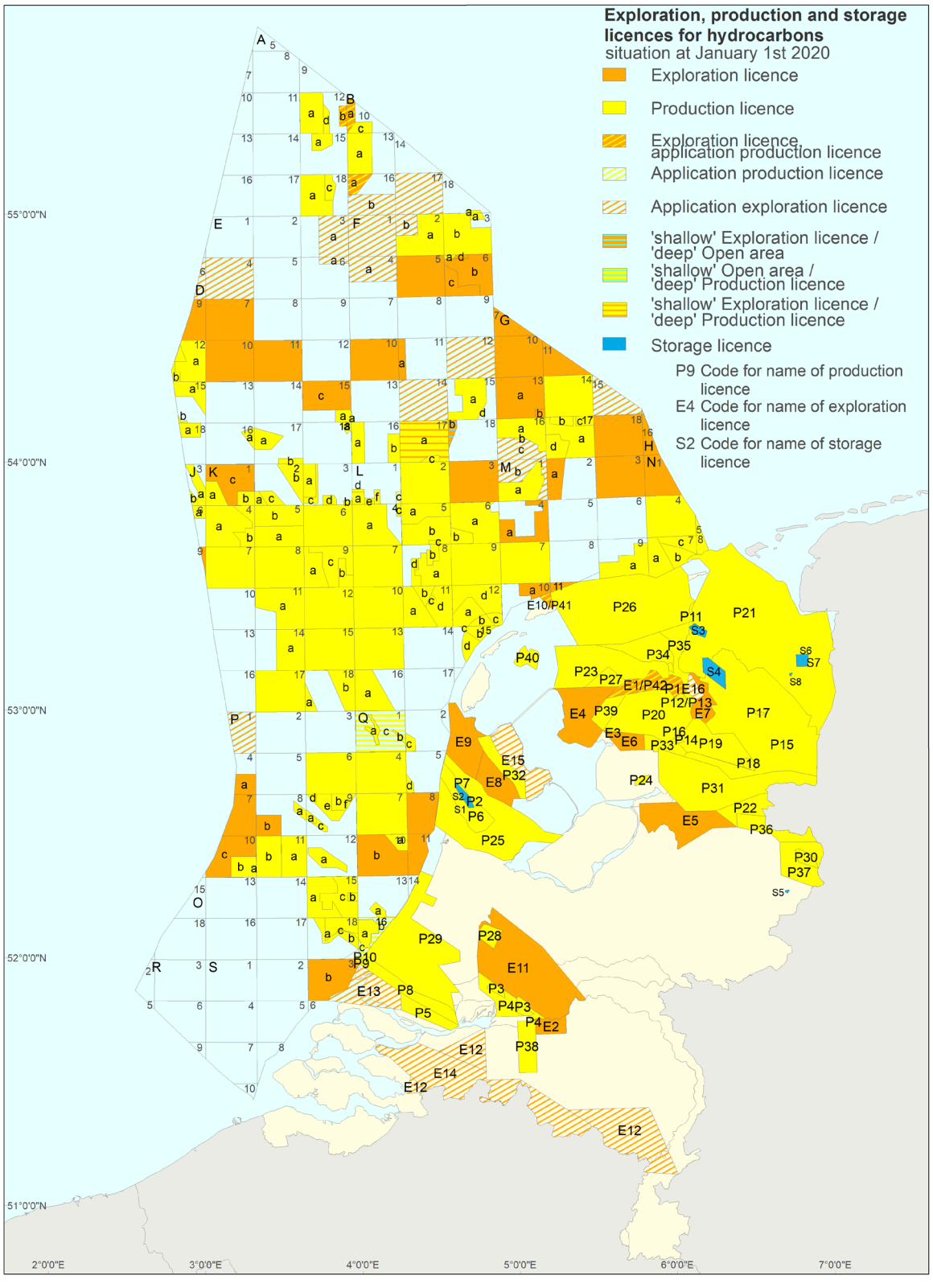


Figure 8.1 Exploration, production and storage licences for hydrocarbons as at 1 January 2020.

8.5 Exploration licences geothermal energy

Applied for

Licence	Staatscourant	Date	Closing date	Applicant(s)
Rotterdam-Haven *	53 130	21-09-2017	21-12-2017	Havenbedrijf Rotterdam N.V.
Midwoud *	53 132	21-09-2017	21-12-2017	Vermilion Energy Netherlands B.V.
~~Breda~~ *3	61 268	24-10-2017	23-01-2018	Visser & Smit Hanab B.V.
~~Zuidwest-Brabant~~ *2	65 458	16-11-2017	15-02-2018	Visser & Smit Hanab B.V.
~~Noordwest-Brabant~~ *2	65 459	16-11-2017	15-02-2018	Visser & Smit Hanab B.V.
~~Noord-Zeeland~~ *3	65 460	16-11-2017	15-02-2018	Visser & Smit Hanab B.V.
~~Terheijden~~ *3	73 835	27-12-2017	28-03-2018	Izzy Projects, Visser & Smit Hanab B.V.
Den Hoorn *1	-	18-05-2018	-	Energie Transitie Partners B.V.
Hoorn *	10 906	28-02-2018	30-05-2018	N.V. HVC
Noord-Holland Noord *	28 807	28-05-2018	27-08-2018	Vermilion Energy Netherlands B.V.
Rotterdam-Stad *	51 800	17-09-2018	17-12-2018	Hydreco Geomec B.V.
Friesland-Midden *	51 804	17-09-2018	17-12-2018	Vermilion Energy Netherlands B.V.
Rotterdam 7 *	54002-1	27-09-2018	27-12-2018	Shell Geothermal B.V.
Rotterdam Bar *	54 014	27-09-2018	27-12-2018	ENGIE Energy Solutions B.V.
Ede *	69 419	11-12-2018	12-03-2019	Tulip Energy Exploration & Development B.V, MPD Groene Energie B.V.
Wassenaar	11 046	28-02-2019	31-05-2019	Stichting Buurtenergie Haaglanden, Energie Coöperatie Wateringse Veld U.A.
~~Berlikum 2~~ *4	17 537	02-04-2019	02-07-2019	N.V. Nuon Energy
Maasland 6	19 190	09-04-2019	09-07-2019	GeoPower Exploitatie B.V.
Maasland 5	19 199	09-04-2019	09-07-2019	GeoPower Exploitatie B.V.
Delft-Tanthof	22 419	24-04-2019	24-07-2019	Stichting Buurtenergie Haaglanden, Energie Coöperatie Wateringse Veld U.A.
Amersfoort	23 664	30-04-2019	30-07-2019	Tullip Energy Exploration & Development B.V.
Someren	26 510	14-05-2019	13-08-2019	Hydreco GeoMEC B.V., Geothermie Brabant B.V.
Rotterdam Prins Alexander	27 117	16-05-2019	15-08-2019	ENGIE Energy Solutions B.V.
Renkum	31 990	06-06-2019	05-09-2019	Tellus Renkum B.V.
Zuidwesthoek	31 919	12-06-2019	11-09-2019	Vermilion Energy Netherlands B.V.
Bommelerwaard 2	32 354	14-06-2019	13-09-2019	Hydreco Geomec B.V.

Licence	Staatscourant	Date	Closing date	Applicant(s)
Eemland	55 019	10-10-2019	09-01-2020	
Nijmegen	55 336	11-10-2019	10-01-2020	
Nissewaard	56 437	17-10-2019	16-01-2020	
Brakel-Zuidoost	60 136	06-11-2019	05-02-2020	

* Application ongoing, published in an earlier annual review.

*1 Application in competition with the withdrawn application Wateringseveld.

*2 Application withdrawn as at 23-08-2019.

*3 Application withdrawn as at 30-09-2019.

*4 Application withdrawn as at 14-11-2019.

Awarded

Licence holder	Licence	Effective from		km²
Wayland Energy B.V.	Bleiswijk 6	08-01-2019		11
GeoPower Exploitatie B.V.	Maasland 4	16-01-2019		5
DDGeothermie Sneek B.V.	Sneek	16-01-2019		53
N.V. HVC	Drechtsteden	05-02-2019		282
Energie Transitie Partners B.V.	Westland-Zuidwest	01-03-2019		52
Trias Westland B.V.	De Lier V	01-03-2019		2
ENGIE Energy Solutions B.V. cs	Haarlem-Schalkwijk	17-05-2019		100
Aardwarmte Combinatie Luttelgeest B.V.	Luttelgeest 2	24-05-2019		25
Hydreco GeoMEC B.V. cs	Made 2	28-05-2019		53
Vattenfall N.V.	Nootdorp-Oost	05-09-2019		21
Hydreco GeoMEC B.V. cs	Ypenburg	05-09-2019		32
EnergieWende B.V. cs	De Lier VI	05-09-2019		10
Aardwarmte Vogelaer B.V.	Poeldijk 2	19-09-2019		3
Hydreco GeoMEC B.V. cs	Den Haag 6	19-09-2019		23
Hydreco GeoMEC B.V. cs	Den Haag 4	02-10-2019		60
Energie Transitie Partners B.V.	Maasdijk 2	25-10-2019		4
ENGIE Energy Solutions B.V.	Utrecht	30-10-2019		263
Hydreco GeoMEC B.V. cs	West-Brabant	13-12-2019		405
			Total	1,404

Prolonged

Licence holder	Licence	Effective from	Effective till
Gedeputeerde Staten van Overijssel	Koekoekspolder IIa	08-01-2019	30-12-2020
Vereniging van Eigenaren Oude Campspolder	Maasland 2	16-01-2019	31-12-2020
EnergieWende B.V. cs	De Lier 3II	01-03-2019	19-01-2021

Licence holder	Licence	Effective from	Effective till
WarmteStad B.V.	Groningen 2	30-12-2018	In application
Hoogweg Aardwarmte B.V.	Luttelgeest II	24-05-2019	19-05-2022
J.W.M. Scheffers cs	Honselersdijk	Renewal request	Denied
Nature's Heat B.V.	Kwintsheul 2	19-07-2019	31-12-2021
Hydreco GeoMEC B.V.	Pijnacker-Nootdorp 6a	28-08-2019	29-06-2021
Hydreco GeoMEC B.V. cs	Den Haag	12-10-2019	30-09-2019
Hydreco GeoMEC B.V.	Tilburg Geertr.berg *	28-11-2019	19-08-2021
Grondexploitatiemaatschappij Californië B.V.	Californië VI	06-12-2019	30-12-2020
Trias Westland B.V.	De Lier IV	31-12-2019	30-12-2020
Trias Westland B.V.	Naaldwijk 2II	Renewal request	Denied
Wayland Developments B.V.	Waddinxveen 2	01-01-2020	In application

* Accompanied by a depth limitation for the northeastern sub-area (up to top Carboniferious) and the southwestern sub-area (up to base North Sea Group).

Split

Licence holder	Licence	Effective from	km²
Originally			
EnergieWende B.V. cs	De Lier 3II	-	10
After split			
EnergieWende B.V. cs	De Lier 7	10-04-2019	<1
EnergieWende B.V. cs	De Lier 8	10-04-2019	10

Merged

Licence holder	Licence	Effective from	km²
Originally			
Nature's Heat B.V.	Kwintsheul II	-	7
Nature's Heat B.V.	De Lier 7	-	<1
After merging			
Nature's Heat B.V.	Kwintsheul 2	19-07-2019	7

Reduced

Licence holder	Licence	Effective from	km²
ECW Geoholding B.V.	Middenmeer 2	05-02-2019	*14
ECW Geoholding B.V.	Middenmeer 4	05-02-2019	*59

Licence holder	Licence	Effective from	km²
Hoogweg Aardwarmte B.V.	Luttelgeest II	24-05-2019	*53
Nature's Heat B.V.	Kwintsheul 2	19-07-2019	6
Nature's Heat B.V.	Kwintsheul 2	19-07-2019	*3
Trias Westland B.V.	Naaldwijk 3	20-12-2019	*9
Trias Westland B.V.	De Lier V	20-12-2019	*1
Trias Westland B.V.	De Lier IV	20-12-2019	*<1

* Remaining part after production licence has been awarded.

Expired/Relinquished

Licence holder	Licence	Effective from		km²
Uniper Benelux N.V.	Rotterdam 5	09-01-2019		39
DDH Energy B.V.	Leeuwarden 2	13-05-2019		14
Hydreco GeoMEC B.V.	Helmond 2	07-10-2019		71
Visser & Smit Hanab B.V.	Zevenbergen III	31-10-2019		39
			Total	163

8.6 Production licences geothermal energy

Applied for

Licence	Date	Closing date	Applicant(s)
Middenmeer III	28-02-2019	-	Vermilion Energy Netherlands B.V.
Den Haag	15-08-2019	-	Haagse Aardwarmte Leyweg B.V.,Hydreco GeoMEC B.V.
Luttelgeest II	14-12-2019	-	Aardwarmte Combinatie Luttelgeest B.V.
Oostvoorne	17-12-2019	-	Hydreco GeoMEC B.V., Duurzaam Voorne Holding B.V.

Awarded

Licence holder	Licence	Effective from	km²
Wayland Energy Bergschenhoek B.V.	Lansingerland	08-01-2019	5
Kwekerij de Westhoek B.V. cs	Maasland	08-01-2019	5
ECW Geoholding B.V.	Middenmeer I	05-02-2019	5
ECW Geoholding B.V.	Middenmeer II	05-02-2019	3
Hoogweg Aardwarmte B.V.	Luttelgeest	24-05-2019	6
ECW Geoholding B.V.	Andijk	24-05-2019	5
J.W.M. Scheffers cs	Honselersdijk	02-07-2019	3
Nature's Heat B.V.	Kwintsheul	19-07-2019	3

Licence holder	Licence	Effective from		km²
Visser & Smit Hanab B.V. cs	Zevenbergen	18-12-2019		3
Trias Westland B.V.	Naaldwijk	20-12-2019		5
			Total	43

8.7 Exploration and production licences for geothermal energy

Names of exploration and production licences for geothermal energy, Netherlands territory, as indicated in Figure 8.2.

Exploration licence					
E1	Alkmaar	E21	Koekoekspolder IIa	E41	Peel en Maas
E2	Bleiswijk 6	E22	Kwintsheul 2	E42	Pijnacker-Nootdorp 6a
E3	Brielle 2	E23	Lansingerland 4	E43	Poeldijk 2
E4	Californië IV	E24	Leeuwarden	E44	Rotterdam 4
E5	Californië VI	E25	Leeuwarden 5	E45	Sexbierum
E6	De Lier 8	E26	Lelystad	E46	Sneek
E7	De Lier IV	E27	Luttelgeest 2	E47	Tilburg-Geertruidenberg
E8	De Lier V	E28	Luttelgeest II	E48	Utrecht
E9	De Lier VI	E29	Maasdijk	E49	Velden
E10	Den Haag	E30	Maasdijk 2	E50	Velsen
E11	Den Haag 4	E31	Maasland 2	E51	Venlo
E12	Den Haag 6	E32	Maasland 4	E52	Vierpolders
E13	Den Helder	E33	Made 2	E53	Waddinxveen 2
E14	Drachten	E34	Middenmeer 2	E54	West-Brabant
E15	Drechtsteden	E35	Middenmeer 3	E55	Westland-Zuidwest
E16	Erica	E36	Middenmeer 4	E56	Ypenburg
E17	Groningen 2	E37	Monster 2	E57	Zuidplas
E18	Haarlem-Schalkwijk	E38	Naaldwijk 3	E58	Zwolle
E19	Heerenveen	E39	Nootdorp-Oost		
E20	Klazienaveen	E40	Oostvoorne		
Exploration licence as applied for					
E59	Amersfoort	E68	Maasland 5	E77	Rotterdam Prins Alexander
E60	Bommelerwaard 2	E69	Maasland 6	E78	Rotterdam-Haven
E61	Brakel-Zuidoost	E70	Midwoud	E79	Rotterdam-Stad
E62	Delft-Tanthof	E71	Nijmegen	E80	Someren
E63	Den Hoorn	E72	Nissewaard	E81	Wassenaar
E64	Ede	E73	Noord-Holland Noord	E82	Zuidwesthoek
E65	Eemland	E74	Renkum		
E66	Friesland-Midden	E75	Rotterdam 7		
E67	Hoorn	E76	Rotterdam Bar		
Production licence					
P1	Andijk	P9	Honselersdijk	P17	Naaldwijk
P2	Bleiswijk	P10	Kampen	P18	Pijnacker-Nootdorp 4

P3	Bleiswijk 1b	P11	Kwintsheul	P19	Pijnacker-Nootdorp 5
P4	Californië IV	P12	Lansingerland	P20	Poeldijk
Production licence					
P5	Californië V	P13	Luttelgeest	P21	Vierpolders
P6	De Lier	P14	Maasland	P22	Zevenbergen
P7	Heemskerk	P15	Middenmeer I		
P8	Heerlen	P16	Middenmeer II		
Production licence as applied for					
P23	Den Haag	P25	Middenmeer III	P26	Oostvoorne
P24	Luttelgeest II				

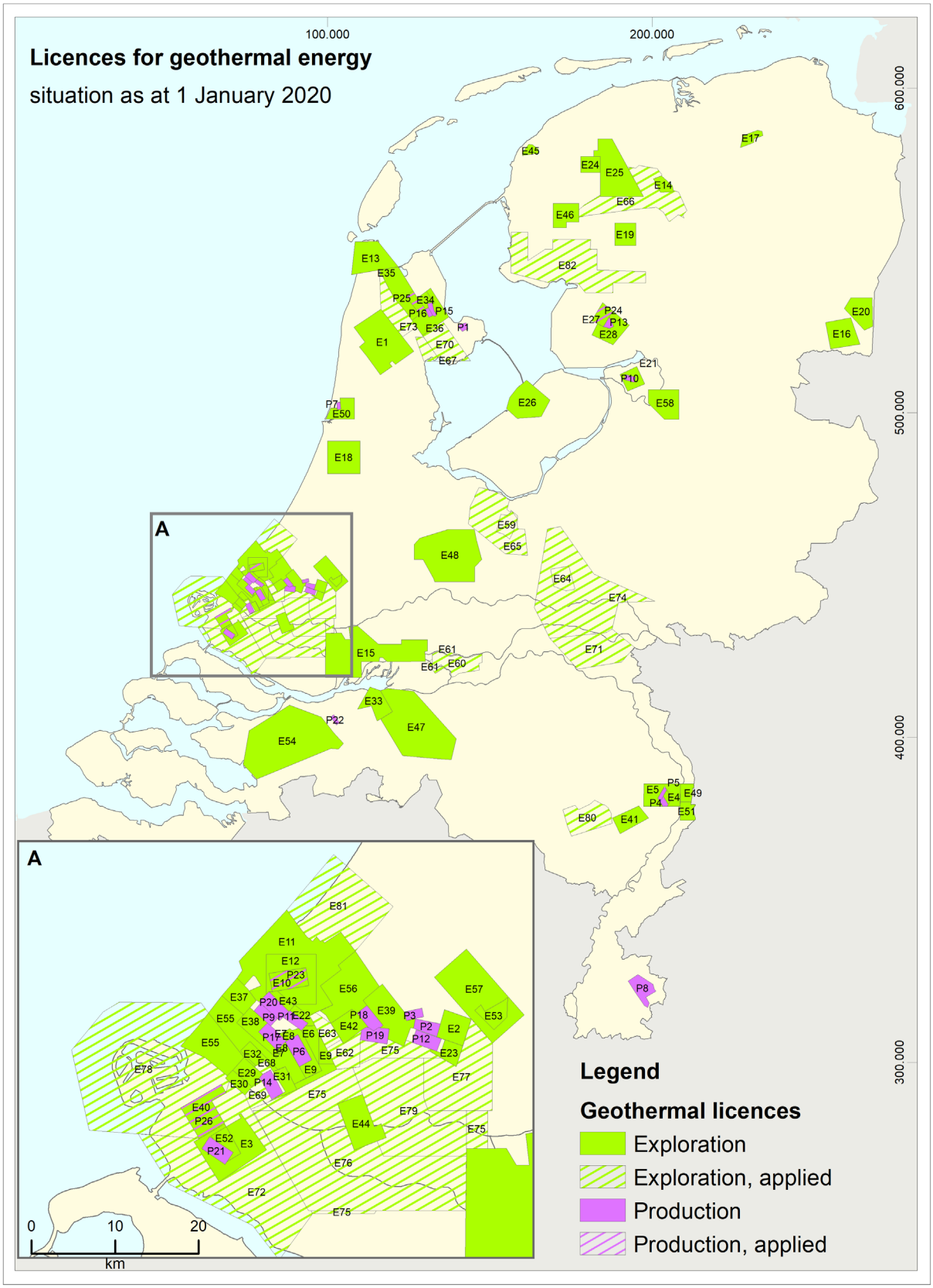


Figure 8.2 Licences for geothermal energy as at 1 January 2020.

8.8 Production licences rock salt

Applied for

Licence	Staatscourant	Date	Closing date	Applicant(s)
Twenthe-Rijn Welen Mos *	-	10-07-2018	-	Nouryon

* Application withdrawn as at 19-02-2014.

8.9 Production licences coal

No changes.

9. Licences, Netherlands continental shelf changes in 2019

Changes in the licences for hydrocarbon exploration and production, which took place during 2019 on the continental shelf, are listed in the tables below. Also, all current licence applications are included.

9.1 Exploration licences hydrocarbons

Applied for

Licence	Official Journal of the EU	Date	Closing date	Staatscourant	Applicant(s)
D6 *	C 342	17-09-2016	19-12-2016	52 953	Simwell
E4 *	C 342	17-09-2016	19-12-2016	52 953	Simwell
P1 **	C 444	23-12-2017	26-03-2018	6 265	Swift
B16b *	C 444	23-12-2017	26-03-2018	7 464	NAM
B17 *	C 444	23-12-2017	26-03-2018	7 464	NAM
E3a *	C 444	23-12-2017	26-03-2018	7 464	NAM
E6a *	C 444	23-12-2017	26-03-2018	7 464	NAM
F1 *	C 444	23-12-2017	26-03-2018	7 464	NAM
F2b *	C 444	23-12-2017	26-03-2018	7 464	NAM
F4a *	C 444	23-12-2017	26-03-2018	7 464	NAM; Neptune; HALO
F12 *	C 425	26-11-2018	25-02-2019	69 746	HALO; NAM
G16c & M1b	C 3/4	07-01-2019	08-04-2019	1 970	ONE-Dyas
G15 & H13	C 247	23-07-2019	22-10-2019	47 268-n1	ONE-Dyas
F14	C 269	12-08-2019	11-11-2019	46 542	HALO

* Application ongoing, published in an earlier annual review.

** Republished application 03-12-2016.

Awarded

Licence holder	Licence	Effective from	km²
Nederlandse Aardolie Maatschappij B.V.	G7, G10, G11 & G13a	03-07-2019	1,079
Neptune Energy Netherlands B.V.	G13b	03-07-2019	16
Neptune Energy Netherlands B.V. cs	F5	03-10-2019	398
ONE-Dyas B.V.	F6c & F6d	18-10-2019	129
		Total	1,622

Prolonged

Licence holder	Licence	Effective from	Effective till
Wintershall Noordzee B.V. cs	F10	01-02-2019	30-12-2020
Wintershall Noordzee B.V. cs	F11a	01-02-2019	30-12-2020
Wintershall Noordzee B.V. cs	F18b-diep	01-03-2019	30-12-2020
Jetex Petroleum Ltd	P10c	18-06-2019	31-12-2022
Jetex Petroleum Ltd	P4, P7 & P8b	18-06-2019	31-12-2022
Neptune Energy Netherlands B.V. cs	E10	19-06-2019	31-12-2020
Neptune Energy Netherlands B.V. cs	E11	19-06-2019	31-12-2020
Neptune Energy Netherlands B.V. cs	E15c	19-06-2019	31-12-2020
Neptune Energy Netherlands B.V.	K1c	30-10-2019	30-06-2021
Nederlandse Aardolie Maatschappij B.V. cs	J9	20-12-2019	31-12-2022
Dana Petroleum Netherlands B.V. cs	F6b	20-12-2019	In application
ONE-Dyas B.V.	M2a	03-01-2020	In application
ONE-Dyas B.V.	M4a	03-01-2020	In application

Reduced

Licence holder	Licence	Effective from		km²
Wintershall Noordzee B.V. cs	F11a	01-01-2019 *		60
Jetex Petroleum Ltd	P4a, P7 & P8b	18-12-2019		413
			Total	473

* New decicion of februari 28th : works back to 31-12-2018.

Relinquished

Licence holder	Licence	Effective from	km²
ONE-Dyas Energie Resources B.V. cs	F18a-ondiep	27-11-2019	170

9.2 Production licences hydrocarbons

Applied for

Licence	Staatscourant	Date	Closing date	Applicant(s)
A12b & B10a *	22	30-12-1999	-	Petrogas cs
B16a *	105	06-05-1993	-	Petrogas cs
L1c *	-	27-02-2014	-	Neptune
F6b *2	-	11-05-2016	-	Dana cs

* Application ongoing, published in an earlier annual review.

*2 Application withdrawn as at 20-12-2019.

Awarded

Licence holder	Licence	Effective from	km²
ONE-Dyas B.V. cs	N4, N5 & N8	25-07-2019	430

Applied for fallow area

Licence	Publication	Date	Closing date	Applicant(s)
F3b *	www.nlog.nl	01-07-2013	30-09-2013	Petrogas E&P UK Ltd., Dana Petroleum Netherlands B.V.
F3b	www.nlog.nl	19-07-2018	18-10-2018	Dana Petroleum Netherlands B.V.
G14 & G17b	www.nlog.nl	10-05-2019	09-08-2019	ONE-Dyas B.V.
G17a	www.nlog.nl	10-05-2019	09-08-2019	ONE-Dyas B.V.
G17c & G17d	www.nlog.nl	10-05-2019	09-08-2019	ONE-Dyas B.V.

* No decision made.

Prolonged

Licence holder	Licence	Effective from	Effective till
Wintershall Noordzee B.V. cs	Q4	19-06-2019	02-12-2030
Neptune Energy Netherlands B.V.	G17a	20-06-2019	14-12-2026
Neptune Energy Netherlands B.V. cs	G14 & G17b	31-08-2019	31-12-2035
Wintershall Noordzee B.V. cs	Q1-diep	20-09-2019	31-12-2030

Restricted

Licence holder	Licence	Effective from	km²
Spirit Energy Nederland B.V. cs	J3b & J6a	01-03-2019	47
ONE-Dyas B.V. cs	P18b	14-06-2019	77
Neptune Energy Netherlands B.V. cs	D15a & D15b	05-07-2019	125

Licence holder	Licence	Effective from	km²
Wintershall Noordzee B.V. cs	E18a	01-01-2020	17

Relinquished

Licence holder	Licence	Effective from	km²
Wintershall Noordzee B.V. cs	E15b	01-01-2020	21

Area

Total area Netherlands continental shelf	In licence for hydrocarbons
56,396 km²	26,908 km² (47,7 %)

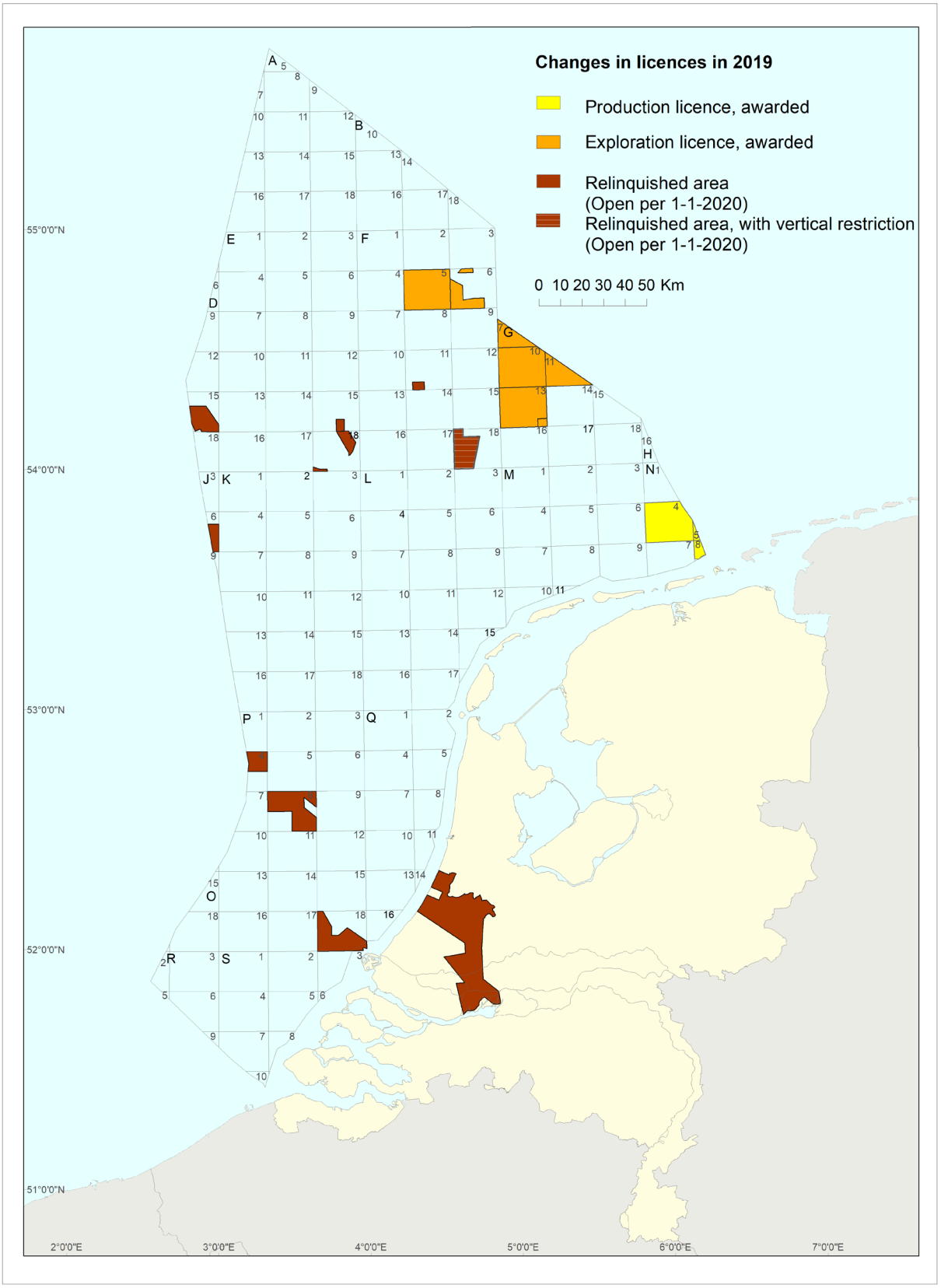


Figure 9.1 Changes in hydrocarbon licences during the year 2019.

9.3 Storage licences

Changes regarding storage licences during 2019 are listed in the table below.

Started

Licence holder	Licence	Effective from	km²
TAQA Offshore B.V.	P18-4	01-01-2020/01-01-2021	11

10. Licences, company- and name changes in 2019

The tables below list changes in chronological order which took place during 2019, as a result of mutations in consortia of companies participating in licences as well as name changes of participating companies or name changes as a result of legal mergers.

10.1 Hydrocarbons

Company changes in exploration licences

Licence	Relinquishing company	Acquiring company	Effective from	Staatscourant
Follega	Vermilion Energy Netherlands Non-Op B.V.	-	01-01-2019	38 421
Lemsterland	Vermilion Energy Netherlands Non-Op B.V.	-	01-01-2019	38 421

Company changes in production licences

Licence	Relinquishing company	Acquiring company	Effective from	Staatscourant
A15a	Dana Petroleum Netherlands B.V.	-	22-02-2019	16 404
Gorredijk	Vermilion Energy Netherlands Non-Op B.V.	-	01-01-2019	38 421
Leeuwarden	Vermilion Energy Netherlands Non-Op B.V.	-	01-01-2019	38 421
Oosterend	Vermilion Energy Netherlands Non-Op B.V.	-	01-01-2019	38 421
Slootdorp	Vermilion Energy Netherlands Non-Op B.V.	-	01-01-2019	38 421
Zuidwal	Vermilion Energy Netherlands Non-Op B.V.	-	01-01-2019	38 421
E16a	Vermilion Energy Netherlands Non-Op B.V.	Vermilion Energy Netherlands B.V.	01-01-2019	38 421
E17a & E17b	Vermilion Energy Netherlands Non-Op B.V.	Vermilion Energy Netherlands B.V.	01-01-2019	38 421
F6a	Vermilion Energy Netherlands Non-Op B.V.	Vermilion Energy Netherlands B.V.	01-01-2019	38 421
F15a	Vermilion Energy Netherlands Non-Op B.V.	Vermilion Energy Netherlands B.V.	01-01-2019	38 421
F15d	Vermilion Energy Netherlands Non-Op B.V.	Vermilion Energy Netherlands B.V.	01-01-2019	38 421
K3b	Vermilion Energy Netherlands Non-Op B.V.	Vermilion Energy Netherlands B.V.	01-01-2019	38 421
K3d	Vermilion Energy Netherlands Non-Op B.V.	Vermilion Energy Netherlands B.V.	01-01-2019	38 421
K4b & K5a	Vermilion Energy Netherlands Non-Op B.V.	Vermilion Energy Netherlands B.V.	01-01-2019	38 421
K6 & L7	Vermilion Energy Netherlands Non-Op B.V.	Vermilion Energy Netherlands B.V.	01-01-2019	38 421
L1e	Vermilion Energy Netherlands Non-Op B.V.	Vermilion Energy Netherlands B.V.	01-01-2019	38 421
L1f	Vermilion Energy Netherlands Non-Op B.V.	Vermilion Energy Netherlands B.V.	01-01-2019	38 421
L4a	Vermilion Energy Netherlands Non-Op B.V.	Vermilion Energy Netherlands B.V.	01-01-2019	38 421
Q16a	Vermilion Energy Netherlands Non-Op B.V.	Vermilion Energy Netherlands B.V.	01-01-2019	38 421
Botlek Maasmond	Nederlandse Aardolie Maatschappij B.V.	ONE-Dyas B.V.	10-07-2019	39 438
P6	Gas-Union GmbH	-	31-07-2019	
L1a	Van Dyke Netherlands Inc.	SGPO Van Dyke B.V.	17-10-2019	60 084

Name changes

Previous company name	New company name
Oranje-Nassau Energie B.V.	ONE-Dyas B.V.
Oranje-Nassau Energie Resources B.V.	ONE-Dyas Energie Resources B.V.
Faroe Petroleum (UK) Ltd.	DNO North Sea (U.K.) limited

Legal merges

Merging companies	New company
Vermilion Energy Netherlands B.V.	Vermilion Energy Netherlands B.V.
Vermilion Energy Netherlands Non-Op B.V.	

Brankrupcy

Company	Licence
First Oil Expro Ltd.	F15a
	F15d

10.2 Storage

Company changes in storage licences

No changes.

Name changes

Previous company name	New company name
Akzo Nobel Salt B.V.	Nouryon Salt B.V.

10.3 Geothermal energy

Company changes in exploration licences

Licence	Relinquishing company	Acquiring company	Effective from	Staatscourant
De Lier 7	EnergieWende B.V.	Nature's Heat B.V.	10-04-2019	21 093
	De Bruijn Geothermie B.V.			
Kwintsheul 2	Nature's Heat B.V.	Energie Transitie Partners B.V.*	08-11-2019	62 027

* New operator.

Company changes in production licences

Licence	Relinquishing company	Acquiring company	Effective from	Staatscourant
Maasland	Kwekerij de Westhoek B.V. Van Geest Groep B.V.	GeoPower Exploitatie B.V. *	08-01-2019	1 501
Middenmeer I	ECW Geoholding B.V.	ECW Geowarmte I B.V. *	05-02-2019	11 105
Middenmeer II	ECW Geoholding B.V.	ECW Geowarmte I B.V. *	05-02-2019	13 570
Andijk	ECW Geoholding B.V.	ECW Geo Andijk B.V. *	24-05-2019	30 715
Honselersdijk	J.W.M. Scheffers	Green Well Westland B.V. *	02-07-2019	41 236
	G. Verkade B.V.			

* New operator.

Name changes

No changes.

10.4 Rock salt

Company changes

No changes.

Name changes

Previous company name	New company name
Akzo Nobel Salt B.V.	Nouryon Salt B.V.

10.5 Coal

No changes.

11. Seismic surveys

In 2019, no 3D seismic surveys were acquired on the Netherlands territory and the continental shelf. No 2D seismic data was acquired on the Netherlands continental shelf during 2019. On the Nehterlands territory EBN acquired five 2D lines as part of the SCAN project with a total length of ca. 302 km during 2019 (see Figure 11.1). The lines were recorded approximately between the municipalities:

- Utrecht – Almere
- Boxtel – Bronckhorst
- West Betuwe – Arnhem
- West Betuwe – Lelystad
- Cuijk – Putten

For a long-term overview of seismic acquisitions through the years see Annex S.

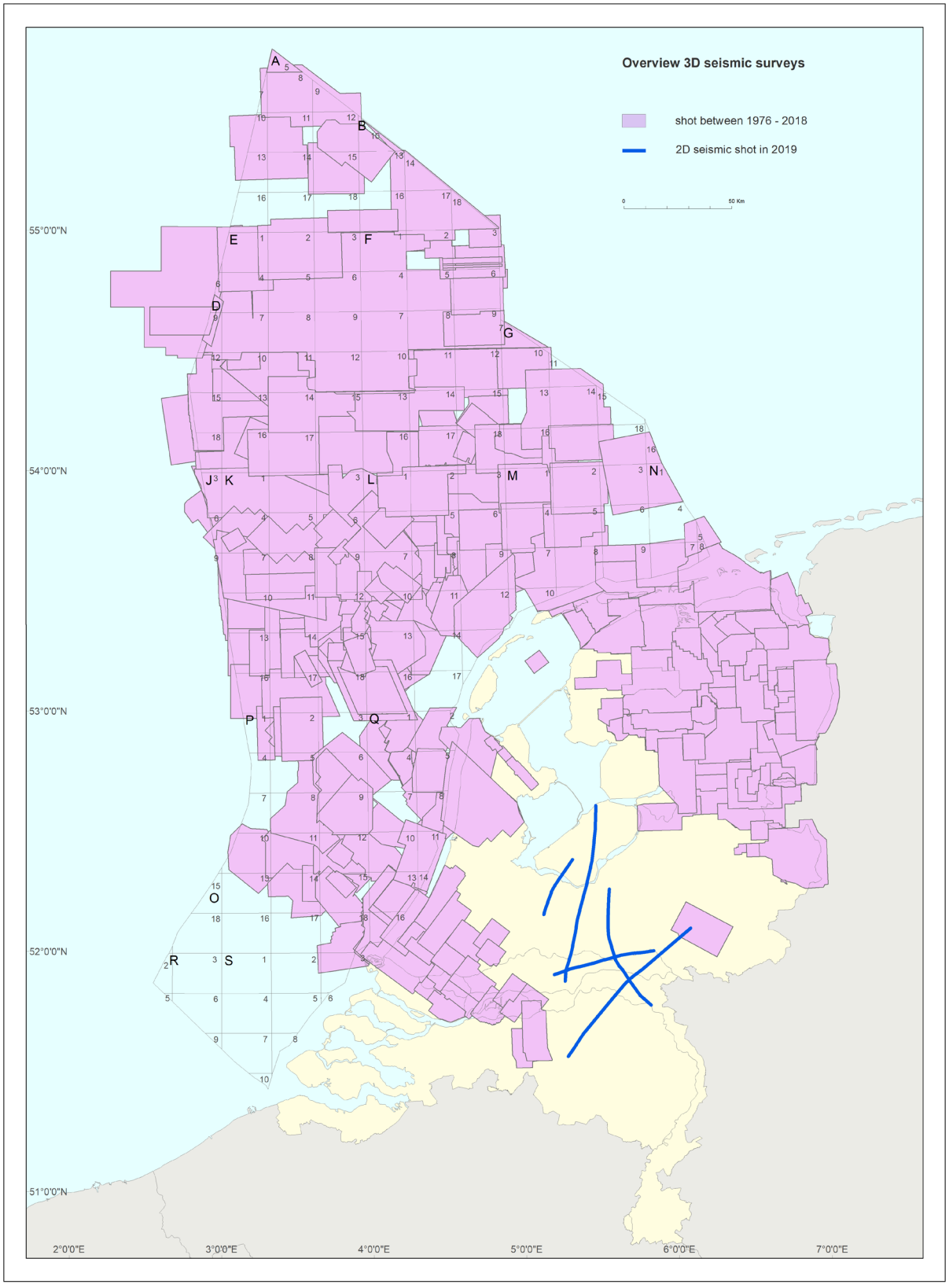


Figure 11.1 Overview of 3D seismic surveys as at 1 January 2020 and 2D seismic lines acquired in 2019.

12. Oil and gas wells completed in 2019

The wells completed in 2019 have first been grouped according to their drilling location (Netherlands territory or the continental shelf) and secondly according to whether they are exploration, appraisal, or production wells. The final table is an aggregated overview of the drilling activities in 2019.
This year 4 exploration wells have been drilled, 2 on territory and 2 on the continental shelf. Both exploration wells on territory have encountered gas and have been/will be made ready for production.
The exploration well Maasmond-01 was drilled from the Netherlands territory but targeted the Q16-Charlie-North (Maasmond) structure in the production licence Q16b & Q16c-diep on the continental shelf. The exploration wells on the continental shelf also encountered gas, however not in economic producible quantities. Together this means a success-ratio of 50 %.
The total number of exploration wells in 2019 has decreased by 2 when compared with last year. The 3 appraisal wells, 3 more than last year, all have confirmed hydrocarbons in previous discovered accumulations. Seven production wells have been drilled in total in 2019, equal to 2018.
All wells, except B10-04, have been drilled in production licences. B10-04 has been drilled in an exploration licence.

12.1 Netherlands territory

Production wells

	Name of well	Licence	Operator	Result
1	Maasmond-01	Q16b & Q16c-diep	ONE -DYAS	Gas
2	Weststellingwerf-01-Sidetrack	Gorredijk	Vermilion	Gas

12.2 Netherlands continental shelf

Exploration wells

	Name of well	Licence	Operator	Result
1	P15-20	P15a	TAQA	Gas
2	Q04-11	Q01-diep	Wintershall	Gas*

* Gas shows

Appraisal wells

	Name of well	Licence	Operator	Result
1	A15-05	A15a	Petrogas	Gas
2	B10-04	A12b & B10a	Petrogas	Gas
3	Q10-A-03-Sidetrack	Q07 & Q10a	Tulip Oil	Oil and Gas

Production wells

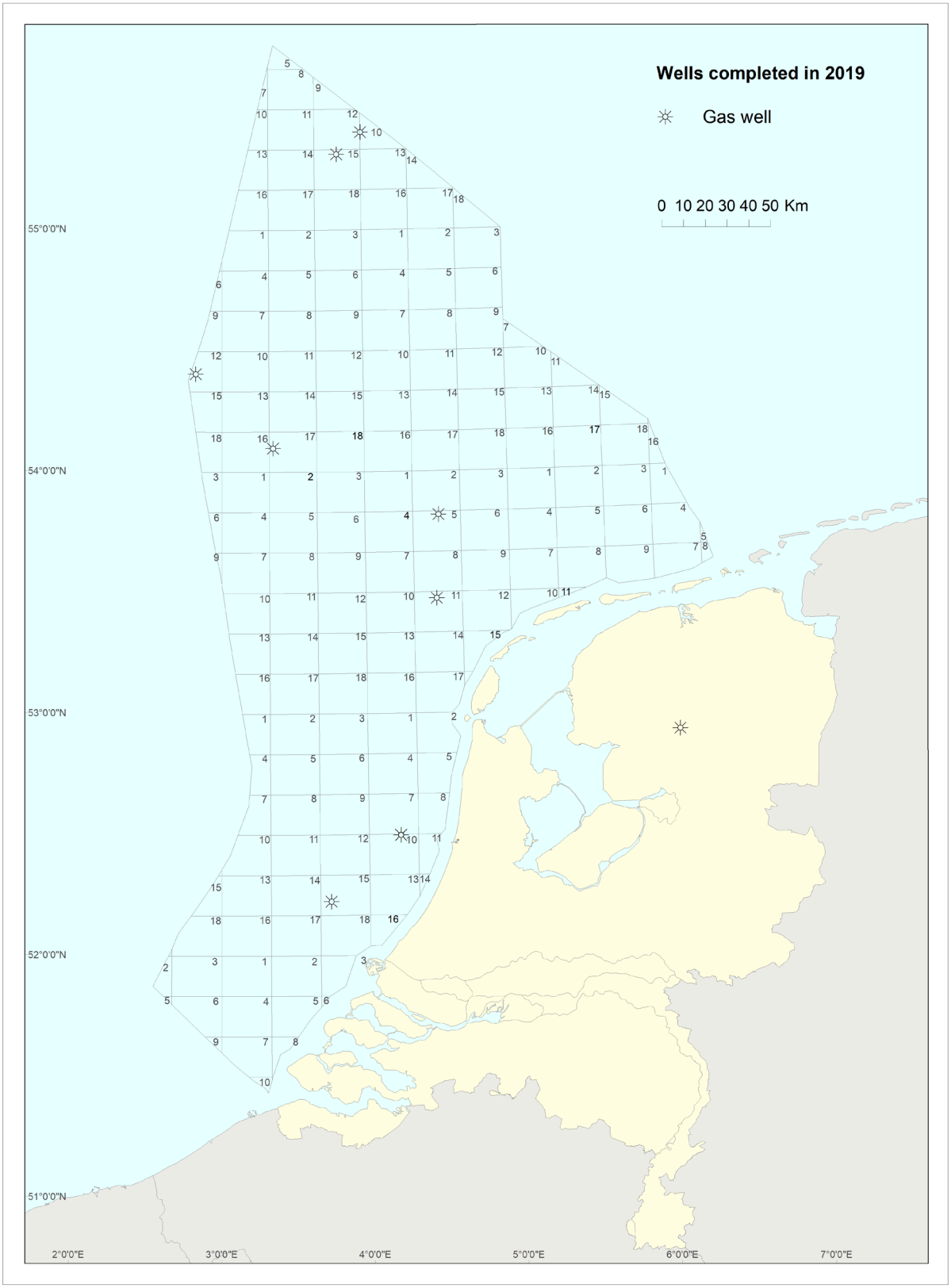
	Name of well	Licence	Operator	Result
1	E17-A-06	E17a & E17b	Neptune	Gas
2	P09-HORIZON-A-09	P08a	Petrogas	Olie
3	Q10-A-02	Q07 & Q10a	Tulip Oil	Gas
4	Q10-A-03	Q07 & Q10a	Tulip Oil	Gas
5	Q10-A-04	Q07 & Q10a	Tulip Oil	Gas*
6	Q10-A-05	Q07 & Q10a	Tulip Oil	Gas
7	Q10-A-06	Q07 & Q10a	Tulip Oil	Gas

* Gas Shows

12.3 Summary

Wells completed in 2019

Area	Type	Result							Total
		Gas	Gas shows	Oil	Oil shows	Oil & Gas	Dry	Other	
Territory	Exploration	2	-	-	-	-	-	-	2
	Appraisal	-	-	-	-	-	-	-	-
	Production	-	-	-	-	-	-	-	-
	Other	-	-	-	-	-	-	-	-
Continental shelf	Exploration	1	1	-	-	-	-	-	2
	Appraisal	2	-	-	-	1	-	-	3
	Production	5	1	1	-	-	-	-	7
	Total	10	2	1	-	1	-	-	14



Figuur 12.1 Wells completed in 2019.

13. Platforms en pipelines, Netherlands continental shelf

In 2019 one new platform was installed on the continental shelf and seven were removed. Two new pipelines were constructed.

For a complete list of platforms and pipelines, see Annexes W and X. The platform and pipeline data was supplied by Nexstep (National Platform for Re-use and Decommissioning).

Platforms installed in 2019

Platform	Operator	Placement	No. legs	Gas/Oil	Function
D12-B	Wintershall	2019	4	Gas	Satellite

Platforms decommissioned in 2019

Platform	Operator	Decommissioned	No. legs	Gas/Oil	Function
E18-A	Wintershall	2019	4	Gas	Satellite
F03-FA	Spirit Energy	2019	4	Gas	Production/Compressie
K18-Kotter-P	Wintershall	2019	8	Olie	Production
K18-Kotter-W	Wintershall	2019	8	Olie	Wellhead
L16-Logger-P	Wintershall	2019	4	Olie	Production
L16-Logger-W	Wintershall	2019	4	Olie	Wellhead
Q01-Halfweg	Petrogas	2019	4	Gas	Satellite

New pipelines in 2019

Operator	From	To	Diameter (inches)	Constructed	Length (km)	Carries *
NAM	L13-FI-1	K15-FA-1	20	2019	6.5	g
DANA	P11-B-De Ruyter	P15-D	8	2019	29.0	g

* g = gas, c = condensate, m = methanol, o=oil.

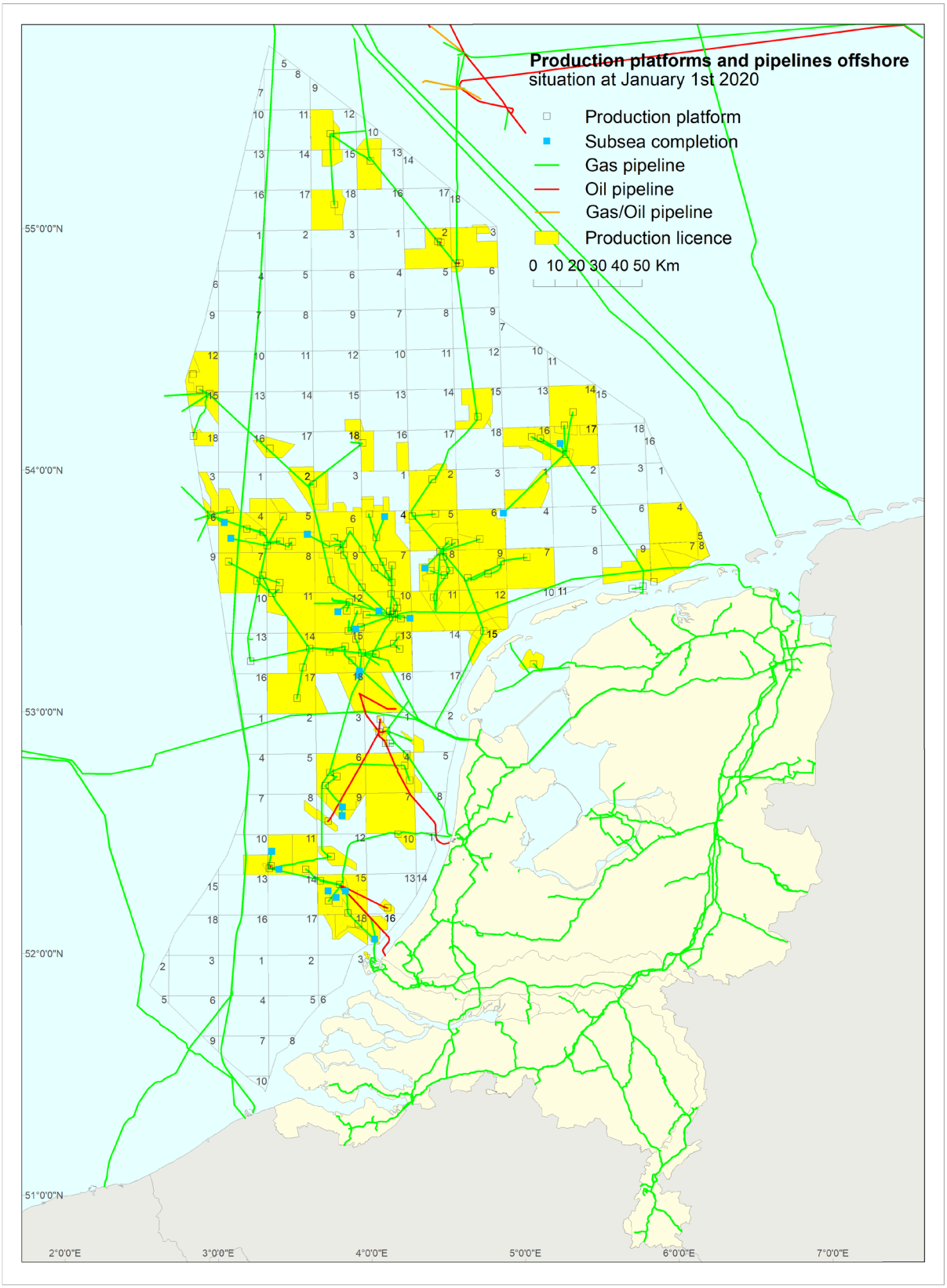


Figure 13.1 Offshore production platforms and pipelines as at 1 January 2020 (Source: https://data.overheid.nl/dataset/49129-pijpleidingen-op-de-Noordzee).

Annexes

A. Natural gas and oil accumulations

By status as at 1 January 2020

A.1 Natural gas accumulations

Developed accumulations

a. In production

Accumulation	Company	Licence name [Type] ***	Gas/Oil
Ameland-Oost	NAM	Noord-Friesland [pl]	G
Ameland-Westgat	NAM	Noord-Friesland [pl]	G
Annerveen	NAM	Drenthe IIb [pl], Groningen [pl]	G&O
Assen	NAM	Drenthe IIb [pl]	G
Bedum	NAM	Groningen [pl]	G
Bergen	TAQA	Bergen II [pl]	G
Blija-Ferwerderadeel	NAM	Noord-Friesland [pl]	G
Blija-Zuid	NAM	Noord-Friesland [pl]	G
Blija-Zuidoost	NAM	Noord-Friesland [pl]	G
Blijham	NAM	Groningen [pl]	G
Boerakker	NAM	Groningen [pl]	G
Botlek	NAM	Botlek III [pl], Rijswijk [pl]	G
Brakel	Vermilion	Andel Va [pl]	G&O
Coevorden	NAM	Hardenberg [pl], Schoonebeek [pl]	G
Collendoorn	NAM	Hardenberg [pl], Schoonebeek [pl]	G
Dalen	NAM	Drenthe IIb [pl], Drenthe V [pl], Schoonebeek [pl]	G
De Lier	NAM	Rijswijk [pl]	G&O
De Wijk	NAM	Drenthe IIb [pl], Schoonebeek [pl]	G
Den Velde	NAM	Hardenberg [pl], Schoonebeek [pl]	G
Diever	Vermilion	Drenthe VI [pl]	G
Eernewoude	Vermilion	Leeuwarden [pl]	G
Eesveen	Vermilion	Drenthe VI [pl], Steenwijk [pl]	G
Eleveld	NAM	Drenthe IIb [pl]	G
Emmen-Nieuw Amsterdam	NAM	Drenthe IIb [pl], Schoonebeek [pl]	G
Faan	NAM	Groningen [pl]	G
Feerwerd	NAM	Groningen [pl]	G
Gaag	NAM	Rijswijk [pl]	G
Geesbrug	Vermilion	Drenthe V [pl]	G
Groet	TAQA	Bergen II [pl], Bergermeer [pl]	G

Accumulation	Company	Licence name [Type] ***	Gas/Oil
Grolloo	Vermilion	Drenthe IV [pl]	G
Groningen	NAM	Groningen [pl]	G
Grootegast	NAM	Groningen [pl], Tietjerksteradeel III [pl]	G
Hardenberg	NAM	Hardenberg [pl], Schoonebeek [pl]	G
Hardenberg-Oost	NAM	Hardenberg [pl], Schoonebeek [pl]	G
Harkema	NAM	Tietjerksteradeel III [pl]	G
Heinenoord	NAM	Botlek III [pl]	G
Hekelingen	NAM	Beijerland [pl], Botlek III [pl]	G
Kiel-Windeweer	NAM	Drenthe IIb [pl], Groningen [pl]	G
Kollum	NAM	Noord-Friesland [pl], Tietjerksteradeel III [pl]	G
Kollum-Noord	NAM	Noord-Friesland [pl], Tietjerksteradeel III [pl]	G
Kommerzijl	NAM	Groningen [pl], Tietjerksteradeel III [pl]	G
Langezwaag	Vermilion	Gorredijk [pl]	G
Lauwersoog	NAM	Noord-Friesland [pl]	G
Leens	NAM	Groningen [pl]	G
Leeuwarden-Nijega	Vermilion	Akkrum [el], Leeuwarden [pl], Tietjerksteradeel II [pl]	G
Loon op Zand	Vermilion	Waalwijk [pl]	G
Loon op Zand-Zuid	Vermilion	Waalwijk [pl]	G
Maasdijk	NAM	Rijswijk [pl]	G
Marum	NAM	Groningen [pl], Tietjerksteradeel III [pl]	G
Metslawier-Zuid	NAM	Noord-Friesland [pl]	G
Middelburen	Vermilion	Akkrum [el], Leeuwarden [pl]	G
Middelie	NAM	Middelie [pl]	G
Moddergat	NAM	Noord-Friesland [pl]	G
Molenpolder	NAM	Groningen [pl]	G
Monster	NAM	Rijswijk [pl]	G
Munnekezijl	NAM	De Marne [pl], Groningen [pl], Noord-Friesland [pl]	G
Nes	NAM	Noord-Friesland [pl]	G
Oosterhesselen	NAM	Drenthe IIb [pl], Drenthe V [pl], Drenthe VI [pl]	G
Oostrum	NAM	Noord-Friesland [pl]	G
Opeinde	Vermilion	Leeuwarden [pl], Tietjerksteradeel II [pl], Tietjerksteradeel III [pl]	G
Opeinde-Zuid	Vermilion	Akkrum [el], Leeuwarden [pl]	G
Opende-Oost	NAM	Groningen [pl]	G
Oud-Beijerland Zuid	NAM	Beijerland [pl], Botlek III [pl]	G
Oude Pekela	NAM	Groningen [pl]	G
Oudeland	NAM	Beijerland [pl]	G

Accumulation	Company	Licence name [Type] ***	Gas/Oil
Pernis-West	NAM	Rijswijk [pl]	G
Pieterzijl Oost	NAM	Groningen [pl], Tietjerksteradeel III [pl]	G
Reedijk	NAM	Botlek III [pl]	G
Rustenburg	NAM	Middelie [pl]	G
Saaksum	NAM	Groningen [pl]	G
Schermer	TAQA	Bergen II [pl]	G
Schoonebeek Gas	NAM	Schoonebeek [pl]	G
Sebaldeburen	NAM	Groningen [pl]	G
's-Gravenzande	NAM	Rijswijk [pl]	G
Spijkenisse-Oost	NAM	Botlek III [pl]	G
Sprang	Vermilion	Waalwijk [pl]	G
Surhuisterveen	NAM	Groningen [pl], Tietjerksteradeel III [pl]	G
Tietjerksteradeel	Vermilion	Tietjerksteradeel II [pl]	G
Ureterp	NAM	Tietjerksteradeel II [pl], Tietjerksteradeel III [pl]	G
Vries	NAM	Drenthe IIb [pl]	G
Waalwijk-Noord	Vermilion	Waalwijk [pl]	G
Wanneperveen	NAM	Schoonebeek [pl]	G
Warffum	NAM	Groningen [pl]	G
Warga-Wartena	Vermilion	Leeuwarden [pl], Tietjerksteradeel II [pl]	G
Westbeemster	NAM	Bergen II [pl], Middelie [pl]	G
Wieringa	NAM	Groningen [pl], Noord-Friesland [pl], Tietjerksteradeel III [pl]	G
Zuidwending-Oost	NAM	Groningen [pl]	G
A12-FA	Petrogas	A12a [pl], A12d [pl]	G
A18-FA	Petrogas	A18a [pl], A18c [pl]	G
B13-FA	Petrogas	B10c & B13a [pl]	G
D12-A	Wintershall	D12a [pl], D15a & D15b [pl]	G
D12-Andalusiet Noord	Wintershall	D12a [pl]	G
D18a-A	Neptune	D15a & D15b [pl], D18a [pl]	G
E17a-A	Neptune	E16a [pl], E17a & E17b [pl]	G
F02a-Pliocene	Dana Petroleum	F02a [pl]	G
F03-FB	Neptune	F02a [pl], F03b [pl], F05 [el], F06a [pl]	G&O
F15a-A	Total	F15a [pl]	G
F15a-B	Total	F15a [pl]	G
F16-E	Wintershall	E15a [pl], E18a [pl], F13a [pl], F16a & F16b [pl]	G
G14-A&B	Neptune	G14 & G17b [pl]	G
G16a-A	Neptune	G16a [pl]	G

Accumulation	Company	Licence name [Type] ***	Gas/Oil
G16a-B	Neptune	G16a [pl]	G
G16a-C	Neptune	G16a [pl]	G
G16a-D	Neptune	G16a [pl]	G
G17a-S1	Neptune	G17a [pl], G17c & G17d [pl]	G
G17cd-A	Neptune	G17c & G17d [pl]	G
J03-C Unit	Total	J03a [pl], J03b & J06a [pl], K01a [pl], K04a [pl]	G
K01-A Unit	Total	J03a [pl], K01a [pl], K04a [pl]	G
K02b-A	Neptune	E17a & E17b [pl], K02b [pl], K03a [pl], K03c [pl]	G
K04-A	Total	K04a [pl], K04b & K05a [pl], K05b [pl]	G
K04-E	Total	K04a [pl], K04b & K05a [pl]	G
K04-N	Total	K04a [pl], K04b & K05a [pl]	G
K04a-B	Total	K04a [pl], K04b & K05a [pl]	G
K04a-D	Total	J03b & J06a [pl], K04a [pl]	G
K04a-Z	Total	K04a [pl]	G
K05-C North	Total	K01b & K02a [pl], K05b [pl]	G
K05-C Unit	Total	K04b & K05a [pl], K05b [pl]	G
K05-U	Total	K01b & K02a [pl], K02c [pl], K05b [pl]	G
K05a-A	Total	K04a [pl], K04b & K05a [pl], K08 & K11a [pl]	G
K05a-B	Total	K04b & K05a [pl], K05b [pl]	G
K05a-D	Total	K04b & K05a [pl]	G
K05a-E	Total	K04b & K05a [pl], K05b [pl]	G
K06-A	Total	K03b [pl], K06 & L07 [pl]	G
K06-C	Total	K06 & L07 [pl]	G
K06-D	Total	K06 & L07 [pl], K09c [pl]	G
K06-DN	Total	K06 & L07 [pl]	G
K06-G	Total	K06 & L07 [pl]	G
K07-FA	NAM	K07 [pl], K08 & K11a [pl]	G
K07-FB	NAM	J09 [el], K07 [pl]	G
K07-FC	NAM	K07 [pl], K08 & K11a [pl]	G
K07-FE	NAM	K07 [pl]	G
K08-FA	NAM	K08 & K11a [pl]	G
K08-FC	NAM	K08 & K11a [pl]	G
K09ab-A	Neptune	K06 & L07 [pl], K09a & K09b [pl], K09c [pl], K12 [pl], L10 & L11a [pl]	G
K09ab-B	Neptune	K09a & K09b [pl]	G
K09c-C	Neptune	K09c [pl]	G
K12-D	Neptune	K12 [pl]	G

Accumulation	Company	Licence name [Type] ***	Gas/Oil
K12-G	Neptune	K12 [pl], L10 & L11a [pl]	G
K14-FA	NAM	K14a [pl]	G
K14-FB	NAM	K14a [pl], K17 [pl]	G
K15-FA	NAM	K15 [pl], L13 [pl]	G
K15-FB	NAM	K15 [pl]	G
K15-FC	NAM	K15 [pl]	G
K15-FD	NAM	K15 [pl]	G
K15-FE	NAM	K15 [pl]	G
K15-FG	NAM	K15 [pl]	G
K15-FH	NAM	K15 [pl]	G
K15-FI	NAM	K15 [pl]	G
K15-FJ	NAM	K15 [pl]	G
K15-FK	NAM	K15 [pl]	G
K15-FL	NAM	K12 [pl], K15 [pl]	G
K15-FM	NAM	K15 [pl]	G
K15-FN	NAM	K15 [pl]	G
K15-FO	NAM	K15 [pl]	G
K15-FP	NAM	K15 [pl]	G
K17-FA	NAM	K17 [pl]	G
K18-Golf	Wintershall	K15 [pl], K18b [pl]	G
L01-A	Total	L01a [pl], L01d [pl], L04a [pl]	G
L02-FA	NAM	L02 [pl]	G
L02-FB	NAM	F17c [pl], L02 [pl]	G
L04-A	Total	L04a [pl]	G
L04-F	Total	L01e [pl], L04a [pl]	G
L04-G	Total	L01f [pl], L04a [pl]	G
L04-I	Total	L04a [pl]	G
L05-B	Wintershall	L05b [pl]	G
L05-C	Wintershall	L05b [pl], L06b [pl]	G
L05a-A	Neptune	L02 [pl], L04c [pl], L05a [pl]	G
L05a-D	Neptune	L02 [pl], L05a [pl], L05b [pl]	G
L06-B	Wintershall	L06a [pl]	G
L08-A-West	Wintershall	L08a [pl], L08b & L08d [pl]	G
L08-D	ONE-Dyas	L08a [pl], L08b & L08d [pl], L11b [pl]	G
L08-P	Wintershall	L05c [pl], L08b & L08d [pl]	G
L09-FA	NAM	L09 [pl]	G

Accumulation	Company	Licence name [Type] ***	Gas/Oil
L09-FB	NAM	L09 [pl]	G
L09-FD	NAM	L09 [pl]	G
L09-FF	NAM	L09 [pl]	G
L09-FG	NAM	L09 [pl]	G
L09-FH	NAM	L09 [pl]	G
L09-FK	NAM	L09 [pl]	G
L09-FL	NAM	L09 [pl]	G
L10-CDA	Neptune	L10 & L11a [pl]	G
L10-M	Neptune	L10 & L11a [pl]	G
L10-N	Neptune	L10 & L11a [pl]	G
L10-O	Neptune	K12 [pl], L10 & L11a [pl]	G
L10-P	Neptune	L10 & L11a [pl]	G
L10-Q	Neptune	L10 & L11a [pl]	G
L11-Gillian	ONE-Dyas	L11b [pl], L11c [pl]	G
L12a-B	Neptune	L12a [pl], L12b & L15b [pl], L15c [pl]	G
L12b-C	Neptune	L12a [pl], L12b & L15b [pl]	G
L13-FC	NAM	L13 [pl]	G
L13-FD	NAM	L13 [pl]	G
L13-FE	NAM	L13 [pl]	G
L13-FF	NAM	L13 [pl]	G
L13-FG	NAM	L13 [pl]	G
L13-FI	NAM	L13 [pl]	G
L15b-A	Neptune	L12b & L15b [pl]	G
M07-A	ONE-Dyas	M07 [pl]	G
M07-B	ONE-Dyas	M07 [pl]	G
Markham	Spirit	J03a [pl], J03b & J06a [pl]	G
N07-FA	NAM	N07a [pl], Noord-Friesland [pl]	G
P06-D	Wintershall	P06 [pl], P09c, P09e & P09f [pl]	G
P06-Main	Wintershall	P06 [pl]	G
P10a-De Ruyter Western Extension	Dana Petroleum	P10a [pl]	G
P11a-E	ONE-Dyas	P11a [pl]	G
P15-09	TAQA	P15a & P15b [pl], P18a [pl]	G
P15-13	TAQA	P15a & P15b [pl]	G
P15-19	TAQA	P15a & P15b [pl]	G
P18-2	TAQA	P18a [pl], P18c [pl]	G
P18-4	TAQA	P15a & P15b [pl], P18a [pl]	G

Accumulation	Company	Licence name [Type] ***	Gas/Oil
P18-6	TAQA	P15c [pl], P18a [pl]	G
Q01-B	Wintershall	Q01-Diep [pl], Q04 [pl]	G
Q01-D	Wintershall	Q01-Diep [pl]	G
Q04-A	Wintershall	Q04 [pl]	G
Q04-B	Wintershall	Q04 [pl], Q05d [pl]	G
Q10-A	Tulip	Q07 & Q10a [pl]	G
Q16-FA	ONE-Dyas	Q16a [pl]	G

b. Gasstorage

Accumulation	Company	Licence name [Type]***	Gas/Oil
Aardgasbuffer Zuidwending	Gasunie	Zuidwending [sl]	G
Alkmaar	TAQA	Alkmaar [sl]	G
Bergermeer	TAQA	Bergermeer [sl]	G
Grijpskerk	NAM	Grijpskerk [sl]	G
Norg	NAM	Norg [sl]	G

Undeveloped accumulations

a. Production start expected between 2020 and 2024

Accumulation	Company	Licence name [Type]***	Gas/Oil
Assen-Zuid	NAM	Drenthe IIb [pl]	G
Marumerlage	NAM	Groningen [pl]	G
Nieuwehorne	Vermilion	Gorredijk [pl]	G
Oppenhuizen	Vermilion	Zuid-Friesland III [pl]	G
Papekop	Vermilion	Papekop [pl]	G&O
Rodewolt	NAM	Groningen [pl]	G
Ternaard	NAM	Noord-Friesland [pl]	G
Usquert	NAM	Groningen [pl]	G
Weststellingwerf	Vermilion	Gorredijk [pl]	G
A15-A	Petrogas	A12a [pl], A12d [pl], A15a [pl]	G
B10-FA	Petrogas	A12b & B10a [el]	G
B16-FA	Petrogas	B10c & B13a [pl], B16a [el]	G
D12-B	Wintershall	D12a [pl], D12b [pl]	G
D15 Tourmaline	Neptune	D15a & D15b [pl]	G
F16-P	Wintershall	F16a & F16b [pl]	G
K09c-B	Neptune	K09a & K09b [pl], K09c [pl]	G
L10-19	Neptune	L10 & L11a [pl]	G
L11-7	Neptune	L10 & L11a [pl]	G

Accumulation	Company	Licence name [Type]***	Gas/Oil
L12-FA	Neptune	L12a [pl], L12b & L15b [pl]	G
M01-A	ONE-Dyas	M01a [pl]	G
M09-FA	NAM	M09a [pl], Noord-Friesland [pl]	G
M10-FA	Tulip	M10a & M11 [el]	G
M11-FA	Tulip	M10a & M11 [el], Noord-Friesland [pl]	G
N05-A	ONE-Dyas	N04, N05 & N08 [pl]	G
P11b-Van Ghent East	Dana Petroleum	P11b [pl]	G
P11b-Witte de With	Dana Petroleum	P11b [pl]	G
P18-7	ONE-Dyas	P18b [pl], P18c [pl], Q16a [pl]	G
Q16-Maasmond (Charlie-North)	ONE-Dyas	Q16b & Q16c-Diep [pl]	G

b. Production start unknown

Accumulation	Company	Licence name [Type]***	Gas/Oil
Allardsoog	NAM	Drenthe IIb [pl], Groningen [pl], Oosterwolde [el]	G
Beerta	NAM	Groningen [pl]	G
Boskoop		Open	G
Buma	NAM	Drenthe IIb [pl]	G
Burum	NAM	Tietjerksteradeel III [pl]	G
Deurningen	NAM	Twenthe [pl]	G
Egmond-Binnen	NAM	Middelie [pl]	G
Exloo	NAM	Drenthe IIb [pl]	G
Haakswold	NAM	Schoonebeek [pl]	G
Heiloo	TAQA	Bergen II [pl]	G
Hollum-Ameland	NAM	Noord-Friesland [pl]	G
Kerkwijk	NAM	Andel Vb [pl], Utrecht [el]	G
Kijkduin-Zee	NAM	Rijswijk [pl]	G
Langebrug	NAM	Groningen [pl]	G
Lankhorst	NAM	Schoonebeek [pl]	G
Maasgeul	NAM	Botlek Maasmond [pl], Q16b & Q16c-diep [pl]	G
Marknesse	Tulip	Marknesse [pl]	G
Midlaren	NAM	Drenthe IIb [pl], Groningen [pl]	G&O
Molenaarsgraaf		Andel Vb [pl]	G
Nes-Noord	NAM	Noord-Friesland [pl]	G
Nieuweschans	NAM	Groningen [pl]	G
Oosterwolde		Open	G
Oude Leede	NAM	Rijswijk [pl]	G
Rammelbeek	NAM	Twenthe [pl]	G

Accumulation	Company	Licence name [Type]***	Gas/Oil
Schiermonnikoog-Wad	NAM	Noord-Friesland [pl]	G
Terschelling-Noord	Tulip	M10a & M11 [el], Terschelling-Noord [el]	G
Terschelling-West		Open	G
Valthermond	NAM	Drenthe IIb [pl]	G
Vlagtwedde	NAM	Groningen [pl]	G
Wassenaar-Diep	NAM	Rijswijk [pl]	G
Werkendam-Diep		Open	G
Witten	NAM	Drenthe IIb [pl]	G
Woudsend	Vermilion	Zuid-Friesland III [pl]	G
Zevenhuizen-West	NAM	Groningen [pl]	G
Zuidwijk	TAQA	Bergen II [pl], Middelie [pl]	G
B17-A		Open	G
D12 Ilmenite	Wintershall	D09 & E07 [el], D12a [pl]	G
E11-Vincent	Neptune	E11 [el]	G
E12 Lelie		Open	G
E12 Tulp East		Open	G
E13 Epidoot		Open	G
E17-3	Neptune	E17a & E17b [pl]	G
J09 Alpha North	NAM	J09 [el], K07 [pl]	G
K08-FB	NAM	K08 & K11a [pl]	G
K08-FD	NAM	K04b & K05a [pl], K08 & K11a [pl]	G
K08-FE	NAM	K08 & K11a [pl], K09a & K09b [pl]	G
K08-FF	NAM	K08 & K11a [pl]	G
K14-FC	NAM	K08 & K11a [pl], K14a [pl]	G
K15-FF	NAM	K15 [pl]	G
K16-5		Open	G
K17-FB	NAM	K17 [pl]	G
K17-Zechstein	NAM	K17 [pl]	G
K18-FB	Wintershall	K18b [pl]	G
K6-GT4	Total	K06 & L07 [pl]	G
L02-FC	NAM	L02 [pl]	G
L05b-A	Wintershall	L05b [pl]	G
L07-D	Total	K06 & L07 [pl]	G
L07-F	Total	K06 & L07 [pl]	G
L08-I	Wintershall	L08a [pl]	G
L10-6	Neptune	L10 & L11a [pl]	G

Accumulation	Company	Licence name [Type]***	Gas/Oil
L10-11	Neptune	L10 & L11a [pl]	G
L10-21	Neptune	L10 & L11a [pl]	G
L11-1	Neptune	L10 & L11a [pl]	G
L11a-B	Neptune	L10 & L11a [pl]	G
L12-FD	Tulip	L09 [pl], L12d [pl]	G
L13-FA	NAM	L13 [pl]	G
L13-FJ	NAM	L13 [pl]	G
L13-FK	NAM	L13 [pl]	G
L14-FB	Neptune	L13 [pl]	G
L16-Alpha	Wintershall	L16a [pl]	G
L16-Bravo	Wintershall	L16a [pl]	G
L16-FA	Wintershall	K18b [pl], L16a [pl]	G
M09-FB	NAM	M09a [pl], N07a [pl], Noord-Friesland [pl]	G
N07-B	ONE-Dyas	N04, N05 & N08 [pl], N07c [pl]	G
P01-FA		Open	G
P01-FB		Open	G
P02-Delta		Open	G
P02-E		Open	G
P06-Northwest	Wintershall	P06 [pl]	G
P10b-Van Brakel	Dana Petroleum	P10b [pl]	G
P12-F (P12-14)	Wintershall	P12a [pl]	G
Q02-A		Open	G
Q10-Beta	Tulip	Q07 & Q10a [el]	G
Q11-Beta	Tulip	Q08, Q10b & Q11 [el]	G
Q13-FC		Open	G
Q14-A		Q08, Q10b & Q11 [el]	G

Production ceased

Accumulation	Status **	Company	Licence name [Type]***	Gas/Oil
Akkrum 1	A	CHEVRON USA	Akkrum [el], Leeuwarden [pl]	G
Akkrum 13	A	CHEVRON USA	Akkrum [el], Gorredijk [pl]	G
Akkrum 3	A	CHEVRON USA	Akkrum [el]	G
Akkrum 9	A	CHEVRON USA	Akkrum [el]	G
Ameland-Noord	T	NAM	M09a [pl], Noord-Friesland [pl]	G
Andel-6 (Wijk & Aalburg)	T	Vermilion	Andel Va [pl]	G
Anjum	T	NAM	Noord-Friesland [pl]	G

Accumulation	Status **	Company	Licence name [Type]***	Gas/Oil
Appelscha	U	NAM	Drenthe IIb [pl]	G
Barendrecht	T	NAM	Rijswijk [pl]	G&O
Barendrecht-Ziedewij	U	NAM	Rijswijk [pl]	G
Blesdijke	U	Vermilion	Gorredijk [pl], Steenwijk [pl]	G
Boekel	U	TAQA	Bergen II [pl]	G
Bozum	U	Vermilion	Oosterend [pl]	G
Burum-Oost	U	NAM	Tietjerksteradeel III [pl]	G
Castricum-Zee	A	Wintershall	Middelie [pl]	G
Collendoornerveen	U	NAM	Schoonebeek [pl]	G
De Blesse	T	Vermilion	Gorredijk [pl], Steenwijk [pl]	G
De Hoeve	T	Vermilion	Gorredijk [pl]	G
De Klem	U	NAM	Beijerland [pl]	G
De Lutte	U	NAM	Rossum-De Lutte [pl], Twenthe [pl]	G
Donkerbroek-Main	T	Tulip	Donkerbroek [pl], Donkerbroek-West [pl]	G
Donkerbroek-West	U	Tulip	Donkerbroek [pl], Donkerbroek-West [pl]	G
Een	T	NAM	Drenthe IIb [pl], Groningen [pl]	G
Emmen	A	NAM	Drenthe IIb [pl], Groningen [pl]	G
Emshoern	A	NAM	Groningen [pl]	G
Engwierum	U	NAM	Noord-Friesland [pl]	G
Ezumazijl	U	NAM	Noord-Friesland [pl]	G
Franeker	U	Vermilion	Leeuwarden [pl]	G
Gasselternijveen	U	NAM	Drenthe IIb [pl]	G
Geestvaartpolder	U	NAM	Rijswijk [pl]	G
Groet-Oost	U	TAQA	Middelie [pl]	G
Grouw-Rauwerd	U	Vermilion	Leeuwarden [pl], Oosterend [pl]	G
Harlingen Lower Cretaceous	U	Vermilion	Leeuwarden [pl]	G
Harlingen Upper Cretaceous	U	Vermilion	Leeuwarden [pl]	G
Hemrik (Akkrum 11)	T	Tulip	Akkrum 11 [pl]	G
Hoogenweg	A	NAM	Hardenberg [pl]	G
Houwerzijl	U	NAM	Groningen [pl]	G
Kollumerland	U	NAM	Tietjerksteradeel III [pl]	G
Leeuwarden 101 Rotliegend	A	Vermilion	Leeuwarden [pl]	G
Leidschendam	A	NAM	Rijswijk [pl]	G
Metslawier	U	NAM	Noord-Friesland [pl]	G

Accumulation	Status **	Company	Licence name [Type]***	Gas/Oil
Middenmeer	U	Vermilion	Slootdorp [pl]	G
Nijensleek	U	Vermilion	Drenthe IIa [pl], Steenwijk [pl]	G
Norg-Zuid	U	NAM	Drenthe IIb [pl]	G
Noorderdam	U	NAM	Rijswijk [pl]	G
Noordwolde	T	Vermilion	Gorredijk [pl]	G
Oldelamer	U	Vermilion	Gorredijk [pl], Lemsterland [el]	G
Oldenzaal	U	NAM	Rossum-De Lutte [pl], Twenthe [pl]	G
Oudendijk	T	NAM	Beijerland [pl]	G
Pasop	U	NAM	Drenthe IIb [pl], Groningen [pl]	G
Pernis	U	NAM	Rijswijk [pl]	G
Ried	T	Vermilion	Leeuwarden [pl]	G
Roden	U	NAM	Drenthe IIb [pl], Groningen [pl]	G
Rossum-Weerselo	U	NAM	Rossum-De Lutte [pl], Twenthe [pl]	G
Roswinkel	A	NAM	Drenthe IIb [pl], Groningen [pl]	G
Sleen	A	NAM	Drenthe IIb [pl]	G
Slootdorp	U	Vermilion	Slootdorp [pl]	G
Sonnega-Weststellingwerf	U	Vermilion	Gorredijk [pl], Steenwijk [pl]	G
Spijkenisse-West	T	NAM	Beijerland [pl], Botlek III [pl]	G
Starnmeer	U	TAQA	Bergen II [pl]	G
Suawoude	U	Vermilion	Leeuwarden [pl], Tietjerksteradeel II [pl]	G
Tubbergen	U	NAM	Tubbergen [pl]	G
Tubbergen-Mander	U	NAM	Tubbergen [pl]	G
Vierhuizen	T	NAM	De Marne [pl], Groningen [pl], Noord-Friesland [pl]	G
Vinkega	T	Vermilion	Drenthe IIIa [pl], Drenthe IIa [pl], Gorredijk [pl]	G
Wimmenum-Egmond	A	NAM	Middelie [pl]	G
Witterdiep	U	NAM	Drenthe IIb [pl]	G
Zevenhuizen	U	NAM	Groningen [pl]	G
Zuid-Schermer	U	TAQA	Bergen II [pl]	G
Zuidwal	T	Vermilion	Zuidwal [pl]	G
D15a-A	T	Neptune	D12a [pl], D15a & D15b [pl]	G
D15a-A104	U	Neptune	D15a & D15b [pl]	G
E18-A	A	Wintershall	E15a [pl]	G
F03-FA	A	SPIRIT	B18a [pl], F03a [pl]	G
G14-C	T	Neptune	G14 & G17b [pl]	G

Accumulation	Status **	Company	Licence name [Type]***	Gas/Oil
Halfweg	A	Petrogas	Q01-Diep [pl], Q01a-Ondiep & Q01b-Ondiep [pl], Q02c [pl]	G
K05-F	T	Total	K04b & K05a [pl], K05b [pl], K06 & L07 [pl]	G
K05-G	U	Total	K04b & K05a [pl]	G
K06-N	U	Total	K06 & L07 [pl]	G
K06-T	U	Total	K06 & L07 [pl]	G
K07-FD	T	NAM	K07 [pl]	G
K09ab-C	U	Neptune	K09a & K09b [pl], K09c [pl]	G
K09ab-D	T	Neptune	K09a & K09b [pl]	G
K09c-A	T	Neptune	K06 & L07 [pl], K09c [pl]	G
K10-B (gas)	A	Wintershall	Open	G
K10-C	A		Open	G
K10-V	A	Wintershall	K07 [pl]	G
K11-FA	A	NAM	K08 & K11a [pl]	G
K11-FB	A	Neptune	K08 & K11a [pl], K12 [pl]	G
K11-FC	A	Neptune	K08 & K11a [pl]	G
K12-A	A	Neptune	K12 [pl]	G
K12-B	T	Neptune	K12 [pl], K15 [pl]	G
K12-B9	T	Neptune	K12 [pl], K15 [pl]	G
K12-C	U	Neptune	K12 [pl]	G
K12-E	A	Neptune	K12 [pl], L10 & L11a [pl]	G
K12-H (K12-S2 & K12-D5)	U	Neptune	K12 [pl]	G
K12-K	U	Neptune	K12 [pl]	G
K12-L	U	Neptune	K09c [pl], K12 [pl]	G
K12-M	U	Neptune	K12 [pl]	G
K12-S3	A	Neptune	K12 [pl]	G
K12-S1	A	Neptune	K12 [pl]	G
K13-A	A		Open	G
K13-B	A		Open	G
K13-CF	A		Open	G
K13-DE	A		Open	G
K15-FQ	T	NAM	K15 [pl], L13 [pl]	G
L04-B	A	Total	K06 & L07 [pl], K09c [pl], L04a [pl]	G
L04-D	U	Total	L04a [pl]	G
L06d-S1	A	ATP	Open	G
L07-A	A	Total	K06 & L07 [pl]	G
L07-B	U	Total	K06 & L07 [pl]	G

Accumulation	Status **	Company	Licence name [Type]***	Gas/Oil
L07-C	U	Total	K06 & L07 [pl]	G
L07-G	U	Total	K06 & L07 [pl]	G
L07-H	U	Total	K06 & L07 [pl]	G
L07-H South-East	U	Total	K06 & L07 [pl]	G
L07-N	A	Total	K06 & L07 [pl]	G
L08-A	U	Wintershall	L08a [pl], L08b & L08d [pl]	G
L08-G	U	Wintershall	L08a [pl]	G
L08-H	U	Wintershall	L08a [pl]	G
L09-FC	U	NAM	L09 [pl]	G
L09-FE	T	NAM	L09 [pl]	G
L09-FI	U	NAM	L09 [pl]	G
L09-FJ	U	NAM	L09 [pl]	G
L09-FM	T	NAM	L09 [pl]	G
L10-G	A	Neptune	L10 & L11a [pl]	G
L10-K	A	Neptune	K06 & L07 [pl], L10 & L11a [pl]	G
L10-S1	A	Neptune	L10 & L11a [pl]	G
L10-S2	U	Neptune	L10 & L11a [pl]	G
L10-S3	A	Neptune	L10 & L11a [pl]	G
L10-S4	U	Neptune	L10 & L11a [pl]	G
L11-Lark	A	Neptune	L10 & L11a [pl]	G
L11a-A	A	Neptune	L10 & L11a [pl]	G
L11b-A	U	ONE-Dyas	L11b [pl]	G
L13-FB	U	NAM	L13 [pl]	G
L13-FH	A	NAM	L13 [pl]	G
L14-FA	A	Transcanada	L10 & L11a [pl]	G
P02-NE	A	Wintershall	Open	G
P02-SE	A	Wintershall	Open	G
P06-South	A	Wintershall	P06 [pl], P09c, P09e & P09f [pl]	G
P09-A	U	Wintershall	P09a, P09b & P09d [pl], P09c, P09e & P09f [pl]	G
P09-B	U	Wintershall	P09c, P09e & P09f [pl]	G
P11-12	U	ONE-Dyas	P11a [pl]	G
P11b-Van Nes	U	Dana Petroleum	P11b [pl]	G
P12-C	A	Wintershall	P12a [pl]	G
P12-SW	U	Wintershall	P12a [pl]	G
P14-A	A	Wintershall	P11a [pl]	G
P15-10	A	TAQA	P15c [pl]	G

Accumulation	Status **	Company	Licence name [Type]***	Gas/Oil
P15-11	U	TAQA	P15a & P15b [pl]	G
P15-12	A	TAQA	P15a & P15b [pl]	G
P15-14	A	TAQA	P15c [pl]	G
P15-15	U	TAQA	P15a & P15b [pl]	G
P15-16	U	TAQA	P15a & P15b [pl]	G
P15-17	U	TAQA	P15a & P15b [pl]	G
Q05-A	A	Wintershall	Open	G
Q08-A	A	Wintershall	Middelie [pl], Q08, Q10b & Q11 [el]	G
Q08-B	A	Wintershall	Q08, Q10b & Q11 [el]	G
Q16-Maas	U	ONE-Dyas	Botlek-Maas [pl], P18d [pl], Q16b & Q16c-Diep [pl], S03a [pl], T01 [pl]	G

** T = production halted temporarily, U= production halted, A = abandoned

*** el = exploration licence, pl = production licence, sl = storage licence.

A.2 Oil accumulations

Developed accumulations

a. In production

Accumulation	Company	Licence name [Type]***	Gas/Oil
Oud-Beijerland Noord	NAM	Botlek III [pl]	O
Rotterdam	NAM	Rijswijk [pl]	O
Schoonebeek Olie	NAM	Schoonebeek [pl]	O
F02a-Hanze	Dana Petroleum	F02a [pl]	O
Haven	Petrogas	Q01a-ondiep & Q01b-ondiep [pl]	O
Helder	Petrogas	Q01a-ondiep & Q01b-ondiep [pl]	O
Horizon	Petrogas	P09a, P09b & P09d [pl], P09c, P09e & P09f [pl]	O
P11b-De Ruyter	Dana Petroleum	P10a [pl], P11b [pl]	O
P11b-Van Ghent	Dana Petroleum	P11b [pl]	O
P15 Rijn	TAQA	P15a & P15b [pl]	O
Q13a-Amstel	Neptune	Q13a [pl]	O

Undeveloped accumulations

a. Production start (expected) between 2020 and 2024

Accumulation	Company	Licence name [Type]***	Gas/Oil
F17-Brigantijn (F17-FB)	ONE-Dyas	F17a-ondiep [el]	O
F17-Korvet (F17-FA)	ONE-Dyas	F17a-ondiep [el]	O
F17-NE (Rembrandt)	Wintershall	F17a-diep [pl], F17c [pl]	O
F17-SW Culmination	Wintershall	F17a-diep [pl], F17c [pl], L02 [pl]	O
P08-A Horizon-West	Petrogas	P08a [pl], P09a, P09b & P09d [pl]	O
Q07-A	Tulip	Q07 & Q10a [pl]	O
Q07-C	Tulip	Q07 & Q10a [pl]	O&G

b. Productions start unknown

Accumulation	Company	Licence name [Type]***	Gas/Oil
Alblasserdam		Open	O
Denekamp	NAM	Tubbergen [pl]	O
Gieterveen	NAM	Drenthe IIb [pl], Groningen [pl]	O
Lekkerkerk/blg		Open	O
Noordwijk	NAM	Rijswijk [pl]	O
Ottoland	Vermilion	Andel Va [pl]	O
Stadskanaal	NAM	Groningen [pl]	O&G
Wassenaar-Zee	NAM	Rijswijk [Wv wv	O

Accumulation	Company	Licence name [Type]***	Gas/Oil
Woubrugge		Open	O
Zweelo	NAM	Drenthe IIb [pl]	O
B18-FA	SPIRIT	B18a [pl], F03a [pl]	O
F03-FC	SPIRIT	F03a [pl]	O
F06b-Snellius	Dana Petroleum	F06b [el]	O
F06b-Zulu North	Dana Petroleum	F03b [pl], F06b [el]	O
F14-FA		Open	O
F18-Fregat (F18-FA)		Open	O
K10-B (oil)		Open	O
L01-FB		Open	O
L05a-E	Neptune	L02 [Wv wv L04c [pl], L05a [pl]	O
P12-West (P12-3)	Wintershall	P12a [pl]	O&G
Q01-Northwest		Open	O
Q07-B	Tulip	Q07 & Q10a [pl]	O
Q13-FB	NAM	Rijswijk [pl]	O

Production (temporary) ceased

Accumulation	Status **	Company	Licence name [Type]***	Gas/Oil
Berkel	A	NAM	Rijswijk [pl]	O&G
IJsselmonde	A	NAM	Rijswijk [pl]	O&G
Moerkapelle	A	NAM	Rijswijk [pl]	O
Pijnacker	A	NAM	Rijswijk [pl]	O
Rijswijk	A	NAM	Rijswijk [pl]	O&G
Wassenaar	A	NAM	Rijswijk [pl]	O
Werkendam	A	NAM	Open	O
Zoetermeer	A	NAM	Rijswijk [pl]	O
Helm	U	Petrogas	Q01a-ondiep & Q01b-ondiep [pl]	O
Hoorn	U	Petrogas	Q01a-ondiep & Q01b-ondiep [pl]	O
Kotter	A	Wintershall	K18b [pl]	O
Logger	A	Wintershall	L16a [pl], Q01-diep [pl]	O

** T = production halted temporarily, U= production halted, A = abandoned

*** el = exploration licence, pl = production licence, sl = storage licence.

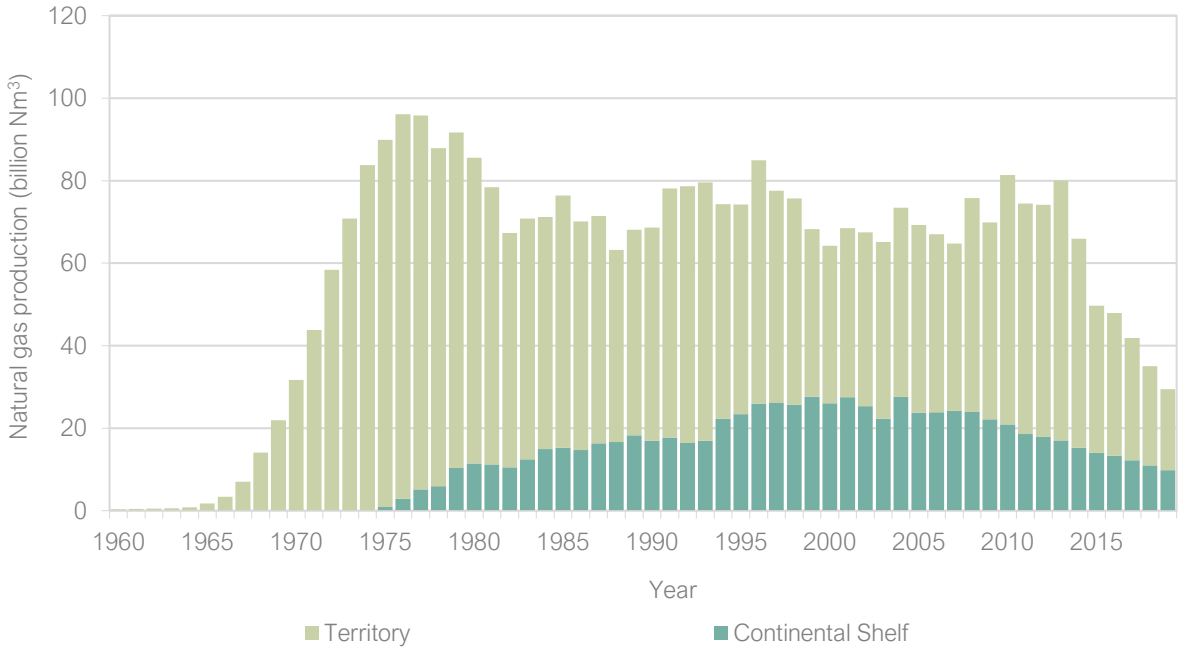
B. Production of natural gas (in million Nm^3)

Year	* Territory	Continental shelf	Total
1960	363.8	-	363.8
1961	451.0	-	451.0
1962	509.8	-	509.8
1963	571.3	-	571.3
1964	830.0	-	830.0
1965	1,722.6	-	1,722.6
1966	3,376.9	-	3,376.9
1967	7,033.3	-	7,033.3
1968	14,107.3	-	14,107.3
1969	21,884.4	-	21,884.4
1970	31,663.6	7.5	31,671.0
1971	43,820.0	2.3	43,822.3
1972	58,423.8	1.3	58,425.1
1973	70,840.8	7.4	70,848.2
1974	83,720.2	13.8	83,734.0
1975	88,993.0	912.7	89,905.7
1976	93,145.9	2,930.3	96,076.2
1977	90,583.8	5,191.9	95,775.8
1978	81,935.1	5,967.8	87,902.9
1979	81,354.2	10,351.9	91,706.2
1980	74,103.0	11,466.6	85,569.7
1981	67,204.3	11,178.9	78,383.2
1982	56,853.8	10,492.0	67,345.7
1983	58,302.5	12,480.7	70,783.2
1984	56,236.0	14,958.5	71,194.5
1985	61,182.9	15,227.2	76,410.1
1986	55,409.8	14,732.7	70,142.5
1987	55,039.3	16,364.7	71,404.0
1988	46,514.7	16,667.7	63,182.3
1989	49,810.1	18,286.8	68,096.8
1990	51,719.3	16,918.6	68,637.8
1991	60,378.5	17,705.3	78,083.8
1992	62,252.6	16,371.9	78,624.5
1993	62,680.9	16,914.2	79,595.1
1994	51,982.7	22,301.2	74,283.9

Year	* Territory	Continental shelf	Total
1995	50,826.7	23,409.8	74,236.5
1996	59,024.5	25,914.7	84,939.2
1997	51,412.3	26,133.0	77,545.3
1998	49,993.9	25,716.1	75,710.0
1999	40,574.8	27,673.6	68,248.4
2000	38,203.4	26,031.5	64,234.9
2001	40,951.7	27,518.3	68,470.0
2002	42,137.6	25,364.7	67,502.3
2003	42,881.1	22,273.8	65,154.9
2004	45,880.1	27,592.8	73,472.9
2005	45,498.2	23,779.6	69,277.8
2006	43,169.5	23,858.0	67,027.5
2007	40,464.5	24,259.0	64,723.5
2008	51,860.7	23,900.0	75,760.7
2009	47,696.4	22,165.0	69,861.4
2010	60,475.0	20,921.0	81,396.0
2011	55,881.7	18,551.2	74,432.9
2012	56,233.1	17,899.8	74,132.9
2013	63,043.5	17,004.1	80,047.5
2014	50,696.9	15,257.6	65,954.5
2015	35,640.0	14,049.0	49,689.0
2016	34,588.0	13,334.0	47,922.0
2017	29,661.0	12,179.0	41,840.0
2018	24,088.2	10,967.9	35,056.1
2019	19,663.1	9,775.9	29,439.0
Total	2,765,547.0	782,983.0	3,548,530.1

* Excluding the production of natural gas ('co-produced gas') produced within production licences for geothermal energy.

Production of natural gas 1960 – 2019



Past production for the period 2009 – 2019 and supply of natural gas from small fields for the period 2019 – 2044, in billion m3 Geq.

Year	Past production	Expected supply from reserves onshore	Expected supply from reserves offshore	Expected supply from contingent resources onshore	Expected supply from contingent resources offshore	Expected supply from undiscovered accumulations onshore	Expected supply from undiscovered accumulations offshore
2009	35.8	-	-	-	-	-	-
2010	34.0	-	-	-	-	-	-
2011	30.7	-	-	-	-	-	-
2012	29.3	-	-	-	-	-	-
2013	28.7	-	-	-	-	-	-
2014	26.4	-	-	-	-	-	-
2015	23.9	-	-	-	-	-	-
2016	22.6	-	-	-	-	-	-
2017	20.2	-	-	-	-	-	-
2018	17.9	-	-	-	-	-	-
2019	15.3	-	-	-	-	-	-
2020	-	4.4	10.9	0.0	0.2	0.0	0.0
2021	-	4.2	10.3	0.5	0.7	0.0	0.0
2022	-	3.5	8.7	1.1	1.5	0.1	0.2

Year	Past production	Expected supply from reserves onshore	Expected supply from reserves offshore	Expected supply from contingent resources onshore	Expected supply from contingent resources offshore	Expected supply from undiscovered accumulations onshore	Expected supply from undiscovered accumulations offshore
2023	-	3.0	7.4	1.2	3.1	0.1	0.6
2024	-	2.4	6.5	1.5	2.4	0.2	1.0
2025	-	2.1	5.6	1.4	1.8	0.2	1.1
2026	-	1.7	4.5	1.4	1.2	0.3	1.4
2027	-	1.4	3.7	1.4	1.2	0.3	1.9
2028	-	1.2	3.2	1.1	1.2	0.3	2.5
2029	-	0.9	2.6	0.9	1.2	0.3	2.8
2030	-	0.8	2.2	0.7	0.8	0.3	3.0
2031	-	0.7	1.6	0.7	0.9	0.3	3.1
2032	-	0.6	1.5	0.6	0.8	0.3	2.9
2033	-	0.5	1.2	0.6	0.8	0.4	2.7
2034	-	0.5	1.1	0.5	0.7	0.4	2.6
2035	-	0.4	1.0	0.4	0.5	0.4	2.4
2036	-	0.2	0.5	0.3	0.9	0.4	2.2
2037	-	0.1	0.4	0.3	0.7	0.4	2.0
2038	-	0.1	0.3	0.3	0.2	0.4	1.7
2039	-	0.1	0.3	0.3	0.2	0.4	1.6
2040	-	0.1	0.3	0.2	0.1	0.4	1.4
2041	-	0.1	0.2	0.2	0.1	0.4	1.3
2042	-	0.0	0.2	0.2	0.1	0.4	1.2
2043	-	0.0	0.2	0.2	0.0	0.4	1.0
2044	-	0.0	0.2	0.1	0.0	0.4	1.0
Total	-	29.0	74.4	15.7	21.2	7.6	41.6

C. Natural gas reserves and cumulative production in billion Nm^3

Year	Territory		Continental shelf		Total	
as at 1 Jan.	Expected reserves	Cumulative production	Expected reserves	Cumulative production	Expected reserves	Cumulative production
1974	2,125	256	200	-	2,325	256
1975	2,125	339	200	-	2,325	339
1976	2,025	428	322	1	2,347	429
1977	1,923	521	348	4	2,271	525
1978	1,891	612	344	9	2,235	621
1979	1,827	694	325	15	2,152	709
1980	1,917	775	288	25	2,205	801
1981	1,850	849	282	37	2,133	886
1982	1,799	917	261	48	2,060	965
1983	1,748	973	258	59	2,006	1,032
1984	1,714	1,032	257	71	1,971	1,103
1985	1,662	1,088	266	86	1,928	1,174
1986	1,615	1,149	275	101	1,889	1,250
1987	1,568	1,205	284	116	1,852	1,321
1988	1,523	1,260	287	132	1,810	1,392
1989	1,475	1,306	303	149	1,778	1,455
1990	1,444	1,356	323	167	1,767	1,523
1991	1,687	1,408	316	184	2,002	1,592
1992	1,648	1,468	329	202	1,976	1,670
1993	1,615	1,530	337	218	1,953	1,749
1994	1,571	1,593	334	235	1,904	1,828
1995	1,576	1,645	316	257	1,892	1,902
1996	1,545	1,696	304	281	1,850	1,977
1997	1,504	1,755	325	307	1,829	2,062
1998	1,491	1,806	353	333	1,845	2,139
1999	1,453	1,856	341	359	1,794	2,215
2000	1,420	1,897	319	386	1,740	2,283
2001	1,371	1,935	313	412	1,684	2,347
2002	1,332	1,976	316	440	1,648	2,416
2003	1,290	2,018	310	465	1,600	2,483
2004	1,286	2,061	244	487	1,530	2,548
2005	1,236	2,107	253	515	1,489	2,622

Year	Territory		Continental shelf		Total	
as at 1 Jan.	Expected reserves	Cumulative production	Expected reserves	Cumulative production	Expected reserves	Cumulative production
2006	1,218	2,152	213	539	1,431	2,691
2007	1,168	2,196	195	563	1,363	2,758
2008	1,129	2,236	188	587	1,317	2,823
2009	1,101	2,288	173	611	1,274	2,899
2010	1,143	2,336	174	633	1,317	2,969
2011	1,080	2,396	155	654	1,236	3,050
2012	1,012	2,452	153	673	1,165	3,124

From 2013 onwards the table has been modified, to take account of the introduction of PMRS:

- Rem Res = Remaining reserves.
- Cont Res = Contingent resources (development pending).
- Cum Prod = Cumulative production.

Year	Territory			Continental shelf			Total		
as at 1 Jan.	Rem Res	Cont Res	Cum prod	Rem Res	Cont Res	Cum prod	Rem Res	Cont Res	Cum prod
2013	850	67	2,508	105	49	690	955	117	3,199
2014	805	60	2,571	92	32	707	897	92	3,279
2015	705	41	2,622	94	24	723	799	65	3,345
2016	734	40	2,658	92	25	737	825	66	3,394
2017	653	41	2,692	87	21	750	740	62	3,442
2018	620	39	2,722	75	24	762	664	62	3,484
2019	125	18	2,746	71	32	773	196	50	3,519
2020	72	22	2,766	75	21	783	147	44	3,549

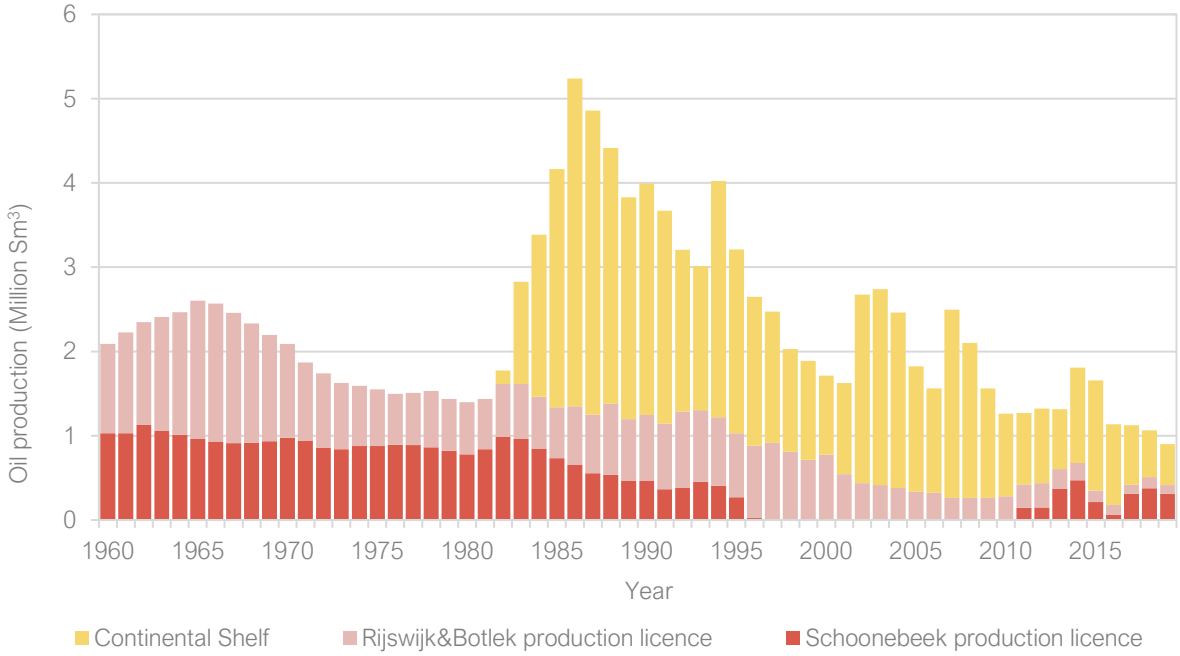
Natural gas reserves and cumulative production (1 januari 2020), 1965 – 2020

D. Oil production in million Sm^3

Year	Schoonebeek production licence	Rijswijk & Botlek production licence	Continental shelf	Total
to 1959	11.749	-	-	11.749
1960	1.031	1.058	-	2.089
1961	1.030	1.197	-	2.227
1962	1.129	1.217	-	2.346
1963	1.057	1.350	-	2.407
1964	1.011	1.454	-	2.465
1965	0.963	1.638	-	2.601
1966	0.932	1.636	-	2.568
1967	0.913	1.545	-	2.458
1968	0.914	1.419	-	2.333
1969	0.933	1.262	-	2.195
1970	0.976	1.112	-	2.088
1971	0.941	0.927	-	1.868
1972	0.856	0.883	-	1.739
1973	0.838	0.787	-	1.626
1974	0.878	0.716	-	1.594
1975	0.877	0.672	-	1.549
1976	0.892	0.605	-	1.497
1977	0.891	0.618	-	1.509
1978	0.862	0.668	-	1.530
1979	0.820	0.616	-	1.436
1980	0.779	0.618	-	1.397
1981	0.839	0.597	-	1.436
1982	0.988	0.625	0.160	1.773
1983	0.960	0.656	1.209	2.825
1984	0.847	0.616	1.922	3.384
1985	0.735	0.603	2.825	4.163
1986	0.659	0.689	3.890	5.237
1987	0.556	0.693	3.608	4.857
1988	0.536	0.845	3.033	4.414
1989	0.464	0.732	2.635	3.830
1990	0.463	0.785	2.745	3.992
1991	0.366	0.777	2.528	3.671
1992	0.379	0.907	1.921	3.207

Year	Schoonebeek production licence	Rijswijk & Botlek production licence	Continental shelf	Total
1993	0.454	0.849	1.710	3.013
1994	0.406	0.811	2.805	4.023
1995	0.268	0.761	2.182	3.211
1996	0.023	0.857	1.767	2.647
1997	-	0.918	1.557	2.474
1998	-	0.810	1.219	2.029
1999	-	0.715	1.173	1.888
2000	-	0.776	0.936	1.713
2001	-	0.542	1.085	1.628
2002	-	0.439	2.236	2.675
2003	-	0.416	2.325	2.741
2004	-	0.381	2.082	2.463
2005	-	0.335	1.490	1.825
2006	-	0.322	1.238	1.561
2007	-	0.264	2.233	2.497
2008	-	0.261	1.841	2.102
2009	-	0.264	1.296	1.560
2010	-	0.281	0.982	1.262
2011	0.144	0.277	0.848	1.270
2012	0.149	0.290	0.884	1.323
2013	0.374	0.230	0.710	1.314
2014	0.473	0.204	1.133	1.809
2015	0.214	0.135	1.307	1.656
2016	0.063	0.116	0.957	1.136
2017	0.310	0.099	0.705	1.114
2018	0.375	0.133	0.556	1.064
2019	0.311	0.102	0.487	0.901
Total	42.631	42.118	64.217	148.967

Oil production 1960 – 2019



Past production and supply from reserves from small fields during 2019-2044, in million Sm^3.

Year	Past production	Expected supply from reserves	Expected supply from contingent resources
2010	1.2	-	-
2011	1.3	-	-
2012	1.3	-	-
2013	1.3	-	-
2014	1.8	-	-
2015	1.7	-	-
2016	1.1	-	-
2017	1.1	-	-
2018	1.1	-	-
2019	0.9	-	-
2020	-	1.1	0.0
2021	-	1.1	0.0
2022	-	1.0	0.2
2023	-	1.0	0.4
2024	-	1.6	0.5
2025	-	1.4	0.7
2026	-	1.3	0.6
2027	-	1.1	0.6
2028	-	1.1	0.5
2029	-	0.9	0.6
2030	-	0.9	0.6
2031	-	0.8	0.5
2032	-	0.8	0.5
2033	-	0.7	0.5
2034	-	0.7	0.4
2035	-	0.7	0.4
2036	-	0.6	0.3
2037	-	0.6	0.3
2038	-	0.5	0.3
2039	-	0.5	0.3
2040	-	0.5	0.2
2041	-	0.3	0.0
2042	-	0.3	0.0
2043	-	0.3	0.0
2044	-	0.3	0.0
Totaal		20.0	8.3

E. Oil reserves and cumulative production in million Sm^3

Year	Territory		Continental shelf		Total	
as at 1 January	Expected reserves	Cumulative production	Expected reserves	Cumulative production	Expected reserves	Cumulative production
1970	36.0	35.4	-	-	36.0	35.4
1971	34.0	37.5	-	-	34.0	37.5
1972	32.0	39.4	-	-	32.0	39.4
1973	29.0	41.1	-	-	29.0	41.1
1974	27.0	42.8	-	-	27.0	42.8
1975	40.0	44.4	14.0	-	54.0	44.4
1976	51.0	45.9	14.0	-	65.0	45.9
1977	49.0	47.4	16.0	-	65.0	47.4
1978	46.0	48.9	7.0	-	53.0	48.9
1979	44.0	50.4	9.0	-	53.0	50.4
1980	43.0	51.9	11.0	-	54.0	51.9
1981	41.0	53.3	14.0	-	55.0	53.3
1982	39.0	54.7	20.0	-	59.0	54.7
1983	38.0	56.3	49.0	0.2	87.0	56.5
1984	37.0	57.9	41.0	1.4	78.0	59.3
1985	41.0	59.4	34.0	3.3	75.0	62.7
1986	42.0	60.7	36.0	6.1	78.0	66.8
1987	40.0	62.1	35.0	10.0	75.0	72.1
1988	41.0	63.3	33.0	13.6	74.0	76.9
1989	39.0	64.7	32.0	16.6	71.0	81.4
1990	41.0	65.9	27.0	19.3	68.0	85.2
1991	40.0	67.2	24.0	22.0	64.0	89.2
1992	38.0	68.3	26.0	24.6	64.0	92.9
1993	37.0	69.6	24.0	26.5	61.0	96.1
1994	35.0	70.9	23.0	28.2	58.0	99.1
1995	34.0	72.1	22.0	31.0	56.0	103.1
1996	33.0	73.1	17.0	33.2	50.0	106.3
1997	33.0	74.0	22.0	34.9	55.0	109.0
1998	12.0	74.9	25.0	36.5	37.0	111.4
1999	8.0	75.7	26.0	37.7	34.0	113.5
2000	7.0	76.5	25.0	38.9	32.0	115.3
2001	6.0	77.2	24.0	39.8	30.0	117.1

Year	Territory		Continental shelf		Total	
as at 1 January	Expected reserves	Cumulative production	Expected reserves	Cumulative production	Expected reserves	Cumulative production
2002	5.0	77.8	23.0	40.9	28.0	118.7
2003	5.0	78.2	23.0	43.1	28.0	121.4
2004	21.0	78.6	17.0	45.5	38.0	124.1
2005	19.0	79.0	15.0	47.6	34.0	126.6
2006	23.0	79.3	13.0	49.0	36.0	128.4
2007	24.0	79.7	14.0	50.3	38.0	129.9
2008	24.0	79.9	13.0	52.5	37.0	132.4
2009	25.0	80.2	9.0	54.4	34.0	134.5
2010	37.0	80.5	13.0	55.6	50.0	136.1
2011	33.7	80.7	12.0	56.6	45.7	137.4
2012	28.6	81.2	11.8	57.5	40.4	138.6

From 2013 onwards the table has been modified, to take account of the introduction of PRMS.

- Rem Res = Remaining reserves.
- Cont Res = Contingent resources (development pending).
- Cum Prod = Cumulative production.

Year	Territory			Continental shelf			Total		
as at 1 January	Rem Res	Cont Res	Cum prod	Rem Res	Cont Res	Cum prod	Rem Res	Cont Res	Cum prod
2013	17.7	23.7	81.6	6.1	0.6	58.4	23.8	24.3	140.0
2014	18.0	18.7	82.2	5.0	5.4	59.1	23.0	24.1	141.3
2015	18.2	9.6	82.9	4.1	2.8	60.2	22.3	12.4	143.1
2016	9.0	11.5	83.2	9.1	2.0	61.5	18.0	13.5	144.7
2017	9.2	9.1	83.4	3.7	9.3	62.5	12.9	18.4	145.9
2018	8.2	8.9	83.8	3.6	7.9	63.2	11.8	16.8	147.0
2019	7.9	8.9	84.3	10.3	1.5	63.7	18.2	10.4	148.1
2020	8.3	6.7	84.7	13.6	1.7	64.2	21.9	8.4	149.0

Oil reserves and cumulative production in million Sm^3 1970 – 2020

F. Natural gas revenues

Year	Non-tax revenu (€10^9)	Corporation taks (€10^9)	Total (€10^9)
1965	-	-	-
1966	-	0.01	0.01
1967	0.01	0.04	0.05
1968	0.02	0.07	0.09
1969	0.05	0.14	0.19
1970	0.09	0.18	0.27
1971	0.14	0.27	0.41
1972	0.14	0.41	0.55
1973	0.23	0.54	0.77
1974	0.41	0.86	1.27
1975	1.27	1.09	2.36
1976	2.18	1.18	3.36
1977	2.72	1.23	3.95
1978	2.68	1.27	3.95
1979	3.09	1.36	4.45
1980	4.36	1.91	6.27
1981	6.22	2.45	8.67
1982	6.35	2.45	8.80
1983	6.22	2.45	8.67
1984	7.40	2.54	9.94
1985	8.58	2.54	11.12
1986	5.45	1.86	7.31
1987	2.86	1.23	4.09
1988	2.00	0.86	2.86
1989	2.18	0.78	2.96
1990	2.61	0.96	3.57
1991	3.72	1.17	4.89
1992	3.04	1.02	4.06
1993	2.83	0.95	3.78
1994	2.34	0.91	3.25
1995	2.64	1.13	3.77
1996	3.10	1.26	4.36
1997	3.01	1.30	4.31
1998	2.33	1.12	3.45
1999	1.69	0.92	2.61

Year	Non-tax revenu (€10^9)	Corporation taks (€10^9)	Total (€10^9)
2000	3.02	1.47	4.49
2001	4.37	1.98	6.35
2002	3.67	1.58	5.25
2003	4.31	1.74	6.05
2004	4.74	1.94	6.68
2005	5.88	1.80	7.68
2006	8.40	2.18	10.58
2007	8.09	1.86	9.95
2008	12.83	2.54	15.37
2009	8.51	1.60	10.11
2010	9.14	1.50	10.64
2011	10.33	1.55	11.88
2012	12.58	1.72	14.30
2013	13.60	1.78	15.38
2014	9.10	1.29	10.39
2015	4.60	0.54	5.14
2016	2.48	0.25	2.73
2017	2.80	0.46	3.26
2018	2.65	0.35	3.00
2019	0.40	0.15	0.55
Prognose			
2020	*0.30*	*0.15*	*0.45*
2021	*0.42*	*0.22*	*0.64*
2022	*0.07*	*0.08*	*0.15*
2023	*0.05*	*0.06*	*0.11*

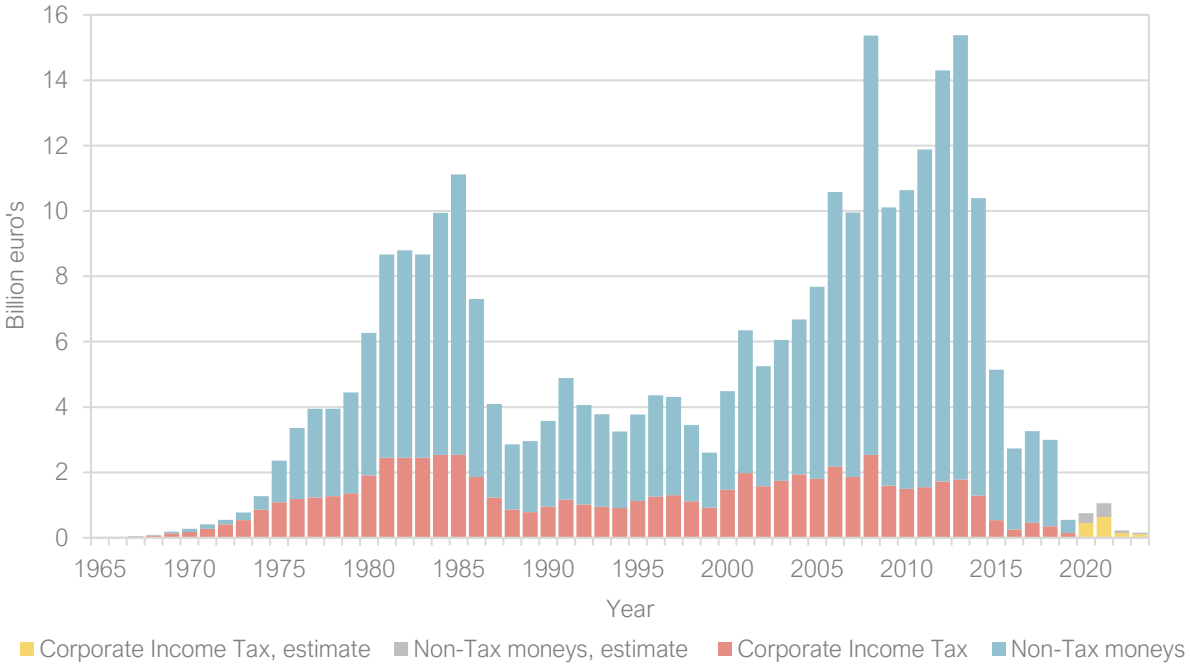
The revenues presented here are transaction-based, i.e. they have been allocated to the year in which the production that yielded the revenue took place. (By contrast, revenue recorded on a cash basis is recorded at the time the State actually receives the revenue, which is some time later than the transaction-based revenue).

Non-tax revenue comprises bonus, surface rights, royalties, the State profit shares, the special payments to the State on production from the Groningen field and the profit paid out to EBN B.V. (the State participant in production).

Tax income for the years 2020 until the end of 2023 is anticipated based on the expected price at gas trading hubs such as TTF. The TTF price per Sm^3 gas used to calculate the estimates is expected to be from 11 to 16 euro cents. The calculations do not take into account modifications in the production from the Groningen field.

The revenues as calculated for the last years are preliminary and may still change (due to, amongst others, information from the tax authority). Therefore the numbers presented here may diverge from numbers presented by e.g. the CBS.

Natural gas revenues, 1965 – 2023



G. Exploration licences for hydrocarbons, Netherlands territory

As at 1 January 2020

	Licence holder	Licence	km²	Effective from	Effective till	Staatscourant
1	Tulip Oil Netherlands B.V.	Schagen	355	20-06-2009	31-08-2022	118
	Petrogas E&P UK Ltd.					
2	Tulip Oil Netherlands B.V.	Terschelling-Noord *	23	30-07-2013		22 215
3	Vermilion Energy Netherlands B.V.	Akkrum *	210	14-03-2013		10 461
4	Vermilion Energy Netherlands B.V.	Engelen **	97	14-10-2009	23-11-2018	16 878
5	Vermilion Energy Netherlands B.V.	Follega	3	15-06-2010	30-06-2025	9 426
6	Vermilion Energy Netherlands B.V.	Hemelum	450	17-01-2012	31-01-2023	1 490
7	Vermilion Energy Netherlands B.V.	IJsselmuiden	447	17-01-2014	16-01-2024	1 958
8	Vermilion Energy Netherlands B.V.	Lemsterland	111	15-06-2010	30-06-2025	9 427
9	Vermilion Energy Netherlands B.V.	Oosterwolde **	127	20-04-2007	23-11-2018	83
10	Vermilion Energy Netherlands B.V.	Opmeer	229	19-12-2012	18-12-2024	205
11	Vermilion Energy Netherlands B.V.	Utrecht **	1,144	26-04-2007	23-11-2018	85
		Total	3,197			

* Applied for a production licence.

** Applied for extension.

H. Production licences for hydrocarbons, Netherlands territory

As at 1 January 2020

	Licence holder	Licence	km²	Effective from	Effective till	Staatscourant
1	Nederlandse Aardolie Maatschappij B.V.	Beijerland	140	14-02-1997	14-02-2027	243
2	Nederlandse Aardolie Maatschappij B.V.	Botlek III	228	10-07-2019	19-07-2026	39 438
3	Nederlandse Aardolie Maatschappij B.V.	De Marne	7	04-10-1994	04-10-2034	189
	ExxonMobil Producing Netherlands B.V.					
4	Nederlandse Aardolie Maatschappij B.V.	Drenthe IIb	1.881	17-03-2012		6 883
5	Nederlandse Aardolie Maatschappij B.V.	Groningen	2.970	30-05-1963		126
6	Nederlandse Aardolie Maatschappij B.V.	Hardenberg	161	22-10-1990	22-10-2035	149
7	Nederlandse Aardolie Maatschappij B.V.	Middelie	946	12-05-1969		94
8	Nederlandse Aardolie Maatschappij B.V.	Noord-Friesland	1,593	27-02-1969		47
	ExxonMobil Producing Netherlands B.V.					
9	Nederlandse Aardolie Maatschappij B.V.	Rijswijk	1,094	03-01-1955		21
10	Nederlandse Aardolie Maatschappij B.V.	Rossum-De Lutte	46	12-05-1961		116
11	Nederlandse Aardolie Maatschappij B.V.	Schoonebeek	930	03-05-1948		110
12	Nederlandse Aardolie Maatschappij B.V.	Tietjerksteradeel III	168	25-01-2018		5 149
13	Nederlandse Aardolie Maatschappij B.V.	Tubbergen	177	11-03-1953		80
14	Nederlandse Aardolie Maatschappij B.V.	Twenthe	276	01-04-1977		26
15	ONE-Dyas B.V.	Botlek-Maas	3	04-03-2014	19-07-2026	7 445
	TAQA Offshore B.V.					
16	ONE-Dyas B.V.	Botlek Maasmond	3	10-07-2019	19-07-2026	39 438
17	TAQA Onshore B.V.	Bergen II	221	23-12-2006		232
	Dana Petroleum Netherlands B.V.					
	RockRose (NL) CS1 B.V.					
18	TAQA Onshore B.V.	Bergermeer	19	23-12-2006		232
19	TAQA Piek Gas B.V.	Alkmaar	12	23-12-2006		232
	Dana Petroleum Netherlands B.V.					
	RockRose (NL) CS1 B.V.					
20	Tulip Oil Netherlands B.V.	Akkrum 11	6	26-07-2012	04-04-2025	6 909
21	Tulip Oil Netherlands B.V.	Donkerbroek	22	04-04-1995	04-04-2025	66
22	Tulip Oil Netherlands B.V.	Donkerbroek-West	2	16-03-2011	04-04-2025	4 902
23	Tulip Oil Netherlands B.V.	Marknesse	19	26-01-2010	09-03-2030	1 446
24	Vermilion Energy Netherlands B.V.	Andel Va	61	05-08-2015	29-12-2038	29 954

	Licence holder	Licence	km²	Effective from	Effective till	Staatscourant
	Parkmead (E&P) Ltd.					
25	Vermilion Energy Netherlands B.V.	Andel Vb	164	05-08-2015	29-12-2038	29 954
	Parkmead (E&P) Ltd.					
26	Vermilion Energy Netherlands B.V.	Drenthe IIa	7	17-03-2012		6 883
27	Vermilion Energy Netherlands B.V.	Drenthe IIIa	1	17-03-2012		6 885
28	Vermilion Energy Netherlands B.V.	Drenthe IV	7	18-07-2007		140
	Parkmead (E&P) Ltd.					
29	Vermilion Energy Netherlands B.V.	Drenthe V	25	20-06-2015		18 037
	Parkmead (E&P) Ltd.					
30	Vermilion Energy Netherlands B.V.	Drenthe VI	363	20-06-2015		18 037
	Parkmead (E&P) Ltd.					
31	Vermilion Energy Netherlands B.V.	Gorredijk	629	29-07-1989	29-07-2024	145
32	Vermilion Energy Netherlands B.V.	Leeuwarden	614	27-02-1969		46
33	Vermilion Energy Netherlands B.V.	Oosterend	92	05-09-1985		84
34	Vermilion Energy Netherlands B.V.	Papekop	63	08-06-2006	19-07-2031	113
	Parkmead (E&P) Ltd.					
35	Vermilion Energy Netherlands B.V.	Slootdorp	162	01-05-1969		94
36	Vermilion Energy Netherlands B.V.	Steenwijk	99	16-09-1994	16-09-2029	177
37	Vermilion Energy Netherlands B.V.	Tietjerksteradeel II	251	25-01-2018		5 149
38	Vermilion Energy Netherlands B.V.	Waalwijk	186	17-08-1989	17-08-2024	154
39	Vermilion Energy Netherlands B.V.	Zuid-Friesland III	105	09-03-2010	19-04-2030	4 016
40	Vermilion Energy Netherlands B.V.	Zuidwal	74	07-11-1984		190
		Total	13,826			

I. Subsurface storage licences, Netherlands territory

As at 1 January 2020

	Licence holder	Licence	km²	Effective from	Effective till	Staatscourant	Substance
1	EnergyStock B.V.	Zuidwending	1	11-04-2006	11-04-2036	77	Gas
	Nouryon Salt B.V.						
2	Gasunie Transport Services B.V.	Winschoten II	<1	15-11-2010	13-05-2079	18 321	Nitrogen
3	N.V. PWN Waterleidingbedrijf Noord-Holland	Andijk	5	12-12-2019	22-01-2040	69 014	Brine
4	Nederlandse Aardolie Maatschappij B.V.	Grijpskerk	27	01-04-2003		67	Gas
5	Nederlandse Aardolie Maatschappij B.V.	Norg	81	01-04-2003		68	Gas
6	Nouryon Salt B.V.	Twenthe-Rijn de Marssteden	2	02-10-2010	12-11-2040	15 650	Gasoil
7	Nouryon Salt B.V.	Winschoten III	28	15-11-2010	13-05-2079	18 321	Nitrogen
8	TAQA Onshore B.V.	Bergermeer	19	08-01-2007	30-06-2050	7	Gas
9	TAQA Piek Gas B.V.	Alkmaar	12	01-04-2003		68	Gas
	Dana Petroleum Netherlands B.V.						
	RockRose (NL) CS1 B.V.						
		Total	187				

J. Exploration licences for geothermal energy, Netherlands territory

As at 1 January 2020

	Licence holder	Licence	km²	Effective from	Effective till	Staatscourant
1	A-ware Production B.V.	Heerenveen	46	28-10-2014	20-05-2021	31 141
2	Grondexploitatiemaatschappij Californië B.V.	Californië VI	63	01-10-2015	30-12-2020	34 771
3	DDGeothermie Sneek B.V.	Sneek	53	16-01-2019	28-02-2023	3 279
4	DDH Energy B.V.	Drachten	19	12-09-2017	23-10-2021	52 546
5	ECW Geoholding B.V.	Middenmeer 2	14	13-10-2009	30-12-2022	15 999
6	ECW Geoholding B.V.	Middenmeer 4	59	17-02-2018	30-03-2024	12 045
7	Ekowarmte B.V.	Velden	21	09-02-2016	21-03-2020	9 270
8	Energie Transitie Partners B.V.	Kwintsheul 2	3	19-07-2019	31-12-2021	41 655
9	Energie Transitie Partners B.V.	Maasdijk	6	21-10-2009	31-05-2020	16 041
10	Energie Transitie Partners B.V.	Maasdijk 2	4	25-10-2019	05-12-2024	59 321
11	Energie Transitie Partners B.V.	Monster 2	9	26-10-2018	06-12-2022	65 345
	J.C.P. van den Ende					
	M.G.W. van den Ende					
	S.P.C. van den Ende					
	T.J.M. van den Ende					
12	Energie Transitie Partners B.V.	Westland-Zuidwest	52	01-03-2019	11-04-2023	12 581
13	EnergieWende B.V.	De Lier 8	10	10-04-2019	19-01-2021	21 093
	De Bruijn Geothermie B.V.					
14	EnergieWende B.V.	De Lier VI	10	05-09-2019	16-10-2023	49 901
	De Bruijn Geothermie B.V.					
15	ENGIE Energy Solutions B.V.	Haarlem-Schalkwijk	100	17-05-2019	27-06-2024	28 683
	Gemeente Haarlem					
16	ENGIE Energy Solutions B.V.	Utrecht	263	30-10-2019	10-12-2023	59 865
17	FrieslandCampina Consumer	Leeuwarden 5	158	14-03-2018	24-04-2023	15 509
	Products International B.V.					
18	Gedeputeerde Staten van Overijssel	Koekoekspolder IIa	28	21-03-2014	30-12-2020	9 051
19	Gemeente Zwolle	Zwolle	74	23-12-2017	02-02-2021	2018/202
20	Gipmans Verhuur B.V.	Venlo	24	09-02-2016	21-03-2020	9268
21	AC Hartman Beheer B.V.	Sexbierum	11	17-07-2009	29-02-2020	11 805
	Gemeente Franekeradeel					
22	Hoogweg Aardwarmte B.V.	Luttelgeest II	53	08-04-2017	19-05-2022	25 792

	Licence holder	Licence	km²	Effective from	Effective till	Staatscourant
23	N.V. HVC	Alkmaar	192	17-10-2018	27-11-2022	65 375
24	N.V. HVC	Den Helder	100	14-11-2018	27-12-2022	65 384
25	N.V. HVC	Drechtsteden	282	05-02-2019	18-03-2023	11074
26	N.V. HVC	Lelystad	102	14-11-2018	27-12-2022	67 020
27	N.V. HVC	Velsen	40	18-12-2018	28-01-2023	73447
28	Hydreco GeoMEC B.V.	Brielle 2	25	13-10-2009	30-12-2021	15 990
	GeoMEC-4P Realisatie & Exploitatie B.V.					
29	Hydreco GeoMEC B.V.	Den Haag *	10	03-04-2009		69
	Haagse Aardwarmte Leyweg B.V.					
30	Hydreco GeoMEC B.V.	Den Haag 4	60	02-10-2019	12-11-2023	57 374
	Haagse Aardwarmte Leyweg B.V.					
31	Hydreco GeoMEC B.V.	Den Haag 6	23	19-09-2019	30-10-2023	52 557
	Haagse Aardwarmte Leyweg B.V.					
32	Hydreco GeoMEC B.V.	Made 2	53	28-05-2019	08-07-2023	30 925
	Geothermie Brabant B.V.					
33	Hydreco GeoMEC B.V.	Oostvoorne *	17	09-03-2010		4 013
	Duurzaam Voorne Holding B.V.					
34	Hydreco GeoMEC B.V.	Pijnacker-Nootdorp 6a	9	26-08-2015	29-06-2021	30 241
35	Hydreco GeoMEC B.V.	Rotterdam 4	20	18-12-2012	30-06-2020	208
36	Hydreco GeoMEC B.V.	Tilburg-Geertr.berg	325	10-07-2015	19-08-2021	21 858
37	Hydreco GeoMEC B.V.	Ypenburg	32	05-09-2019	16-10-2023	49 897
	Haagse Aardwarmte Leyweg B.V.					
	Eneco Warmte & Koude B.V.					
38	Hydreco GeoMEC B.V.	Vierpolders	5	10-02-2010	30-12-2021	2 211
	GeoMEC-4P Realisatie & Exploitatie B.V.					
39	Hydreco GeoMEC B.V.	West-Brabant	405	13-12-2019	23-01-2024	69 491
	Geothermie Brabant B.V.					
40	GeoPower Exploitatie B.V.	Maasland 4	5	16-01-2019	28-02-2023	3 286
41	Geothermie De Kievit B.V.	Peel en Maas	48	19-12-2014	31-07-2020	243
42	Geocombinatie Leeuwarden B.V.	Leeuwarden	30	28-10-2014	08-12-2021	31 137
	Ennatuurlijk B.V.					
43	Aardwarmte Combinatie Luttelgeest B.V.	Luttelgeest 2 *	25	24-05-2019		30 960
44	Vereniging van Eigenaren Oude Campspolder	Maasland 2	5	15-10-2010	31-12-2020	16 611
45	Provincie Drenthe	Erica	72	27-10-2010	06-12-2020	17 250
	Gemeente Emmen					
46	Provincie Drenthe	Klazienaveen	61	27-10-2010	30-11-2020	17 245

	Licence holder	Licence	km²	Effective from	Effective till	Staatscourant
	Gemeente Emmen					
47	Trias Westland B.V.	De Lier IV	<1	01-07-2015	30-12-2020	21 833
48	Trias Westland B.V.	De Lier V	1	01-03-2019	29-12-2020	12 586
49	Trias Westland B.V.	Naaldwijk 3	9	15-04-2016	30-12-2020	20 814
50	Vattenfall N.V.	Nootdorp-Oost	21	05-09-2019	16-10-2023	49 902
51	Vermilion Energy Netherlands B.V.	Middenmeer 3 *	98	24-02-2018		12 042
52	Aardwarmte Vogelaer B.V.	Poeldijk 2	3	19-09-2019	30-10-2022	52 379
53	WarmteStad B.V.	Groningen 2 **	18	16-04-2011	30-12-2018	7 134
54	Wayland Developments B.V.	Waddinxveen 2 **	7	05-03-2010	31-12-2019	3 829
55	Wayland Energy B.V.	Bleiswijk 6	11	08-01-2019	18-02-2023	1 507
56	Wayland Energy B.V.	Lansingerland 4	6	27-09-2014	30-09-2020	28 237
57	Wayland Energy B.V.	Zuidplas	46	22-08-2018	02-10-2022	48 156
58	Californië Wijnen Geothermie B.V.	Californië IV	6	01-10-2015	30-12-2020	34 771
		Total	3,252			

* Applied for a production licence.

** Applied for extention.

K. Production licences for geothermal energy, Netherlands territory

As at 1 January 2020

	Licence holder	Licence	km²	Effective from	Effective till	Staatscourant
1	Ammerlaan Geothermie B.V.	Pijnacker-Nootdorp 4	4	24-12-2016	03-02-2052	3 132
2	A en G van den Bosch B.V.	Bleiswijk	4	28-11-2008	08-01-2039	237
3	A en G van den Bosch B.V.	Bleiswijk 1b	2	20-03-2015	30-04-2032	8 784
4	Ce-Ren Beheer B.V.	Heemskerk	3	15-04-2016	26-05-2046	20 802
5	Gebroeders Duijvestijn Energie B.V.	Pijnacker-Nootdorp 5	5	24-12-2016	03-02-2052	3 136
6	ECW Geo Andijk B.V.	Andijk	5	24-05-2019	04-07-2054	30 715
7	ECW Geowarmte I B.V.	Middenmeer I	5	05-02-2019	18-03-2054	11 105
8	ECW Geowarmte I B.V.	Middenmeer II	3	05-02-2019	18-03-2054	13 570
9	EnergieWende B.V.	De Lier	6	14-07-2016	24-08-2051	38 394
	De Bruijn Geothermie B.V.					
10	Gemeente Heerlen	Heerlen	41	13-10-2009	23-11-2044	15 963
11	GeoPower Exploitatie B.V.	Maasland	5	08-01-2019	18-02-2054	1 501
12	Green Well Westland B.V.	Honselersdijk	3	02-07-2019	12-08-2049	41 236
13	Hoogweg Aardwarmte B.V.	Luttelgeest	6	24-05-2019	04-07-2052	30 998
14	Hydreco GeoMEC B.V.	Vierpolders	6	21-06-2017	01-08-2052	36 194
	GeoMEC-4P Realisatie & Exploitatie B.V.					
15	Aardwarmtecluster I KKP B.V.	Kampen	5	27-09-2014	07-11-2044	28 239
16	Californië Lipzig Gielen Geothermie B.V.	Californie V	5	06-07-2017	16-08-2052	39 833
17	Nature's Heat B.V.	Kwintsheul	3	19-07-2019	29-08-2054	41 655
18	Trias Westland B.V.	Naaldwijk	5	20-12-2019	30-01-2050	70 986
19	Visser & Smit Hanab B.V.	Zevenbergen	3	18-12-2019	28-01-2053	70 528
	GeoBrothers B.V.					
20	Aardwarmte Vogelaer B.V.	Poeldijk	5	31-08-2017	11-10-2052	52 090
21	Wayland Energy Bergschenhoek B.V.	Lansingerland	5	08-01-2019	18-02-2054	3 389
22	Californië Wijnen Geothermie B.V.	Californië IV	4	06-07-2017	16-08-2052	39 843
	GeoWeb B.V.					
		Total	134			

L. Exploration licences for rock salt, Netherlands territory

As at 1 January 2020

No ongoing exploration licences as at 1 January 2020.

M. Production licences for rock salt, Netherlands territory

As at 1 January 2020

	Licence holder	Licence	km²	Effective from	Effective till	Staatscourant
1	Frisia Zout B.V.	Barradeel	3	22-08-1998	22-08-2054	157
2	Frisia Zout B.V.	Barradeel II	17	12-06-2004	26-04-2062	110
3	Frisia Zout B.V.	Havenmond	32	03-01-2012	13-02-2052	405
4	Gasunie Transport Services B.V.	Adolf van Nassau II	<1	16-11-2010		18 324
5	Nedmag B.V.	Veendam	171	01-08-1980		148
6	Nouryon Salt B.V.	Adolf van Nassau III	28	16-11-2010		18 324
7	Nouryon Salt B.V.	Buurse	30	18-06-1918		Staatsblad 421
8	Nouryon Salt B.V.	Isidorushoeve	20	08-06-2012	19-07-2052	14 668
9	Nouryon Salt B.V.	Twenthe-Rijn	48	20-10-1933		207
10	Nouryon Salt B.V.	Twenthe-Rijn Helmerzijde	1	29-10-2008	09-12-2048	216
11	Nouryon Salt B.V.	Twenthe-Rijn Oude Maten	1	01-06-2013	12-07-2053	18 332
12	Nouryon Salt B.V.	Uitbreiding Adolf van Nassau II	1	21-12-2009		81
	EnergyStock B.V.					
13	Nouryon Salt B.V.	Uitbreiding Adolf van Nassau III	77	21-12-2009		81
14	Nouryon Salt B.V.	Uitbreiding Twenthe-Rijn	9	01-12-1994		249
15	Nouryon Salt B.V.	Weerselo	80	13-03-1967		76
16	Salzgewinnungsgesellschaft Westfalen mbH & Co KG	Zuidoost-Enschede	6	07-03-2014	17-04-2064	7 304
		Total	526			

N. Production licence for coal, Netherlands territory

As at 1 January 2020

	Licence holder	Licence	Effective from	Area (km²)	Staatsblad
1	Koninklijke DSM N.V.	Staatsmijn Beatrix	27-09-1920	130	752
2	Koninklijke DSM N.V.	Staatsmijn Emma	26-10-1906	73	270
3	Koninklijke DSM N.V.	Staatsmijn Hendrik	08-08-1910	24	249
4	Koninklijke DSM N.V.	Staatsmijn Maurits	12-03-1915	51	146
5	Koninklijke DSM N.V.	Staatsmijn Wilhelmina	08-01-1903	6	4
			Total	284	

O. Exploration licences for hydrocarbons, Netherlands continental shelf

As at 1 January 2020

	Licence holder	Licence	km²	Effective from	Effective till	Staatscourant
1	Dana Petroleum Netherlands B.V.	F06b	260	07-04-2009	18-05-2016	70
	ONE-Dyas B.V.					
2	Jetex Petroleum Ltd	P04a, P07 & P08b	413	07-10-2016	31-12-2022	52 818
3	Jetex Petroleum Ltd	P10c	249	21-07-2016	31-12-2022	38 277
4	Nederlandse Aardolie Maatschappij B.V.	G07, G10, G11 & G13a	1,079	03-07-2019	13-08-2023	36 563
5	Nederlandse Aardolie Maatschappij B.V.	J09	18	11-04-2014	31-12-2022	10 508
	HALO Exploration & Production Netherlands B.V.					
	ONE-Dyas B.V.					
	Wintershall Noordzee B.V.					
6	Neptune Energy Netherlands B.V.	D09 & E07	548	04-09-2015	16-10-2020	27 592
7	Neptune Energy Netherlands B.V.	E10	401	16-01-2008	31-12-2020	13
	HALO Exploration & Production Netherlands B.V.					
8	Neptune Energy Netherlands B.V.	E11	401	22-04-2009	31-12-2020	84
	HALO Exploration & Production Netherlands B.V.					
9	Neptune Energy Netherlands B.V.	E15c	283	22-04-2008	31-12-2020	78
	Gas Plus Netherlands B.V.					
	HALO Exploration & Production Netherlands B.V.					
10	Neptune Energy Netherlands B.V.	F05	398	03-10-2019	13-11-2023	53 350
	Hague and London Oil Plc.					
11	Neptune Energy Netherlands B.V.	G13b	16	03-07-2019	13-08-2022	36 563n
12	Neptune Energy Netherlands B.V.	K01c	274	22-11-2011	30-06-2021	21 372
13	Neptune Energy Netherlands B.V.	L03	406	13-05-2016	23-06-2022	24 426
	Nederlandse Aardolie Maatschappij B.V.					
14	ONE-Dyas B.V.	F06c & F06d	129	18-10-2019	28-11-2023	56 147
15	ONE-Dyas B.V.	G18	405	18-09-2012	31-12-2022	23 464
	Hansa Hydrocarbons Limited					
16	ONE-Dyas B.V.	H16	73	18-09-2012	31-12-2022	23 463
	Hansa Hydrocarbons Limited					
17	ONE-Dyas B.V.	M02a **	134	22-11-2011	02-01-2020	1 486
18	ONE-Dyas B.V.	M03	406	18-09-2012	31-12-2022	23 462
	Hansa Hydrocarbons Limited					

	Licence holder	Licence	km^2	Effective from	Effective till	Staatscourant
19	ONE-Dyas B.V.	M04a **	209	21-09-2010	02-01-2020	14 900
20	ONE-Dyas B.V.	N01	217	18-09-2012	31-12-2022	23 460
	Hansa Hydrocarbons Limited					
21	ONE-Dyas B.V.	S03b	337	07-09-2016	18-10-2020	46 557
	TAQA Offshore B.V.					
22	ONE-Dyas Energie Resources B.V.	F17a-ondiep	386	30-12-2009	31-12-2020	154
	Petro Ventures Netherlands B.V.					
23	Petrogas E&P Netherlands B.V.	A12b & B10a *	79	16-04-2005		77
	RockRose (NL) CS1 B.V.					
	TAQA Offshore B.V.					
24	Petrogas E&P Netherlands B.V.	B16a *	67	11-05-1987		70
	RockRose (NL) CS1 B.V.					
	TAQA Offshore B.V.					
25	Tulip Oil Netherlands B.V.	M10a & M11	110	28-07-2007	30-06-2022	152
26	Tulip Oil Netherlands Offshore B.V.	Q08, Q10b & Q11	758	29-09-2018	09-11-2022	56 679
27	Wintershall Noordzee B.V.	F10	401	19-12-2014	30-12-2020	36 868
	Neptune Energy Netherlands B.V.					
	Rosewood Exploration Ltd.					
	TAQA Offshore B.V.					
28	Wintershall Noordzee B.V.	F11a	60	19-12-2014	30-12-2020	36 868
	Neptune Energy Netherlands B.V.					
	Rosewood Exploration Ltd.					
	TAQA Offshore B.V.					
29	Wintershall Noordzee B.V.	F18b-diep	31	30-12-2009	30-12-2020	152
	Neptune Energy Netherlands B.V.					
	Rosewood Exploration Ltd.					
		Total	8,551			

* Applied for a production licence.

** Applied for ectension.

P. Production licences for hydrocarbons, Netherlands continental shelf

As at 1 January 2020

	Licence holder	Licence	km²	Effective from	Effective till	Staatscourant
1	Dana Petroleum Netherlands B.V.	F02a	307	24-08-1982	24-08-2022	139
	ONE-Dyas B.V.					
	RockRose (NL) CS1 B.V.					
	TAQA Offshore B.V.					
2	Dana Petroleum Netherlands B.V.	P10a	5	31-05-2005	31-12-2027	102
3	Dana Petroleum Netherlands B.V.	P10b	100	07-04-2009	31-12-2027	70
4	Dana Petroleum Netherlands B.V.	P11b	210	03-04-2004	31-12-2027	67
5	Nederlandse Aardolie Maatschappij B.V.	F17c	18	04-12-1996	04-12-2024	207
6	Nederlandse Aardolie Maatschappij B.V.	K07	408	08-07-1981	31-12-2030	120
7	Nederlandse Aardolie Maatschappij B.V.	K08 & K11a	737	26-10-1977	31-12-2030	197
	HALO Exploration & Production Netherlands B.V.					
	ONE-Dyas B.V.					
	Wintershall Noordzee B.V.					
8	Nederlandse Aardolie Maatschappij B.V.	K14a	237	16-01-1975	31-12-2030	6
9	Nederlandse Aardolie Maatschappij B.V.	K15	412	14-10-1977	31-12-2030	197
10	Nederlandse Aardolie Maatschappij B.V.	K17	414	19-01-1989	19-01-2029	12
11	Nederlandse Aardolie Maatschappij B.V.	K18a	36	15-03-2007	09-05-2023	57
	Wintershall Noordzee B.V.					
12	Nederlandse Aardolie Maatschappij B.V.	L02	406	15-03-1991	15-03-2031	55
13	Nederlandse Aardolie Maatschappij B.V.	L09	409	18-09-2010	09-05-2035	14 911
14	Nederlandse Aardolie Maatschappij B.V.	L13	413	26-10-1977	31-12-2030	197
	HALO Exploration & Production Netherlands B.V.					
	ONE-Dyas B.V.					
	Wintershall Noordzee B.V.					
15	Nederlandse Aardolie Maatschappij B.V.	M09a	213	10-04-1990	10-04-2030	56
	ExxonMobil Producing Netherlands B.V.					
16	Nederlandse Aardolie Maatschappij B.V.	N07a	141	23-12-2003	10-03-2034	252
17	Neptune Energy Netherlands B.V.	D15a & D15b	125	06-09-1996	06-09-2021	138
	DNO North Sea (U.K.) limited					
	Wintershall Noordzee B.V.					
18	Neptune Energy Netherlands B.V.	D18a	58	29-08-2012	09-10-2032	19 757

	Licence holder	Licence	km²	Effective from	Effective till	Staatscourant
	DNO North Sea (U.K.) limited					
	Wintershall Noordzee B.V.					
19	Neptune Energy Netherlands B.V.	E16a	29	29-06-2007	09-08-2021	128
	Total E&P Nederland B.V.					
	Vermilion Energy Netherlands B.V.					
20	Neptune Energy Netherlands B.V.	E17a & E17b	114	28-06-2007	08-08-2021	128
	Total E&P Nederland B.V.					
	Vermilion Energy Netherlands B.V.					
21	Neptune Energy Netherlands B.V.	F03b	335	13-12-2007	09-09-2022	245
	TAQA Offshore B.V.					
22	Neptune Energy Netherlands B.V.	G14 & G17b	441	15-12-2006	31-12-2035	248
	Nederlandse Aardolie Maatschappij B.V.					
	TAQA Offshore B.V.					
23	Neptune Energy Netherlands B.V.	G16a	224	06-01-1992	06-01-2032	245
24	Neptune Energy Netherlands B.V.	G16b	5	11-10-2003	06-01-2032	198
25	Neptune Energy Netherlands B.V.	G17a	237	19-07-2006	14-12-2026	143
26	Neptune Energy Netherlands B.V.	G17c & G17d	130	10-11-2000	10-11-2025	188
	Wintershall Noordzee B.V.					
27	Neptune Energy Netherlands B.V.	K02b	110	20-01-2004	24-08-2023	16
28	Neptune Energy Netherlands B.V.	K03a	83	24-08-1998	24-08-2023	122
29	Neptune Energy Netherlands B.V.	K03c	32	26-11-2005	06-01-2021	233
30	Neptune Energy Netherlands B.V.	K09a & K09b	211	11-08-1986	11-08-2026	129
	ONE-Dyas B.V.					
	Rosewood Exploration Ltd.					
	XTO Netherlands Ltd.					
31	Neptune Energy Netherlands B.V.	K09c	199	18-12-1987	18-12-2027	229
	ONE-Dyas B.V.					
	Rosewood Exploration Ltd.					
	XTO Netherlands Ltd.					
32	Neptune Energy Netherlands B.V.	K12	411	18-02-1983	18-02-2023	11
	ONE-Dyas B.V.					
	Production North Sea Netherlands Ltd.					
	Rosewood Exploration Ltd.					
	XTO Netherlands Ltd.					
33	Neptune Energy Netherlands B.V.	L04c	12	07-01-1994	07-01-2034	2
34	Neptune Energy Netherlands B.V.	L05a	163	15-03-1991	15-03-2031	55

	Licence holder	Licence	km²	Effective from	Effective till	Staatscourant
35	Neptune Energy Netherlands B.V.	L10 & L11a	596	13-01-1971	01-01-2025	4
	Neptune Energy Participation Netherlands B.V.					
	ONE-Dyas B.V.					
	Rosewood Exploration Ltd.					
	XTO Netherlands Ltd.					
36	Neptune Energy Netherlands B.V.	L12a	119	25-09-2008	14-03-2030	189
	Delta Hydrocarbons B.V.					
	ONE-Dyas B.V.					
	Wintershall Noordzee B.V.					
37	Neptune Energy Netherlands B.V.	L12b & L15b	92	06-08-2008	12-03-2030	155
	Delta Hydrocarbons B.V.					
	Wintershall Noordzee B.V.					
38	Neptune Energy Netherlands B.V.	L15c	4	07-09-1990	07-09-2030	172
39	Neptune Energy Netherlands B.V.	N07b	87	14-02-2015	09-03-2034	5 845
	Rosewood Exploration Ltd.					
	XTO Netherlands Ltd.					
40	Neptune Energy Netherlands B.V.	Q13a	30	28-11-2006	28-12-2021	231
	Aceiro Energy B.V.					
	TAQA Offshore B.V.					
41	ONE-Dyas B.V.	L11b	47	15-06-1984	15-06-2024	110
42	ONE-Dyas B.V.	L11c	7	21-12-2018	24-08-2031	143
43	ONE-Dyas B.V.	L11d	172	21-12-2018	24-08-2031	143
	Neptune Energy Netherlands B.V.					
44	ONE-Dyas B.V.	L12c	30	06-08-2008	12-03-2030	155
	Delta Hydrocarbons B.V.					
	Wintershall Noordzee B.V.					
45	ONE-Dyas B.V.	L12d	225	25-09-2008	14-03-2030	189
	Delta Hydrocarbons B.V.					
	Wintershall Noordzee B.V.					
46	ONE-Dyas B.V.	L15d	62	06-08-2008	12-03-2030	155
	Delta Hydrocarbons B.V.					
	Wintershall Noordzee B.V.					
47	ONE-Dyas B.V.	M01a	213	28-06-2007	08-08-2022	128
48	ONE-Dyas B.V.	M07	409	22-03-2001	22-03-2021	19
	TAQA Offshore B.V.					
49	ONE-Dyas B.V.	N04, N05 & N08	430	25-07-2019	04-09-2049	42 716

	Licence holder	Licence	km²	Effective from	Effective till	Staatscourant
	Hansa Hydrocarbons Limited					
50	ONE-Dyas B.V.	N07c	87	14-02-2015	09-03-2034	5 845
	Hansa Hydrocarbons Limited					
51	ONE-Dyas B.V.	P11a	210	23-09-2015	03-11-2025	45 676
	TAQA Offshore B.V.					
52	ONE-Dyas B.V.	P18b	77	14-07-2017	24-08-2030	41 916
	TAQA Offshore B.V.					
53	ONE-Dyas B.V.	P18d	2	20-09-2012	31-10-2027	23 457
	TAQA Offshore B.V.					
54	ONE-Dyas B.V.	Q16a	85	29-12-1992	29-12-2032	227
	Total E&P Nederland B.V.					
	Vermilion Energy Netherlands B.V.					
55	ONE-Dyas B.V.	Q16b & Q16c-diep	80	20-09-2012	31-10-2027	23 465
	TAQA Offshore B.V.					
56	ONE-Dyas B.V.	S03a	2	20-09-2012	31-10-2027	23 466
	TAQA Offshore B.V.					
57	ONE-Dyas B.V.	T01	1	20-09-2012	31-10-2027	23 467
	TAQA Offshore B.V.					
58	Petrogas E&P Netherlands B.V.	A12a	195	01-07-2005	11-08-2025	129
	RockRose (NL) CS1 B.V.					
	TAQA Offshore B.V.					
59	Petrogas E&P Netherlands B.V.	A12d	33	01-07-2005	11-08-2025	129
	RockRose (NL) CS1 B.V.					
	TAQA Offshore B.V					
60	Petrogas E&P Netherlands B.V.	A15a	67	27-12-2011	03-02-2027	746
	RockRose (NL) CS1 B.V.					
61	Petrogas E&P Netherlands B.V.	A18a	229	01-07-2005	11-08-2025	129
	RockRose (NL) CS1 B.V.					
	TAQA Offshore B.V.					
62	Petrogas E&P Netherlands B.V.	A18c	47	01-07-2005	11-08-2025	125
	RockRose (NL) CS1 B.V.					
63	Petrogas E&P Netherlands B.V.	B10c & B13a	252	01-07-2005	11-08-2025	129
	RockRose (NL) CS1 B.V.					
	TAQA Offshore B.V.					
64	Petrogas E&P Netherlands B.V.	P08a	26	07-12-2018	17-01-2027	70 806
65	Petrogas E&P Netherlands B.V.	P09a, P09b & P09d	90	16-08-1993	16-08-2033	127

	Licence holder	Licence	km²	Effective from	Effective till	Staatscourant
	Aceiro Energy B.V.					
	RockRose (NL) CS1 B.V.					
	Wintershall Noordzee B.V.					
66	Petrogas E&P Netherlands B.V.	P09c, P09e & P09f	101	16-08-1993	16-08-2033	126
	RockRose (NL) CS1 B.V.					
	Wintershall Noordzee B.V.					
67	Petrogas E&P Netherlands B.V.	Q01a-ondiep & Q01b-ondiep	43	23-12-2017	11-07-2020	193
68	Petrogas E&P Netherlands B.V.	Q02c	32	14-07-1994	14-07-2034	18
	RockRose (NL) CS1 B.V.					
69	Spirit Energy Nederland B.V.	B18a	8	10-10-1985	10-10-2025	182
70	Spirit Energy Nederland B.V.	F03a	18	13-12-2007	09-09-2022	245
71	Spirit Energy Nederland B.V.	J03b & J06a	47	06-11-1992	06-11-2032	219
	RockRose (NL) CS1 B.V.					
	Total E&P Nederland B.V.					
72	TAQA Offshore B.V.	P15a & P15b	220	12-07-1984	12-07-2024	110
	Dana Petroleum Netherlands B.V.					
	ONE-Dyas B.V.					
	RockRose (NL) CS1 B.V.					
	Wintershall Noordzee B.V.					
73	TAQA Offshore B.V.	P15c	203	07-05-1992	07-05-2032	114
	Dana Petroleum Netherlands B.V.					
	ONE-Dyas B.V.					
	RockRose (NL) CS1 B.V.					
	Wintershall Noordzee B.V.					
74	TAQA Offshore B.V.	P18a	105	30-04-1992	30-04-2032	99
75	TAQA Offshore B.V.	P18c	6	02-06-1992	02-06-2032	99
	Dana Petroleum Netherlands B.V.					
	RockRose (NL) CS1 B.V.					
76	Total E&P Nederland B.V.	F06a	8	09-09-1982	09-09-2022	139
	TAQA Offshore B.V.					
	Vermilion Energy Netherlands B.V.					
77	Total E&P Nederland B.V.	F15a	233	06-05-1991	06-05-2031	52
	RockRose (NL) CS1 B.V.					
	Vermilion Energy Netherlands B.V.					
78	Total E&P Nederland B.V.	F15d	4	15-06-1992	15-06-2032	97

	Licence holder	Licence	km²	Effective from	Effective till	Staatscourant
	RockRose (NL) CS1 B.V.					
	Vermilion Energy Netherlands B.V.					
79	Total E&P Nederland B.V.	J03a	72	12-01-1996	12-01-2036	22
	Nederlandse Aardolie Maatschappij B.V.					
80	Total E&P Nederland B.V.	K01a	83	10-02-1997	10-02-2022	46
	Nederlandse Aardolie Maatschappij B.V.					
81	Total E&P Nederland B.V.	K01b & K02a	75	20-06-2009	31-07-2022	11 801
82	Total E&P Nederland B.V.	K02c	46	21-01-2004	07-11-2021	16
83	Total E&P Nederland B.V.	K03b	7	30-01-2001	30-01-2021	19
	Vermilion Energy Netherlands B.V.					
84	Total E&P Nederland B.V.	K03d	26	01-04-1999	01-04-2024	58
	Vermilion Energy Netherlands B.V.					
85	Total E&P Nederland B.V.	K04a	307	29-12-1993	29-12-2033	220
86	Total E&P Nederland B.V.	K04b & K05a	305	01-06-1993	01-06-2033	87
	RockRose (NL) CS1 B.V.					
	Vermilion Energy Netherlands B.V.					
87	Total E&P Nederland B.V.	K05b	204	07-11-1996	07-11-2021	207
88	Total E&P Nederland B.V.	K06 & L07	817	20-06-1975	19-06-2020	112
	Vermilion Energy Netherlands B.V.					
89	Total E&P Nederland B.V.	L01a	31	12-09-1996	31-12-2023	135
	SGPO Van Dyke B.V.					
90	Total E&P Nederland B.V.	L01d	7	13-11-1996	31-12-2023	207
91	Total E&P Nederland B.V.	L01e	12	13-11-1996	31-12-2027	207
	Vermilion Energy Netherlands B.V.					
92	Total E&P Nederland B.V.	L01f	17	14-01-2003	14-01-2033	235
	Vermilion Energy Netherlands B.V.					
93	Total E&P Nederland B.V.	L04a	313	30-12-1981	30-12-2021	230
	Vermilion Energy Netherlands B.V.					
94	Tulip Oil Netherlands Offshore B.V.	Q07 & Q10a	472	14-07-2017	24-08-2042	41 910
95	Wintershall Noordzee B.V.	D12a	214	06-09-1996	06-09-2021	138
	Neptune Energy Participation Netherlands B.V.					
96	Wintershall Noordzee B.V.	D12b	41	03-06-2017	14-07-2037	32 476
	GAZPROM International UK Ltd.					
	Neptune Energy Netherlands B.V.					
	ONE-Dyas B.V.					
97	Wintershall Noordzee B.V.	E15a	39	04-10-2002	21-10-2032	175

	Licence holder	Licence	km²	Effective from	Effective till	Staatscourant
	Dana Petroleum Netherlands B.V.					
	HALO Exploration & Production Netherlands B.V.					
	Neptune Energy Netherlands B.V.					
98	Wintershall Noordzee B.V.	E18a	17	04-10-2002	21-10-2032	175
	Dana Petroleum Netherlands B.V.					
	HALO Exploration & Production Netherlands B.V.					
	Neptune Energy Netherlands B.V.					
99	Wintershall Noordzee B.V.	F13a	4	04-10-2002	21-10-2032	175
	Dana Petroleum Netherlands B.V.					
	HALO Exploration & Production Netherlands B.V.					
	Neptune Energy Netherlands B.V.					
100	Wintershall Noordzee B.V.	F16a & F16b	180	04-10-2002	21-10-2032	175
	Neptune Energy Netherlands B.V.					
101	Wintershall Noordzee B.V.	F17a-diep	386	14-05-2016	24-06-2033	43 400
	Neptune Energy Netherlands B.V.					
	Rosewood Exploration Ltd.					
	TAQA Offshore B.V.					
102	Wintershall Noordzee B.V.	K18b	155	15-03-2007	09-05-2023	57
	Nederlandse Aardolie Maatschappij B.V.					
	RockRose (NL) CS1 B.V.					
103	Wintershall Noordzee B.V.	L05b	237	28-06-2003	09-08-2038	134
	Dana Petroleum Netherlands B.V.					
104	Wintershall Noordzee B.V.	L05c	8	03-12-1996	31-12-2028	209
	Dana Petroleum Netherlands B.V.					
105	Wintershall Noordzee B.V.	L06a	332	24-11-2010	04-01-2031	18 910
	Dana Petroleum Netherlands B.V.					
106	Wintershall Noordzee B.V.	L06b	60	01-07-2003	11-08-2038	134
	Dana Petroleum Netherlands B.V.					
107	Wintershall Noordzee B.V.	L08a	213	18-08-1988	18-08-2028	146
	ONE-Dyas B.V.					
108	Wintershall Noordzee B.V.	L08b & L08d	83	17-05-1993	17-05-2033	78
	Dana Petroleum Netherlands B.V.					
	ONE-Dyas B.V.					
109	Wintershall Noordzee B.V.	L16a	238	12-06-1984	12-06-2024	84
	Nederlandse Aardolie Maatschappij B.V.					
	RockRose (NL) CS1 B.V.					

	Licence holder	Licence	km²	Effective from	Effective till	Staatscourant
110	Wintershall Noordzee B.V.	P06	417	14-04-1982	14-04-2022	54
	RockRose (NL) CS1 B.V.					
111	Wintershall Noordzee B.V.	P12a	96	08-03-1990	08-03-2030	27
	RockRose (NL) CS1 B.V.					
	Vermilion Energy Netherlands B.V.					
112	Wintershall Noordzee B.V.	Q01-diep	416	23-12-2017	31-12-2030	193
	TAQA Offshore B.V.					
113	Wintershall Noordzee B.V.	Q04	417	02-12-1999	02-12-2030	228
	Delta Hydrocarbons B.V.					
	RockRose (NL) CS1 B.V.					
114	Wintershall Noordzee B.V.	Q05d	20	15-02-2001	15-02-2021	19
	Delta Hydrocarbons B.V.					
	RockRose (NL) CS1 B.V.					
		Total	18,787			

Q. Subsurface storage licences, Netherlands continental shelf

As at 1 January 2020

	Licence holder	Licence	km²	Effective from	Effective till	Staatscourant	Storage of
1	TAQA Offshore B.V.	P18-4 *	11	01-01-2020	31-12-2028	21 233	Carbon dioxide

* Storage not yet started in 2019.

R. Blocks and operators, Netherlands continental shelf

As at 1 January 2020

Block (part of)	Open area (km²)	Operator	Licence (km²)	
			Exploration	Production
A04	0			
A05	91			
A07	47			
A08	382			
A09	141			
A10	129			
A11	392			
A12a		Petrogas		195
A12b		Petrogas	31	
A12c	130			
A12d		Petrogas		33
A13	211			
A14	393			
A15a		Petrogas		67
A15b	326			
A16	293			
A17	395			
A18a		Petrogas		229
A18b	119			
A18c		Petrogas		47
B10a		Petrogas	48	
B10b	85			
B10c		Petrogas		46
B13a		Petrogas		206
B13b	187			
B14	198			
B15	0			
B16a		Petrogas	67	

			Licence (km²)	
Block (part of)	Open area (km²)	Operator	Exploration	Production
B16b	327			
B17	395			
B18a		Spirit		8
B18b	192			
D03	2			
D06	60			
D09		Neptune	149	
D12a		Wintershall		214
D12b		Wintershall		41
D15a		Neptune		120
D15b		Neptune		4
D15c	122			
D18a		Neptune		58
D18b	139			
E01	374			
E02	396			
E03	396			
E04	398			
E05	398			
E06	398			
E07		Neptune	400	
E08	400			
E09	400			
E10		Neptune	401	
E11		Neptune	401	
E12	401			
E13	403			
E14	403			
E15a		Wintershall		39
E15b	81			
E15c		Neptune	283	
E16a		Neptune		29
E16b	375			

			Licence (km²)	
Block (part of)	Open area (km²)	Operator	Exploration	Production
E17a		Neptune		87
E17b		Neptune		27
E17c	290			
E18a		Wintershall		17
E18b	387			
F01	396			
F02a		Dana NL		307
F02b	89			
F03a		Spirit		18
F03b		Neptune		335
F03c	44			
F04	398			
F05		Neptune	398	
F06a		Total		8
F06b		Dana NL	260	
F06c		ONE-Dyas	118	
F06d		ONE-Dyas	12	
F07	400			
F08	400			
F09	400			
F10		Wintershall	401	
F11a		Wintershall	60	
F11b	341			
F12	402			
F13a		Wintershall		4
F13b	399			
F14	403			
F15a		Total		233
F15b	73			
F15c	93			
F15d		Total		4
F16a		Wintershall		109
F16b		Wintershall		71
F16c	224			

			Licence (km²)	
Block (part of)	Open area (km²)	Operator	Exploration	Production
F17a		ONE-Dyas / Wintershall	386	386
F17c		NAM		18
F18a			373	
F18b	(ondiep) 31	Wintershall	31	
G07		NAM	122	
G10		NAM	397	
G11		NAM	174	
G13a		NAM	387	
G13b		Neptune	16	
G14		Neptune		403
G15	226			
G16a		Neptune		224
G16b		Neptune		5
G16c	176			
G17a		Neptune		237
G17b		Neptune		38
G17c		Neptune		34
G17d		Neptune		96
G18		ONE-Dyas	405	
H13	1			
H16		ONE-Dyas	73	
J03a		Total		72
J03b		Spirit		14
J03c	30			
J03d	28			
J06a		Spirit		32
J06b	51			
J09		NAM	18	
K01a		Total		83
K01b		Total		50
K01c		Neptune	274	

			Licence (km²)	
Block (part of)	Open area (km²)	Operator	Exploration	Production
K02a		Total		25
K02b		Neptune		110
K02c		Total		46
K02d	225			
K03a		Neptune		83
K03b		Total		7
K03c		Neptune		32
K03d		Total		26
K03e	258			
K04a		Total		307
K04b		Total		101
K05a		Total		204
K05b		Total		204
K06		Total		408
K07		NAM		408
K08		NAM		409
K09a		Neptune		150
K09b		Neptune		61
K09c		Neptune		199
K10	374			
K11a		NAM		328
K11b	83			
K12		Neptune		411
K13	324			
K14a		NAM		237
K14b	175			
K15		NAM		412
K16	267			
K17		NAM		414
K18a		NAM		36
K18b		Wintershall		155
K18c	223			
L01a		Total		31
L01b	339			

			Licence (km^2)	
Block (part of)	Open area (km^2)	Operator	Exploration	Production
L01d		Total		7
L01e		Total		12
L01f		Total		17
L02		NAM		406
L03		Neptune	406	
L04a		Total		313
L04b	82			
L04c		Neptune		12
L05a		Neptune		163
L05b		Wintershall		237
L05c		Wintershall		8
L06a		Wintershall		332
L06b		Wintershall		60
L06c	16			
L07		Total		409
L08a		Wintershall		213
L08b		Wintershall		42
L08c	114			
L08d		Wintershall		41
L09		NAM		409
L10		Neptune		411
L11a		Neptune		185
L11b		ONE-Dyas		47
L11c		ONE-Dyas		7
L11d		ONE-Dyas		172
L12a		Neptune		119
L12b		Neptune		37
L12c		ONE-Dyas		30
L12d		ONE-Dyas		225
L13		NAM		413
L14	413			
L15a	81			
L15b		Neptune		55
L15c		Neptune		4
L15d		ONE-Dyas		62

			Licence (km²)	
Block (part of)	Open area (km²)	Operator	Exploration	Production
L16a		Wintershall		238
L16b	176			
L17	388			
L18	13			
M01a		ONE-Dyas		213
M01b	193			
M02a		ONE-Dyas	134	
M02b	273			
M03		ONE-Dyas	406	
M04a		ONE-Dyas	209	
M04b	199			
M05	408			
M06	408			
M07		ONE-Dyas		409
M08	391			
M09a		NAM		213
M09b	158			
M10a		Tulip	82	
M10b	113			
M11		Tulip	28	
N01		ONE-Dyas	217	
N04		ONE-Dyas		381
N05		ONE-Dyas		14
N07a		NAM		141
N07b		Neptune		87
N07c		ONE-Dyas		87
N08		ONE-Dyas		34
O12	2			
O15	142			
O17	3			
O18	367			

			Licence (km²)	
Block (part of)	Open area (km²)	Operator	Exploration	Production
P01	209			
P02	416			
P03	416			
P04a		Jetex	87	
P04b	84			
P05	417			
P06		Wintershall		417
P07		Jetex	222	
P08a		Petrogas		26
P08b		Jetex	105	
P08c	288			
P09a		Petrogas		17
P09b		Petrogas		62
P09c		Petrogas		18
P09d		Petrogas		11
P09e		Petrogas		80
P09f		Petrogas		3
P09g	228			
P10a		Dana NL		5
P10b		Dana NL		100
P10c		Jetex	249	
P11a		ONE-Dyas		210
P11b		Dana NL		210
P12a		Wintershall		96
P12b	325			
P13	422			
P14	422			
P15a		TAQA		203
P15b		TAQA		17
P15c		TAQA		203
P16	423			
P17	424			
P18a		TAQA		105
P18b		ONE-Dyas		77
P18c		TAQA		6

			Licence (km²)	
Block (part of)	Open area (km²)	Operator	Exploration	Production
P18d		ONE-Dyas		2
P18e	219			
Q01a		Petrogas / Wintershall		33
Q01b		Petrogas / Wintershall		10
Q01c	(ondiep) 373	Wintershall		373
Q02a	304			
Q02c		Petrogas		32
Q04		Wintershall		417
Q05a	0			
Q05b	277			
Q05d		Wintershall		20
Q07		Tulip		419
Q08		Tulip	244	
Q10a		Tulip		53
Q10b		Tulip	367	
Q11		Tulip	147	
Q13a		Neptune		30
Q13b	367			
Q14	24			
Q16a		ONE-Dyas		85
Q16b	(ondiep) 59	ONE-Dyas		59
Q16c	(ondiep) 21	ONE-Dyas		21
R02	103			
R03	425			
R05	7			
R06	311			
R09	28			
S01	425			
S02	425			
S03a		ONE-Dyas		2
S03b		ONE-Dyas	337	
S04	427			

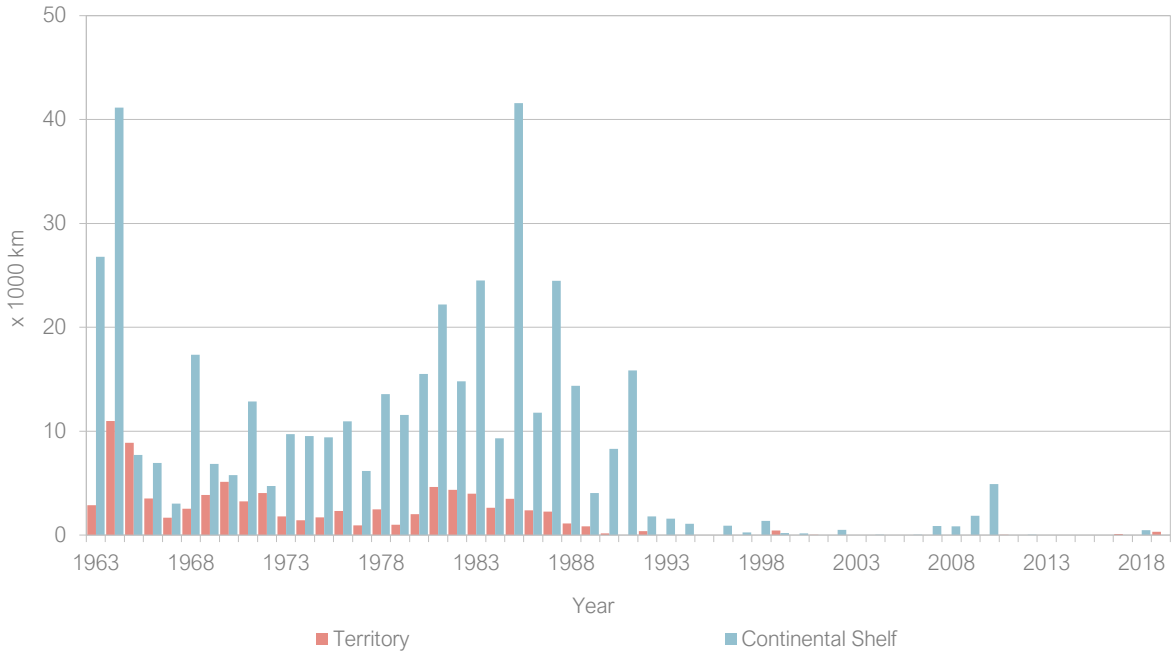
			Licence (km²)	
Block (part of)	Open area (km²)	Operator	Exploration	Production
S05	349			
S06	10			
S07	360			
S08	95			
S10	36			
S11	0			
T01		ONE-Dyas		1
Total	29,790		8,551	18,787

S. Seismic surveys

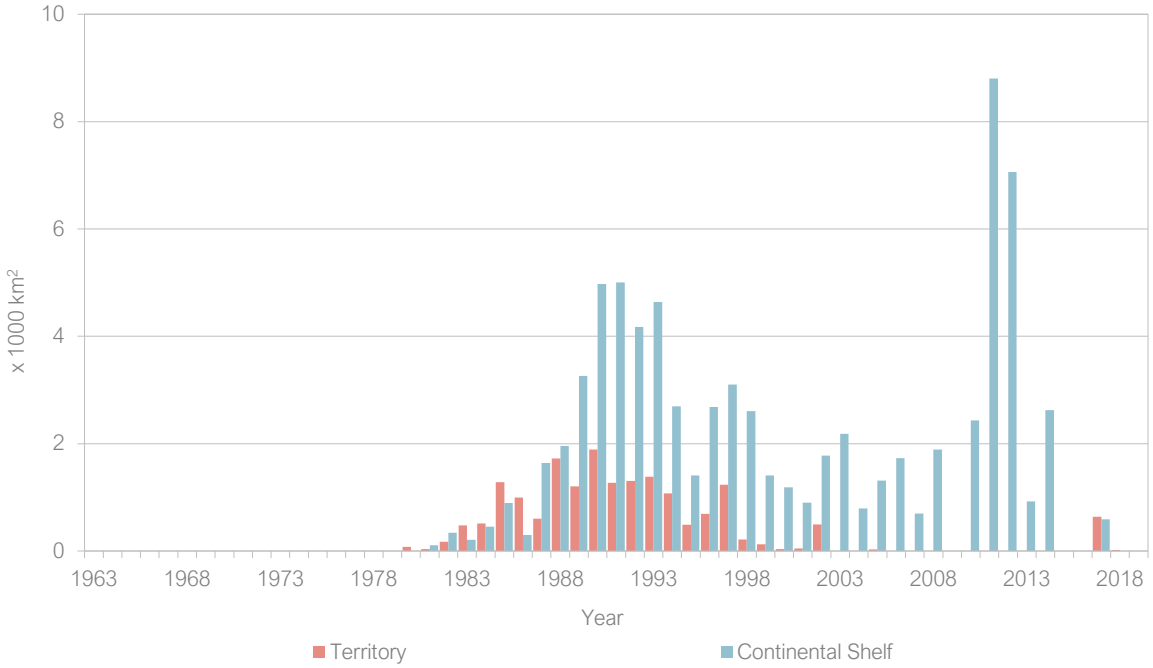
Year	Territory		Continental shelf	
	2D (km)	3D (km^2)	2D (km)	3D (km^2)
1963	2,860	-	26,778	-
1964	10,992	-	41,136	-
1965	8,885	-	7,707	-
1966	3,510	-	6,939	-
1967	1,673	-	3,034	-
1968	2,541	-	17,349	-
1969	3,857	-	6,846	-
1970	5,113	-	5,780	-
1971	3,252	-	12,849	-
1972	4,034	-	4,716	-
1973	1,783	-	9,708	-
1974	1,422	-	9,536	-
1975	1,706	-	9,413	-
1976	2,318	-	10,963	-
1977	948	-	6,184	-
1978	2,466	-	13,568	-
1979	986	-	11,575	-
1980	2,017	76	15,497	-
1981	4,627	37	22,192	110
1982	4,363	170	14,791	337
1983	3,980	478	24,498	208
1984	2,616	512	9,314	455
1985	3,480	1,282	41,593	892
1986	2,386	993	11,795	296
1987	2,243	601	24,492	1,637
1988	1,103	1,726	14,356	1,958
1989	828	1,206	4,033	3,264
1990	160	1,889	8,288	4,972
1991	-	1,268	15,853	5,002
1992	388	1,307	1,799	4,173
1993	-	1,382	1,591	4,637
1994	-	1,074	1,089	2,694
1995	-	491	-	1,408
1996	-	689	892	2,686

1997	-	1,236	260	3,101
1998	-	214	1,380	2,603
1999	43	124	181	1,409
2000	-	33	160	1,189
2001	5	47	-	898
2002	-	495	490	1,778
2003	-	-	-	2,185
2004	-	-	34	790
2005	-	32	-	1,314
2006	-	-	53	1,732
2007	-	-	886	700
2008	-	-	838	1,893
2009	-	-	1,849	-
2010	-	-	4,898	2,431
2011	14	-	-	8,800
2012	-	-	37	7,060
2013	-	-	-	925
2014	-	-	-	2,624
2015	-	-	-	-
2016	-	-	-	-
2017	94	640	-	593
2018	-	15	480	-
2019	302	-	-	-

2D seismic surveys 1963 – 2019



3D seismic surveys 1963 – 2019



T. Number of oil and gas wells, Netherlands territory

Year	Exploration					Appraisal					Production
	O	G	G&O	D	Σ	O	G	G&O	D	Σ	Σ
t/m 1945	3	-	-	53	56	-	-	-	-	-	5
1946	-	-	-	1	1	-	-	-	-	-	19
1947	-	-	-	3	3	-	-	-	-	-	17
1948	-	1	-	8	9	-	-	-	-	-	42
1949	1	1	-	14	16	-	-	-	-	-	21
1950	-	1	-	7	8	-	-	-	-	-	26
1951	-	5	-	9	14	-	-	-	-	-	38
1952	1	2	2	6	11	-	2	-	-	2	44
1953	4	1	-	5	10	1	-	-	-	1	58
1954	4	1	-	12	17	-	-	-	-	-	45
1955	2	2	-	4	8	-	-	-	-	-	17
1956	1	3	1	3	8	-	-	-	1	1	14
1957	1	2	-	1	4	1	-	-	-	1	60
1958	3	1	-	4	8	-	-	-	1	1	35
1959	1	2	-	7	10	-	-	-	-	-	30
1960	-	1	-	1	2	-	1	-	-	1	48
1961	1	2	-	2	5	-	-	-	-	-	22
1962	2	-	-	-	2	-	1	-	-	1	27
1963	-	2	-	-	2	-	1	-	-	1	32
1964	-	6	-	17	23	-	1	-	-	1	26
1965	2	13	-	17	32	-	6	-	4	10	36
1966	1	1	-	6	8	-	4	-	1	5	42
1967	-	4	-	-	4	-	1	1	-	2	44
1968	-	6	-	6	12	-	1	-	1	2	21
1969	-	4	-	11	15	-	2	-	3	5	13
1970	-	5	-	10	15	-	6	-	1	7	19
1971	-	4	1	9	14	-	7	-	2	9	47
1972	-	5	-	6	11	-	5	-	1	6	55
1973	-	3	-	3	6	-	10	-	1	11	37
1974	-	1	-	1	2	1	4	-	-	5	46
1975	-	5	-	3	8	-	9	-	2	11	45
1976	1	2	-	2	5	-	9	-	1	10	47

Year	Exploration					Appraisal					Production
	O	G	G&O	D	Σ	O	G	G&O	D	Σ	Σ
1977	-	4	-	3	7	3	12	-	1	16	28
1978	-	2	-	3	5	-	22	-	-	22	45
1979	-	4	-	2	6	5	10	-	2	17	58
1980	1	2	-	3	6	3	18	-	4	25	67
1981	1	2	1	11	15	3	7	-	2	12	49
1982	-	6	1	5	12	-	17	-	-	17	26
1983	1	8	-	3	12	-	13	-	1	14	17
1984	2	6	-	6	14	5	8	-	2	15	18
1985	1	3	1	6	11	2	10	-	-	12	36
1986	-	4	1	6	11	-	3	-	-	3	16
1987	-	2	2	6	10	-	2	-	-	2	22
1988	-	5	1	1	7	1	3	-	-	4	17
1989	-	2	1	6	9	2	5	-	-	7	11
1990	-	1	3	3	7	-	3	1	1	5	20
1991	-	7	1	2	10	-	3	-	1	4	11
1992	-	6	1	4	11	-	1	-	-	1	12
1993	-	9	-	1	10	-	-	-	-	-	11
1994	-	4	-	1	5	2	1	1	-	4	4
1995	-	7	-	5	12	-	2	-	-	2	10
1996	-	2	1	2	5	-	3	-	3	6	24
1997	-	9	-	2	11	-	4	-	-	4	14
1998	-	6	-	4	10	-	7	-	1	8	7
1999	-	3	-	1	4	-	4	-	-	4	7
2000	-	2	-	-	2	-	-	-	-	-	4
2001	-	2	-	1	3	-	-	-	-	-	6
2002	-	2	-	3	5	-	-	-	-	-	5
2003	-	2	-	1	3	-	-	-	-	-	8
2004	-	1	-	-	1	-	1	-	-	1	1
2005	-	2	-	-	2	-	-	-	-	-	6
2006	-	3	-	1	4	-	2	-	-	2	5
2007	-	2	-	-	2	1	-	-	-	1	8
2008	-	1	-	-	1	-	1	-	-	1	1
2009	1	1	-	-	2	-	3	-	-	3	24
2010	-	3	-	-	3	-	-	-	-	-	34
2011	-	5	1	2	8	-	1	-	-	1	22

Year	Exploration					Appraisal					Production
	O	G	G&O	D	∑	O	G	G&O	D	∑	∑
2012	-	3	-	1	4	-	3	-	-	3	7
2013	-	2	-	-	2	-	2	-	-	2	8
2014	-	5	-	3	8	-	2	-	-	2	7
2015	-	2	-	-	2	-	2	-	-	2	5
2016	-	1	-	-	1	-	-	-	-	-	12
2017	-	2	-	-	2	-	-	-	-	-	1
2018	-	-	-	-	-	-	-	-	-	-	1
2019	-	2	-	-	2	-	-	-	-	-	-
Total	35	233	19	329	616	30	245	3	37	315	1,773

O = Oil; G = Gas; G&O = Gas and oil; D = Dry; ∑ = Total.

U. Number of oil and gas wells, Netherlands continental shelf

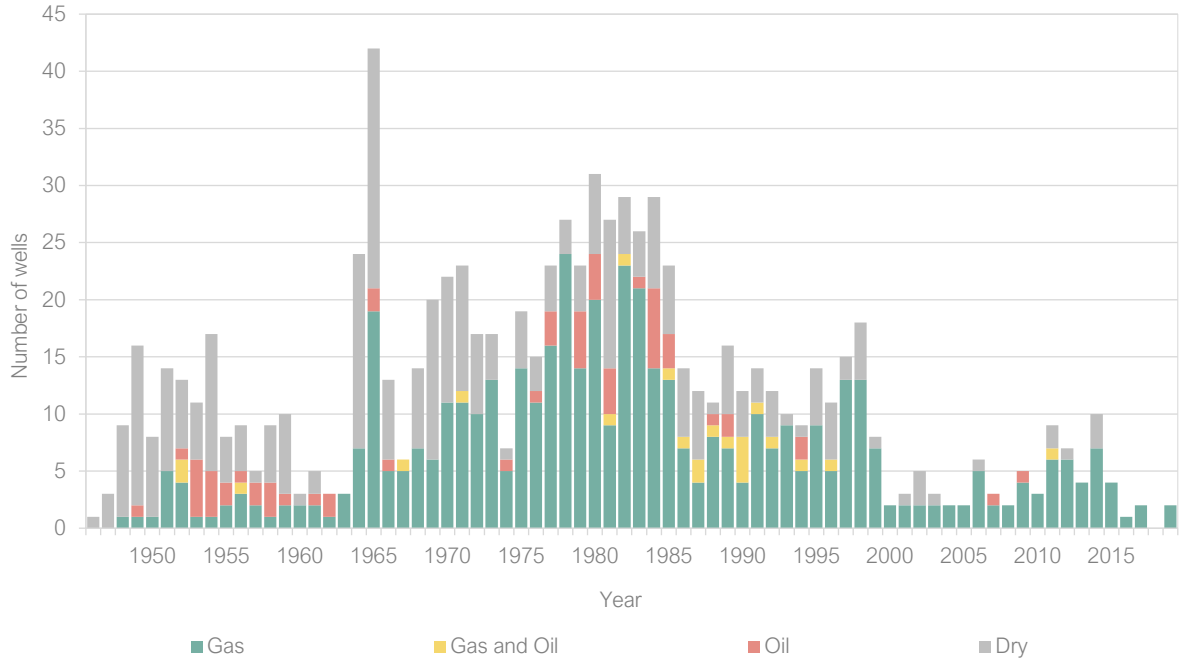
Year	Exploration					Appraisal					Production
	O	G	G&O	D	Σ	O	G	G&O	D	Σ	Σ
1962	-	1	1	1	3	-	-	-	-	-	-
1963	-	-	-	-	-	-	-	-	-	-	-
1964	-	-	-	1	1	-	-	-	-	-	-
1965	-	-	-	-	-	-	-	-	-	-	-
1966	-	-	-	-	-	-	-	-	-	-	-
1967	-	-	-	-	-	-	-	-	-	-	-
1968	-	2	-	5	7	-	-	-	-	-	-
1969	1	8	-	8	17	-	-	-	-	-	-
1970	1	7	-	5	13	-	-	-	-	-	-
1971	1	5	1	12	19	-	-	-	-	-	-
1972	-	11	1	6	18	-	-	-	-	-	-
1973	-	7	-	11	18	-	1	-	-	1	2
1974	-	8	2	6	16	-	1	-	-	1	4
1975	-	7	-	8	15	-	2	-	3	5	11
1976	-	6	1	10	17	-	5	-	2	7	12
1977	-	5	-	18	23	-	6	1	-	7	14
1978	-	7	-	13	20	-	-	-	1	1	17
1979	1	7	-	9	17	-	5	-	1	6	9
1980	6	9	-	10	25	2	2	-	1	5	5
1981	1	2	-	14	17	7	6	-	1	14	7
1982	8	5	2	18	33	1	6	1	4	12	21
1983	3	3	1	24	31	4	3	-	2	9	19
1984	4	5	1	16	26	3	1	-	3	7	27
1985	4	8	-	14	26	2	3	-	1	6	29
1986	2	11	-	11	24	2	2	-	1	5	34
1987	5	10	1	9	25	1	3	-	1	5	8
1988	-	15	2	4	21	-	4	1	1	6	20
1989	1	14	-	12	27	-	6	-	-	6	17
1990	-	13	1	14	28	-	6	-	-	6	14
1991	4	17	1	19	41	-	2	-	-	2	13
1992	-	10	1	7	18	-	-	-	1	1	14
1993	1	5	-	7	13	-	1	-	-	1	19

Year	Exploration					Appraisal					Production
	O	G	G&O	D	∑	O	G	G&O	D	∑	∑
1994	1	3	-	3	7	1	1	-	-	2	9
1995	-	3	-	4	7	-	2	-	-	2	17
1996	1	14	1	8	24	-	5	-	-	5	6
1997	1	11	1	7	20	1	7	-	-	8	11
1998	1	11	-	7	19	-	-	-	1	1	11
1999	-	7	-	4	11	-	2	-	2	4	7
2000	-	4	-	2	6	-	3	-	-	3	9
2001	-	10	-	4	14	-	3	-	-	3	13
2002	-	9	-	8	17	-	1	-	1	2	13
2003	-	6	-	1	7	-	3	-	-	3	16
2004	-	8	-	3	11	-	1	-	1	2	6
2005	-	4	-	1	5	-	-	-	-	-	10
2006	-	3	-	6	9	1	2	-	-	3	15
2007	-	3	-	2	5	-	2	-	-	2	12
2008	-	7	1	2	10	-	1	-	-	1	14
2009	-	5	-	2	7	-	4	-	-	4	10
2010	-	6	-	1	7	-	2	-	-	2	12
2011	1	2	1	2	6	1	2	-	-	3	14
2012	1	5	-	1	7	1	1	-	-	2	11
2013	1	-	2	2	5	2	-	-	-	2	10
2014	3	3	1	3	10	2	3	-	-	5	12
2015	-	6	-	3	9	1	2	-	-	3	11
2016	-	2	-	1	3	-	1	-	-	1	9
2017	-	3	-	1	4	-	1	-	-	1	6
2018	1	3	-	1	5	-	-	-	-	-	6
2019	-	2	-	-	2	-	2	1	-	3	7
Total	54	348	23	371	796	32	116	4	28	180	593

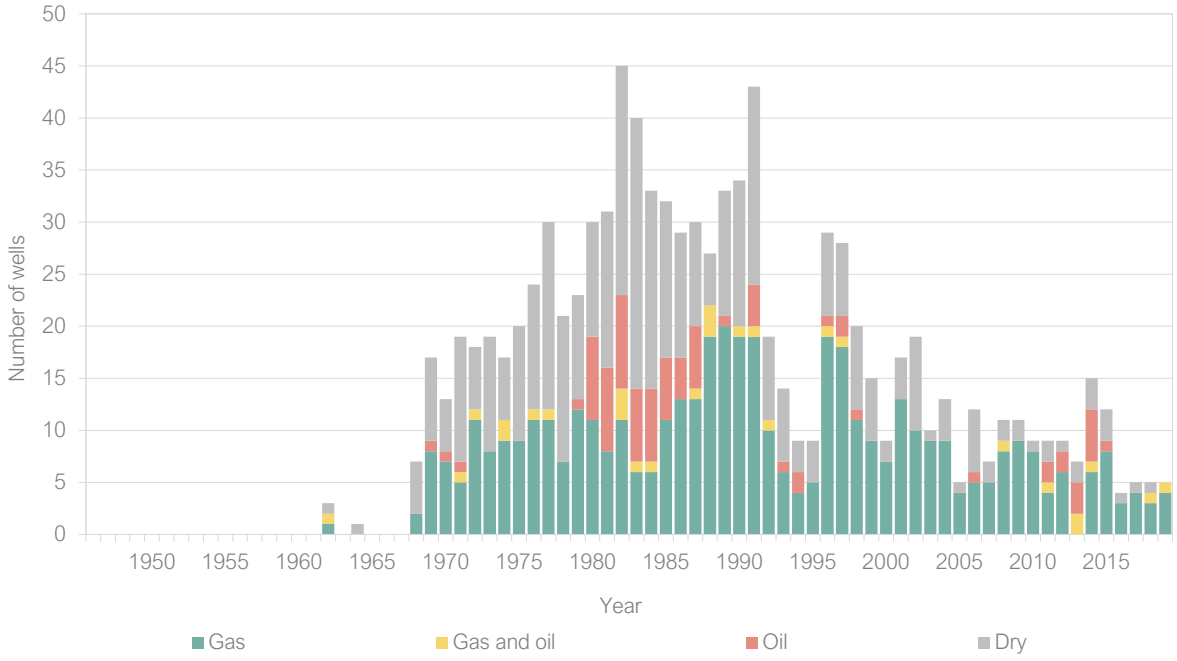
O = Oil; G = Gas; G&O = Gas and oil; D = Dry; ∑ = Total.

V. Number of wells: Netherlands territory and Netherlands continental shelf since 1946

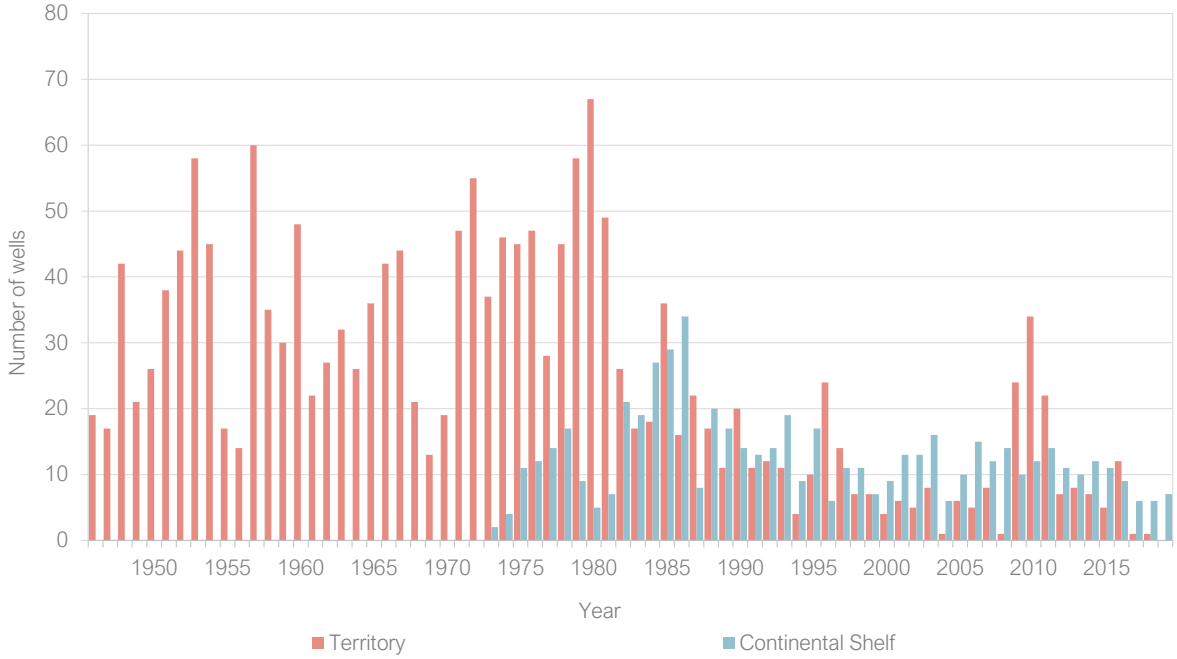
Exploration and appraisal wells, Netherlands territory



Exploration and appraisal wells, continental shelf



Production wells



W. Platforms, Netherlands continental shelf

As at 1 January 2020

Platforms

Platform	Operator	Status	Stoffen	Installed	Decom.	Functie	Number of legs
AME-2	NAM	Operational	Gas	1983		Wellheads	4
AWG-1C	NAM	Operational	Gas	1994		Compression	4
AWG-1P	NAM	Operational	Gas	1985		Processing	6
AWG-1R	NAM	Operational	Gas	1984		Riser or Scraper	3
AWG-1W	NAM	Operational	Gas	1984		Wellheads	4
K07-FA-1P	NAM	Operational	Gas	1980		Processing	6
K07-FA-1W	NAM	Operational	Gas	1980		Wellheads	4
K07-FB-1	NAM	Operational	Gas	2002		Wellheads	3
K07-FD-1	NAM	Operational	Gas	1999		Wellheads	4
K08-FA-1AP	NAM	Operational	Gas	2001		Accommodation or Office	4
K08-FA-1PP	NAM	Operational	Gas	1976		Processing	10
K08-FA-2	NAM	Operational	Gas	1977		Wellheads	4
K08-FA-3	NAM	Operational	Gas	1984		Wellheads	6
K11-FA-1	NAM	Decommissioned	Gas	1977	1999	Wellheads	4
K14-FA-1C	NAM	Operational	Gas	1985		Compression	8
K14-FA-1P	NAM	Operational	Gas	1975		Processing	10
K14-FA-1V	NAM	Operational	Gas	1985		Vent stack	1
K14-FB-1	NAM	Operational	Gas	1997		Wellheads	4
K15-FA-1	NAM	Operational	Gas	1977		Processing	10
K15-FA-1R	NAM	Operational	Gas	2011		Riser or Scraper	1
K15-FB-1	NAM	Operational	Gas	1978		Processing	10
K15-FC-1	NAM	Operational	Gas	1989		Wellheads	4
K15-FG-1	NAM	Operational	Gas	1990		Wellheads	4
K15-FK-1	NAM	Operational	Gas	2002		Wellheads	4
K17-FA-1	NAM	Operational	Gas	2005		Wellheads	1
L02-FA-1	NAM	Operational	Gas	1990		Processing	6
L09-FA-1	NAM	Operational	Gas	2007		Wellheads	1
L09-FB-1	NAM	Operational	Gas	2007		Wellheads	1
L09-FF-1P	NAM	Operational	Gas	1997		Processing	6
L09-FF-1W	NAM	Operational	Gas	1996		Wellheads	6
L13-FC-1P	NAM	Operational	Gas	1986		Processing	6

Platform	Operator	Status	Stoffen	Installed	Decom.	Functie	Number of legs
L13-FC-1W	NAM	Operational	Gas	1985		Wellheads	4
L13-FD-1	NAM	Operational	Gas	1988		Wellheads	4
L13-FE-1	NAM	Operational	Gas	1989		Wellheads	4
L13-FI	NAM	Operational	Gas	2017		Wellheads	1
N07-FA-1	NAM	Suspended	Gas	1997		Wellheads	1
D15-FA-1	Neptune	Operational	Gas	1999		Processing	6
D18a-A	Neptune	Operational	Gas	2013		Processing	4
E17a-A	Neptune	Operational	Gas	2009		Processing	4
F03-FB OLT	Neptune	Operational	Oil	1993		Offloading	1
F03-FB-A	Neptune	Operational	Oil	1992		Accommodation or Office	3
F03-FB-F1	Neptune	Operational	Oil	1992		Processing	3
G14-A	Neptune	Operational	Gas	2005		Processing	4
G14-B	Neptune	Operational	Gas	2007		Processing	4
G16a-A	Neptune	Operational	Gas	2005		Processing	4
G16a-B	Neptune	Operational	Gas	2011		Processing	4
G17d-A	Neptune	Operational	Gas	2001		Processing	4
G17d-AP	Neptune	Operational	Gas	2005		Processing	4
K02b-A	Neptune	Operational	Gas	2005		Processing	4
K09ab-A	Neptune	Operational	Gas	1987		Processing	4
K09ab-B	Neptune	Operational	Gas	1999		Processing	4
K09c-A	Neptune	Operational	Gas	1987		Processing	4
K11-B	Neptune	Decommissioned	Gas	1995	2005	Wellheads	4
K12-A	Neptune	Suspended	Gas	1983		Manifold	4
K12-BD	Neptune	Operational	Gas	1985		Wellheads	4
K12-BP	Neptune	Operational	Gas	1987		Processing	8
K12-C	Neptune	Operational	Gas	1984		Processing	4
K12-CC	Neptune	Decommissioning in progress	Gas	1988		Compression	4
K12-D	Neptune	Operational	Gas	1985		Processing	4
K12-E	Neptune	Decommissioned	Gas	1986	2005	Wellheads	4
K12-G	Neptune	Operational	Gas	2001		Processing	4
K12-K	Neptune	Operational	Gas	2007		Processing	4
L05a-D	Neptune	Operational	Gas	2013		Processing	4
L05-FA-1	Neptune	Operational	Gas	1992		Processing	6
L10-AC	Neptune	Operational	Gas	1987		Compression	4
L10-AD	Neptune	Operational	Gas	1974		Wellheads	10

Platform	Operator	Status	Stoffen	Installed	Decom.	Functie	Number of legs
L10-AP	Neptune	Operational	Gas	1975		Processing	8
L10-AR	Neptune	Operational	Gas	1975		Riser or Scraper	4
L10-B	Neptune	Operational	Gas	1974		Processing	4
L10-BB	Neptune	Operational	Gas	1980		Wellheads	3
L10-C	Neptune	Decommissioning in progress	Gas	1974		Wellheads	4
L10-D	Neptune	Decommissioning in progress	Gas	1977		Wellheads	4
L10-E	Neptune	Operational	Gas	1977		Processing	4
L10-EE	Neptune	Operational	Gas	1984		Wellheads	3
L10-F	Neptune	Operational	Gas	1980		Processing	4
L10-G	Neptune	Decommissioning in progress	Gas	1984		Wellheads	4
L10-K	Neptune	Decommissioned	Gas	1984	2000	Wellheads	4
L10-L	Neptune	Operational	Gas	1988		Processing	4
L10-M	Neptune	Operational	Gas	1999		Processing	4
L11a-A	Neptune	Decommissioned	Gas	1990	1999	Processing	4
L15-FA-1	Neptune	Operational	Gas	1992		Processing	6
Q13a-A	Neptune	Operational	Oil	2013		Processing	4
D12-A	Wintershall	Operational	Gas	2004		Processing	4
D12-B	Wintershall	Operational	Gas	2019		Production	4
E18-A	Wintershall	Decommissioned	Gas	2009	2019	Wellheads	4
F16-A	Wintershall	Operational	Gas	2005		Processing	6
K10-BP	Wintershall	Decommissioned	Gas	1981	2014	Processing	6
K10-BW	Wintershall	Decommissioned	Gas	1981	2014	Wellheads	6
K10-C	Wintershall	Decommissioned	Gas	1981	1997	Processing	4
K10-V	Wintershall	Decommissioned	Gas	1993	2005	Processing	4
K13-AP	Wintershall	Operational	Gas	1974		Processing	8
K13-AW	Wintershall	Operational	Gas	1974		Riser or Scraper	4
K13-B	Wintershall	Decommissioned	Gas	1976	1997	Processing	4
K13-CP	Wintershall	Decommissioned	Gas	1977	1995	Compression	6
K13-CW	Wintershall	Decommissioned	Gas	1977	1995	Wellheads	4
K13-D	Wintershall	Decommissioned	Gas	1978	1995	Wellheads	4
K18-Kotter-P	Wintershall	Decommissioned	Oil	1984	2019	Processing	8
K18-Kotter-W	Wintershall	Decommissioned	Oil	1984	2019	Wellheads	6
L05-B	Wintershall	Operational	Gas	2003		Processing	4
L05-C	Wintershall	Operational	Gas	2006		Processing	4
L06-B	Wintershall	Operational	Gas	2014		Wellheads	1

Platform	Operator	Status	Stoffen	Installed	Decom.	Functie	Number of legs
L08-A	Wintershall	Suspended	Gas	1988		Processing	4
L08-G	Wintershall	Suspended	Gas	1988		Processing	6
L08-H	Wintershall	Suspended	Gas	1988		Processing	4
L08-P	Wintershall	Operational	Gas	1994		Processing	4
L08-P4	Wintershall	Operational	Gas	1999		Processing	4
L16-Logger-P	Wintershall	Decommissioned	Oil	1985	2019	Processing	4
L16-Logger-W	Wintershall	Decommissioned	Oil	1985	2019	Accommodation or Office	4
P02-NE	Wintershall	Decommissioned	Gas	1996	2004	Wellheads	4
P02-SE	Wintershall	Decommissioned	Gas	1997	2004	Wellheads	4
P06-A	Wintershall	Operational	Gas	1982		Processing	8
P06-B	Wintershall	Operational	Gas	1985		Processing	4
P06-D	Wintershall	Operational	Gas	2000		Processing	4
P06-S	Wintershall	Decommissioned	Gas	1997	2013	Wellheads	4
P12-C	Wintershall	Decommissioned	Gas	1990	1999	Wellheads	4
P12-SW	Wintershall	Suspended	Gas	1990		Processing	4
P14-A	Wintershall	Decommissioned	Gas	1993	2008	Wellheads	4
Q01-D	Wintershall	Operational	Gas	2013		Processing	4
Q04-A	Wintershall	Operational	Gas	1999		Processing	4
Q04-B	Wintershall	Operational	Gas	2002		Processing	4
Q04-C	Wintershall	Operational	Gas	2002		Processing	4
Q08-A	Wintershall	Decommissioned	Gas	1986	2012	Wellheads	3
Q08-B	Wintershall	Decommissioned	Gas	1994	2012	Wellheads	4
Zuidwal	Vermilion	Operational	Gas	1987		Processing	8
F15-A	Total	Operational	Gas	1991		Processing	6
K01-A	Total	Operational	Gas	2001		Wellheads	4
K04-A	Total	Operational	Gas	1998		Wellheads	4
K04-BE	Total	Operational	Gas	2000		Wellheads	4
K05-A	Total	Operational	Gas	1993		Wellheads	4
K05-B	Total	Operational	Gas	1995		Wellheads	1
K05-CU	Total	Operational	Gas	2010		Wellheads	4
K05-D	Total	Operational	Gas	1993		Wellheads	4
K05-EN/C	Total	Operational	Gas	1997		Wellheads	4
K05-P	Total	Operational	Gas	1994		Processing	4
K05-PK	Total	Operational	Gas	2002		Compression	4
K06-C	Total	Operational	Gas	1991		Wellheads	4
K06-D	Total	Operational	Gas	1992		Wellheads	4

Platform	Operator	Status	Stoffen	Installed	Decom.	Functie	Number of legs
K06-DN	Total	Operational	Gas	1991		Wellheads	4
K06-GT	Total	Operational	Gas	1998		Wellheads	4
K06-N	Total	Operational	Gas	1993		Wellheads	4
K06-P	Total	Operational	Gas	1991		Processing	4
L04-A	Total	Operational	Gas	1981		Processing	8
L04-B	Total	Suspended	Gas	1984		Wellheads	4
L04-PN	Total	Operational	Gas	1999		Wellheads	4
L07-A	Total	Suspended	Gas	1984		Wellheads	4
L07-B	Total	Suspended	Gas	1976		Processing	4
L07-BB	Total	Suspended	Gas	1979		Wellheads	4
L07-C	Total	Suspended	Gas	1976		Wellheads	4
L07-H	Total	Suspended	Gas	1989		Wellheads	4
L07-N	Total	Suspended	Gas	1988		Wellheads	4
L07-P	Total	Suspended	Gas	1976		Processing	8
L07-PK	Total	Suspended	Gas	1982		Compression	4
L07-Q	Total	Suspended	Gas	1976		Accommodation or Office	4
P15-A	TAQA	Operational	Oil	1985		Wellheads	4
P15-B	TAQA	Decommissioned	Oil	1985	2003	Wellheads	4
P15-C	TAQA	Operational	Gas	1985		Wellheads	6
P15-D	TAQA	Operational	Gas	1993		Processing	6
P15-E	TAQA	Operational	Gas	1993		Wellheads	4
P15-F	TAQA	Operational	Gas	1993		Wellheads	4
P15-G	TAQA	Operational	Gas	1993		Wellheads	4
P18-A	TAQA	Operational	Gas	1993		Wellheads	4
A12-CPP	Petrogas	Operational	Gas	2007		Processing	4
A18	Petrogas	Operational	Gas	2015		Production	4
B13-A	Petrogas	Operational	Gas	2011		Production	4
P09-Horizon	Petrogas	Operational	Oil	1993		Processing	4
Q01-Halfweg	Petrogas	Decommissioning in progress	Gas	1995		Production	4
Q01-Haven-A	Petrogas	Operational	Oil	1989		Production	1
Q01-Helder-AP	Petrogas	Operational	Oil	1982		Processing	4
Q01-Helder-AW	Petrogas	Operational	Oil	1982		Production	6
Q01-Helder-B	Petrogas	Decommissioned	Oil	1986	1988	Wellheads	1
Q01-Helm-AP	Petrogas	Suspended	Oil	1982		Processing	4
Q01-Helm-AW	Petrogas	Suspended	Oil	1981		Production	4

Platform	Operator	Status	Stoffen	Installed	Decom.	Functie	Number of legs
Q01-Hoorn-AP	Petrogas	Suspended	Oil	1983		Processing	4
Q01-Hoorn-AW	Petrogas	Operational	Gas	1983		Production	6
L11b-PA	ONE-Dyas	Operational	Gas	1986		Processing	4
M07-A	ONE-Dyas	Operational	Gas	2009		Wellheads	1
P11-E	ONE-Dyas	Operational	Gas	2016		Wellheads	4
F02-A-Hanze	Dana	Operational	Oil	2000		Processing	6
P11-B-De Ruyter	Dana	Operational	Oil	2006		Processing	4
Q10-A	Tulip	Operational	Hical	2018		Depletion	4
F03-FA	Spirit	Decommissioned	Gas	2010	2019	Processing	4
J06-A-Markham	Spirit	Operational	Gas	1991		Processing	6
J06-C-Markham	Spirit	Operational	Gas	2006		Compression	4
ST-1-Markham	Spirit	Decommissioned	Gas	1994	2019	Wellheads	4

Subsea production installations

Subsea	Operator	Status	Gas/Oil	Installed	Decommisioned	Function
L13-FH-1	NAM	Decommissioned	Gas	1995	2011	Wellheads
G17a-S1	Neptune	Operational	Gas	2005		Wellheads
K12-S1	Neptune	Decommissioned	Gas	1990	2003	Wellheads
K12-S2	Neptune	Suspended	Gas	2002		Wellheads
K12-S3	Neptune	Operational	Gas	2003		Wellheads
L10-S1	Neptune	Decommissioned	Gas	1988	1997	Wellheads
L10-S2	Neptune	Operational	Gas	1997		Wellheads
L10-S3	Neptune	Decommissioned	Gas	1993	2004	Wellheads
L10-S4	Neptune	Operational	Gas	1996		Wellheads
L14-S1	Neptune	Decommissioned	Gas	1990	1997	Wellheads
K18-G1	Wintershall	Operational	Gas	2011		Wellheads
K18-G2	Wintershall	Operational	Gas	2014		Wellheads
K18-G4	Wintershall	Operational	Gas	2011		Wellheads
L08-A-West	Wintershall	Operational	Gas	2000		Wellheads
P09-A	Wintershall	Operational	Gas	2009		Wellheads
P09-B	Wintershall	Suspended	Gas	2009		Wellheads
Q05-A	Wintershall	Decommissioned	Gas	2004	2013	Wellheads
K04a-D	Total	Operational	Gas	1997		Wellheads
K04-Z	Total	Operational	Gas	2012		Wellheads
K05-F	Total	Operational	Gas	2008		Wellheads

Subsea	Operator	Status	Gas/Oil	Installed	Decommisioned	Function
L04-G	Total	Operational	Gas	2005		Wellheads
P15-10S	TAQA	Decommissioned	Gas	1992	2019	Wellheads
P15-12S	TAQA	Decommissioned	Gas	1992	2019	Wellheads
P15-14S	TAQA	Decommissioned	Gas	1992	2019	Wellheads
L06d-S1	ONE-Dyas	Decommissioned	Gas	2005	2014	Wellheads
Q16-FA-1	ONE-Dyas	Operational	Gas	1998		Wellheads
F02-A-Hanze TMLS	DANA	Operational	Oil	2000		Offloading
P11-B-De Ruyter TMLS	DANA	Operational	Oil	2006		Offloading
P11-B-Van Ghent WHPS	DANA	Operational	Oil	2011		Wellheads
P11-B-Van Nes WHPS	DANA	Operational	Gas	2012		Wellheads
P11-B-WYE Manifold	DANA	Operational	Oil	2011		Manifold

Source: Nexstep, National Platform for Re-use & Decommissioning, www.nexstep.nl.

X. Pipelines, Netherlands continental shelf

As at 1 January 2020

Operator	Status	Carries	Installed	Decom.	From	To	Length (km)	Diameter (inch)
NAM	Operational	Gas	1977		K08-FA-1PP	K14-FA-1P	31.0	24.0
NAM	Operational	Gas	1977		K14-FA-1C	WGT Sidetap K14-FA	0.2	24.0
NAM	Operational	Gas	1978		K08-FA-2	K08-FA-1PP	4.0	11.0
NAM	Suspended	Gas	1978		K15-FA-1	WGT Sidetap K15-FA	1.3	24.0
NAM	Operational	Gas	1982		K07-FA-1P	K08-FA-1PP	9.0	18.0
NAM	Operational	Gas	1983		K15-FB-1	LoCal Sidetap onshore Callantsoog	84.0	24.0
NAM	Operational	Gas	1985		Ameland-Oost-1	AWG-1R	4.0	20.0
NAM	Operational	Gas	1985		AWG-1R	NP-001-ST-KP-118.9-36-24	7.0	20.0
NAM	Operational	Gas	1986		L13-FC-1P	K15-FA-1	15.0	18.0
NAM	Operational	Gas	1986		K08-FA-3	K07-FA-1P	9.0	12.0
NAM	Operational	Gas	1987		K15-FA-1	K14-FA-1C	24.0	18.0
NAM	Operational	Gas	1989		L13-FD-1	L13-FC-1P	4.0	7.0
NAM	Operational	Gas	1989		K08-FA-2	K08-FA-1PP	4.0	10.0
NAM	Operational	Gas	1990		K15-FC-1	K15-FB-1	8.0	10.0
NAM	Operational	Gas	2013		L13-FE-1	L13-FC-1P	4.0	10.0
NAM	Suspended	Gas	1990		L13-FE-1	L13-FC-1P	4.0	10.0
NAM	Operational	Gas	1990		K15-FG-1	K15-FA-1	7.0	11.0
NAM	Operational	Gas	1991		AME-2	AWG-1R	5.0	11.0
NAM	Suspended	Gas	1995		L13-FH-1	K15-FA-1	9.0	6.0
NAM	Operational	Gas	1997		K14-FB-1	K14-FA-1P	9.0	10.0
NAM	Suspended	Gas	1997		K14-FA-1P	K15-FB-1	17.0	16.0
NAM	Operational	Gas	1997		L09-FF-1P	L09-FF-1P Sidetap	19.0	24.0
NAM	Operational	Gas	1998		K07-FD-1	K08-FA-1PP	9.0	13.0
NAM	Operational	Gas	1998		K08-FA-1PP	K14-FA-1C	31.0	24.0
NAM	Operational	Gas	2003		K15-FK-1	K15-FB-1	8.0	10.0
NAM	Operational	Gas	2005		K17-FA-1	K14-FB-1	15.0	16.0
NAM	Operational	Gas	2003		K07-FB-1	K07-FD-1	17.0	12.0
NAM	Operational	Chemicals	2005		K14-FB-1	K17-FA-1	15.0	2.0
NAM	Operational	Gas	2008		L09-FA-1	L09-FF-1P	20.0	16.0

Operator	Status	Carries	Installed	Decom.	From	To	Length (km)	Diameter (inch)
NAM	Operational	Gas	2008		L09-FB-1	Sidetap leiding L09-FA naar L09-FB	0.9	16.0
NAM	Operational	Chemicals	2008		L09-FF-1P	L09-FA-1	20.0	2.0
NAM	Operational	Chemicals	2008		Sidetap leiding L09-FA naar L09-FB	L09-FB-1	0.9	2.0
NAM	Operational	Chemicals	2008		L09-FF-1P	L09-FA-1	20.0	2.0
NAM	Operational	Water	2008		Sidetap leiding L09-FA naar L09-FB	L09-FB-1	0.9	2.0
NAM	Operational	Gas	2019		L13-FI	K15-FA-1	6.5	20.0
NAM	Operational	Chemicals	1989		L13-FC-1P	L13-FD-1	4.0	4.0
NAM	Operational	Chemicals	1991		L13-FC-1P	L13-FE-1	4.0	4.0
NAM	Operational	Chemicals	1991		K15-FB-1	K15-FC-1	8.0	4.0
NAM	Operational	Chemicals	1991		K15-FA-1	K15-FG-1	7.0	4.0
NAM	Operational	Chemicals	1991		AWG-1R	AME-2	5.0	4.0
NAM	Suspended	Chemicals	1995		K15-FA-1	L13-FH-1	9.0	3.0
NAM	Operational	Chemicals	1997		K14-FA-1P	K14-FB-1	9.0	4.0
NAM	Operational	Chemicals	1997		K08-FA-1PP	K07-FD-1	9.0	3.0
NAM	Operational	Chemicals	2002		K08-FA-1PP	K08-FA-2	4.0	4.0
NAM	Operational	Chemicals	2003		K08-FA-1PP	K07-FB-1	26.0	4.0
NAM	Operational	Chemicals	2003		K15-FB-1	K15-FK-1	9.0	4.0
Neptune	Operational	Gas	1984		L10-B	L10-AP	6.8	14.0
Neptune	Operational	Gas	1983		K12-A	L10-AP	29.2	14.0
Neptune	Operational	Gas	2001		K12-G	L10-AP	15.6	14.0
Neptune	Operational	Gas	2007		K12-K	K12-BP	10.3	14.0
Neptune	Operational	Gas	2005		G16a-A	G17d-AP	17.6	10.0
Neptune	Operational	Gas	2005		K02b-A	NP-002-ST-KP-61.88-36	2.8	12.0
Neptune	Operational	Gas	2005		G14-A	G17d-AP	19.8	12.0
Neptune	Operational	Gas	2007		G14-B	G17d-AP	13.4	12.0
Neptune	Operational	Gas	2010		E17a-A	E17a-A to Side Tap D15-FA to L10-AC KP 35.73	2.0	12.0
Neptune	Suspended	Water	1974		L10-B	L10-AD	7.3	10.0
Neptune	Decom.	Gas	1974	2016	L10-C	L10-AP	1.1	10.0
Neptune	Decom.	Gas	1977	2016	L10-D	L10-AP	1.0	10.0
Neptune	Operational	Gas	1977		L10-E	L10-AP	4.0	10.0

Operator	Status	Carries	Installed	Decom.	From	To	Length (km)	Diameter (inch)
Neptune	Suspended	Gas	1984		L10-E	L10-E to Side Tap L10-B to L10-AP KP 3.86	0.1	10.0
Neptune	Operational	Gas	1980		L10-F	L10-AP	4.3	10.0
Neptune	Decom.	Gas	1984	2016	L10-G	L10-G to Side Tap L10-B to L10-AP KP 6.44	4.7	10.0
Neptune	Operational	Gas	1988		L10-L	L10-AP	2.2	10.0
Neptune	Operational	Gas	1985		K12-D	K12-C	4.4	10.0
Neptune	Operational	Gas	1984		K12-C	K12-C to Side Tap K12-A to L10-AP KP 8.6	0.4	10.0
Neptune	Operational	Gas	2000		L10-M	L10-AP	12.0	10.0
Neptune	Operational	Gas	1999		K09ab-B	K09ab-B to Side Tap D15-FA to L10-AC KP 106.76	0.1	10.0
Neptune	Operational	Gas	2011		G16a-B	G17d-AP	13.9	14.0
Neptune	Suspended	Gas	1997		L10-S2	L10-AP	6.6	6.0
Neptune	Suspended	Gas	1997		L10-S4	L10-AP	8.2	6.0
Neptune	Suspended	Gas	2002		K12-S2	K12-C	6.9	6.0
Neptune	Operational	Gas	2004		K12-S3	K12-BP	3.4	6.0
Neptune	Operational	Gas	2005		G17a-S1	G17d-AP	5.7	6.0
Neptune	Operational	Control & Power	2002		K12-S2	K12-C	7.0	5.0
Neptune	Operational	Control & Power	1997		L10-S2	L10-AP	6.8	4.0
Neptune	Operational	Control & Power	1997		L10-S4	L10-AP	8.4	4.0
Neptune	Operational	Control & Power	2005		G17a-S1	G17d-AP	5.8	3.0
Neptune	Suspended	Water	1974		L10-B	L10-AD	7.3	2.0
Neptune	Decom.	Chemicals	1974	2016	L10-C	L10-AP	1.1	2.0
Neptune	Decom.	Chemicals	1977	2016	L10-D	L10-AP	1.0	2.0
Neptune	Suspended	Water	1977		L10-E	L10-AP	4.0	2.0
Neptune	Operational	Water	1980		L10-F	L10-AP	4.3	2.0
Neptune	Decom.	Chemicals	1984	2016	L10-G	L10-G to Side Tap L10-B to L10-AP KP 6.44	4.7	2.0
Neptune	Operational	Water	1988		L10-L	L10-AP	2.2	2.0
Neptune	Operational	Chemicals	1983		K12-A	L10-AP	29.2	2.0
Neptune	Operational	Chemicals	1985		K12-D	K12-C	4.1	2.0
Neptune	Operational	Chemicals	1984		K12-C	K12-C to Side Tap K12-A to L10-AP KP 8.6 Piggyback	0.4	2.0
Neptune	Suspended	Chemicals	1997		L10-S2	L10-AP	6.6	2.0

Operator	Status	Carries	Installed	Decom.	From	To	Length (km)	Diameter (inch)
Neptune	Operational	Water	1997		L10-S4	L10-AP	8.2	2.0
Neptune	Operational	Chemicals	2000		L10-M	L10-AP	12.0	2.0
Neptune	Operational	Chemicals	2001		K12-G	L10-AP	15.6	2.0
Neptune	Operational	Condensate	2005		G16a-A	G17d-AP	17.6	2.0
Neptune	Operational	Chemicals	2005		G14-A	G17d-AP	19.8	2.0
Neptune	Operational	Chemicals	2007		K12-K	K12-BP	10.3	2.0
Neptune	Operational	Chemicals	2007		G14-B	G17d-AP	13.4	2.0
Neptune	Operational	Chemicals	2011		G16a-B	G17d-AP	13.9	2.0
Neptune	Operational	Chemicals	2004		K12-S3	K12-BP	3.5	3.0
Neptune	Operational	Gas	2013		D18a-A	D15-FA-1	21.5	8.0
Neptune	Operational	Chemicals	2013		D18a-A	D15-FA-1	21.5	2.0
Neptune	Operational	Gas	2013		L05a-D	L05-FA-1	10.6	10.0
Neptune	Operational	Chemicals	2013		L05a-D	L05-FA-1	10.6	2.0
Neptune	Operational	Oil	2013		Q13a-A	P15-C	24.4	8.0
Neptune	Operational	Control & Power	2013		Scheveningen	Q13a-A	13.7	3.5
Neptune	Operational	Oil	1992		F03-FB-F1	F03-FB OLT	2.0	16.0
Neptune	Operational	Control & Power	1992		F03-FB-F1	F03-FB OLT	2.0	16.0
Wintershall	Decom.	Gas	1994	2012	K05-A	WGT EXT Sidetap K05-A	0.3	16.0
Wintershall	Decom.	Gas	1992	2004	K10-B	K13-AP	16.8	20.0
Wintershall	Decom.	Gas	1982	1994	K10-C	K13-B	19.2	20.0
Wintershall	Decom.	Gas	1993	2003	K10-V	K10-BP	14.2	10.0
Wintershall	Decom.	Gas	1977	1991	K13-B	K13-AP	9.2	10.0
Wintershall	Decom.	Gas	1977	1992	K13-CP	K13-AP	10.3	20.0
Wintershall	Decom.	Gas	1978	1987	K13-D	K13-CP	3.2	8.0
Wintershall	Suspended	Gas	1988		L08-H	L8-H Sidetap	0.2	8.0
Wintershall	Decom.	Gas	1996	2002	P02-NE	P06-A	38.1	10.0
Wintershall	Decom.	Gas	1996	2012	P06-S	P06-B	6.6	6.0
Wintershall	Decom.	Gas	1990	2001	P12-C	P12-SW	6.9	8.0
Wintershall	Decom.	Gas	1993	2007	P14-A	P15-D	12.6	10.0
Wintershall	Decom.	Gas	2004	2011	Q05-A	Q08-B	13.5	8.0
Wintershall	Decom.	Gas	1994	2011	Q08-B	Q08-A	8.3	8.0
Wintershall	Decom.	Gas	1978	1993	K10-BP	K13-CP	6.4	8.0
Wintershall	Decom.	Gas	1990	2002	P12-C	P12-SW	6.9	8.0
Wintershall	Decom.	Chemicals	1993	2007	P14-A	P15-D	12.5	2.0
Wintershall	Decom.	Control & Power	2004	2011	Q05-A	Q08-B	13.7	3.0

Operator	Status	Carries	Installed	Decom.	From	To	Length (km)	Diameter (inch)
Wintershall	Operational	Gas	2000		NOGAT EXT Border Crossing	F03-FB-F1	86.8	20.0
Wintershall	Operational	Oil	2000		NOGAT EXT Border Crossing	F03-FB-F1	86.8	4.0
Wintershall	Operational	Gas	1975		K13-AP	Afsluiter WGT zeeleiding	120.5	36.0
Wintershall	Operational	Gas	1992		J06-A-Markham	K13-AP	85.8	24.0
Wintershall	Decom.	SaltWater	1984	2019	K18-Kotter-P	Q01-Helder-AP	20.2	12.0
Wintershall	Operational	Gas	2003		L05-B	L08-P4	6.4	10.0
Wintershall	Operational	Control & Power	2003		L05-B	L08-P4	6.4	3.0
Wintershall	Operational	Gas	2006		L05-C	L08-P4	8.0	10.0
Wintershall	Operational	Control & Power	2006		L05-C	L08-P4	8.0	10.0
Wintershall	Suspended	Gas	1988		L08-A	L08-G	10.0	8.0
Wintershall	Suspended	Gas	1994		L08-G	L08-P	7.4	8.0
Wintershall	Suspended	Chemicals	1994		L08-P	L08-G	7.4	2.0
Wintershall	Operational	Gas	2000		L08-P	L08-P4	3.0	12.0
Wintershall	Operational	Gas	2000		L08-A-West	L08-P4	10.3	6.0
Wintershall	Operational	Control & Power	2000		L08-A-West	L08-P4	10.3	4.0
Wintershall	Decom.	SaltWater	1984	2019	L16-Logger-P	K18-Kotter-P	18.8	8.0
Wintershall	Decom.	Water	1985	2019	L16-Logger-P	K18-Kotter-P	18.8	6.0
Wintershall	Operational	Gas	1983		P06-A	L10-AR	78.6	20.0
Wintershall	Operational	Gas	1985		P06-B	P06-A	3.9	12.0
Wintershall	Operational	Gas	2001		P06-D	P06-B	6.7	10.0
Wintershall	Suspended	Gas	2009		P09-B	P06-D	16.6	8.0
Wintershall	Operational	Control & Power	2009		P09-B	P06-D	16.6	3.0
Wintershall	Suspended	Gas	1990		P12-SW	P06-A	42.0	12.0
Wintershall	Operational	Gas	2000		Q04-A	P06-A	35.3	14.0
Wintershall	Operational	Gas	2001		Q04-B	Q04-A	7.3	10.0
Wintershall	Operational	Gas	2002		Q04-C	Q01-Hoorn-AP	14.2	16.0
Wintershall	Operational	Gas	1986		Subsea aansluiting Q08	Wijk aan Zee	13.7	10.0
Wintershall	Operational	Gas	2011		Q04-C	Subsea aansluiting Q08	30.6	10.0
Wintershall	Operational	Gas	2004		D12-A	D15-FA-1	4.9	10.0
Wintershall	Operational	Control & Power	2004		D12-A	D15-FA-1	5.1	3.0
Wintershall	Decom.	SaltWater	2009	2019	E18-A	F16-A	5.3	10.0
Wintershall	Operational	Gas	2004		F16-A	NP-002-ST-KP-61.88-36	32.0	24.0
Wintershall	Operational	Gas	2011		K18-G1	K15-FA-1R	10.0	8.0
Wintershall	Operational	Gas	2011		Wingate	D15-FA-1	20.5	12.0

Operator	Status	Carries	Installed	Decom.	From	To	Length (km)	Diameter (inch)
Wintershall	Operational	Gas	2012		K05-A	WGT EXT Sidetap K05-A	0.3	14.0
Wintershall	Operational	Gas	2014		L06-B	L08-P4	19.2	8.0
Wintershall	Operational	Control & Power	2014		L06-B	L08-P4	19.2	3.0
Wintershall	Operational	Gas	2013		Q01-D	Q1-D Side tap	2.0	8.0
Wintershall	Decom.	Control & Power	2009	2019	E18-A	F16-A	5.5	3.0
Wintershall	Operational	Control & Power	1992		J06-A-Markham	Subsea Isolation Valve	0.3	3.0
Wintershall	Operational	Control & Power	2011		K18-G1	K15-FA-1R	10.0	3.0
Wintershall	Operational	Gas	2014		K18-G2	K18-G1	0.1	4.0
Wintershall	Operational	Control & Power	2014		K18-G2	K18-G1	0.1	4.0
Wintershall	Suspended	Diesel	1990		P12-SW	P06-A	42.0	3.0
Wintershall	Operational	Water	1985		P06-B	P06-A	3.9	3.0
Wintershall	Operational	Chemicals	2002		Q01-Hoorn-AP	Q1-D Side tap	7.0	2.0
Wintershall	Suspended	Chemicals	2002		Q1-D Side tap	Q04-C	7.3	2.0
Wintershall	Operational	Chemicals	2011		D15-FA-1	Wingate	20.5	2.0
Wintershall	Construction	Gas	2019		D12-B	D15-FA-1	11.8	10.0
Wintershall	Construction	Chemicals	2019		D12-B	D15-FA-1	11.8	3.0
Vermilion	Operational	Gas	1987		Zuidwal	Harlingen Treatment Center	20.3	20.0
Vermilion	Operational	Gas	1986		Zuidwal	Harlingen Treatment Center	19.8	20.0
Vermilion	Operational	Chemicals	1986		Harlingen Treatment Center	Zuidwal	19.8	3.0
Total	Decom.	Chemicals	1999	2005	L04-B	K06-GT	10.3	3.0
Total	Operational	Chemicals	2002		J06-A-Markham	K01-A	9.1	3.0
Total	Operational	Control & Power	1997		J06-A-Markham	K04a-D	7.4	2.5
Total	Operational	Gas	2002		K01-A	J06-A-Markham	9.1	14.0
Total	Operational	Gas	1997		K04a-D	J06-A-Markham	7.3	4.0
Total	Operational	Chemicals	2001		K04-A	K04-BE	8.1	2.5
Total	Operational	Gas	1998		K04-A	K05-A	6.7	12.0
Total	Decom.	Gas	2001	2003	K04-BE	K04-A	8.0	9.5
Total	Operational	Gas	2004		K04-BE	K04-A	8.0	10.0
Total	Operational	Gas	2014		K04-Z	K05-A	17.2	6.0
Total	Operational	Chemicals	1998		K05-A	K04-A	6.7	3.0
Total	Operational	Control & Power	1998		K05-A	K04-A	6.9	2.5

Operator	Status	Carries	Installed	Decom.	From	To	Length (km)	Diameter (inch)
Total	Operational	Control & Power	2014		K05-A	K04-Z	17.6	3.2
Total	Operational	Control & Power	1995		K05-A	K05-B	6.5	3.5
Total	Operational	Chemicals	2011		K05-A	K05-CU	15.2	3.0
Total	Operational	Chemicals	1994		K05-A	K05-D	10.6	3.0
Total	Decom.	Gas	1995	2010	K05-B	K05-A	6.5	8.0
Total	Operational	Gas	2012		K05-B	K05-A	6.7	8.0
Total	Operational	Control & Power	1997		K05-B	K05-EN/C	6.2	3.5
Total	Operational	Gas	2011		K05-CU	K05-A	15.2	10.0
Total	Operational	Gas	1994		K05-D	K05-A	10.6	12.0
Total	Operational	Chemicals	1997		K05-D	K05-EN/C	2.8	2.5
Total	Decom.	Gas	1997	2001	K05-EN/C	K05-D	2.7	10.0
Total	Operational	Gas	2001		K05-EN/C	K05-D	2.7	10.0
Total	Operational	Gas	2008		K05-F	K06-N	9.8	8.0
Total	Operational	Control & Power	2008		K06-C	K05-F	18.3	4.1
Total	Operational	Chemicals	1992		K06-C	K06-D	3.8	3.0
Total	Operational	Chemicals	1992		K06-C	K06-DN	5.3	3.0
Total	Operational	Chemicals	2005		K06-C	K06-GT	6.9	3.0
Total	Operational	Chemicals	1993		K06-C	K06-N	8.5	3.0
Total	Operational	Gas	1992		K06-D	K06-C	3.8	10.0
Total	Operational	Gas	1992		K06-DN	K06-C	5.3	12.0
Total	Operational	Gas	2005		K06-GT	K06-C	6.9	10.0
Total	Decom.	Gas	1999	2005	K06-GT	L04-B	10.3	10.0
Total	Operational	Gas	1993		K06-N	K06-C	8.5	12.0
Total	Operational	Gas	2017		L04-A	K06-GT	13.1	10.0
Total	Operational	Control & Power	2005		L04-A	L04-G	10.5	4.5
Total	Operational	Chemicals	1999		L04-A	L04-PN	11.5	3.0
Total	Suspended	Gas	1982		L04-A	L07-P	22.8	12.0
Total	Suspended	Gas	1985		L04-B	L07-A	10.1	10.0
Total	Operational	Gas	2005		L04-G	L04-A	10.5	6.0
Total	Decom.	Gas	1999	2007	L04-PN	L04-A	11.5	10.0
Total	Operational	Gas	1999		L04-PN	L04-A	11.5	10.0
Total	Suspended	Chemicals	1985		L07-A	L04-B	10.1	3.0
Total	Suspended	Gas	1985		L07-A	L07-P	10.4	10.0
Total	Suspended	Gas	1977		L07-B	L07-P	8.0	12.0
Total	Suspended	Water	1977		L07-B	L07-P	8.0	4.0
Total	Suspended	Gas	1989		L07-H	L07-N	6.4	10.0

Operator	Status	Carries	Installed	Decom.	From	To	Length (km)	Diameter (inch)
Total	Suspended	Chemicals	1989		L07-N	L07-H	6.4	3.0
Total	Suspended	Gas	1988		L07-N	L07-P	4.1	10.0
Total	Suspended	Gas	1977		L07-P	L10-AP	15.9	16.0
Total	Suspended	Chemicals	1982		L07-P	L04-A	22.8	3.0
Total	Suspended	Chemicals	1985		L07-P	L07-A	10.1	3.0
Total	Suspended	Chemicals	1977		L07-P	L07-B	8.0	3.0
Total	Suspended	Chemicals	1988		L07-P	L07-N	4.1	3.0
TAQA	Decom.	Water	1985	2003	P15-B	P15-C	3.4	6.0
TAQA	Decom.	Chemicals	1985	2003	P15-B	P15-C	3.4	4.0
TAQA	Decom.	Gas	1985	2003	P15-C	P15-B	3.4	6.0
TAQA	Operational	Oil	1985		P15-C	P15 Hoek van Holland Metering station	42.6	10.0
TAQA	Operational	Gas	1993		P15-D	Maasvlakte onshore (gas)	40.1	26.0
TAQA	Operational	Gas	1993		P15-E	P15-D	13.9	10.0
TAQA	Operational	Chemicals	1993		P15-D	P15-E	13.9	2.0
TAQA	Suspended	Gas	1993		P15-F	P15-D	9.1	12.0
TAQA	Operational	Chemicals	1993		P15-D	P15-F	9.1	3.0
TAQA	Operational	Gas	1993		P15-G	P15-D	9.1	12.0
TAQA	Operational	Chemicals	1993		P15-D	P15-G	9.1	3.0
TAQA	Decom.	Gas	1993	2018	P15-10S	P15-D	3.9	4.0
TAQA	Decom.	Chemicals	1993	2018	P15-D	P15-10S	3.9	2.0
TAQA	Decom.	Gas	1993	2018	P15-12S	P15-D	6.1	4.0
TAQA	Decom.	Chemicals	1993	2018	P15-D	P15-12S	6.1	2.0
TAQA	Decom.	Gas	1993	2018	P15-14S	P15-G	3.7	4.0
TAQA	Decom.	Chemicals	1993	2018	P15-G	P15-14S	3.7	2.0
TAQA	Operational	Gas	1993		P18-A	P15-D	20.8	16.0
TAQA	Operational	Chemicals	1993		P15-D	P18-A	20.8	3.0
TAQA	Decom.	Oil	1985	2003	P15-B	P15-C	3.4	10.0
Petrogas	Operational	Gas	2007		A12-CPP	NOGAT EXT Sidetap A12	16.5	16.0
Petrogas	Operational	Gas	2014		A18	A12-CPP	32.0	12.0
Petrogas	Operational	Gas	2011		B13-A	A12-CPP	20.3	16.0
Petrogas	Decom. pro	Gas	1995	2019	Q01-Halfweg	Q01-Hoorn-AP	12.4	12.0
Petrogas	Decom.	Oil	1989	1995	Q01-Haven-A	Q01-Helder-AW	5.8	8.0
Petrogas	Operational	Oil	1995		Q01-Haven-A	Q01-Helder-AW	5.8	8.0
Petrogas	Decom.	Oil	1986	1989	Q01-Helder-B	Q01-Helder-AW	1.9	8.0

Operator	Status	Carries	Installed	Decom.	From	To	Length (km)	Diameter (inch)
Petrogas	Operational	Control & Power	1989		Q01-Haven-A	Q01-Helder-AW	5.8	3.0
Petrogas	Operational	Oil	1982		Q01-Helder-AW	Q01-Helm-AP	6.0	20.0
Petrogas	Operational	Oil	1982		Q01-Helm-AP	Sidetap onshore Ijmuiden (olie)	56.7	20.0
Petrogas	Decom. pro	Control & Power	1995	2019	Q01-Halfweg	Q01-Hoorn-AP	12.4	3.0
Petrogas	Operational	Gas	1983		Q01-Hoorn-AP	Q01-Helder-AW	3.6	10.0
Petrogas	Suspended	Gas	1995		Q01-Hoorn-AP	WGT Sidetap Hoorn	17.5	12.0
Petrogas	Operational	Oil	1993		P09-Horizon	Q01-Helder-AW	47.5	10.0
ONE-Dyas	Operational	Gas	1998		Q16-FA-1	P18-A	10.3	8.0
ONE-Dyas	Operational	Chemicals	1998		Q16-FA-1	P18-A	10.3	2.0
ONE-Dyas	Operational	Gas	2009		M07-A	L09-FF-1P	12.0	6.0
ONE-Dyas	Operational	Chemicals	2009		M07-A	L09-FF-1P	12.0	2.0
ONE-Dyas	Suspended	Gas	2006		L06d-S1	G17d-AP	40.0	6.0
ONE-Dyas	Operational	Gas	2015		P11-E	P15-F	9.8	8.0
ONE-Dyas	Operational	Chemicals	2015		P11-E	P15-F	9.8	2.0
ONE-Dyas	Operational	Control & Power	1998		Q16-FA-1	P18-A	10.3	3.0
ONE-Dyas	Suspended	Control & Power	2006		G17d-AP	L06d-S1	40.0	3.0
DANA	Decom.	Gas	2005	2019	P11-B-De Ruyter	Tie-in leiding P11-B-De Ruyter naar P12-SW	20.0	8.0
DANA	Decom.	Gas	2005	2019	Tie-in leiding P11-B-De Ruyter naar P12-SW	P12-SW	9.0	8.0
DANA	Decom.	Gas	2019	2019	Tie-in leiding P11-B-De Ruyter naar P12-SW	P15-C	17.0	8.0
DANA	Operational	Gas	2019		P11-B-De Ruyter	P15-D	29.0	8.0
DANA	Operational	Gas	2001		F02-A-Hanze	NOGAT EXT Sidetap F02-Hanze	0.2	4.0
DANA	Operational	Control & Power	2001		F02-A-Hanze	NOGAT EXT Sidetap F02-Hanze	0.2	3.0
DANA	Operational	Control & Power	2000		F02-A-Hanze	F02-A-Hanze TMLS	1.5	3.0
DANA	Operational	Oil	2005		P11-B-De Ruyter	P11-B-De Ruyter TMLS	1.5	16.0
DANA	Operational	Oil	2000		F02-A-Hanze	F02-A-Hanze TMLS	1.5	16.0
DANA	Operational	Control & Power	2011		P11-B-Van Ghent WHPS	P11-B-WYE Manifold	4.5	5.0

Operator	Status	Carries	Installed	Decom.	From	To	Length (km)	Diameter (inch)
DANA	Operational	Gas	2011		P11-B-Van Ghent WHPS	P11-B-De Ruyter	4.9	8.0
DANA	Suspended	Control & Power	2011		P11-B-Van Nes WHPS	P11-B-WYE Manifold	8.0	5.0
DANA	Suspended	Gas	2011		P11-B-WYE Manifold	P11-B-De Ruyter	0.2	10.9
DANA	Suspended	Gas	2011		P11-B-Van Nes WHPS	P11-B-WYE Manifold	8.0	8.0
Tulip	Operational	Chemicals	2018		P15-D	Q10-A	42.5	2.0
Tulip	Operational	Gas	2018		Q10-A	P15-D	42.5	14.0
Spirit	Decom.	Gas	2010	2019	F03-FA	NOGAT EXT Sidetap F02-Hanze	23.0	10.0
Spirit	Operational	Gas	2006		J06-C-Markham	J06-A-Markham	0.0	14.0
Spirit	Decom.	Gas	1994	2019	ST-1-Markham	J06-A-Markham	5.5	12.0
Spirit	Decom.	Control & Power	2010	2019	F03-FA	NOGAT EXT Sidetap F02-Hanze	23.0	3.0
Spirit	Decom.	Chemicals	1994	2019	J06-A-Markham	ST-1-Markham	5.5	2.0
NOGAT	Operational	Gas	1991		L02-FA-1	Sidetap onshore NOGAT Callantsoog	144.2	36.0
NOGAT	Operational	Gas	1992		F03-FB-F1	L02-FA-1	108.1	24.0
NOGAT	Operational	Gas	1992		L05-FA-1	NOGAT Sidetap KP 19.67	0.4	16.0
NOGAT	Operational	Gas	1992		L15-FA-1	NOGAT Sidetap L15-FA	0.4	16.0
NOGAT	Operational	Gas	1993		F15-A	NOGAT Sidetap KP 71.51	0.3	16.0
NGT	Operational	Gas	2016		L11b-PA	Sidetap NLP008 in NP-007	0.1	8.0
NGT	Operational	Gas	1974		L10-AR	NGT Sidetap onshore Uithuizen	177.6	36.0
NGT	Operational	Gas	1999		D15-FA-1	L10-AR	140.6	36.0
NGT	Operational	Gas	1987		K12-BP	L10-AR	21.5	18.0
NGT	Operational	Gas	2001		G17d-AP	NP-001-ST-KP-118.9-36-24	64.5	18.0
NGT	Operational	Gas	1987		K09c-A	L10-AR	36.6	16.0
NGT	Operational	Gas	1991		K06-C	K09c-A	5.2	16.0
NGT	Operational	Gas	1988		L08-G	NP-001-ST-KP-20.4-36	21.3	14.0

Operator	Status	Carries	Installed	Decom.	From	To	Length (km)	Diameter (inch)
NGT	Operational	Gas	1987		K09ab-A	NGT Sidetap K09c-A	0.1	8.0
NGT	Operational	Gas	2000		L08-P4	NP-001-ST-KP-20.4-36	27.8	16.0

Decom. = Decommissioned

Decom. pro = Decommissioning in progress

Y. Authorities involved in mining

Ministry of Economic Affairs and Climate Policy

Directorate - General of Climate and Energy

Address:	Bezuidenhoutseweg 73	P.O. Box 20411
	2594 AC The Hague	2500 EK The Hague
	Telephone:	070 379 89 11
	www.rijksoverheid.nl	

TNO – Advisory Group for Economic Affairs

Address:	Princetonlaan 6	P.O. Box 80015
	3584 CB Utrecht	3508 EC Utrecht
	Telephone:	088 866 46 00
	www.tno.nl	

State Supervision of Mines

Address:	Henri Faasdreef 312	P.O. Box 24037
	2492 JP The Hague	2490 AA The Hague
	Telephone:	070 379 84 00
	E-mail:	info@sodm.nl
	www.sodm.nl	

Netherlands Oil and Gas Portal – www.nlog.nl

The Netherlands Oil and Gas Portal provides information about mineral resources and geothermal energy in the Netherlands territory and continental shelf, with the aim of making information supplied by the Dutch government easily and clearly accessible. The portal is administered by TNO, Geological Survey of the Netherlands on the authority of the Ministry of Economic Affairs and Climate Policy.

Z. Definition of selected terms

Territory/ Netherlands territory:

In this annual review, the terms territory and Netherlands territory refer to the Dutch mainland and that part of the Netherlands territorial waters not defined by offshore mining law blocks.

Continental shelf:

In this annual review, the terms continental shelf and Netherlands continental shelf refer to that part of the continental shelf over which the Kingdom of the Netherlands has sovereign rights and which is defined by offshore mining law blocks.

Exploration licence:

Licence to explore for the minerals stipulated therein.

Production licence:

Licence to produce the mineral resources specified in the licence, and also to explore for these mineral resources.

Seismic surveys:

This review differentiates between 2D and 3D seismic techniques. There is a long tradition of two-dimensional (2D) seismic surveying in the oil industry. Vibrations are generated along a line on the surface of the ground. They are reflected back by the layers in the earth's crust and recorded by geophones or hydrophones. As the vibrations do not always propagate solely in the vertical plane underneath the recording line, the representations of geological structures in the 2D seismic sections only approximate the real-life situation. The approximation is far superior in 3D seismic surveys, in which a large number of recording lines are positioned close together in a relatively small area. Modern electronic data processing makes it possible to correct for deviations of the wave fronts that are not in the vertical plane underneath an individual recording line, making it possible to generate an accurate model of the geological structures at any desired location.

Wells:

- exploration well: well to explore a prospective underground accumulation of oil, or gas, or of both;
- appraisal well: well drilled to establish the volume and extent of a gas field, or an oilfield, or a combined gas/oilfield;
- production well: well drilled in order to produce a gas field or an oilfield.

Gas field/oilfield:

A natural, isolated accumulation of gas and/or oil in an underground reservoir consisting of a porous rock that is capped or enclosed by impermeable rock. In this review, the terms reservoir, field and accumulation are used synonymously.

Resource categories and definitions:
In the following definitions, natural gas and oil are referred to collectively as hydrocarbons.

1. Gas/oil initially in place (GIIP/OIIP)
   Total volume of hydrocarbons initially present in a reservoir, calculated on the basis of the mean values of the parameters used in the calculations.

2. Expected initial reserves
   Total volume of hydrocarbons in a reservoir estimated to be ultimately commercially recoverable, calculated on the basis of the mean values of the parameters used in the calculations.

3. Proven initial reserves
   Volume of hydrocarbons in a reservoir estimated to be ultimately commercially recoverable (with a 90 % probability, based on an expectation curve).

4. Remaining expected reserves
   That part of the expected initial reserves remaining after subtracting the cumulative production (this is the total volume of hydrocarbons produced from the reservoir concerned by the end of the year under review).

5. Remaining proven reserves
   Volume of hydrocarbons with a 90 % probability of still being recoverable from a reservoir. This volume is calculated by subtracting the cumulative production from the proven initial reserves.

6. Contingent resources
   Volume of hydrocarbons in a reservoir estimated to have a 90 % probability of being potentially recoverable, but currently not considered commercially recoverable due to one or more contingencies. In this annual review, only the contingent resources in the 'pending production' subclass are considered.

7. Expected contingent resources
   Volume of hydrocarbons in a reservoir expected to be commercially viable to produce under certain conditions. It is calculated using mean values of the parameters. In this annual review, only the contingent resources in the 'pending production' subclass are considered.

8. Future reserves
   Volumes of hydrocarbons not yet proven by drilling but having a certain possibility of success of contributing to reserves in the future. The following datasets and definitions have been used to estimate future reserves:

   a. Prospect database
      Database containing all prospective structures ('prospects') known to the Netherlands government which may potentially contain gas or oil (future reserves). The main source of data for this database is the annual reports submitted by the operating companies in accordance with article 113 of the Mining Act.

b. Prospect portfolio
   The selection of prospects from the prospect database located within 'proven play' areas.
c. Exploration potential
   Cumulative 'risked volumes' of all prospects in the prospect portfolio that meet certain selection criteria. Since 1992 the prospect folio as reported in the exploration potential reports has contained only those prospects with an expected reserve exceeding a certain minimum value. In certain reports the term 'firm futures' has been used. It is largely synonymous with exploration potential.
d. Potential futures in proven plays
   Volume of gas expected to be present in as yet unmapped structures in the 'proven play' areas.
e. Potential futures in yet unproven plays
   Volume of gas expected to be present in valid plays that have not yet been proven in the Netherlands.
f. Potential futures in hypothetical plays
   Volume of gas in plays in which one or more of the basic play elements such as reservoir, seal and source rock are not yet known.

In the definitions above, the term 'expected' is used in the statistical sense and thus the figure given represents the expected value (or expectation). The following explanation may be helpful. All data used for the purpose of calculating volumes have an intrinsic uncertainty. By processing these uncertainties statistically, an expectation curve can be determined for each accumulation. This is a cumulative probability distribution curve, i.e. a graph in which reserve values are plotted against the associated probabilities that they will be achieved or exceeded. As production from a hydrocarbon reservoir progresses, various uncertainties decrease and the expected value will deviate less and less from the 50 % value on the cumulative probability distribution curve.
In practice, the stated reserves of a given field are the expected values. This is the most realistic estimate of the volume of hydrocarbons present in a reservoir. The recoverability of hydrocarbons from an accumulation is determined by the geological and reservoir characteristics of that accumulation, the recovery techniques available at the time of reporting and the economic conditions prevailing at that time.

Probabilistic summation of the proven reserves:
In this method, the probability distributions of the reserves of the individual fields are combined in order to take account of the uncertainties inherent to all reserve estimates. The result of applying the probabilistic summation method is that the total figure obtained for the proven reserves in the Netherlands is statistically more reliable. In other words, the probability that the actual reserves exceed the value stated is 90 %.

Exploration potential:
The exploration potential has been calculated using the ExploSim program, which is described in:
LUTGERT, J., MIJNLIEFF, H. & BREUNESE, J. 2005. Predicting gas production from future gas discoveries in the Netherlands: quantity, location, timing, quality. In: DORE, A. G. & VINING, B. A. (eds) Petroleum Geology: North-West Europe and Global Perspectives—Proceedings of the 6th Petroleum Geology Conference, 77–84. Petroleum Geology Conferences Ltd. Published by the Geological Society, London.

Units:

Standard m^3:

Natural gas and oil reserves are expressed in cubic metres at a pressure of 101.325 kPa (or 1.01325 bar) and 15 °C. This m^3 is defined as a standard m^3 in Standard no. 5024-1976(E) of the International Organisation for Standardisation (ISO) and is usually abbreviated Sm^3.

Normal m^3:

Natural gas and oil reserves are expressed in cubic metres at a pressure of 101.325 kPa (or 1.01325 bar) and 0 °C. This m^3 is defined as a normal m^3 in Standard no. 5024-1976(E) of the International Organisation for Standardisation (ISO) and is usually abbreviated Nm^3.

Groningen gas equivalent:

In order to be able to incorporate volumes of natural gas of different qualities in calculations, they have been converted to Groningen gas equivalents (Geq). This is achieved by converting the volume of gas that differs in quality from the gas in the Groningen field to a volume of gas that is hypothetically of the same quality as the gas in the Groningen field (which is 35.17 Mega joules upper value per m^3 of 0 °C and 101.325 kPa. or 1.01325 bar).

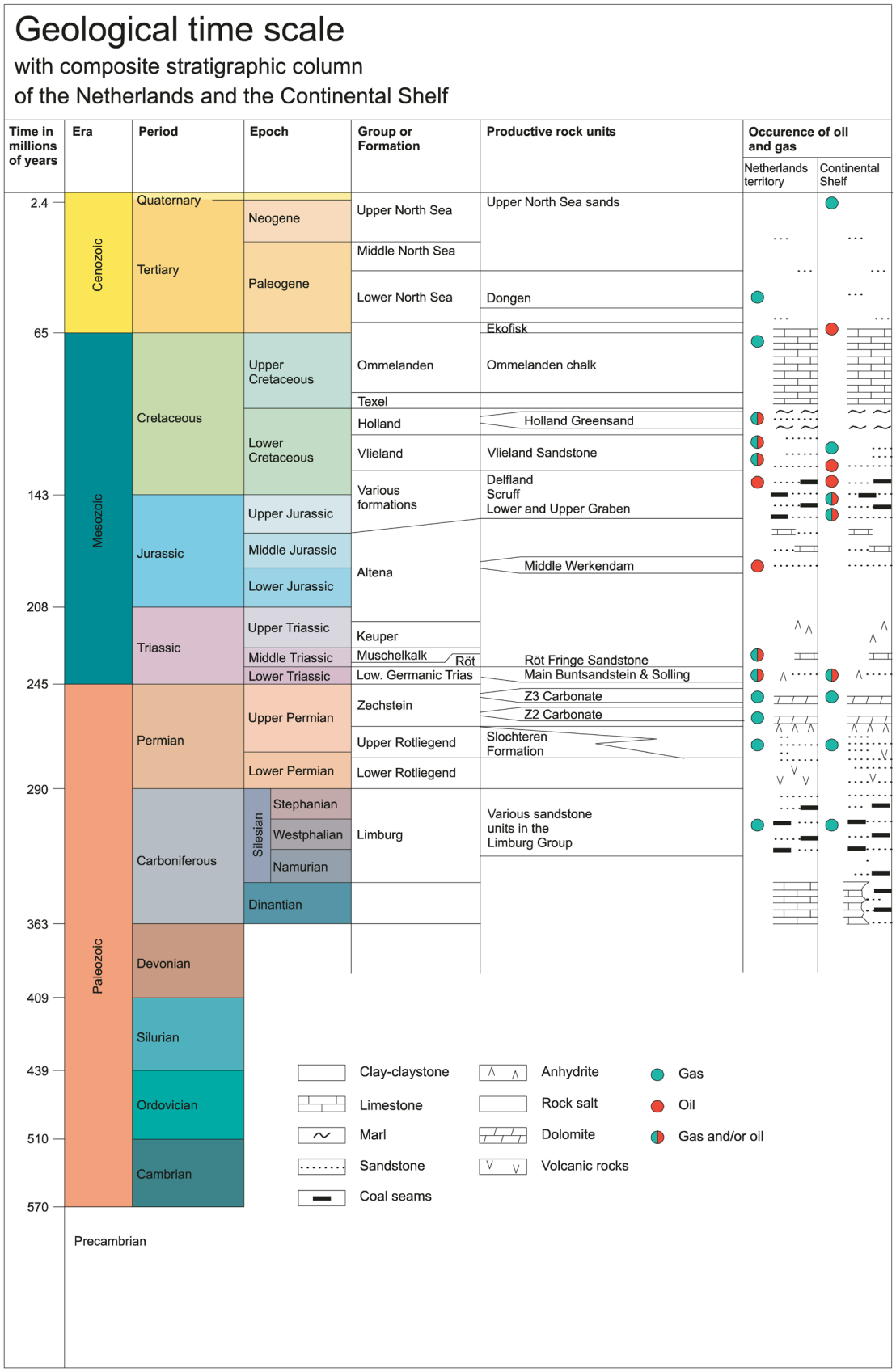
One Nm^3 gas with a calorific value of 36.5 MJ is equivalent to 36.5/35.17 Nm^3 Geq.

The Groningen gas equivalent is commonly used in the Netherlands, including by N.V. Netherlands Gasunie. Figures given as Groningen gas equivalents can easily be converted into equivalents for other fuels, such as tonnes of oil equivalents (TOE) and coal equivalents (CE).

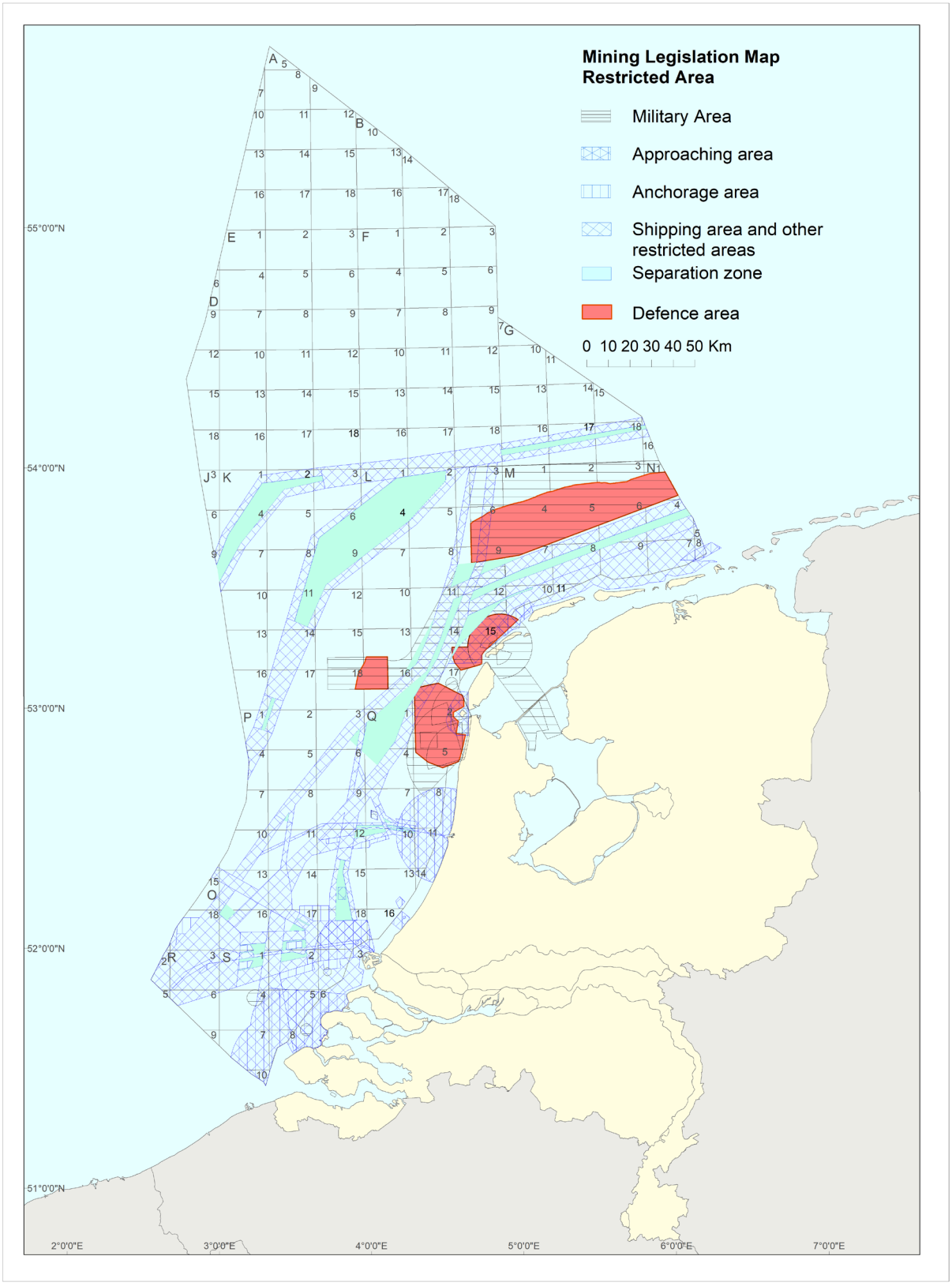
Fuel	Unit	Giga joule	Giga calorie	Oil equiv. tonnes	Oil equiv. barrels	Coal equiv. tonnes	Gas equiv. 1000 m^3
Fuelwood (dry)	tonnes	13.51	3.23	0.32	2.36	0.46	0.43
Coal	tonnes	29.30	7.00	0.70	5.11	1.00	0.93
Lignite	tonnes	17.00	4.06	0.41	2.96	0.58	0.54
Coke	tonnes	28.50	6.81	0.68	4.97	0.97	0.90
Coke-oven gas	1000 m^3	17.60	4.20	0.42	3.07	0.60	0.56
Blast furnace gas	1000 m^3	3.80	0.91	0.09	0.66	0.13	0.12
Crude oil	tonnes	42.70	10.20	1.02	7.45	1.46	1.35
Oil equivalent	tonnes	41.87	10.00	1.00	7.30	1.43	1.32
Refinery gas	1000 m^3	46.10	11.01	1.10	8.04	1.57	1.46
LPG	1000 m^3	45.20	10.79	1.08	7.88	1.54	1.43
Naphtha	tonnes	44.00	10.51	1.05	7.67	1.50	1.39
Aviation fuel	tonnes	43.49	10.39	1.04	7.58	1.48	1.37
Petrol	tonnes	44.00	10.51	1.05	7.67	1.50	1.39
Paraffin	tonnes	43.11	10.29	1.03	7.52	1.47	1.36
Domestic fuel oil	tonnes	42.70	10.20	1.02	7.45	1.46	1.35
Heavy fuel oil	tonnes	41.00	9.79	0.98	7.15	1.40	1.30
Petroleum coke	tonnes	35.20	8.41	0.84	6.14	1.20	1.11
Natural gas	1000 m^3	31.65	7.56	0.76	5.52	1.08	1.00
Electricity*	MWh	3.60	0.86	0.09	0.63	0.12	0.11

* In this energy conversion table the energy value of one MWh electricity is to be understood as the energy content of a generated unit of electricity. In order to produce this unit of energy, more energy is necessary. The amount required depends on the efficiency of the conversion.

Appendix 1. Geological time scale



Appendix 2. Mining legislation map



Appendix 3. Petroleum Resource Management System (PRMS)

The development of a gas accumulation is normally phased in a number of projects. After the initial development, further projects may be planned, such as extra (infill) wells, the installation of compression and finally the placing of velocity strings, or the injection of soap. Each of these projects represents an incremental volume of gas that is expected to be produced.

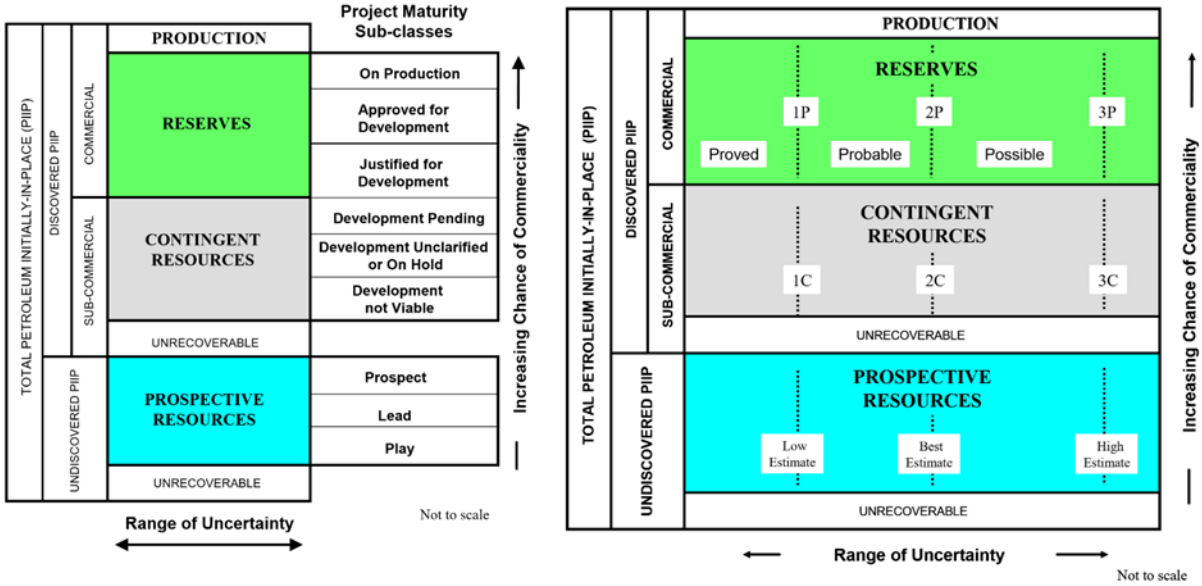


Figure Appendix 3.1 Schematic representation of the PRMS classification.

Status (chance of commercial realisation)

The gas resources associated with the individual projects are, based on their chance of maturation, allocated to the three main resource classes.

- Reserves, the gas volume in proven plays that is regarded to be economically viable by well-defined projects.
- The contingent resources, the gas volume in proven plays that is recoverable in (incremental) projects, but only considered economically viable when one or more (technical, economic or legal) conditions are met.
- The prospective resources are defined as the part of the gas considered recoverable in accumulations which have not been demonstrated yet.

The subdivision of these three main classes is shown in Figure Appendix 3.1.

Likelihood of recovery

Since oil and natural gas are physically located underground at great depths, hydrocarbon resources are estimated by evaluating the data on the amounts present. All resource estimates have an intrinsic uncertainty. The PRMS resource classification takes account of this uncertainty. This is expressed in a low, expected and high estimate as depicted along the horizontal axis (Figure Appendix 3.1).
1P (proved), 2P (probable) en 3P (possible) for the resources classified as reserves and 1C, 2C en 3C for the corresponding probabilities of the contingent resources.

More information on the PRMS is available at www.spe.org.

Ministry of Economic Affairs and Climate Policy
Directorate-General Climate and Energy
July 2020

For more information:
www.nlog.nl