

Natural resources and geothermal energy in the Netherlands



NATURAL RESOURCES AND GEOTHERMAL ENERGY IN THE NETHERLANDS

Annual review 2022

An overview of exploration, production and subsurface storage.

Preface

This annual review entitled 'Natural Resources and Geothermal Energy in the Netherlands' reports on the exploration and production of hydrocarbons, rock salt and geothermal energy in the Netherlands, as well as on the subsurface temporary storage (natural gas, oil, nitrogen) and permanent storage (brine and CO₂). In so doing it covers all the exploration, production and storage activities in the Netherlands on land and the Netherlands at sea that fall under the Mining Act.

The first section of this annual review deals with developments during the year 2022. The second part of this report comprises annexes giving an overview of the situation as at 1 January 2023, and the developments during preceding decades.

Chapters 1 and 2 review the changes in the estimates of natural gas and oil resources in 2022 and the resulting situation as at 1 January 2023. The remaining volumes of natural gas and oil are reported in accordance with the Petroleum Resource Management System (PRMS). These chapters also present a prognosis for the gas (small fields: all gas fields without Groningen) and oil production for the next 25 years. A base and a high scenario have been included in this year's prognosis. For the Groningen gas field production profiles are reported as per the latest communication of the Ministry 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, salt and coal respectively. Chapters 8, 9 and 10 contain information on developments relating licensing on land and at sea and company changes. Chapters 11, 12 and 13 report respectively on seismic surveys, (hydrocarbon) drilling activities, and changes regarding mining installations (e.g. platforms and pipelines) for the year 2022.

This report has been compiled by TNO – Advisory Group for Economic Affairs, at the request of the Directorate General of Groningen and Subsurface of the Dutch Ministry of Economic Affairs and Climate Policy. It includes data that the State Secretary 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.

This annual report is compiled on the basis of data received from the operators of licences under the Mining Law. 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. In this annual report, numbers are rounded off, which may result in differences when summed.

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The Hague, September 2023.

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Note:

In this annual report, the natural gas volumes are given in normal cubic metres (Nm³). 'Normal' relates to the reference conditions 0 °C and 101.325 kPa. $1 \text{ Nm}^3 = 0.9457 \text{ Sm}^3$.

In a few instances, the volumes of natural gas are given in Groningen gas equivalents (m³ Geq) of 35.17 megajoules gross calorific value per m³ 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 (Sm³). 'Standard' relates to the reference conditions 15 °C and 101.325 kPa.

Key figures

Natural gas and oil resources

The total natural gas resources as at 1 January 2023 are estimated at 98.3 billion Nm³, of which 1.7 billion Nm³ is in reserves in the Groningen gas field. The small fields on land contain 44.4 billion Nm³ natural gas in reserves and contingent resources; those at sea contain 52.2 billion Nm³ natural gas in reserves and contingent resources.

Compared to 1 January 2022 the natural gas resources have decreased by 37.6 billion Nm³ due to production (15.3 billion Nm³) and to re-evaluations of some gas fields (22.3 billion Nm³).

The total oil resources as at 1 January 2023 were 16.3 million Sm³, of which 10.6 million Sm³ are reserves and contingent resources in oil fields on land and 5.7 million Sm³ reserves and contingent resources in oil fields at sea.

Natural gas production

In 2022 the volume of natural gas produced from Dutch gas fields was 15.3 billion Nm³. Gas fields on land accounted for 7.8 billion Nm³. Small fields accounted for 3.2 billion Nm³ and 4.6 billion Nm³ came from the Groningen gas field. The gas fields at sea produced 7.5 billion Nm³. As a result, total production in 2022 dropped by 20.2 % compared to 2021. For details, see Chapter 3.

Oil production

In 2022 a total of 0.45 million Sm³ oil was produced, which is a decrease of 48.8 % compared to 2021. Fields on land accounted for 0.14 million Sm³, which is a decrease of 68,8 % compared to 2021. Production at sea was 0.31 million Sm³, a decrease of 28.3 %. For details, see Chapter 3.

Subsurface storage

In 2022 two exploration licences and one storage licence for the permanent storage of CO₂ were applied for at sea. In addition, one storage licence has been awarded and one has been changed. For details, see chapter 4.

Geothermal energy

In 2022 seven geothermal wells and three sidetracks were realised but no geothermal installations have been completed. As at 1 January 2022 there are 26 production installations, of which 20 are currently operational. The cumulative reported annual production in 2022 was 6.8 PJ. For details, see Chapter 5.

Salt

As at 1 January 2023 there were 16 production licences and no exploration licences in force. One application for a production licence submitted previously is in procedure. In 2022 four new salt production wells were drilled, two development and two observation wells. The production of rock salt in 2022 was 5.9 million tonnes. For details, see Chapter 6.

Coal

There are no developments to report for 2022. There are still five coal production licences in force. For details, see Chapter 7.

Hydrocarbon licences

In 2022 five exploration licences and 2 production licences since earlier years are pending on land. One prolongation for an exploration licence is granted and one is refused, the exploration licence whose extension has been refused has therefore expired. One production licence is reduced in size and one is split. No new exploration or production licences have been awarded on land.

At sea five applications for exploration licences and four production licences are pending. The application for one part of a production licence from an inactive area as described in the fallow acreage covenant was withdrawn. In 2022, three exploration and one production licence at sea were granted. In addition, a prolongation for exploration licence was granted twice and refused three times.

One exploration licence and six production licences were reduced in size. One exploration licence is split and two were combined, five exploration licences ended/are relinquished. For details, see Chapters 8 and 9.

Geothermal licences

In 2022 17 applications for geothermal exploration licences were pending of which six new applications and five applications are withdrawn. One application is an application for an exploration licence for scientific research. Two exploration licences were awarded, one application was refused, 13 exploration licences were prolonged, six exploration licences ended/are relinquished and five exploration licences were split.

In 2022 five new applications for production licences were submitted, four new production licences for geothermal energy were awarded and four were prolonged. For details, see Chapter 8.

Oil and gas wells

In total, 10 wells were drilled for oil and gas in 2022, of which nine wells at sea and one on land. That is two less wells than in 2021. Two of the four exploration wells have found gas and one has found oil and gas. The fourth exploration well was dry. In addition, three evaluation and three production wells have been 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 Netherlands part of the North Sea. It presents estimates of the natural gas resources as at 1 January 2023 and the changes compared to the resources as at 1 January 2022. Prognoses are then given for the annual production of Dutch natural gas during the next 25 years.

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 version 2018 (PRMS), enabling a uniform classification of the resources (See Appendix 3 for explanation).

The gas resources divided 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 (as one main class level). For the contingent resources only the subclass 'Development pending' is reported. The contingent resources qualified as 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 as the subclass of prospects (yet to be discovered accumulations) only.

Since oil and natural gas are physically located underground at great depths, hydrocarbon resources are estimated by evaluating the subsurface data on the amounts present. All resource estimates have an intrinsic uncertainty. The PRMS resource classification takes account of this uncertainty, this is depicted along the horizontal axis. The main class reserves and the subclasses 'development pending' and 'prospects' in this report are median values (being 2P, 2C and 2U) (Figure 1.1).

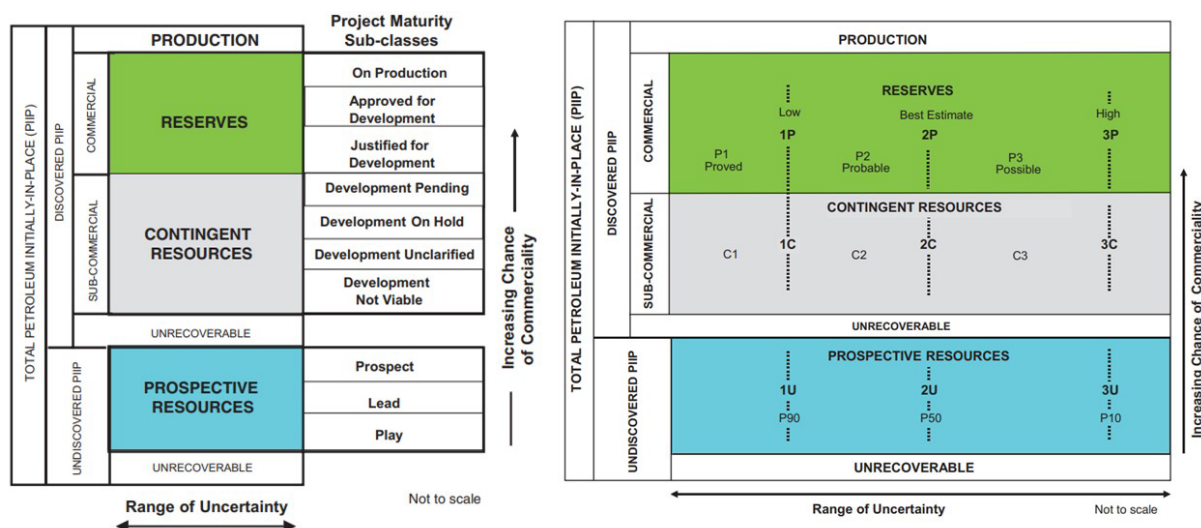


Figure 1.1 Schematic representation of the PRMS¹ classification (Appendix 3).

1.2 Natural gas accumulations

As of 1 January 2023, the Netherlands has 502 discovered natural gas accumulations (see Table 1.1). Almost half of these (212) are currently in production, which is 5 less than last year. In addition, four gas fields are operational as gas storage facilities (plus one more gas storage in one cavern cluster). A total of 116 occurrences have not been developed. It is expected that 29 of these will be taken into production within five years. Of the remaining 87 accumulations it is uncertain whether they will be developed. 169 accumulations have produced natural gas in the past, but production has (temporarily) ceased. A complete list of all occurrences grouped by status and stating the operator and licence is included in Annex A.1.

Table 1.1 Proven natural gas accumulations as at 1 January 2023, classified according to their status.

Status of gas accumulation	On land	At sea	Total
I. Developed			
a. Producing	94	118	212
b. Natural gas storage*	5	0	5
II. Undeveloped			
a. Production expected within 5 years	9	20	29
b. Production not expected within the next 5 years	36	51	87
III. Production ceased			
a. Temporarily ceased	12	17	29
b. Ceased	53	87	140
Total	209	293	502

*Including gas storage in one cavern cluster.

1.3 Resource estimates

Gas resources as of January 1, 2023

As of 1 January 2023, the total discovered gas resources in both developed and undeveloped accumulations amounts to 98.3 billion Nm³ (Table 1.2).

Reserves and contingent resources

The remaining reserves 72.1 billion Nm³ consist of 1.7 billion Nm³ in reserves in the Groningen field and 70.4 billion Nm³ in the other (small) fields. 62% of the latter are located at sea. The contingent resources, pending commercial development, are 26.2 billion Nm³. 18.8 billion Nm³ of which are on land and 7.4 billion Nm³ are at sea. Unlike the reserves, contingent resources 72% are on land. Groningen has no contingent resources (Table 1.2).

Table 1.2 Netherlands natural gas resources as at 1 January 2023, in billion Nm³.

Area	Reserves	Contingent resources (development pending)	Total
Groningen	1.7	-	1.7
On land	25.6	18.8	44.4
At sea	44.8	7.4	52.2
Total	72.1	26.2	98.3

In order to be able to calculate volumes of natural gas of different quality, these are converted on the basis of calorific value to a volume expressed in Groningen natural gas equivalents (Geq) (Table 1.3). The Groningen natural gas equivalent is calculated relative to the original calorific value of Groningen gas (35.17 MJ/Nm³). However, since 2010 a calorific value of 35.08 MJ/Nm³ has been used for the volume still to be produced from the Groningen field, because the gas composition has changed slightly over time. The Groningen gas that is currently being produced is therefore slightly lower in calorific value than the Groningen equivalent.

Table 1.3 Netherlands natural gas resources as at 1 January 2023, in billion m³ Geq.

Accumulations	Reserves	Contingent resources (development pending)	Total
Groningen	1.7	-	1.7
On land	27.1	20.0	47.0
At sea	51.0	7.4	58.4
Total	79.8	27.4	107.2

Revision of the natural gas resources compared to 1 January 2022

Table 1.4 shows the total adjustment in the Dutch natural gas resources as a result of:

- Re-evaluation of previously proven accumulations and new discoveries.
- Production during last year.

Table 1.4 Revision of the natural gas resources compared to 1 January 2022, in billion Nm³. Cumulative for reserves and contingent resources (development pending). The adjustment is the cumulative of the re-evaluation and production over 2022.

Area	Resources at 01-01-2022	Re-evaluation	Production	Adjustment	Resources at 01-01-2023
Groningen	4.8	1.5	-4.6	-3.0	1.7
On land	52.9	-5.3	-3.2	-8.5	44.4
At sea	78.2	-18.5	-7.5	-26.0	52.2
Total	135.9	-22.3	-15.3	-37.6	98.3

The net result is a decrease of the resources by 37.6 billion Nm³ compared to 1 January 2022. The production in the year 2022 is explained in more detail in Chapter 3.

Re-evaluation

The gas fields are periodically evaluated by the operators on a technical and economic basis. Associated natural gas resources are included in the re-evaluation of the expected natural gas resources. New developments or insights may lead to an adjustment of the resources estimate. The adjustment of the gas resource is based on, among other things, commercial considerations, production behaviour and the implementation of technical modifications. These modifications include the drilling of new wells and the application of techniques to prolong production. Despite the development of new accumulations, due to re-evaluation of both producing and non-producing gas fields, the resources estimate in 2022 has been adjusted by -22.3 billion Nm³, a large part of the adjustment concerns gas fields at sea. An overview of the adjustment in the natural gas resources is shown in Table 1.4.

Compared to 1 January 2022, the number of natural gas accumulations has increased by three: F03 Anteater, L11-Clover and N04-C (Table 1.5). The locations of these finds are marked with a star in Figure 1.2.

Table 1.5 Natural gas accumulations discovered in 2022.

Accumulation	Discovery well	Licence [Type]	Operator
F03c-Anteater	F03-09	F03c [pl]	Dana Petroleum Netherlands B.V.
L11-Clover	L11-15	L11d [pl]	ONE-Dyas B.V.
N04-C	N04-04	N04, N05 & N08 [pl]	ONE-Dyas B.V.

pl: production licence

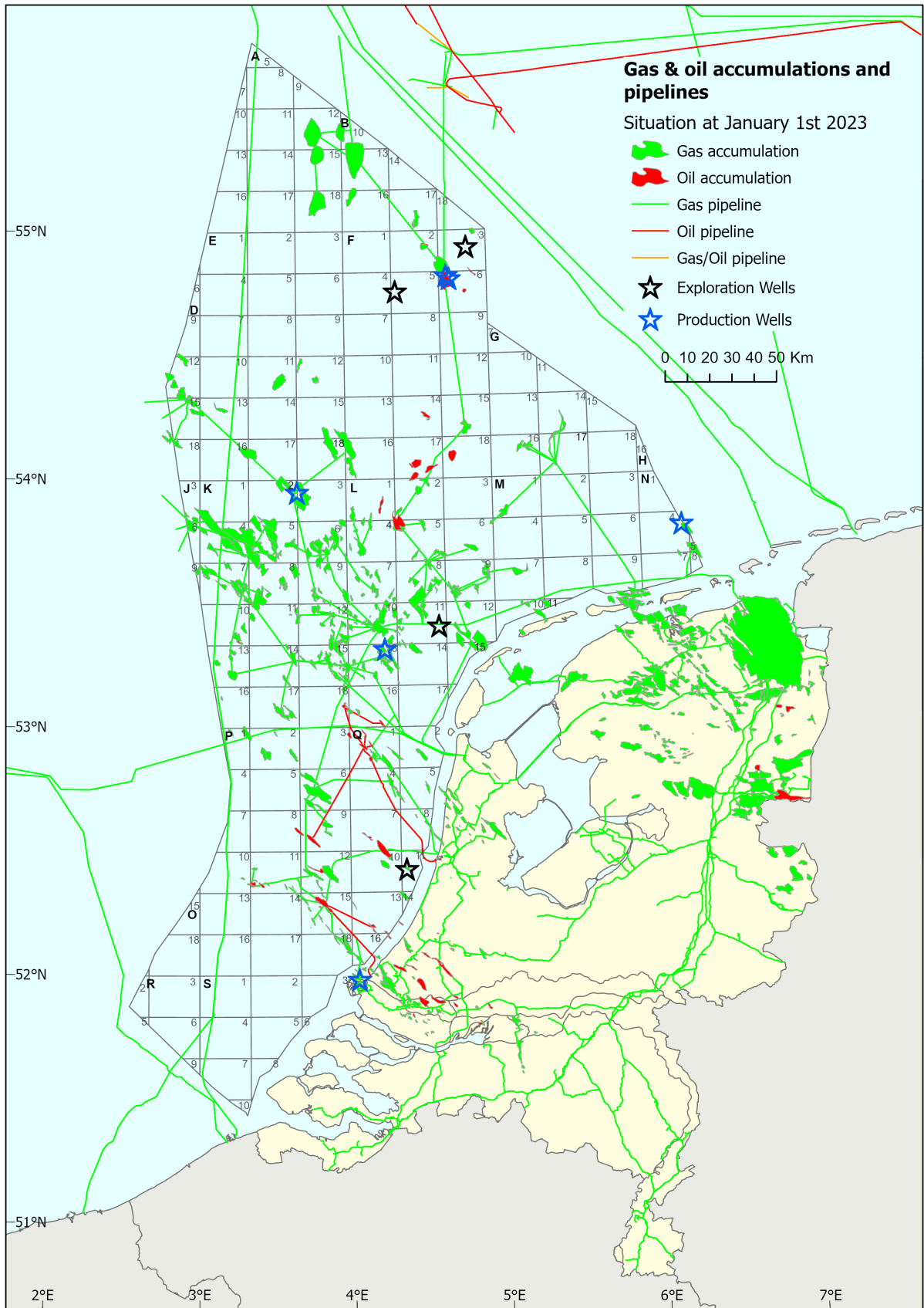


Figure 1.2 Map showing oil and gas accumulations in the Netherlands as at 1 January 2023. All gas wells, including the production wells are assigned with an asterisk.

1.4 Expected production of natural gas

Policy

In recent years, domestic gas production from the Groningen field and the small fields has decreased. The policy of the Dutch government is aimed at accelerating in domestic gas production in the North Sea. Gas from the Netherlands contributes to energy security by reducing dependence on imports and has a lower carbon dioxide footprint than imported gas. Gas from the North Sea has a lower impact on society than onshore gas extraction. However, at sea other environmental and social impacts must be taken into account, such as the impact on nature and fisheries. The time pressure caused by the decommission or conversion of the existing gas infrastructure must also be taken into account. Due to the cessation of production from an increasing number of gas fields, the existing infrastructure is gradually being abandoned and removed or possibly reused for transport of CO₂ to underground storages in depleted gas fields. Future developments such as transporting hydrogen from wind farms to the coast should also be taken into account. The lack of a gas infrastructure makes it more difficult to connect new gas projects and possibly (much) less economically attractive because the costs of the infrastructure can be shared with fewer fields.

In order to make the investment climate for gas development more financially attractive, the tax deduction for investments in gas in the North Sea has been extended to 40%, and now applies to all investments in gas exploration and production activities. In 2022 the need for gas production from the Netherlands has been emphasized by the acceleration plan¹ in which the policy was announced to accelerate the gas production from small fields as much as possible.

The following paragraphs successively deal with gas production from the Groningen field and production from the other (small) gas fields, subdivided into land and sea. This subdivision arises from the specific dynamics that characterize these areas. The plans for phasing out production from the Groningen field are based on the government's intention of 29 March 2018². The reporting on the small fields is largely composed of data from gas producers. The reference date for the report is 1 January 2023.

Groningen gas field

As the consequences of gas extraction in Groningen were no longer socially acceptable, in 2018 the government decided to phase out gas production completely as soon as possible. Hereby removing the cause of the earthquake risk. To this end, the Mining Act has been amended, so that no more gas is extracted from the Groningen field than is necessary for security of supply.

Due to the reduction in demand and the availability of alternative sources for Groningen gas, the required amount of gas from the Groningen field is decreasing every year. The level of gas extraction is determined annually by means of a formal decision. This decision was first taken in 2019.

The production from the Groningen field is provided in gas years that runs from October to October in the following calendar year. From gas year 2022-2023, the deployment of the Groningen field is only available as a back-up in exceptional situations. To this end, a number of production locations are on the pilot flame and a limited amount of gas is produced (the so-called minimum flow). The production rate has therefore been set at 2.8 billion Nm³.

¹ <https://www.rijksoverheid.nl/documenten/kamerstukken/2022/07/15/versnellingsplan-gaswinning-noordzee>

² [Letter to the House of Representatives, DGETM-EI / 18057375](#)

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.
- 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. 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).

Resources in the Gas Storage Facilities

The original gas supply from the gas storage facilities (36 billion Nm³ 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.

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:

- a. Upcoming policy. Amongst others decreasing the duration of licensing, a potential new role for EBN and releasing new subsurface data may accelerate new plans for hydrocarbon projects.
- b. The current higher (expected) gas price will allow a higher number of projects to be economically attractive.
- c. The expansion of the investment deduction leads in combination with a) to a considerably larger net portfolio of economically attractive potential gas resources.
- d. The embargo on new onshore exploration licenses limits the prospective resources. Additionally, the proposed Wadden Sea embargo will also influence the number of options.
- e. Resistance of the local population to (re)development of gas fields leads to greater uncertainties regarding feasibility, especially on land, and also to a delay in activities due to longer (licence) procedures.

Scenarios for gas production in the next 25 years

Dutch gas production from small fields has been declining for 20 years due to natural depletion and limited replenishment from new gas fields. Due to the decrease in import of Russian Gas the importance of gas production from the Netherlands has increased. In order to stimulate domestic production, new policy measures are currently being formulated for this

purpose. In addition, the probably structurally higher gas price will improve the economic attractiveness. Because there are certain uncertainties about this, the prognosis for domestic gas production is exceptionally uncertain. To meet this uncertainty, a high and a base production scenario is presented this year.

In the Base Scenario no acceleration of gas production takes place, only the existing fields and projects, which are reasonably certain, are included and there is limited exploration for new gas fields (1 well per year on land, 4 wells per year at sea).

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. Long-term gas price.
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 the expected gas volumes in the supplied data. It is therefore assumed that 70% of the expected value will be realised.
10. TNO calculates prospect economy with a stable infrastructure under the condition that sufficient gas production still takes place. This means that the infrastructure end of life (COP) is not explicitly taken into account.
11. TNO calculates a techno-economic probability of gas production. Any change in, for example, political, societal support or investment climate will result in a different realisation.

Scenario High assumes a strong effect of new policy measures and/or by the increasingly attractive conditions for operators to develop gas projects. In this scenario high-risk projects are also taken into account. As far as the prospective resources are concerned a higher portion is developed by an increase in exploration to 8 wells per year (of which 1 on land and 7 at sea). TNO expects a low chance for increasing the number of wells onshore, due to issues around societal acceptance and the proposed discussion in the "contourrennota Mijnbouwwet".

In the paragraphs below, the Base Scenario is presented for both land and sea. Finally, the total expected gas production in the Netherlands is discussed, including a possible additional production ("High Scenario").

Base Scenario	High Scenario
<i>Reserves</i> Production of entire reserve category in all known fields, as per submission by the operators.	<i>Reserves</i> Production of entire reserve category in all known fields, as per submission by the operators.
<i>Contingent resources</i> Production of the contingent resources in subcategory "development pending" as per submission by the operators.	<i>Contingent resources</i> Production of the contingent resources in subcategory "development pending". Additionally, a part of the projects currently defined as being less attractive is taken into account. This for the subcategories "Development on hold" and "Development unclarified". A lead time is taken into account before the production will actually start.
<i>Prospective resources boundary conditions</i>	<i>Prospective resources boundary conditions</i>
25 ct/Nm ³ gas price	28 ct/Nm ³ gas price
4 exploration wells at sea, 1 well on land	7 exploration wells at sea, 1 well on land

Note: Due to the scenarios, the reserves and contingent inventories presented in Section 1.1-1.3 are not completely the same as the profiles in the prognosis.

Expected gas production from small fields on land - Base Scenario

In 2023, the production of the reserves from the currently producing small fields on land (green in Figure 1.3) is expected to be 3 billion m³ Geq per year. A cumulative production from reserves of 16 billion m³ Geq from the small fields on land will be realised in 2035.

The contingent resources are expected to gradually come into production (yellow), which will compensate for the decrease in production from the reserves for some time. The profile initially shows a flat development with production around 2 billion m³ Geq. However, after an initial increase the annual production from the contingent resources production shows a gradual decline from 2031 with a very limited production of 1 billion m³ Geq in 2038. Ultimately, up to and including 2042, 9 billion m³ Geq will be produced from the contingent resources.

In view of the previously described factors such as the current economic conditions and social acceptance, it is questionable whether the known prospective resources will actually be developed. Based on the scenario calculations (see box), it is expected that with an average of 1 exploration well and subsequent field development on land for the next 25 years, a total production of 15 billion m³ Geq from prospective resources can be achieved. Long term expectations for the prospective resources are very uncertain as the boundary conditions may change, which is why they are indicated in dotted lines in Figure 1.3 after 2032.

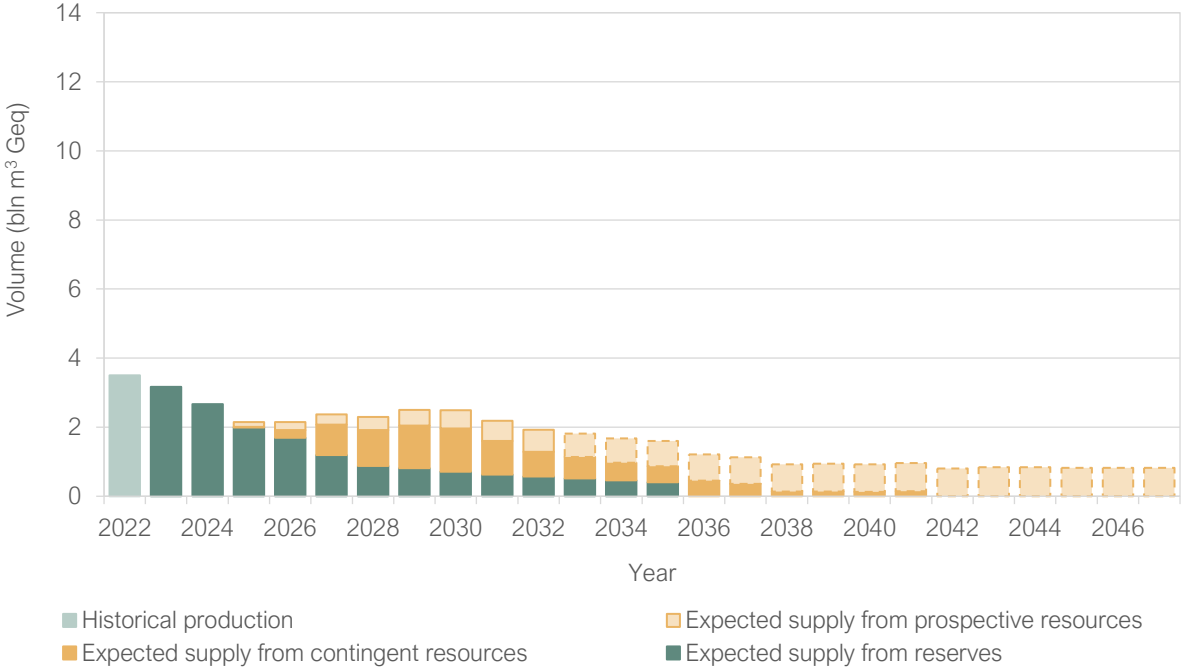


Figure 1.3 Actual production in 2022 and expected production of natural gas from the small fields on land from 2023 to 2047. Production from the Groningen field is excluded. The data underlying this profile are given in Annex B and C. Long term expectations for the prospective resources are very uncertain as the boundary conditions may change. Therefore, they are indicated in dotted lines. NB: this figure only shows the Base Scenario.

Expected gas production from small fields at sea - Base Scenario

In 2023 the annual production of reserves from the producing small fields at sea (green in Figure 1.4) is estimated to be 8 billion m³ Geq decreasing to less than 1 billion m³ Geq in 2034. In total, 51 billion m³ Geq of reserves are expected to remain.

As usual, the contingent resources will come into production with a slight delay (yellow). This production compensates the decrease in production form the reserves. However, these resources also show a gradual decrease from 2030 onwards. In total, production from the contingent resources amount to 7 billion m³ Geq. Consequently, from 2032 onwards, gas production at sea will have to come mainly from gas fields that have not yet been discovered (light yellow). In total there is a potential of economically attractive resources of 80 billion m³ Geq. Based on a scenario with four exploration wells per year and, in case of success, subsequent field development, a total production of 68 billion m³ Geq may be realised in the next 25 years. Long term expectations for the prospective resources are very uncertain as the boundary conditions may change, which is why they are indicated in dotted lines in Figure 1.4 after 2031.

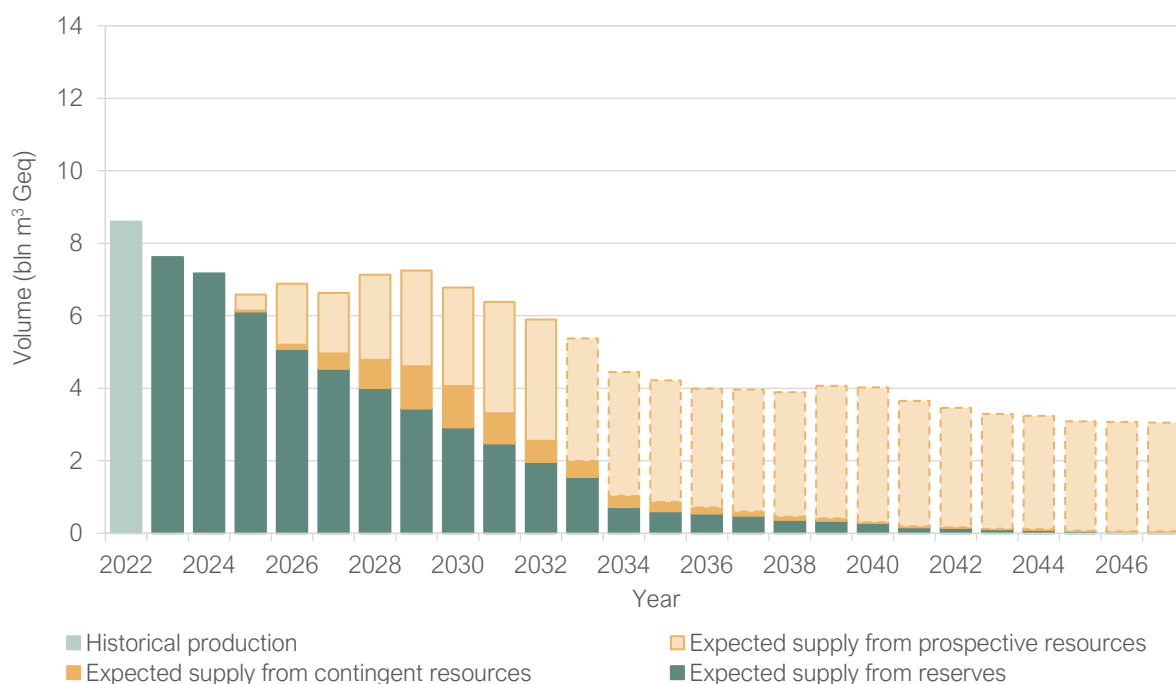


Figure 1.4 Actual production in 2022 and expected production of natural gas from the small fields at sea from 2023 to 2047. The data underlying this profile are given in Annex B and C. Long term expectations for the prospective resources are very uncertain as the boundary conditions may change. Therefore, they are indicated in dotted lines after 2031. NB: this figure only shows the Base Scenario.

Expected total gas production from the small fields – Base and High Scenario

Figure 1.5 shows the cumulative forecast of gas production from the small fields for land and sea together for Base Scenario and High Scenario. A very substantial effort is required to realize the High Scenario, in particular a marked increase in number of wells compared to the average of the past 5 years. Additionally, a number of previously discovered but as yet undeveloped fields are taken into account in the High Scenario.

Notes on the long-term gas production expectation

Currently there are several developments which have a downward pressure on long term gas production expectations. Some of these are:

1. The energy transition: The intended government policy is to limit the production in the Netherlands to a maximum of the internal gas consumption. If this is implemented, it may result in long term investments to have a higher uncertainty as the tail end production may not be viable.
2. Gas production and development on land will be subject of a formal public debate; in case production or new developments will have to stop it means a part of the current resources will remain unproduced.
3. Overlapping use of the North Sea; Currently many different and space consuming activities are being developed and planned on the North Sea such as wind parks, CO₂ storage sites, shipping lanes and fisheries. These activities might hinder access to new gas development projects.



Figure 1.5 Actual production (2012 – 2022) and expected production of natural gas from the small fields (excluding the Groningen field) from 2023 to 2047. The green dotted line shows the production for the High Scenario. The Groningen field has not been taken into account here. For the conversion from volume to energy unit, 1 billion m³ Geq is equal to approximately 10 TWh and 35 PJ. The values underlying this profile are given in Annex B and C.

2. Oil resources

On 1 January 2023 53 proven oil accumulations were known in the Netherlands (see Table 2.1). Six of these will be in production as of 1 January 2023 and five more new fields are expected to be put into production in the next five years. All oil fields are included in Annex A.2, classified by status and stating the current or last operator and license.

Table 2.1 Number of proven oil accumulations as at 1 January 2023.

Status of oil accumulation	Land	Sea	Total
I. Developed			
Producing	2	4	6
II. Undeveloped			
a. Production start 2020 - 2024	0	5	5
b. Other	10	15	25
III. Production ceased			
a. Temporarily ceased	1	0	1
b. Ceased	8	8	16
Total	21	32	53

Oil resources as at 1 January 2023

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 (see Annex 3 for an explanation). Table 2.2 shows the reserves and contingent resources. Reserves are defined as part of the resources that can be produced commercially and have been qualified as such by the operators. The subclass 'development pending' of the contingent resources, which may reasonably be considered 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 2023 amounts to 16.3 million Sm³, made up of 5.4 million Sm³ in reserves and 10.9 million Sm³ in contingent resources (development pending).

Table 2.2 Oil resources in million Sm³ as at 1 January 2023.

Area	Reserves	Contingent resources (development pending)	Total
Land	4.1	6.5	10.6
Sea	1.3	4.4	5.7
Total	5.4	10.9	16.3

Revised estimates of the oil resources compared to 1 January 2022

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

- Re-evaluation of previously proven accumulations.
- Production during 2022.

The total revision leads to a decrease of -18,1 million Sm³ of oil. Production in 2022 only explains a small part of the revision. Re-evaluation, especially of the oil fields at sea, is the main reason that the oil resources compared to 1 January 2022 is decreased to 16.3 million Sm³.

Table 2.3 Revised estimates of oil reserves compared to 1 January 2022, in million Sm³.

Area	Oil resources as at 1 January 2022	Re-evaluation	Production	Revision	Oil resources as at 1 January 2023
Land	12.3	-1.6	-0.1	-1.7	10.6
Sea	22.6	-16.5	-0.3	-16.8	5.7
Total	34.8	-18.1	-0.5	-18.6	16.3

Figure 2.1 and Annex D show the realized oil production from 2012 and the prognosed oil production for the next twenty-five years. The prognosis is based on the operators' annual reports. Compared to last year's prognosis (0.85 million Sm³), production in 2022 (0.45 million Sm³) has significantly lagged behind (-47 %). This is mainly due to the non-production of the Schoonebeek oil field in 2022. The restart of production in Schoonebeek will return production from the reserves to the level of 2021. Because some new oil fields will come into production in 2026, the expected production from contingent resources will increase significantly from that year onwards. After 2032, the expected production volumes of the Schoonebeek oil field have been placed in a higher uncertainty class due to the increasing uncertainty in the long term, so that the remaining production largely consists of contingent resources. The production forecast of the contingent resources for a number of fields is limited to the period up to and including the year 2038. This results in an incomplete amount of data, so that no oil production forecast has been made from 2039 onwards.

Compared to 2021, one new oil accumulation was discovered (F03c-Bokje) (see Table 2.4).

Table 2.4 Oil accumulation discovered in 2022.

Accumulation	Appraisal well	Licence area [Type]	Operator
F03c-Bokje	F03-09	F03c [pl]	Dana Petroleum Netherlands B.V.

pl: production licence

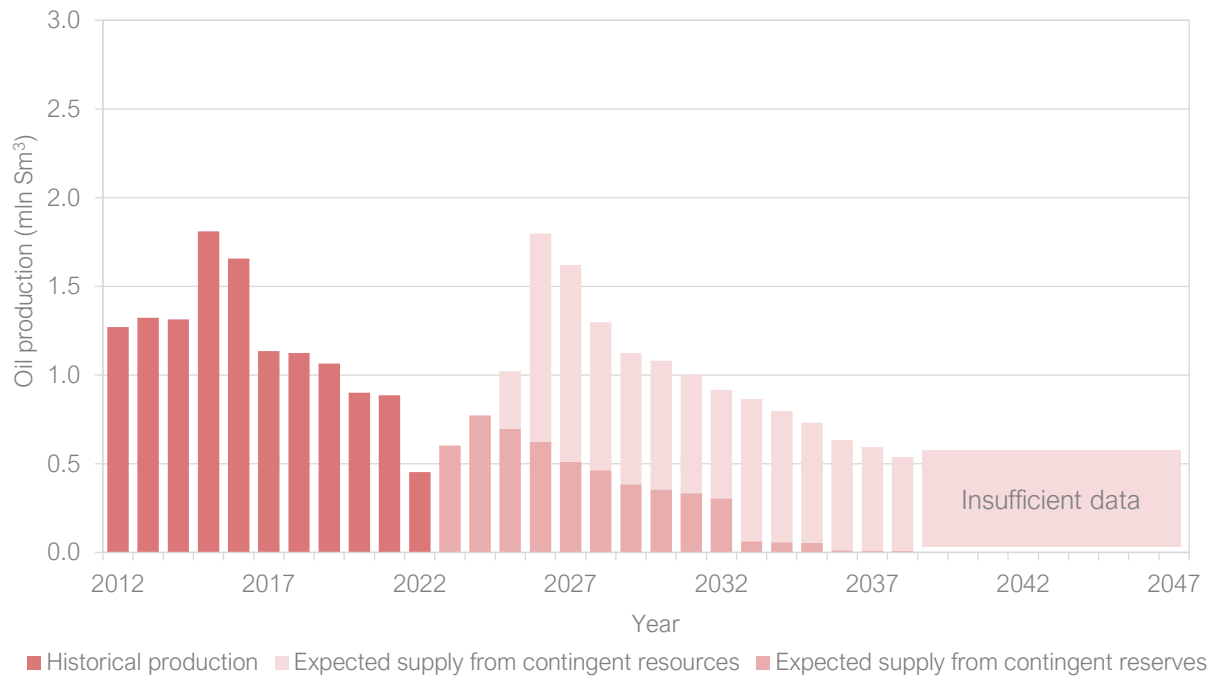


Figure 2.1 Historical (2012-2022) and prognosed (2023-2047) oil production on both land and sea (in million Sm³).

3.

Production of natural gas, oil and condensate

In 2022, no new fields were brought into production. Table 3.2 shows the fields taken out of production.

Table 3.1 Fields brought into production in 2022

Field name	In production	Discovery year	Natural resource
-	-	-	-

Table 3.2 Fields taken out of production in 2022

Field name	Out of production	Discovery year	Natural resource
Ureterp	January	1962	Gas
Haven	May	1980	Oil
Horizon	June	1981	Oil
Helder	July	1979	Oil

The tables below show the aggregated production figures for natural gas, oil and condensate in 2022. Condensate is considered a by-product of oil and gas production. The changes compared to 2021 are shown in both absolute and percentage terms. The tables are based on production data provided by the operators.

The total decrease in gas production of 20.2 % compared to 2021 is again largely due to the reduction of production from the Groningen gas field (29.7 %). Excluding the Groningen gas field, the decrease in gas production in the small fields is 14.8 % on land and 15.5 % at sea (Table 3.3).

A similar situation is observed in oil production. The total decrease compared to 2021 here amounts to 48.8 %. This is mainly caused by a decrease in oil production on land (68.8 %), following the halting of oil production from Schoonebeek. At sea, the decrease in production is 28.3 % (Table 3.4).

Overview of production in 2022 and changes compared to 2021

Table 3.3 Natural gas production* in 2022 and changes compared to 2021 (in billion Nm³)

Field location	Production 2021	Production 2022	Changes compared to 2021	%
Groningen	6.5	4.6	-1.9	-29.7
On land (other fields)	3.7	3.2	-0.6	-14.8
On land (subtotal)	10.2	7.8	-2.5	-44.4
At sea	8.9	7.5	-1.4	-15.5
Total	19.1	15.3	-3.9	-20.2

* Excluding coproduced natural gas from geothermal energy production licences.

Table 3.4 Oil production in 2022 and changes compared to 2021 (in 1000 Sm³)

Field location	Production 2021	Production 2022	Changes compared to 2021	%
On land	448.9	140.2	-308.6	-68.8
At sea	436.5	313.0	-123.5	-28.3
Total	885.4	453.3	-432.1	-48.8
Production per day*	2.426	1.242	-1.184	

* Total annual oil production divided by 365 days.

Table 3.5 Condensate production* in 2022 and changes compared to 2021 (in 1000 Sm³)

Field location **	Production 2021	Production 2022	Changes compared to 2021	%
On land ***	71.3	64.8	-6.5	-9.1
At sea	61.1	56.6	-4.6	-7.5
Total	132.5	121.4	-11.1	-8.4

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

** Excluding coproduced condensate from geothermal energy production licences and excluding condensate produced from the Alkmaar, Bergermeer, Grijpskerk and Norg storage fields (see Chapter 4).

3.1 Natural gas production on land in 2022

The table below shows the monthly production of natural gas per production licence on land. The production per licence is the sum of the production from all the wells whose surface location falls within the licence boundary. The production data was provided by the operators. Due to rounding of the monthly production values, small differences may occur with the totals per year reported in the table.

Annex B gives a long-term overview of the annual production of natural gas.

Table 3.6 Natural gas production on land per licence in 2022 (in million Nm³)

Licence *	Operator	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
Alkmaar	TAQA PG	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Andel Va	Vermilion	0.7	0.7	0.9	0.7	0.7	0.6	0.5	0.0	0.4	0.7	0.9	0.4	7.2
Beijerland	NAM	0.5	0.3	0.1	0.3	0.5	0.1	0.0	0.1	0.0	1.3	1.2	1.3	5.5
Bergen II	TAQA On	3.1	3.0	3.2	3.0	3.1	1.4	3.1	3.1	3.0	2.9	2.8	2.7	34.4
Botlek IV	NAM	10.6	10.0	10.0	8.4	11.5	8.9	5.4	10.5	7.0	9.5	8.1	8.9	108.8
Drenthe IIa	Vermilion	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Drenthe IIb	NAM	6.9	5.7	6.1	6.0	5.7	2.4	6.5	5.6	6.3	6.9	7.6	7.7	73.3
Drenthe IV	Vermilion	0.2	0.2	0.2	0.2	0.1	0.1	0.2	0.3	0.2	0.3	0.3	0.3	2.6
Drenthe V	Vermilion	1.4	1.2	1.2	0.9	0.7	0.9	1.0	0.8	1.1	1.2	1.0	1.0	12.4
Drenthe VI	Vermilion	15.3	13.6	14.1	13.4	13.7	13.3	13.6	13.3	12.6	13.9	13.0	12.8	162.6
Gorredijk	Vermilion	11.3	9.6	12.0	10.0	8.8	7.4	7.4	8.2	7.3	4.9	4.1	4.2	95.3
Groningen	NAM	511.6	466.1	453.5	809.9	389.2	210.7	241.6	215.1	764.2	178.5	422.9	512.8	5175.9
Hardenberg	NAM	1.3	1.0	1.1	1.4	1.4	1.3	1.3	1.3	0.8	1.3	1.0	1.7	14.9
Leeuwarden	Vermilion	12.3	8.9	8.3	5.3	2.6	2.2	2.2	2.0	1.1	1.4	1.4	1.6	49.3
Middelie	NAM	26.9	30.2	32.2	31.5	29.4	24.4	23.8	24.2	26.3	22.0	24.9	24.4	320.2
Noord-Friesland	NAM	112.0	94.3	99.5	75.0	83.3	80.9	81.6	81.2	78.2	86.3	97.2	103.9	1073.4
Oosterend	Vermilion	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rijswijk	NAM	20.5	16.5	18.5	15.7	12.9	14.3	10.8	14.3	14.9	15.7	15.5	16.9	186.4
Schoonebeek	NAM	25.2	22.1	25.8	24.1	24.0	24.2	23.4	25.7	18.7	25.4	22.2	24.9	285.6
Slootdorp	Vermilion	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Steenwijk	Vermilion	5.8	5.2	5.3	5.7	8.3	4.8	5.1	5.0	5.1	5.1	4.5	4.7	64.7
Tietjerksteradeel II	Vermilion	0.0	0.0	4.8	6.6	6.9	6.4	4.9	5.4	5.7	5.7	5.5	6.0	57.8
Tietjerksteradeel III	NAM	3.5	2.9	2.6	3.0	2.6	2.4	2.4	2.9	2.6	2.7	2.6	2.4	32.5
Waalwijk	Vermilion	1.4	1.4	1.3	1.6	1.7	1.7	1.8	1.1	0.5	1.4	1.2	1.3	16.4
Zuidwal	Vermilion	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total		770.4	692.7	700.4	1022.7	607.0	408.4	436.6	420.1	956.1	387.2	637.8	739.9	7779.4

* Excluding coproduced gas from geothermal energy production licences.

Production on land per stratigraphic reservoir

Figures 3.1 and 3.2 show the contribution to the total gas production from the small fields on land per stratigraphic reservoir level. Production from fields with multiple reservoirs are shown in hatched colours. The Groningen field production, not included here, 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 - 2006 was interrupted in 2007, mainly due to the start of natural gas extraction from under the Wadden Sea. The annual production continued to decline on average by 6 % between 2008 and 2012. In 2013, there was a slight increase in production, after which the downward trend continued. During the period 2017 – 2022, the annual production shows a decline between 12 and 22 % with a brief interruption in 2020 and 2021 in which a less pronounced decrease is observed.

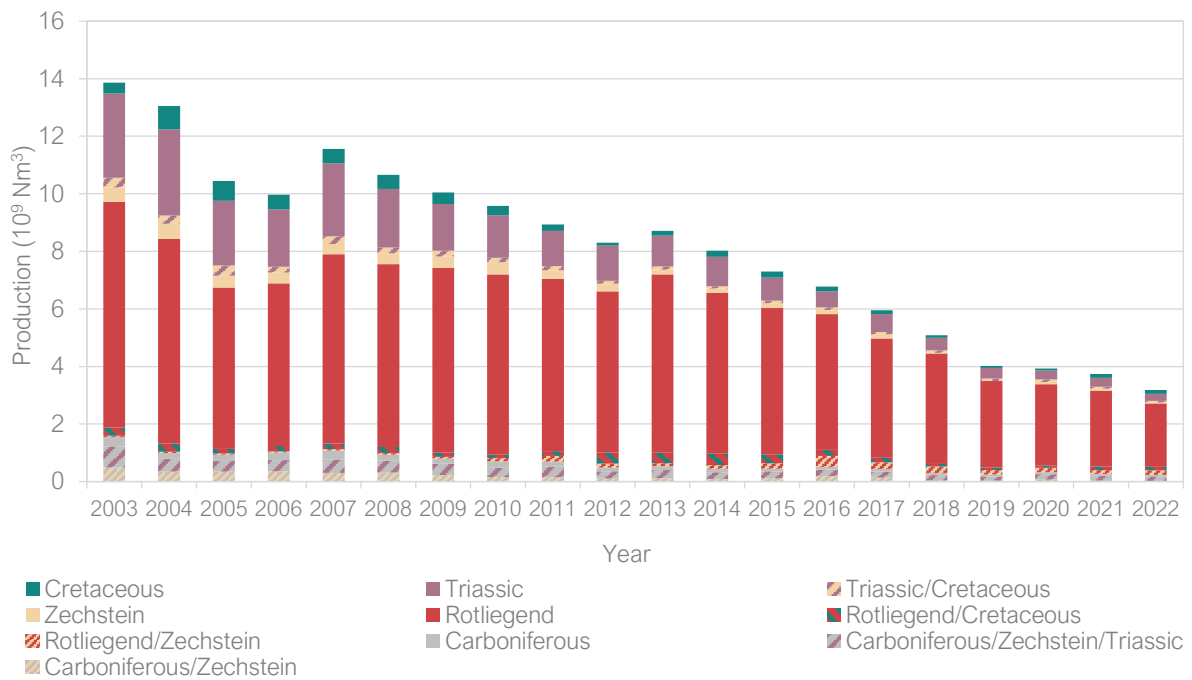


Figure 3.1 Gas production on land, per reservoir (excluding the Groningen gas field).

In Figure 3.2 the annual gas production from the Rotliegend and Triassic reservoirs is not included. This makes the contribution to gas production from Cretaceous, Zechstein and Carboniferous reservoirs more visible. The production from these reservoirs in general shows a decreasing trend. A first period of stabilised production is observed between 2012 and 2016, which is mainly due to the increase in production from the combined Rotliegend/Cretaceous reservoir (e.g., Vinkega field), while the production from Cretaceous and Zechstein reservoirs actually decreased. The increase in production from the Rotliegend/Zechstein group in 2016 was due to the increase in production from the Middelie field from 29 to 161 million Nm³ and the reclassification of the Slootdorp field due to the start of production from the Rotliegend reservoir (previously only producing from Zechstein). As of 2017, gas production experienced a sharp decline due to pressure depletion in the existing fields. Increased production from the Zechstein, Carboniferous/Zechstein and Carboniferous/Zechstein/Triassic reservoirs has led to the start of a second period of stabilised production since 2020. Note that no Jurassic reservoirs are present on land.

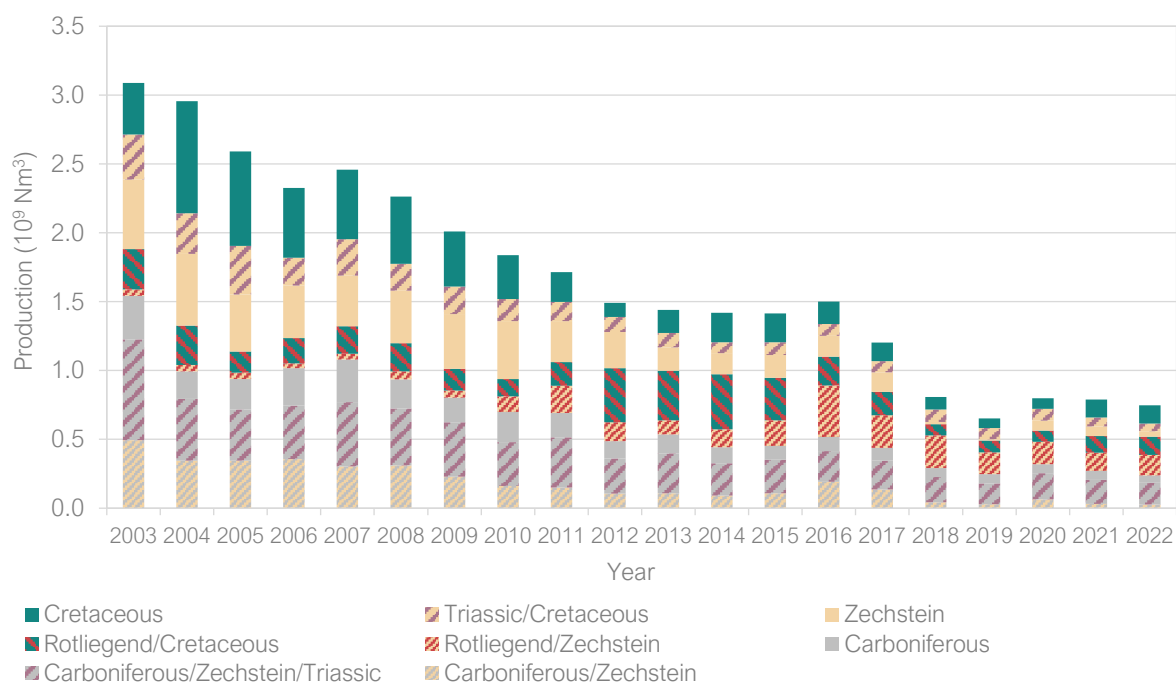


Figure 3.2 Gas production on land per reservoir (excluding gas field Groningen, Rotliegend and Triassic reservoirs).

3.2 Natural gas production at sea in 2022

The table below gives the monthly production of natural gas per production licence at sea. The production per licence is the sum of the production from all the wells whose surface location falls within the licence boundary. The production data was provided by the operators. Due to the rounding of the monthly production values, small differences may occur with the totals per year reported in the table.

A long-term overview of the annual production of natural gas is given in the annex B.

Table 3.7 Natural gas production at sea in 2022 (in million Nm³)

Licence	Operator	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Total
A12a	Petrogas	42.2	33.1	40.9	39.1	40.8	36.2	38.0	35.7	11.7	15.4	36.1	38.2	407.3
A18a	Petrogas	41.9	31.8	38.8	36.1	35.6	36.5	37.6	35.1	10.9	14.4	33.6	34.1	386.3
B10c & B13a	Petrogas	18.1	14.4	17.6	15.8	15.8	14.0	14.7	13.9	4.0	5.2	14.8	13.4	161.8
D12a	Wintershall	59.8	43.0	41.2	42.1	29.0	20.7	19.8	26.4	10.4	20.3	13.4	8.9	335.1
D15a	Neptune	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
E17a & E17b	Neptune	25.2	22.4	23.2	27.7	25.6	8.3	21.2	24.9	24.3	24.1	22.3	23.4	272.6
F02a	Dana NL	0.9	0.5	1.4	1.3	1.3	1.2	1.2	1.2	0.5	1.0	1.1	1.2	12.6
F03a	Spirit	0.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	0.0	n.a.	0.0
F03b	Neptune	12.5	11.5	12.5	12.2	12.1	8.0	9.5	9.8	0.0	1.1	7.1	5.6	102.0
F15a	TotalEnergies	7.5	6.0	6.5	5.5	6.8	6.4	6.4	6.1	2.1	6.6	6.1	6.1	72.1
G14 & G17b	Neptune	27.3	24.9	27.7	27.0	9.2	23.3	23.2	24.4	21.9	20.5	18.7	20.0	268.1
G16a	Neptune	20.8	17.1	18.1	15.9	5.6	15.5	13.5	15.7	11.6	14.0	14.1	15.8	177.6
G17c & G17d	Neptune	4.4	3.7	3.9	3.7	1.4	4.1	3.8	5.1	4.4	4.0	2.9	4.0	45.3
J03b & J06a	Spirit	0.7	3.5	4.9	3.9	4.5	0.6	3.6	4.9	5.0	4.6	0.3	0.8	37.3
K01a	TotalEnergies	6.7	10.7	14.9	11.2	12.6	0.0	3.4	8.8	14.3	14.3	8.8	12.1	117.9

Licence	Operator	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Total
K02b	Neptune	11.1	9.3	10.9	10.9	9.5	9.2	9.5	5.1	7.9	10.8	17.0	21.9	133.2
K04a	TotalEnergies	23.4	22.3	25.1	23.7	22.7	8.4	22.8	24.7	23.1	22.2	20.8	20.9	260.2
K04b & K05a	TotalEnergies	44.6	41.0	45.4	44.1	39.6	16.4	42.5	44.5	42.4	40.5	40.6	42.3	483.8
K05b & K05c	TotalEnergies	5.0	4.7	5.2	4.6	4.4	1.8	4.8	4.9	4.9	4.3	4.7	4.8	54.1
K06a, K06b, L07a, L07b & L07c	TotalEnergies	16.3	14.8	18.9	17.7	16.2	10.9	16.2	13.9	11.2	9.3	11.1	14.7	171.3
K07	NAM	2.2	3.6	2.3	3.8	3.7	1.8	4.4	3.8	3.4	3.4	3.2	3.6	39.1
K08 & K11a	NAM	14.4	12.3	13.8	13.3	11.0	5.3	13.3	13.4	11.1	10.7	11.6	12.4	142.8
K09a & K09b	Neptune	2.4	2.8	4.5	0.4	0.6	4.5	0.6	4.4	5.1	4.7	4.2	2.3	36.5
K09c & K09d	Neptune	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	n.a.	n.a.	0.0
K12a	Neptune	30.2	27.3	27.8	14.4	26.7	31.5	32.6	29.7	28.9	30.4	29.3	29.6	338.4
K14a	NAM	1.9	1.7	2.0	2.4	2.2	0.6	2.7	2.3	1.5	1.9	2.1	1.3	22.6
K15	NAM	39.5	34.6	36.3	35.1	34.2	25.7	35.7	28.5	27.4	25.6	32.6	28.9	384.1
K17a	NAM	9.7	8.2	8.5	6.8	7.2	2.1	4.2	3.3	3.9	7.3	7.0	4.0	72.1
K18b	Wintershall	15.9	13.8	13.6	14.8	14.2	0.0	0.0	10.7	17.4	13.8	16.3	14.7	145.3
L02	NAM	19.6	18.2	20.3	19.9	22.1	21.4	21.1	20.0	6.7	19.8	21.0	19.9	230.2
L04a & L04b	TotalEnergies	12.8	9.3	12.3	13.5	14.5	10.8	13.9	13.6	13.2	8.8	8.5	13.3	144.5
L05a	Neptune	49.2	40.1	46.1	42.6	35.5	42.0	42.7	38.6	12.2	13.3	39.1	40.1	441.4
L05b	Wintershall	2.1	1.7	2.1	2.0	1.8	2.0	2.2	0.0	1.9	2.7	1.9	1.9	22.2
L06a	Wintershall	3.3	2.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.6
L08b, L08d & L08e	Wintershall	5.2	4.6	5.2	4.4	3.9	4.9	5.0	0.0	2.2	5.1	3.7	3.8	48.1
L09	NAM	17.7	12.9	18.9	17.3	16.7	14.6	14.0	12.2	4.6	12.0	16.6	14.0	171.4
L10 & L11a	Neptune	16.8	15.2	13.5	7.2	11.5	15.9	18.0	15.4	13.8	15.3	15.7	15.7	173.9
L11b	ONE-Dyas	16.9	15.1	11.5	9.5	10.8	10.5	11.9	7.6	7.7	12.1	9.1	8.5	131.3
L12b & L15b	Neptune	17.5	16.1	17.2	13.0	16.8	16.1	15.3	15.6	5.0	13.9	18.1	17.1	181.8
L13	NAM	17.2	12.5	13.6	17.0	18.1	6.1	14.8	16.4	25.1	19.4	6.4	25.8	192.6
M07a	ONE-Dyas	13.4	9.4	12.5	11.4	11.9	10.8	11.4	10.7	3.0	7.6	10.6	10.9	123.6
P09c	Petrogas	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4
P11b	Dana NL	25.9	18.3	24.6	22.3	20.8	17.6	9.7	4.1	18.2	12.5	17.4	9.4	200.8
P15a, P15b, P15d, P15e & P15f	TAQA Off	0.2	0.0	0.3	0.2	0.2	0.2	0.9	0.7	3.3	3.0	2.9	3.0	14.8
P15c, P15g, P15h, P15i & P15j	TAQA Off	0.0	0.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	0.0
P18a	TAQA Off	6.7	6.7	7.4	6.5	6.1	4.3	1.6	0.3	4.7	7.4	7.2	6.6	65.6
Q01a-ondiep & Q01b-ondiep	Petrogas	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3
Q01c-diep	Wintershall	0.0	2.4	5.7	4.9	1.4	0.3	14.9	14.8	14.1	13.8	10.0	11.3	93.5
Q04a	Wintershall	10.1	9.9	11.0	10.1	10.6	4.9	8.2	8.5	8.0	8.6	9.2	9.0	108.1
Q07 & Q10a	Kistos2	55.0	35.7	49.7	39.5	38.7	41.1	22.0	11.6	38.8	35.6	30.8	31.8	430.1
Q13a	Neptune	0.6	0.5	0.6	0.6	0.6	0.5	0.3	0.1	0.5	0.5	0.5	0.5	5.8
Q16a	ONE-Dyas	2.6	2.9	3.4	2.8	2.8	2.1	1.5	0.5	3.4	3.2	2.4	2.4	30.0
Q16c-diep	ONE-Dyas	0.0	0.0	0.0	0.0	0.1	0.0	1.1	1.9	0.2	0.0	0.0	0.0	3.2
Total		777.7	653.1	742.0	678.2	637.2	519.0	615.4	593.7	495.7	545.1	611.1	630.1	7498.3

Production at sea per stratigraphic reservoir

Figures 3.3 and 3.4 show the contribution to the total gas production of the small fields at sea per stratigraphic reservoir. The production from fields with multiple reservoirs are shown in shaded colours.

Figure 3.3 clearly shows that, as on land, the contribution from the Rotliegend and Triassic reservoirs is dominant. Production grew from 2003 to 2007, but since 2008 it has been declining steadily to below 20 billion Nm³ in 2011. The strong decreasing trend in production (annual decrease of approx. 9%) over the period 2014 - 2019 was reversed in 2020, mainly due to the start of gas production from the D12-B gas field. However, the disappointing production of the D12-B and D12-D gas fields in 2022 again led to a similar decline in the total annual production as in the period before.

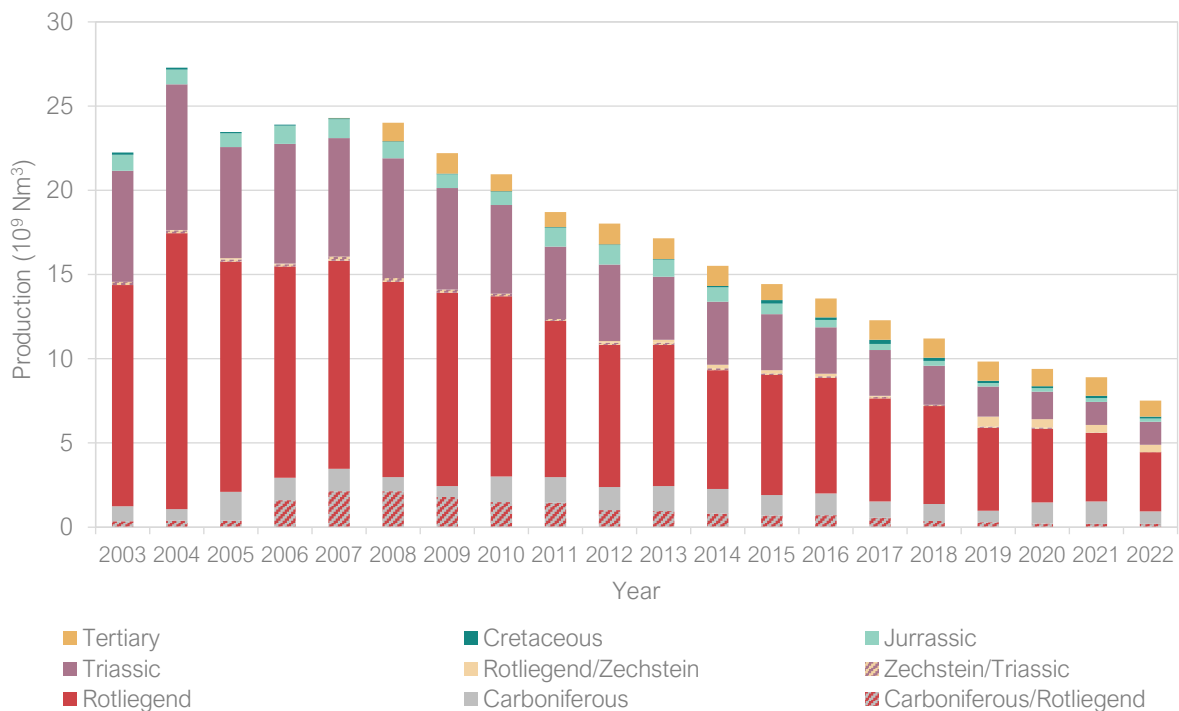


Figure 3.3 Gas production at sea, per reservoir.

The annual gas production from the Rotliegend and Triassic reservoirs is not included in Figure 3.4. This makes the contributions from other reservoirs to the total gas production more visible. Over the period 2005-2007, the contribution from fields with a combined Carboniferous–Rotliegend reservoir nearly tripled, followed by a gradual decline since 2008. The start of production of the so-called ‘shallow gas’ reservoirs (Tertiary) in at sea in 2008 stands out. Production from these Tertiary reservoirs has remained at a reasonable level because the B13-A field was brought into production in 2015. The start of production of the Q10-A field (Rotliegend/Zechstein) in 2019 and the D12-B field (Carboniferous) in 2020 reversed the declining trend over the 2016-2018 period. The increase in production in 2021 compared to the previous year is due to the good production of A12-FA, D12-B and D12-D. However, the increasing trend has not continued in 2022 due to the rapid decline in production from the D12-B and D12-D gas fields.

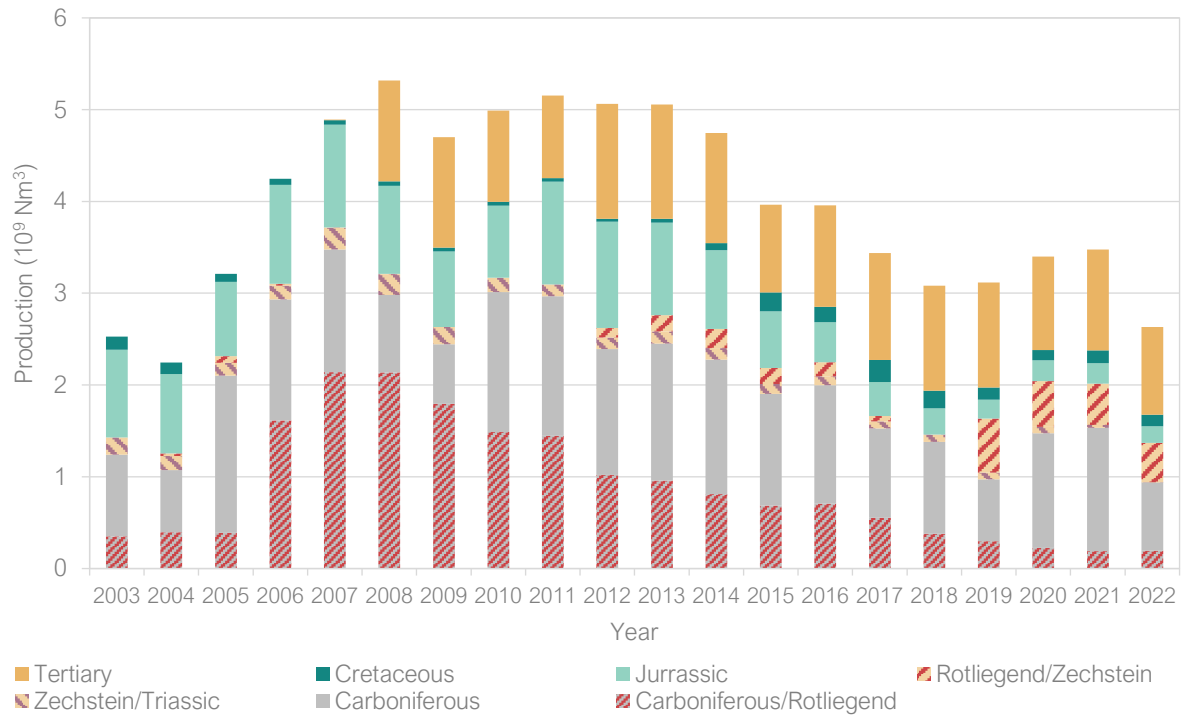


Figure 3.4 Gas production at sea, per reservoir (excluding Rotliegend and Triassic reservoirs).

3.3 Oil and condensate production in 2022

The tables below show the monthly production of oil and condensate per production licence. The production per licence is the sum of the production from all the wells whose surface location falls within the licence boundary. The production data was provided by the operators. Due to rounding of the monthly production values, small differences may occur with the totals per year reported in the table.

A long-term overview of the annual production of oil is given in the annex D.

Table 3.8 Oil production in 2022, per licence (in 1000 Sm³)

Licence *	Operator	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Total
Rijswijk	NAM	12.6	10.7	9.8	12.6	12.1	12.1	12.0	12.1	11.9	11.5	11.4	11.3	140.2
Schoonebeek	NAM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
F02a	Dana NL	7.8	1.2	12.3	11.2	11.1	10.8	10.7	10.2	3.6	11.1	11.1	10.6	111.7
F03b	Neptune	3.1	2.9	3.3	3.1	3.1	2.0	2.3	2.5	0.0	0.1	1.7	1.3	25.5
P09c	Petrogas	1.2	1.2	1.3	1.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.0
P11b	Dana NL	4.8	3.3	4.6	5.4	5.2	5.7	3.9	3.3	6.0	5.6	6.5	6.2	60.5
P15a, P15b, P15d, P15e & P15f	TAQA Off	2.1	0.3	2.4	2.2	2.4	2.3	1.4	0.3	2.3	2.4	2.0	2.1	22.1
Q01a-ondiep & Q01b-ondiep	Petrogas	2.4	2.9	2.2	1.2	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	9.2
Q13a	Neptune	8.4	6.4	7.4	6.9	7.2	6.9	3.7	1.1	6.1	6.0	5.4	5.7	71.4
Q16c-diep	ONE-Dyas	0.0	0.0	0.2	0.1	0.4	0.0	2.7	3.7	0.5	0.0	0.0	0.0	7.7
Total		42.3	28.9	43.5	43.9	42.0	40.1	36.8	33.2	30.4	36.7	38.2	37.2	453.3

* Excluding co-produced oil from production licences for geothermal energy.

Table 3.9 Condensate* production in 2022 (in 1000 Sm³)

Licence	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
On land **	6.8	4.9	6.1	5.3	6.4	4.1	4.9	5.1	5.1	5.3	5.7	5.2	64.8
At sea	5.3	4.8	5.4	4.7	5.0	4.5	3.7	3.4	4.3	5.4	5.0	5.1	56.5
Total	12.1	9.7	11.5	10.0	11.3	8.6	8.5	8.6	9.4	10.7	10.7	10.3	121.4

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

** Excluding coproduced condensate from geothermal energy production licences and excluding produced condensate from the Alkmaar, Bergermeer, Grijpskerk and Norg storage fields (see Chapter 4).

4.

Subsurface storage

4.1 Introduction

Subsurface storage is an exceptionally space-effective method for storing very large quantities of substances. Various forms of storage are possible in the Dutch subsurface. For example, storage in porous layers (such as the space between sand grains in depleted gas fields or in aquifers, or in constructed cavities, such as caverns in rock salt or mining galleries in former coal seams).

These storage systems can be used as a temporary stock or buffer (such as for natural gas, nitrogen gas and potentially hydrogen and energy), but they can also be used for the permanent storage of substances (such as CO₂ and saline water).

According to the Mining Act, the storage of substances in the subsurface (at depths of more than 100 m) requires a storage licence and the licence holder must have an approved storage plan. The storage plans provide information about the geological setting and the process of storage. In certain cases, the injection of substances does not legally fall under the storage of substances as referred to in the Mining Act: for example, the injection of nitrogen to prevent subsidence (De Wijk gas field) is part of the production plan and re-injection of formation/process water as undesirable co-produced substances falls under environmental legislation.

In order to obtain a licence for the permanent storage of CO₂, a storage plan consisting of a risk management, corrective measures, monitoring and closure plan must be submitted with the licence application. The plans should be finalised shortly before the start of injection. For this reason, these storage licences are awarded, but do not take effect until all related plans have been approved.

In addition to the existing storage sites, the Dutch subsurface provides the potential for the storage of various new forms of sustainable energy carriers. Future energy scenarios foresee an increasing demand for large-scale subsurface storage to buffer energy in order to match supply and demand. The most concrete developments are in: hydrogen storage, compressed air storage (CAES) and high temperature heat storage (HT-ATES). Studies on the storage of hydrogen in salt caverns in the Zuidwending storage licence area are ongoing.

4.2 Overview licences

In 2022 no new storage licences were applied for on land. At sea, two exploration licences for CO₂ storage and one CO₂ storage licence have been applied for. Whilst one CO₂ storage licence has been amended one CO₂ storage licence has been granted.

As of 1 January 2023 nine storage licences were in force. The CO₂ storage licences P18-2 and P18-4 have been granted but are not yet in force.

An overview of all storage licences can be found in Table 4.1 and Annexes I and Q. Figure 4.1 shows their locations on the map.

Table 4.1 Storage licences, onshore and offshore the Netherlands.

Licence	Awarded	Operator	Product	Status
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	Nobian Salt B.V.	Oil	Effective
Winschoten II	15-11-2010	Gasunie (GTS)	Nitrogen	Effective
Winschoten III	15-11-2010	Nobian Salt B.V.	Nitrogen	Effective
Andijk	12-12-2019	PWN	Saline water	Effective
P18-4	20-07-2013	TAQA	Carbon dioxide	Awarded
P18-2	13-07-2022	TAQA	Carbon dioxide	Awarded

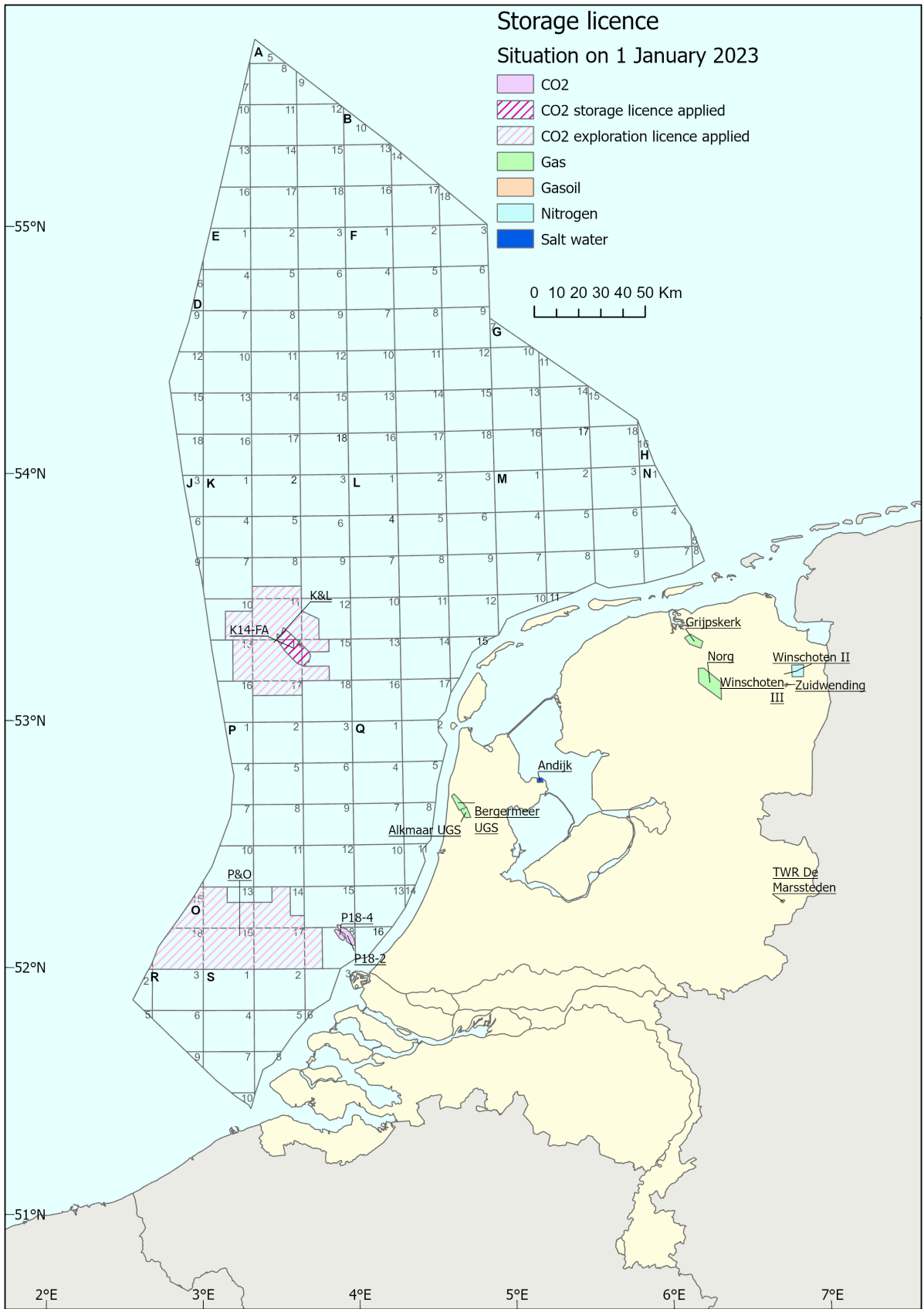


Figure 4.1 Storage licences as of 1 January 2023.

Temporary storage

Gas storage

The seasonal variation in natural gas demand (winter/summer) has long been balanced with the Groningen field. An important reason for this was that in doing so the small fields could be produced without being disturbed (as part of the small fields policy). As production from the Groningen field progressed, the pressure and thus the flexibility in the production rate of the Groningen field declined accordingly. In order to maintain sufficient flexibility to meet fluctuations in gas demand to guarantee the security of gas supply, four underground gas storage facilities have been put into operation since 1997.

Gas storage facilities at Norg (low-calorific gas/Groningen gas) and Grijpskerk (high-calorific gas until 2022, after that low-calorific gas) have served as a buffer to cope with seasonal fluctuations in gas demand. When demand increases, particularly in winter, extra natural gas is supplied from Norg and Grijpskerk. The storage facilities in Alkmaar and in Zuidwending are primarily used to accommodate peak demands of one or more days. Together with the Bergermeer storage facility, which is primarily aimed at gas trading and operates on the gas market on its own initiative, five natural gas storage facilities (Underground Gas Storage - UGS) are currently operational in the Netherlands. Except for the Zuidwending facilities, where storage takes place in salt caverns, all storages are (former) gas fields.

Figure 4.2 and Figure 4.3 respectively show the volume of natural gas stored and withdrawn from the five natural gas storage facilities from 2003 to and including 2022. From 2015 onwards, the capacity used by the storage facility in Norg has risen sharply, by increasing the maximum operational pressure. The working volume in the storage plan was increased that way from 3 to 7 billion Nm³ (adjusted to 6 billion Nm³ in 2019) coinciding with the reduction in production from the Groningen field. Also, the Bergermeer storage facility discharged more gas from 2016 onwards after years of predominantly filling.

The transition of the Grijpskerk storage facility from high calorific gas to a low calorific gas buffer in 2021 coincided with the start of the events in Ukraine and resulted in a low level of filling combined with a relatively high extraction of natural gas as can be seen in figures 1.2 and 1.3. The events in Ukraine and volatile gas prices had the effect in 2022 that a lot of gas was stored in Norg, Alkmaar and Bergermeer in particular, because filling rates needed to be up to par, but eventually less was discharged, due to the warm winter.

Increased gas demand on for instance very cold winter days, can to a certain extent also be met with international pipelines and LNG terminals. On the Maasvlakte, there is a terminal where liquefied natural gas (LNG) is stored in tanks at surface (with a total capacity of approximately 310 million Nm³ gas this is considerably smaller than underground storage). In Delfzijl there is a temporary LNG terminal.

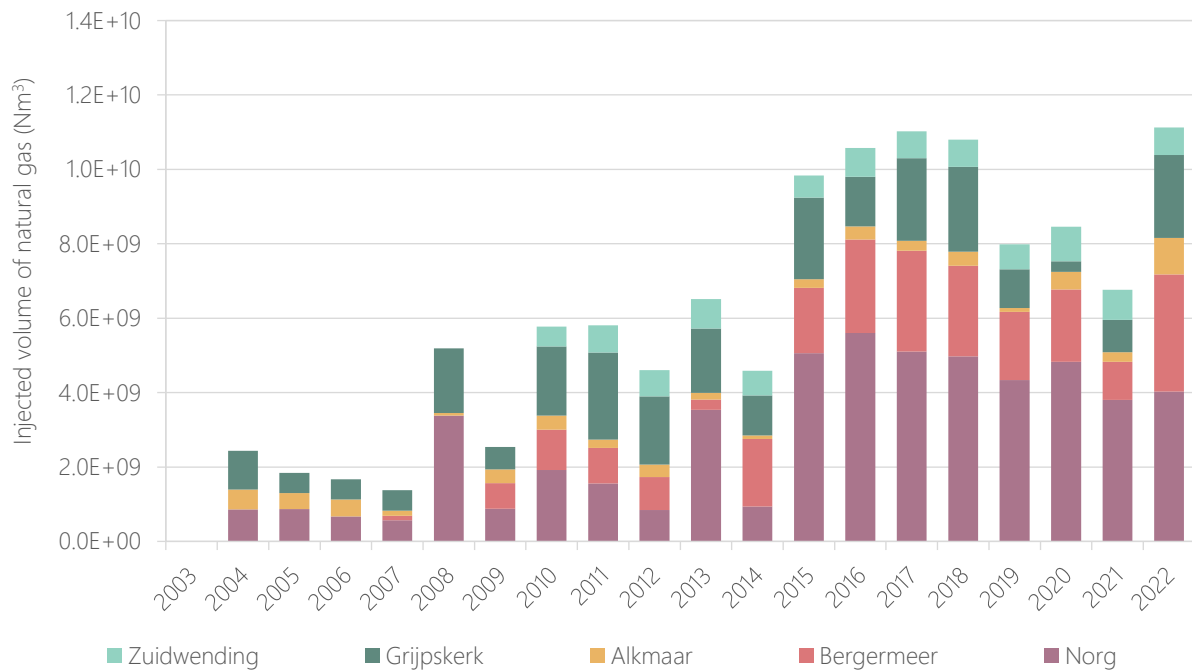


Figure 4.2 Injected volume of natural gas per UGS from 2003 to 2022.

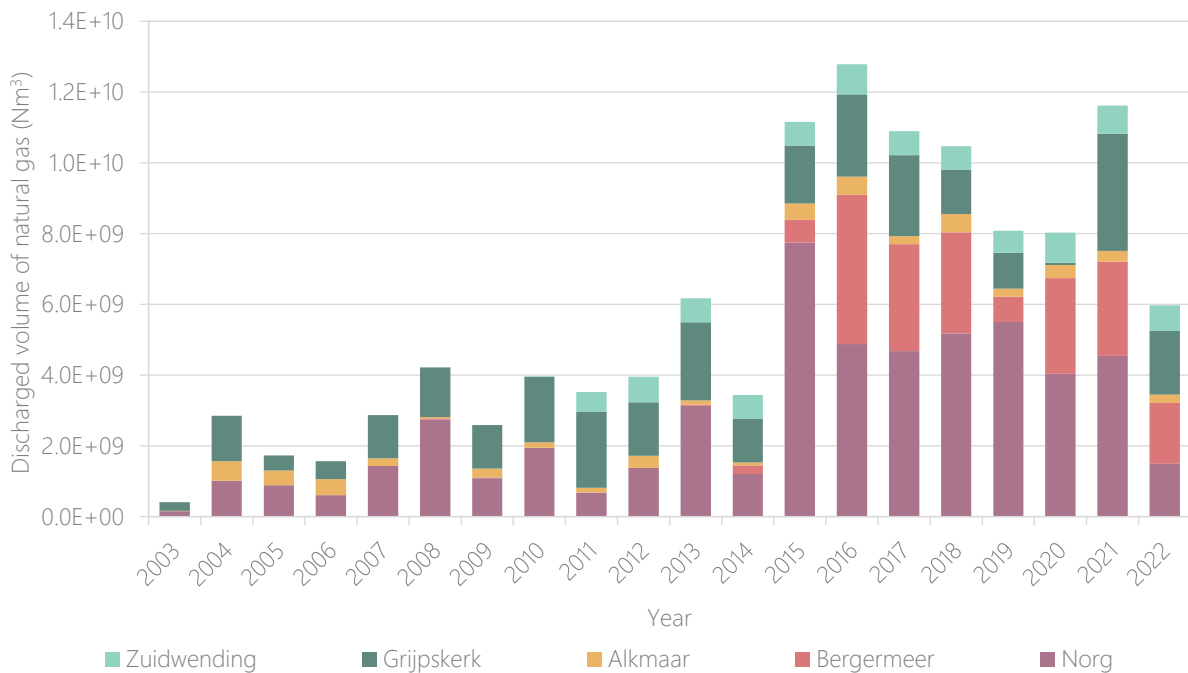


Figure 4.3 Discharged volume of natural gas per UGS from 2003 to 2022.

Storage of nitrogen and oil

In the Netherlands, the subsurface is used for the temporary storage of other substances as well. This concerns, for example, salt caverns that are used for the storage of nitrogen and oil. In Twente (Twenthe-Rijn de Marssteden storage licence) a strategic oil supply is stored in one of the salt caverns, while in Winschoten (Heiligerlee) a salt cavern is used to store nitrogen for the conversion of high-calorific gas into low-calorific quality gas to replace the decreased Groningen gas production.

Permanent storage

CO₂ storage

There are advanced plans to use depleted offshore natural gas fields to provide significant capacity for the permanent storage of CO₂ in the coming years. A storage licence for this purpose was granted back in 2013 for the depleted P18-4 gas field, part of the Porthos project, located just off the coast of South Holland, but it is not yet in force. On 13 July 2022, the licence was amended for an integral approach with the storage at P18-2. The plan is to store up to 8 Mton of CO₂ in the depleted gas field P18-4 and 32 Mton in the adjacent gas field P18-2 from 2024 to 2041 at the latest. Another licence application has been submitted in 2022 to store CO₂ in the K14-FA gas field, as a part of the Aramis project.

Two exploration licences have been applied for the storage of CO₂, one in the P&O blocks and one in the K blocks. In both applications, exploration will focus on storing CO₂ in deep saline aquifers.

To encourage the development of CCUS projects, these projects are also eligible for the “Stimulation of sustainable energy production and climate transition” (SDE++). This programme provides subsidies to companies and non-profit organisations that generate renewable energy or reduce CO₂ emissions on a large scale. A total budget of 13 billion euros was available in 2022, most of which was applied for by CCUS projects.

Storage of saline water

The Andijk storage licence is intended for the permanent storage of the filter residue formed during the purification of saline groundwater to produce drinking water. This concentrated salt water is injected into a groundwater package at a depth of 100 to 500 metres. Because this aquifer is deeper than 100 meters, this activity requires a storage licence under the Mining Act.

4.3 Subsurface storage in 2022

The monthly quantities of natural gas and nitrogen that were stored and discharged in the subsurface in 2022, are listed per licence in Table 4.2 to Table 4.5. The information has been provided by the licence holders.

Table 4.2 Stored natural gas (in million Nm³).

Licence	Operator	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Alkmaar	TAQA	0	0	0	0	0	57	77	117	732	0	0	0	982
Bergermeer	TAQA	33	5	128	208	498	486	569	579	68	458	101	16	3,149
Grijpskerk	NAM	0	1	0	341	428	396	379	352	332	0	0	0	2,228
Norg	NAM	0	0	0	410	748	804	735	339	620	369	0	0	4,026
Zuidwending	EnergyStock	38	35	33	98	74	92	54	57	43	98	48	72	742
	Total	71	41	161	1,057	1,747	1,835	1,815	1,444	1,794	925	149	89	11,127

Table 4.3 Discharged natural gas (in million Nm³).

Licence	Operator	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Alkmaar	TAQA	101	87	34	0	0	0	0	0	0	0	11	0	232
Bergermeer	TAQA	373	222	115	43	0	0	0	0	0	0	284	683	1,718
Grijpskerk	NAM	186	152	15	0	0	0	0	0	0	955	183	314	1,804
Norg	NAM	562	276	66	112	0	0	0	0	0	0	4	473	1,493
Zuidwending	EnergyStock	135	43	83	22	50	41	61	47	50	38	71	86	728
Total		1,357	779	312	177	50	41	61	47	50	993	552	1,556	5,975

Table 4.4 Stored nitrogen (in million Nm³).

Licence	Operator	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Winschoten II	Gasunie	9.1	5.6	6.5	4.5	4.1	3.5	7.4	5.3	1.6	3.5	1.0	4.3	56.5

Table 4.5 Discharged nitrogen (in million Nm³).

Licence	Operator	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Winschoten II	Gasunie	1.6	6.6	5.6	8.9	9.5	3.1	0.0	1.3	4.6	0.7	2.3	5.6	49.6

5.

Geothermal Energy

5.1 Preface geothermal energy

Tables 5.1, 5.2 and 5.3 provide an overview of the changes in geothermal energy licences that took place in 2022. Applications that are fully competitive with previous applications are not published in the Government Gazette and do not appear in Chapter 8.5.

Table 5.1 Changes in exploration licence applications in 2022.

Status date	Number	Description	Remarks
01-01-2022	14	Exploration licences in the process of application	Out of 14, 1 was in full competition* ¹
Changes in 2022	2	Geothermal exploration licences awarded	-
	1	Geothermal exploration licence rejected	-
	7	Geothermal exploration licences were published in 2022* ^{2, 3}	Of the 7 published exploration licences 1 is also withdrawn in 2022.
	5	Geothermal licence applications were withdrawn.	-
	01-01-2023	13	Exploration licences in the process of application

*¹ Applications for licences that are in full competition are not published in the Government Gazette and are therefore not published in the Annual Report. However, these are included in the statistics.

*² 7 exploration licences for geothermal energy are published in 2022 in the Government Gazette. Of these 7, 1 licence was applied for at the end of 2021, but was published in the Government Gazette in 2022.

*³ Of these 7 published licences, 1 license was applied for scientific research.

Table 5.2 Changes in licensed exploration licences for geothermal energy in 2022.

Status date	Number	Description
01-01-2022	82	Geothermal energy exploration licences effective
Changes in 2022	2	Geothermal exploration licences awarded
	5 → 10	5 geothermal exploration licences split into 10
	3	Geothermal exploration licences converted into production licences for geothermal energy
	6	Geothermal exploration licences were expired, withdrawn or relinquished
	13	Geothermal exploration licences were extended or applied for an extension
	6	Geothermal exploration licences were spatially restricted
01-01-2023	80	Geothermal energy exploration licences effective

Table 5.3 Changes in geothermal production licences in 2022.

Status date	Number	Description
01-01-2022	28	Geothermal production licences effective
	5	Geothermal production licences in the process of application
Changes in 2022	4	Geothermal production licences awarded
	4	Geothermal production licences applied for
	4	Geothermal production licences extended
01-01-2023	5	Geothermal production licences in the process of application
	32	Geothermal production licences effective

Changes in the licence status in 2022 of geothermal energy exploration and production licences are listed in the tables of Chapter 8. Figure 5.1 shows the evolution of the Dutch geothermal licence status. In the histogram bar of year 2022 the number of licence applications is presented as well.

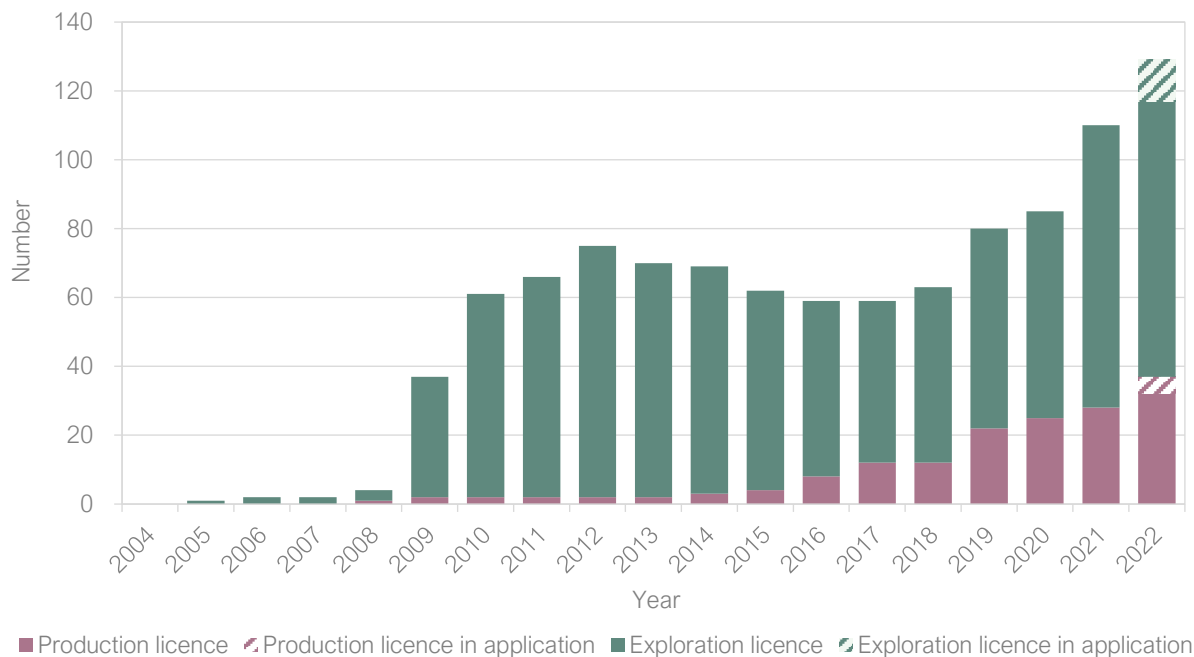


Figure 5.1 Number of licences for geothermal energy effective a per year. For the year 2022 the number of applications is presented as well.

5.1 Geothermal wells and production installations as at 1 January 2023

In 2022 7 geothermal wells and 3 sidetracks were completed (see Table 5.4 and Figure 5.2). These concern wells within the area of the production licences Luttelgeest, Kampen and Oostvoorne and in the area of the exploration licence Maasdijk 3. With the drilled wells in the area of the Luttelgeest and Kampen licences, the two existing geothermal production installations Luttelgeest Geothermie 1 and Koekoekspolder Geothermie have been expanded with additional wells. The drilling of two wells of the new geothermal production installation Maasdijk Geothermie in the area of the exploration licence Maasdijk 3 started in 2022. A total amount of 6 wells will be completed for the geothermal production installation Maasdijk Geothermie. Well TNT-GT-01, which is located in the area of the production licence Oostvoorne, was successfully completed in 2020. However, due to later complications, it was decided to drill a sidetrack in 2022.

As at 1st of January 2023 there are a total of 27 geothermal production installations³, of which the Mijwater Energiecentrale Heerlen installation is actually a heat/cold storage facility and as such will not be included in the following overview. The other 26 geothermal installations (will) produce heat from the deep subsurface. In general, these installations are named doublets as they consist of two wells. One well produces warm water from the aquifer and after extracting the heat, the second well injects the cooled water back down into the same aquifer. Twenty of these 26 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. All of the operational installations operate under a formal production licence (as at 1 January 2023).

³ A geothermal energy production installation consists of 2 or more wells where there is at least one injection and one production well. The wells are part of a closed primary production loop in which the geothermal formation water (brine) runs through the heat exchanger. In such installations, the mass volume of produced water is equal to the mass volume of injected water into the lateral continuous and connective subsurface geothermal reservoir.

Table 5.4 Geothermal wells completed in 2022.

	Name of well	Result	Geothermal energy licence	Operator
1	KKP-GT-03	Water	Kampen	Aardwarmtecluster I KKP B.V.
2	LTG-GT-07	Water	Luttelgeest	Hoogweg Aardwarmte B.V.
3	LTG-GT-08	Water	Luttelgeest	Hoogweg Aardwarmte B.V.
4	LTG-GT-09	Water	Luttelgeest	Hoogweg Aardwarmte B.V.
5	LTG-GT-11	Water	Luttelgeest	Hoogweg Aardwarmte B.V.
6	MSD-GT-03	Technical failure	Maasdijk 3	HVC Aardwarmte Maasdijk B.V.
7	MSD-GT-03-S1	Technical failure	Maasdijk 3	HVC Aardwarmte Maasdijk B.V.
8	MSD-GT-03-S2	Water	Maasdijk 3	HVC Aardwarmte Maasdijk B.V.
9	MSD-GT-04	Water	Maasdijk 3	HVC Aardwarmte Maasdijk B.V.
10	TNT-GT-01-S1	Water	Oostvoorne	Aardyn B.V.

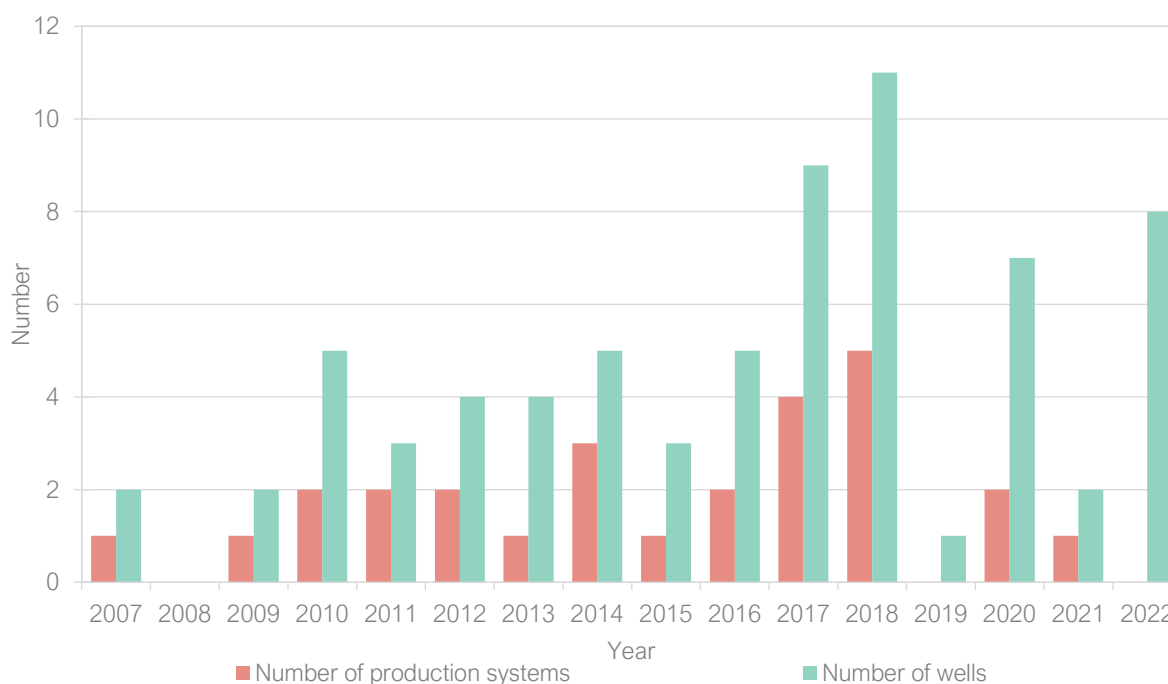
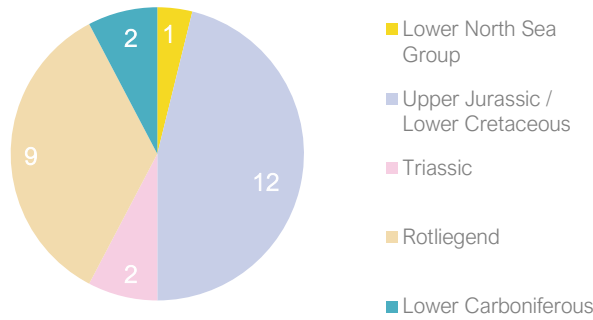


Figure 5.2 Number of geothermal wells completed per calendar year and number of installations completed since 2007.

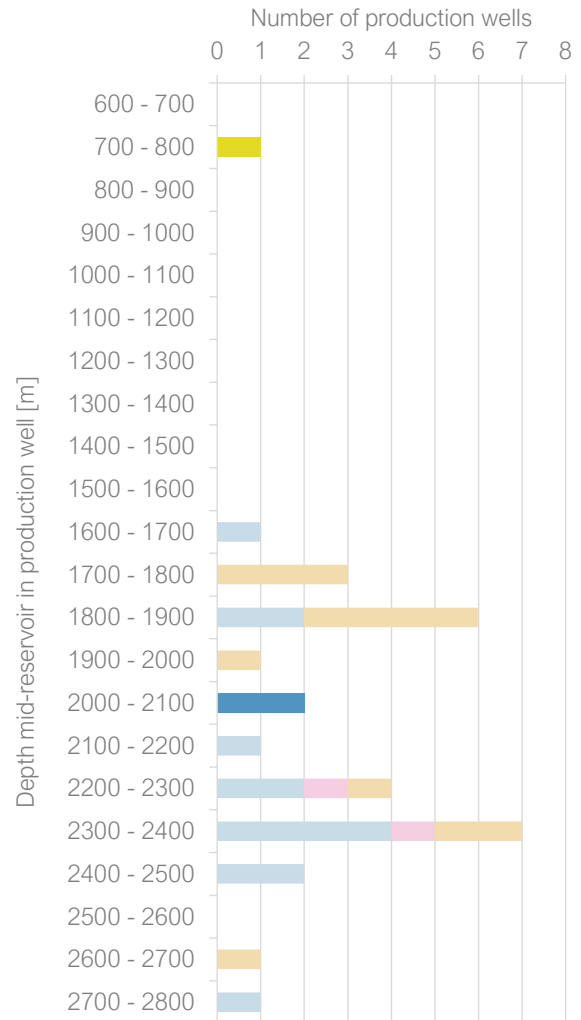
Geothermal heat is produced from depth intervals between 700 and 2800 meter and from various geological units (Figure 5.3a and b). The mid depth of the producing zone is displayed in Figure 5.3 b. Most of the geothermal installations (12) produce heat from the Upper-Jurassic and Lower-Cretaceous strata, in the Southwest of the Netherlands. Two installations in the Southwest of the Netherlands produce from strata of Triassic age. Nine production installations in Noord-Holland, Overijssel and Flevoland produce from Rotliegend strata, whereas two installations in the North of Limburg produced heat from Lower Carboniferous to Devonian strata. One geothermal energy production installation in Noord-Brabant produces water from an aquifer pertaining to the Lower North Sea Group.

The heat produced is predominantly used to heat commercial greenhouses. Two projects also supply heat to two district heating networks for the built environment. Another project supplies heat to a district heating network in an urban area (Figure 5.3 c).

a) Stratigraphy of the productive interval



b) Depth to mid of aquifer



c) Uses of the heat produced

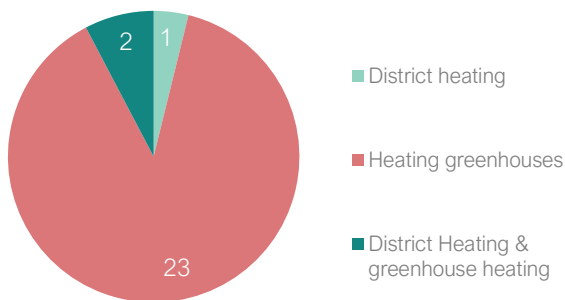


Figure 5.3. a) Stratigraphy of the productive interval, b) Depth to mid of aquifer (certain geothermal production installations have multiple production wells), c) Uses of the heat produced.

5.2 Production of geothermal energy in 2022

Of the 26 geothermal installations (Mijnwater Energiecentrale Heerlen excluded) 20 were operational in 2022 (Table 5.5). The operational installations have submitted the obligatory monthly production figures. Of the 6 non-operational installations 3 were temporarily closed-in and 1 was in the start-up phase. The other 2 non-operational geothermal energy production installations were shut down in 2018 as a consequence of agreements and safety policy in force. In the course of 2022 one installation was shut down. In addition, there is one installation that was expanded with five operational wells in 2022.

Table 5.5 Geothermal installations.

	Name geothermal energy installation	Wells	Geothermal energy licence	Operational in 2022
1	Californië Geothermie	CAL-GT-1,2&3	Californië IV	No
2	De Lier Geothermie	LIR-GT-1&2	De Lier	Yes
3	Honselersdijk Geothermie	HON-GT-1&2	Honselersdijk	No
4	Installatie Berkel en Rodenrijs	VDB-GT-3&4	Bleiswijk-1b	No
5	Installatie Bleiswijk	VDB-GT-1&2	Bleiswijk	No
6	Koekoekspolder Geothermie	KKP-GT-1&2	Kampen	Yes
7	Mijnwater Energiecentrale Heerlen	HLH-GT-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	Den Haag Geothermie	HAG-GT-1&2	Den Haag	Yes
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 Geothermie	BRI-GT-1&2	Vierpolders	Yes
15	Californië Lipzig Gielen	CAL-GT-4&5	Californië-V	No
16	Poeldijk Geothermie	PLD-GT-1&2	Poeldijk	Yes
17	Kwintsheul Geothermie	KHL-GT-1&2	Kwintsheul	Yes
18	Lansingerland Geothermie	LSL-GT-1&2	Lansingerland	Yes
19	MDM-GT-06 / MDM-GT-01	MDM-GT-6&1	Middenmeer I	Yes
20	Maasland Geothermie	MLD-GT-1&2	Maasland	Yes
21	Naaldwijk Geothermie	NLW-GT-1,2,3&4	Naaldwijk & Naaldwijk II	Yes
22	Zevenbergen Geothermie	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 Geothermie 1	LTG-GT-1,2,3,7,8,9,10,11	Luttelgeest	Yes
26	Luttelgeest Geothermie 2	LTG-GT-4,5&6	Luttelgeest II	Yes
27	-	TNT-GT-1&2	Oostvoorne	No

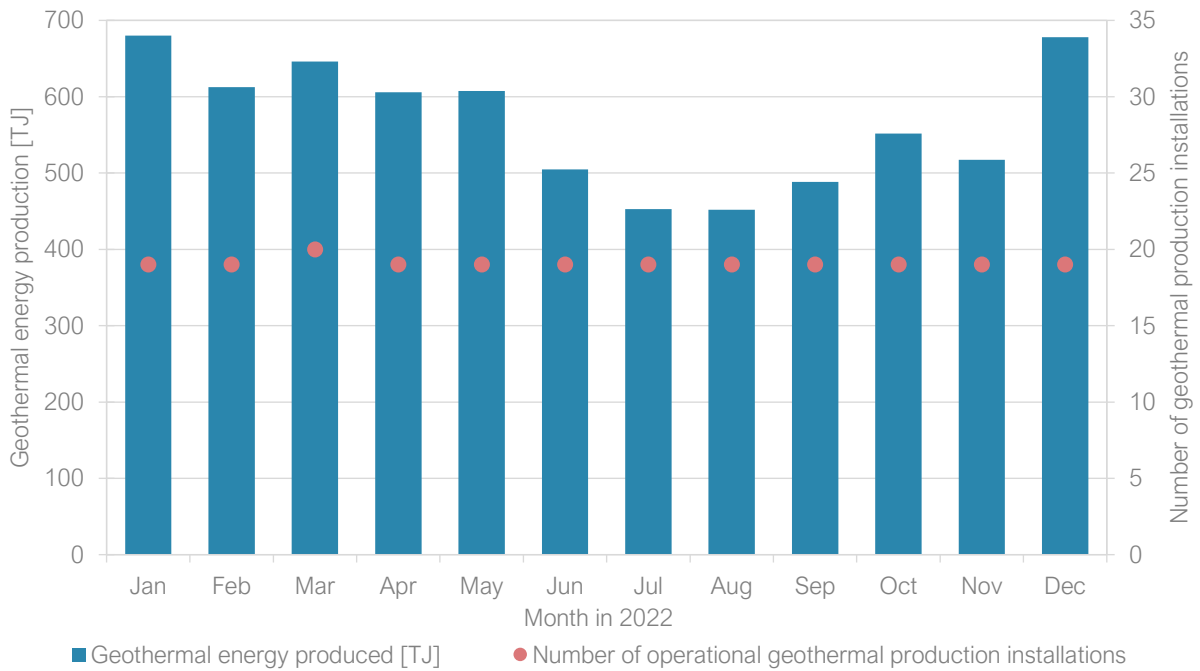


Figure 5.4 Monthly production of geothermal energy in terajoules and the number of geothermal energy production installations contributing to the reported production (Mijnwater Energiecentrale Heerlen excluded).

Figure 5.4 shows the aggregated production figures of geothermal energy per month in TJ ($\times 10^{12}$ 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 6.797 PJ ($1 \text{ PJ} = 10^{15} \text{ J}$) in 2022 (Figure 5.5).

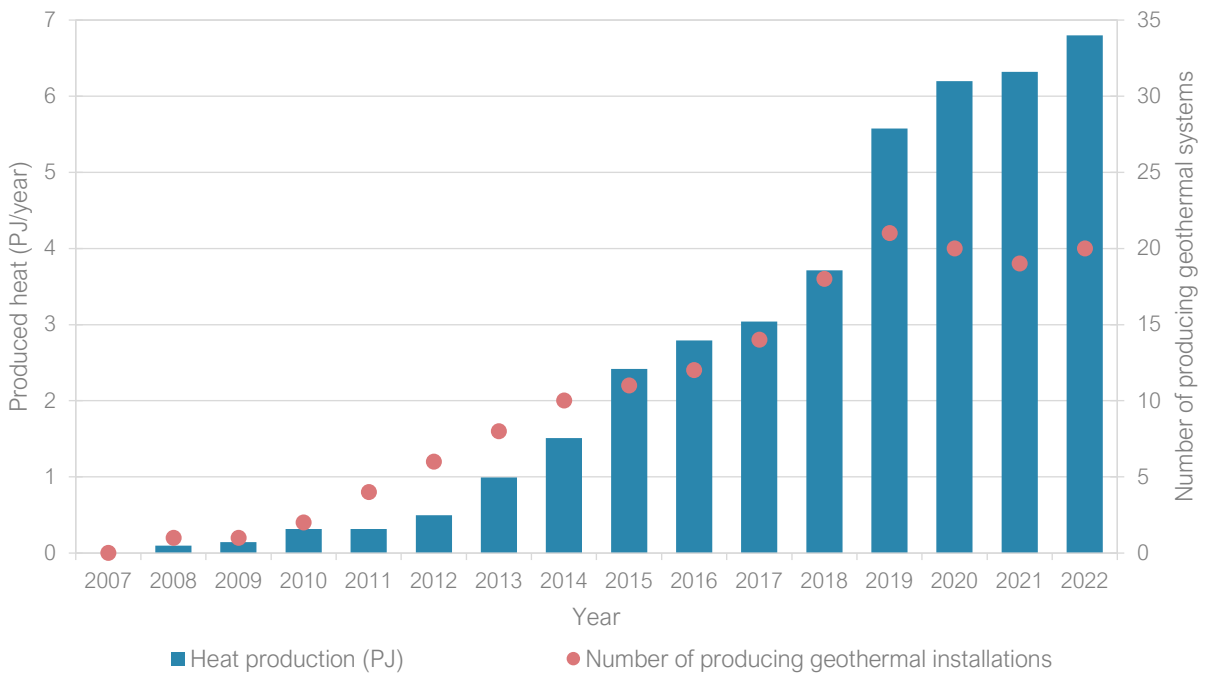


Figure 5.5 Annual production of geothermal energy (PJ/year) and number of operating geothermal installations.

Small amounts of natural gas are co-produced with the geothermal energy production (Figure 5.6). Under subsurface reservoir conditions (elevated pressure and temperature) gas is dissolved in the formation water and released when the pressure of the produced formation water in the production installation falls below the 'bubble point'.

Table 5.6 gives an overview of the produced geothermal energy, co-produced gas and co-produced oil per year since 2008. Only in one installation oil was co-produced until March 2017.

Table 5.6 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	*** 12,367	0
2019	5,578	*** 19,914	0
2020	6,199	*** 22,617	0
2021	6,321	22,394	0
2022	6,797	24,596	0

* 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.

*** Correction of co-produced gas compared to previous annual reports.

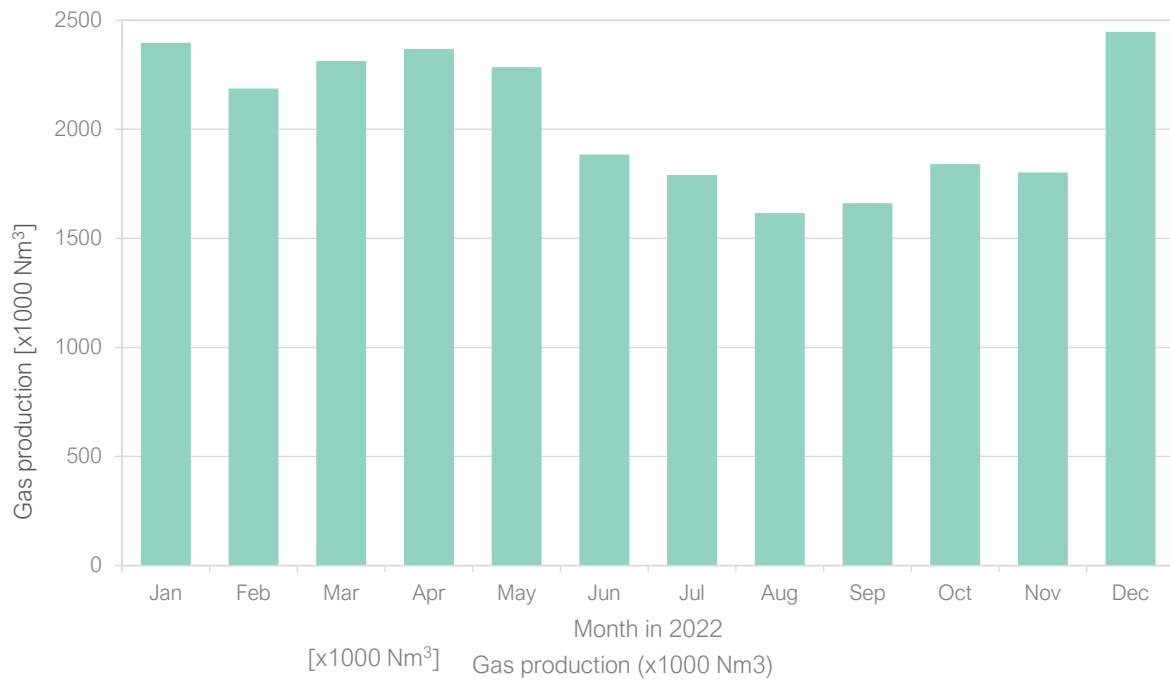


Figure 5.6 Volumes of hydrocarbons co-produced with geothermal energy. Gas in 1000 Nm³.

6. Salt

On 1 January 2023 sixteen production and no exploration licences were in force. In 2022 no new licence applications were submitted. However, one application for a production licence from a previous year is still pending (see Figure 6.2). 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 2022 a total of four salt wells were drilled. Nedmag drilled two production wells in the Veendam licence. Nobian drilled two observation wells in the Twenthe-Rijn licence. See table below and Figure 6.2.

Wells ceased in 2022

	Name of well	Licence	Operator	Function
1	VEENDAM-05	Veendam	Nedmag B.V.	Production
2	VEENDAM-07	Veendam	Nedmag B.V.	Production
3	TWENTE-RIJN-062A	Twenthe-Rijn	Nobian Salt B.V.	Observation
4	TWENTE-RIJN-087A	Twenthe-Rijn	Nobian Salt B.V.	Observation

The table below shows the production data of salt per licence during 2022. Monthly production during 2022 varied between 386 and 579 thousand tons. Rock salt (also called halite) is produced from almost all salt production licences, only from the Veendam production licence another type of salt is extracted, namely magnesium salt.

Salt production in 2022 (in 1000 ton)

Licence	Operator	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Havenmond	Frisia	93	80	60	0	50	89	99	94	83	96	98	96	939
Twenthe-Rijn	Nobian	139	131	155	179	166	133	163	119	110	93	108	74	1.571
Twenthe-Rijn Helmerzijde	Nobian	15	12	7	4	11	2	4	1	0	0	0	0	57
Twenthe-Rijn Oude Maten	Nobian	20	19	19	19	23	19	21	12	0	16	18	5	189
Uitbr. Twenthe-Rijn	Nobian	46	35	33	28	15	8	18	6	0	1	26	25	243
Adolf van Nassau III	Nobian	85	96	105	107	120	116	111	100	82	82	81	79	1.166
Uitbr. Adolf van Nassau III	Nobian	161	135	139	108	132	126	141	150	131	97	115	90	1.522
Veendam	Nedmag	19	16	16	16	18	17	19	17	17	16	18	18	207
	Total	579	524	534	461	536	510	577	500	423	401	464	386	5.893

Figure 6.1 shows the production of rock salt from 2007 to 2022. During this period, the salt production is fairly constant, between 6 and 7 million tons per year. In 2022, total salt production was slightly below 6 million tons. After the publication of the annual report of 2021 additional production numbers for May 2021 were submitted by the operator for the licences Adolf van Nassau III and Uitbreiding Adolf van Nassau III. Therefore, the production in Figure 6.1 is slightly higher (82,000 ton) than presented in the annual report of 2021.



Figure 6.1 Salt production 2007 – 2022, the production data is based on information supplied by the operators.

* Including Adolf van Nassau III.

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

*** Including Uitbreiding Barradeel II and Havenmond.

Storage caverns 'Aardgasbuffer Zuidwending'

Since 2007 Nobian leases storage caverns in the municipality of Veendam for the "Aardgasbuffer Zuidwending".

The production from the storage caverns belong to the production licence 'Uitbreiding Adolf van Nassau II'. Currently six salt caverns are in operation for the storage natural gas. In 2021 the leaching of a seventh cavern took place. These new caverns qualify for the storage of hydrogen. Since 2021 a pilot project is carried out by HyStock to study the storage of hydrogen in salt caverns.

For more information about storage see Chapter 4.

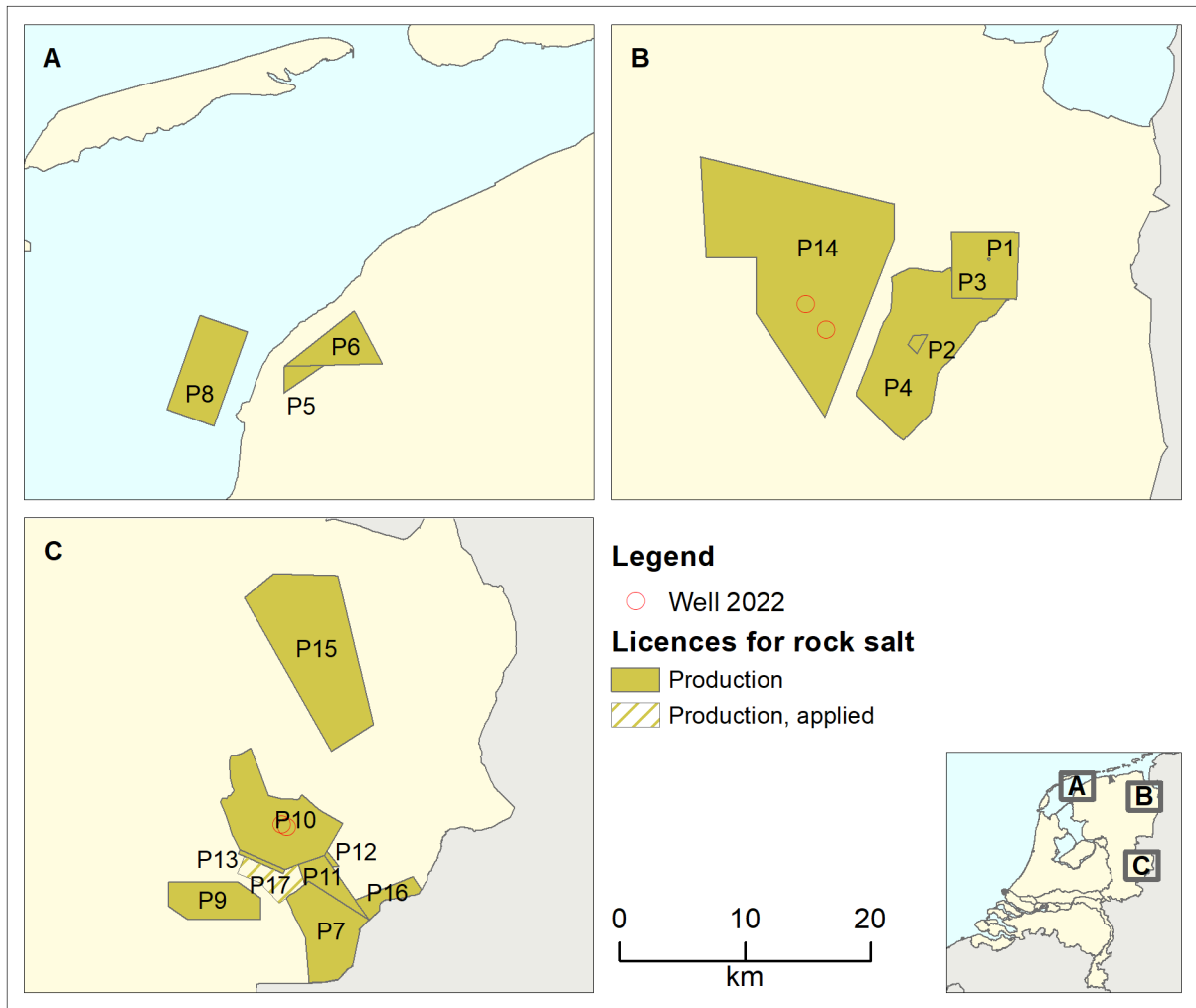


Figure 6.2 Licence for rock salt production as at 1 January 2023.

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	Burse	P15	Weerselo
P8	Havenmond	P16	Zuidoost-Enschede
Applied production licence for rock salt			
P17	Twenthe-Rijn Welen Mos		

7. Coal

As at 1 January 2023 there were five production licences for coal in force. In 2022 there were no mining activities in the licence areas.

Production licences, Land as at 1 January 2023

	Licence	Licence holder	Effective from	km ²
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

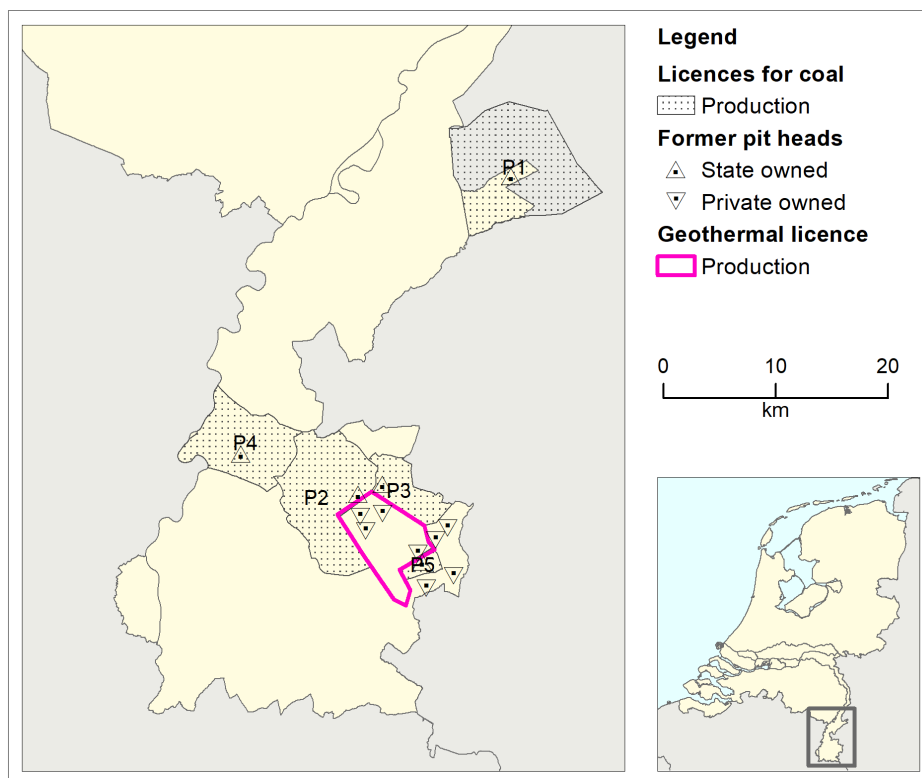


Figure 7.1 Licences for coal as at 1 January 2023.

8.

Licences, changes in 2022, Land

Changes in the onshore licences for hydrocarbon exploration and production, which took place during 2022, are listed in the tables below. This also includes all pending applications for licences.

8.1 Exploration licences hydrocarbons

Applied for

Licence	Official Journal of the EU	Date	Closing date	Gov. gazette	Applicant(s)
De Kempen * ²	C 174	15-06-2011	14-09-2011	11 021	Basgas Energia; Cuadrilla Brabant
Breda-Maas * ³	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	ONE-Dyas cs; Vermilion

* Application ongoing, published in an earlier annual review.

*² Application withdrawn by Ministry of Economic Affairs and Climate Policy on 12 April 2022 with retroactive effect as at 17 October 2016; applicants no longer exist.

*³ Application withdrawn by Ministry of Economic Affairs and Climate Policy on 12 April 2022 with retroactive effect as at 23 December 2019; applicants no longer exist.

Prolonged

Licence holder	Licence	Effective from	Effective till
Vermilion Energy Netherlands B.V.	Schagen	02-08-2022	Refused
Vermilion Energy Netherlands B.V.	Hemelum	17-11-2022	28-12-2028

Expired

Licence holder	Licence	Effective from	km ²
Vermilion Energy Netherlands B.V.	Schagen	01-09-2022	355

8.2 Production licences hydrocarbons

Applied for

Licence	Publication	Date	Closing date	Applicant(s)
Terschelling-Noord ^{*2}	-	10-11-2014	-	Kistos
Akkrum [*]	-	02-06-2016	-	Vermilion

* Application ongoing, published in an earlier annual review.

^{*2} Application withdrawn as at 14 March 2022.

Split

Licence holder	Licence	Effective from	km ²
<i>Original</i>			
Nederlandse Aardolie Maatschappij B.V.	Botlek III		228
<i>After split</i>			
Nederlandse Aardolie Maatschappij B.V.	Botlek IV	23-12-2022	221
Nederlandse Aardolie Maatschappij B.V.	Botlek Breeddiep	23-12-2022	8

Reduced

Licence holder	Licence	Effective from	km ²
Vermilion Energy Netherlands B.V.	Zuidwal	18-11-2022	6

Area

Total area land	Under licence for hydrocarbons
42,203 km ²	16,012 km ² (37.9 %)

8.3 Subsurface storage licences

No changes.

8.4 Exploration, production and storage licences for hydrocarbons

Names of exploration, production and storage licences for hydrocarbons onshore Netherlands as shown in Figure 8.1.

Exploration licence					
E1	Akkrum	E4	Hemelum	E7	Oosterwolde
E2	Engelen	E5	IJsselmuiden	E8	Opmeer
E3	Follega	E6	Lemsterland	E9	Utrecht
Exploration licence applied for					
E10	Brielle	E11	Slootdorp-Oost	E12	Waskemeer
Production licences					
P1	Akkrum 11	P15	Drenthe IIa	P29	Papekop
P2	Alkmaar	P16	Drenthe IIb	P30	Rijswijk
P3	Andel Va	P17	Drenthe IIIa	P31	Rossum-De Lutte
P4	Andel Vb	P18	Drenthe IV	P32	Schoonebeek
P5	Beijerland	P19	Drenthe V	P33	Slootdorp
P6	Bergen II	P20	Drenthe VI	P34	Steenwijk
P7	Bergermeer	P21	Gorredijk	P35	Tietjerksteradeel II
P8	Botlek IV	P22	Groningen	P36	Tietjerksteradeel III
P9	Botlek Breeddiep	P23	Hardenberg	P37	Tubbergen
P10	Botlek Maasmond	P24	Leeuwarden	P38	Twenthe
P11	Botlek-Maas	P25	Marknesse	P39	Waalwijk
P12	De Marne	P26	Middelie	P40	Zuid-Friesland III
P13	Donkerbroek	P27	Noord-Friesland	P41	Zuidwal
P14	Donkerbroek-West	P28	Oosterend		
Production licences applied for					
P42	Akkrum				
Storage licences					
S1	Alkmaar	S4	Norg	S6	Zuidwending
S2	Bergermeer	S5	Twenthe-Rijn de Marssteden		
S3	Grijpskerk				

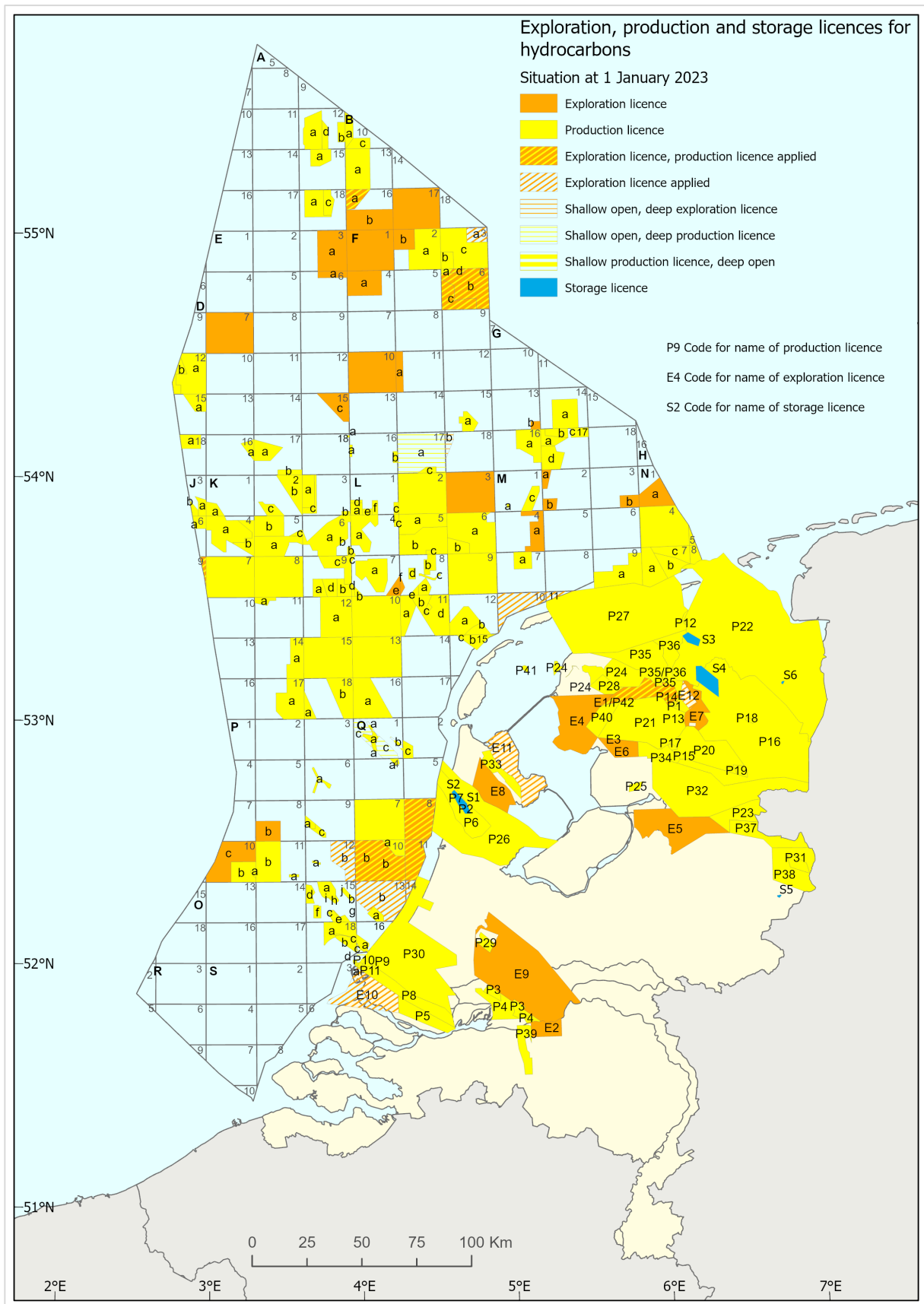


Figure 8.1 Exploration, production and storage licences for hydrocarbons as at 1 January 2023.

8.5 Exploration licences geothermal energy

Applied for

Licence	Gov. gazette	Date	Closing date	Applicant(s)
Midwoud * ²	53 132	21-09-2017	21-12-2017	Vermilion Energy Netherlands B.V.
Noord-Holland Noord * ²	28 807	28-05-2018	27-08-2018	Vermilion Energy Netherlands B.V.
Friesland-Midden * ²	51 804	17-09-2018	17-12-2018	Vermilion Energy Netherlands B.V.
Zuidwesthoek * ²	31 919	12-06-2019	11-09-2019	Vermilion Energy Netherlands B.V.
Almere *	33 131	24-06-2020	23-09-2020	Eavor Europe B.V.
Almere-Diemen 1 *	56 925	04-11-2020	03-02-2021	N.V. HVC, Vattenfall Power Generation Netherlands B.V., Gemeente Almere
Westeinder 1 *	61 990	30-11-2020	01-03-2021	IPS Geothermal B.V.
Amstelveen-Haarlemmermeer 1 *	69 035	31-12-2020	01-04-2021	Tullip Energy Exploration & Development B.V., Energie Transitie Support B.V.
Amsterdam-Amstelveen 1 *	22 597	06-05-2021	05-08-2021	Vattenfall Power Generation Netherlands B.V., Eneco Heat Production and Industrials B.V., gem.Amsterdam, prov.Noord-Holland
Kudelstaart 1 *	22 647	06-05-2021	05-08-2021	Tullip Energy Exploration & Development B.V., High Tree Energy B.V.
Edam-Volendam 1 *	35 245	14-07-2021	13-10-2021	N.V. HVC, SVP productie B.V.
Bolsward 1 * ⁴	972	19-01-2022	20-04-2022	Stichting Ontwikkeling Geothermie Friesland
De Ronde Venen	7 817	23-03-2022	22-06-2022	IPS Geothermal B.V., Tullip Energy Exploration & Development B.V.
Andijk 2	12 056	06-05-2022	05-08-2022	ECW Geo Andijk B.V.
Amstelland * ³	-	28-09-2022	-	EBN
Tilburg-Zuid 1	27 244	14-10-2022	13-01-2023	
Tilburg 1	34 901	27-12-2022	28-03-2023	

* Application ongoing, published in an earlier annual review.

*² Application withdrawn as at 15 September 2022.

*³ Exploration licence for research.

*⁴ Application withdrawn as at 7 November 2022.

Denied

Applicant	Area	As at	km ²
Larderel Energy B.V.	Gooi en Vechtstreek	14-11-2022	147

Awarded

Licence holder	Licence	Effective from	km ²
Tullip Energy Exploration & Development B.V. cs	Oss	14-06-2022	41
Ennatuurlijk B.V.	Breda-Moerdijk 1	11-11-2022	96
	Total		137

Split

Licence holder	Licence	Effective from	km ²
<i>Original</i>			
GeoPower Exploitatie B.V.	Maasland 7		7
Hydreco GeoMEC B.V.	Pijnacker-Nootdorp 6a		9
Hydreco GeoMEC B.V. cs	Ypenburg		32
Trias Westland B.V.	Naaldwijk 3		7
Gedeputeerde Staten van Overijssel	Koekoekspolder Ila		28
<i>After split</i>			
GeoPower Exploitatie B.V.	Maasland 8	03-02-2022	1
GeoPower Exploitatie B.V.	Maasdijk 4	03-02-2022	6
Hydreco GeoMEC B.V.	Pijnacker-Nootdorp 6b	31-03-2022	9
Hydreco GeoMEC B.V.	Pijnacker-Nootdorp 4c	31-03-2022	<1
Hydreco GeoMEC B.V. cs	Ypenburg 1a	31-03-2022	32
Hydreco GeoMEC B.V. cs	Pijnacker-Nootdorp 4b	31-03-2022	<1
Trias Westland B.V.	Naaldwijk 5	02-08-2022	1
Trias Westland B.V.	Naaldwijk 6	02-08-2022	6
Gedeputeerde Staten van Overijssel	Koekoekspolder 2	06-10-2022	23
Gedeputeerde Staten van Overijssel	Kampen 2	06-10-2022	5

Reduced

Licence holder	Licence	Effective from	km ²
ECW Geoholding B.V.	Middenmeer 4	03-08-2022	*59
N.V. HVC	Alkmaar	24-08-2022	32
N.V. HVC	Lelystad	24-08-2022	20
N.V. HVC	Den Helder	24-08-2022	21
N.V. HVC	Drechtsteden	24-08-2022	27
Tellus Renkum B.V.	Renkum	20-12-2022	433

* Remaining area after production licence has been granted.

Prolonged

Licence holder	Licence	Effective from	Effective till
Hydreco GeoMEC B.V. cs	Brielle 2	27-01-2022	30-11-2025
Hydreco GeoMEC B.V. cs	Vierpolders	15-02-2022	30-12-2025
Energie Transitie Partners B.V.	Kwintsheul 2	04-03-2022	31-05-2024
Gemeente Zwolle	Zwolle	26-04-2022	02-02-2024
Wayland Energy B.V.	Zuidplas 2	19-08-2022	20-08-2024
N.V. HVC	Alkmaar	24-08-2022	27-11-2026

Licence holder	Licence	Effective from	Effective till
N.V. HVC	Lelystad	24-08-2022	27-12-2026
N.V. HVC	Den Helder	24-08-2022	27-12-2026
N.V. HVC	Drechtsteden	24-08-2022	18-03-2027
FrieslandCampina Consumer Products International B.V.	Leeuwarden 5	26-10-2022	21-03-2027
Aardyn B.V. cs	Rotterdam-Stad	09-12-2022	06-11-2028
DDGeothermie Sneek B.V.	Sneek	09-12-2022	31-12-2027
WarmteStad B.V.	Groningen 2	31-07-2020	Applied for

Expired/Relinquished

Licence holder	Licence	Effective from	km ²
Vermilion Energy Netherlands B.V.	Middenmeer 3	07-04-2022	98
Aardyn B.V.	Tilburg-Geertruidenberg *	16-07-2022	325
A-ware Production B.V.	Heerenveen * ²	21-05-2021	46
Trias Westland B.V.	De Lier V	01-01-2023	<1
GeoPower Exploitatie B.V.	Maasland 2	01-01-2023	5
Trias Westland B.V.	Naaldwijk 6	01-01-2023	6
	Total		480

* Decision on objection to decree 24-11-2021 (a.o. prolongation) (WJZ/22081120, Directie Wetgeving en Juridische Zaken): licence expired on August 20, 2021.

*² Complied decree: prolongation refused; licence expired as at May 21, 2021.

8.6 Production licences geothermal energy

Applied for

Licence	Publication	Date	Closing date	Applicant(s)
Delft I	-	11-11-2021	-	Geothermie Delft B.V.
Maasdijk I	-	03-02-2022	-	HVC Aardwarmte Maasdijk B.V.
Monster I	-	05-03-2021	-	HVC Aardwarmte Polanen B.V.
Lansingerland III	-	16-09-2022	-	Wayland Energy B.V.
Poeldijk II	-	12-07-2022	-	Aardwarmte Vogelaer B.V.

Awarded

Licence holder	Name	Effective from	km ²
<i>Original</i>			
Hoogweg Aardwarmte B.V.	Luttelgeest II (exploration licence)		53
Wayland Energy B.V.	Nootdorp-Oost 3 (exploration licence)		9
-	Open area		1
Wayland Energy B.V.	Nootdorp-Oost 3 (exploration licence)		5
ECW Geoholding B.V.	Middenmeer 2 (exploration licence)		14
ECW Geoholding B.V.	Middenmeer 4 (part of exploration licence)		<1

After

Hoogweg Aardwarmte B.V.	Luttelgeest III	13-01-2022	53
Wayland Energy B.V.	Nootdorp-Oost I	01-07-2022	11
Wayland Energy B.V.	Nootdorp-Oost II	20-07-2022	5
ECW Geoholding B.V.	Middenmeer III	03-08-2022	14
		Total	84

Prolonged

Licence holder	Licence	Effective from	Effective till
Green Well Westland B.V.	Honselersdijk *	05-02-2022	12-08-2054
Aardyn B.V. cs	Den Haag	08-04-2022	27-05-2023
Aardyn B.V. cs	Oostvoorne	23-09-2022	12-01-2024
Aardwarmte Combinatie Luttelgeest B.V.	Luttelgeest II	22-10-2022	22-10-2023

* Revised decision on objection to decree granted (WJZ/22027695, Directie Wetgeving en Juridische Zaken).

8.7 Exploration and production licences for geothermal energy

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

Exploration licences					
E1	Alkmaar	E28	Koekoekspolder 2	E55	Purmerend 2
E2	Amersfoort	E29	Kwintsheul 2	E56	Purmerend 3
E3	Bleiswijk 6	E30	Leeuwarden	E57	Renkum
E4	Bommelerwaard 2	E31	Leeuwarden 5	E58	Rijnland
E5	Brakel-Zuidoost	E32	Leiden 2	E59	Rotterdam 4
E6	Breda-Moerdijk 1	E33	Leiden 3	E60	Rotterdam 7
E7	Brielle 2	E34	Lelystad	E61	Rotterdam Prins Alexander
E8	Capelle aan den IJssel	E35	Maasdijk 2	E62	Rotterdam-Bar
E9	De Lier 8	E36	Maasdijk 3	E63	Rotterdam-Haven
E10	De Lier VI	E37	Maasdijk 4	E64	Rotterdam-Stad
E11	Delft-Abtswoude	E38	Maasland 6	E65	Sneek
E12	Den Haag 4a	E39	Maasland 8	E66	Someren
E13	Den Haag 6a	E40	Maasland 9	E67	Terheijden 2
E14	Den Helder	E41	Made 2	E68	Utrecht
E15	Den Hoorn	E42	Middenmeer 4	E69	Velsen
E16	Drachten 3	E43	Monster 2	E70	Vierpolders
E17	Drechtsteden	E44	Naaldwijk 5	E71	Wateringen 1
E18	Ede	E45	Nijmegen	E72	Wateringen 2
E19	Eemland	E46	Nissewaard	E73	Wellerlooi
E20	Eindhoven 2	E47	Nissewaard 2	E74	West-Brabant
E21	Erica	E48	Nootdorp-Oost 2	E75	Westland-Zuidwest 1a
E22	Groningen 2	E49	Oss	E76	Ypenburg 1a
E23	Haarlem-Schalkwijk	E50	Oude Rijn	E77	Zoetermeer
E24	Hoorn	E51	Pijnacker-Nootdorp 4b	E78	Zoetermeer 2
E25	Kampen 2	E52	Pijnacker-Nootdorp 4c	E79	Zuidplas 2
E26	Klazienaveen	E53	Pijnacker-Nootdorp 6b	E80	Zwolle
E27	Klazienaveen 2	E54	Poeldijk 2		
Exploration licences applied for					
E81	Almere	E85	Amsterdam-	E89	Kudelstaart 1
E82	Almere-Diemen 1		Amstelveen 1	E90	Tilburg 1
E83	Amstelland	E86	Andijk 2	E91	Tilburg-Zuid 1
E84	Amstelveen- Haarlemmermeer 1	E87	De Ronde Venen	E92	Westeinder 1
E88		E88	Edam-Volendam 1		
Production licences					
P1	Andijk	P12	Kwintsheul	P23	Naaldwijk
P2	Bleiswijk	P13	Lansingerland	P24	Naaldwijk II

Production licences

P3	Bleiswijk 1b	P14	Lansingerland II	P25	Nootdorp-Oost I
P4	Californië IV	P15	Leeuwarden I	P26	Nootdorp-Oost II
P5	Californië V	P16	Luttelgeest	P27	Oostvoorne
P6	De Lier	P17	Luttelgeest II	P28	Pijnacker-Nootdorp 4
P7	Den Haag	P18	Luttelgeest III	P29	Pijnacker-Nootdorp 5
P8	Heemskerk	P19	Maasland	P30	Poeldijk
P9	Heerlen	P20	Middenmeer I	P31	Vierpolders
P10	Honselersdijk	P21	Middenmeer II	P32	Zevenbergen
P11	Kampen	P22	Middenmeer III		

Production licences applied for

P33	Delft I	P35	Maasdijk I	P37	Poeldijk II
P34	Lansingerland III	P36	Monster I		

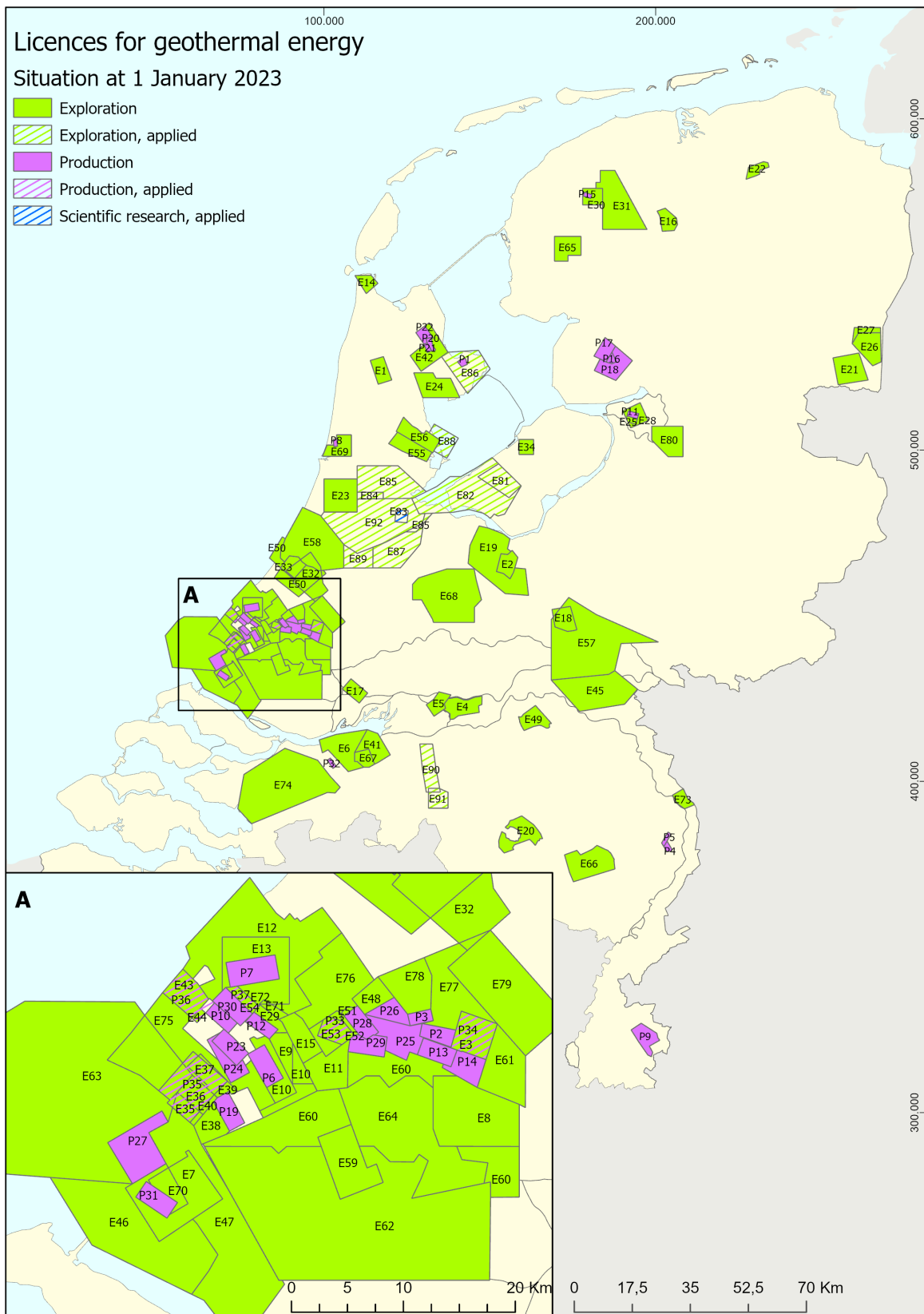


Figure 8.2 Licences for geothermal energy as at 1 January 2023.

8.8 Production licences rock salt

Applied for

Licence	Gov. gazette	Date	Closing date	Applicant(s)
Twenthe-Rijn Welen Mos *	-	10-07-2018	-	Nobian

* Application ongoing, published in an earlier annual review.

8.9 Production licences coal

No changes.

9.

Licences, changes in 2022, Sea

Changes in the offshore licences for hydrocarbon exploration and production, which took place during 2022, 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	Gov. gazette	Applicant(s)
P1 * ²	C 444	23-12-2017	26-03-2018	6 265	Swift cs
F12 * ³ * ⁴	C 425	26-11-2018	25-02-2019	69 746	HALO; NAM
F14 * ⁴	C 269	12-08-2019	11-11-2019	46 542	HALO
F15c * ³	C51/3	14-02-2020	15-05-2020	13 156	NAM
P12b, Q13b & Q14 *	C231/3	16-06-2021	15-09-2021	33 294	Kistos
F3a	C428/5	10-11-2022	09-02-2023	31 067	
M10 & M11	C450/8	28-11-2022	27-02-2023	33 041	

* Application ongoing, published in an earlier annual review.

*² Application will not be processed further, due to the lack of the necessary data, per decision of December 14, 2022.

*³ Application withdrawn by NAM as at September 17, 2021.

*⁴ Application HALO (now RockRose (NL) CS2 B.V.) will not be processed further, due to the lack of the necessary data, per decision of August 10, 2022.

Awarded

Licence holder	Licence	Effective from	km ²
Neptune Energy Netherlands B.V.	L7e & L8f	12-04-2022	41
Kistos NL2 B.V.	P12b *	-	161
Kistos NL2 B.V.	Q13b & Q14 *	-	346

* Draft decree November 29, 2022.

Split

Licence holder	Licence	Effective from	km ²
<i>Original</i>			
Nederlandse Aardolie Maatschappij B.V. cs	F4a		243

After split

Nederlandse Aardolie Maatschappij B.V. cs	F4a	24-02-2022	178
Neptune Energy Netherlands B.V. cs	F4b	24-02-2022	65

Merged

Licence holder	Licence	Effective from	km ²
<i>Original</i>			
ONE-Dyas B.V. cs	M3b		49
ONE-Dyas B.V. cs	N1		217
<i>After merge</i>			
ONE-Dyas B.V. cs	M3b & N1	23-12-2022	265

Reduced

Licence holder	Licence	Effective from	km ²
ONE-Dyas B.V. cs	M3b & N1a	23-12-2022	183

Prolonged

Licence holder	Licence	Effective from	Effective till
Kistos NL1 B.V.	M10a & M11	30-06-2022	Refused
Neptune Energy Netherlands B.V.	G13b	12-07-2022	22-08-2024
ONE-Dyas B.V. cs	M3b & N1a	23-12-2022	31-12-2025
ONE-Dyas B.V.	M2a & M2b	10-11-2022	Refused *
ONE-Dyas B.V.	M4a	10-11-2022	Refused *

* Decision in appeal procedure; licence provisional.

Relinquished / expired

Licence holder	Licence	Effective from	km ²
Kistos NL1 B.V.	M10a & M11	01-07-2022	110
ONE-Dyas B.V. cs	H16	06-07-2022	73
Neptune Energy Netherlands B.V. cs	F4b	23-12-2022	65
Neptune Energy Netherlands B.V. cs	F5	23-12-2022	398
Neptune Energy Netherlands B.V.	K1c	31-12-2022	274
Total			920

9.2 Production licences hydrocarbons

Applied for

Licence	Publication	Date	Closing date	Applicant(s)
B16a * ²	Gov. gazette 105	06-05-1993	-	Petrogas cs
Q8, Q10b & Q11 *	-	20-12-2019	-	Kistos
F6b, F6c & F6d	-	02-09-2022	-	ONE-Dyas B.V. cs
J9	-	27-10-2022	-	NAM cs

* Application ongoing, published in an earlier annual review.

*² Renewed application as of April 22, 2022.

Awarded

Licence holder	Licence	Effective from	km ²
Petrogas E&P Netherlands B.V. cs	A12b & B10a	03-02-2022	79

Prolonged

Licence holder	Licence	Effective from	Effective till
TotalEnergies EP Nederland B.V. cs	K1a	27-01-2022	31-12-2034
ONE-Dyas B.V.	M1a & M1c	26-04-2022	07-06-2025
Petrogas E&P Netherlands B.V. cs	A18c	22-07-2022	31-12-2034
Petrogas E&P Netherlands B.V. cs	A12d	22-07-2022	31-12-2034
Petrogas E&P Netherlands B.V. cs	B10c & B13a	22-07-2022	31-12-2039
Petrogas E&P Netherlands B.V. cs	A15a	22-07-2022	31-12-2039
Dana Petroleum Netherlands B.V. cs	F3c	22-07-2022	08-03-2023
Petrogas E&P Netherlands B.V. cs	A12a	22-07-2022	31-12-2039
Petrogas E&P Netherlands B.V. cs	A18a	22-07-2022	31-12-2039
Dana Petroleum Netherlands B.V. cs	F2a	05-08-2022	31-12-2042
TotalEnergies EP Nederland B.V. cs	F6a	09-08-2022	31-12-2042
Neptune Energy Netherlands B.V. cs	F3b	09-08-2022	31-12-2047
Wintershall Noordzee B.V. cs	K18b	10-05-2023	Applied for
Wintershall Noordzee B.V. cs	L16a	13-06-2024	Applied for

Applied for fallow area

Licence	Publication	Date	Closing date	Applicant(s)
F2a *	www.nlog.nl	06-12-2021	07-03-2022	Neptune Energy Netherlands B.V.

* Application withdrawn as at April 21, 2022.

Reduced

Licence holder	Licence	Effective from	km ²
Petrogas E&P Netherlands B.V. cs	A12a	22-07-2022	132
Petrogas E&P Netherlands B.V. cs	A18a	22-07-2022	110
Dana Petroleum Netherlands B.V. cs	F2a	05-08-2022	245

Licence holder	Licence	Effective from	km ²
Wintershall Noordzee B.V.	Q4a	07-12-2022	9
Neptune Energy Netherlands B.V. cs	G14a & G17b	10-12-2022	193
Wintershall Noordzee B.V. cs	P12a	14-12-2022	4

Area

Total area sea	In licence for hydrocarbons
56,396 km ²	17,495 km ² (31.0 %)

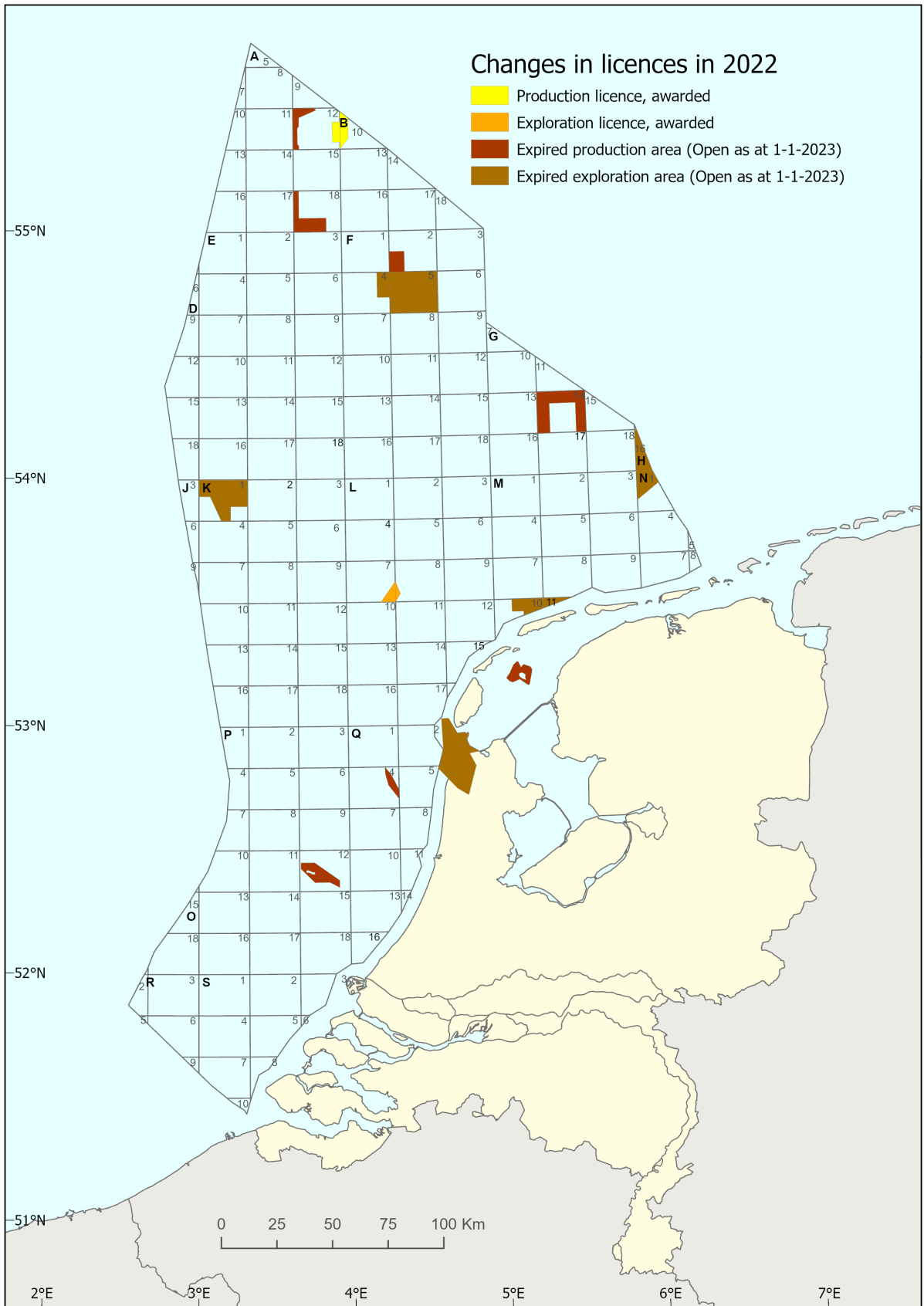


Figure 9.1 Changes in hydrocarbon licences during the year 2022.

9.3 Storage licences

Changes regarding storage licences during 2022 are listed in the table below.

Exploration licences

Applied for

Licence	Gov. gazette	Date	Closing date	Applicant(s)
K08a, K10a, K11a, K12a, K13a, K14a, K14b, K15a, K15b & K17a	29 036	28-10-2022	27-01-2023	
O15, O17, O18, P13a, P14a, P16, P17 & P18a	29 037	28-10-2022	27-01-2023	

Storage licences

Applied for

Licence	Gov. gazette	Date	Closing date	Applicant(s)
K14-FA	33 008	01-12-2022	02-03-2023	

Awarded

Licence holder	Licence	Effective from	km ²
TAQA Offshore B.V. cs	P18-2	13-07-2022	27

Change

Licence holder	Licence	Effective from	km ²
TAQA Offshore B.V.	P18-4 *	13-07-2022	11

* Concerns harmonization of storage licence P18-4/P18-2; injection provided from 01-01-2026, for a maximum of 15 years.

10.

Licences, company- and name changes in 2022

The tables below list changes in chronological order which took place during 2022, 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	In/Out	Company	Permission	Gov. gazette	Effective from
F5	In	-	29-01-2022	3 834	31-03-2022
	Out	Nederlandse Aardolie Maatschappij B.V.			
F4b	In	-	24-02-2022	6 678	11-08-2022
	Out	Nederlandse Aardolie Maatschappij B.V.			

Company changes in production licences

Licence	In/Out	Company	Permission	Gov. gazette	Effective from
P9a	In	-	17-02-2022	5 526	06-12-2022
	Out	RockRose (NL) CS1 B.V. Wintershall Noordzee B.V.			
P9c	In	-	17-02-2022	5 506	06-12-2022
	Out	RockRose (NL) CS1 B.V. Wintershall Noordzee B.V.			
F6a	In	ONE-Dyas B.V.	10-03-2022	7 784	25-05-2022
	Out	Vermilion Energy Netherlands B.V.			
Q16a	In	-	10-03-2022	7 781	25-05-2022
	Out	Vermilion Energy Netherlands B.V.			
Bergen II	In	TAQA Offshore B.V. *	13-09-2022	24 672	
	Out	TAQA Onshore B.V.			
Botlek Breiddiep	In	ONE-Dyas B.V. *	23-12-2022	35 375	
	Out	Nederlandse Aardolie Maatschappij B.V.			

* New operator.

Company changes in production licences – not formalized

Licence	Relinquishing company	Acquiring company	Permission	Gov. gazette
D12b	ONE-Dyas B.V.	HALO Exploration & Production Netherlands B.V.	21-02-2020	11 908

Name changes

No changes.

10.2 Storage

No changes.

10.3 Geothermal energy

Company changes in exploration licences

Licence	In/Out	Company	Permission	Gov. gazette	Effective from
Westland-Zuidwest 1a	In	HVC Aardwarmte Maasdijk B.V. *	27-01-2022	3 450	08-03-2022
	Out	Energie Transitie Partners B.V.			
Maasdijk 2	In	HVC Aardwarmte Maasdijk B.V. *	27-01-2022	3 378	08-03-2022
	Out	Energie Transitie Partners B.V.			
Maasdijk 4	In	HVC Aardwarmte Maasdijk B.V. *	03-02-2022	9 879	02-03-2022
	Out	GeoPower Exploitatie B.V.			
Maasdijk 3	In	HVC Aardwarmte Maasdijk B.V. *	04-03-2022	12 297	08-03-2022
	Out	Energie Transitie Partners B.V.			
Pijnacker-Nootdorp 4c	In	Ammerlaan Geothermie B.V. *	31-03-2022	9 358	22-06-2022
	Out	Hydreco GeoMEC B.V.			
Pijnacker-Nootdorp 4b	In	Ammerlaan Geothermie B.V. *	31-03-2022	9 359	22-06-2022
	Out	Hydreco GeoMEC B.V. Haagse Aardwarmte Leyweg B.V. Eneco Warmte & Koude B.V.			
Pijnacker-Nootdorp 6b	In	Geothermie Delft B.V. *	23-06-2022	7 217	17-08-2022
	Out	Aardyn B.V.			
Wateringen 1	In	HVC Aardwarmte Wippolderlaan B.V. *	02-08-2022	20 896	12-10-2022
	Out	Energie Transitie Partners B.V.			
Wateringen 2	In	HVC Aardwarmte Wippolderlaan B.V. *	02-08-2022	20 896	12-10-2022
	Out	Energie Transitie Partners B.V.			
Den Hoorn	In	HVC Aardwarmte Wippolderlaan B.V. *	02-08-2022	20 896	12-10-2022
	Out	Energie Transitie Partners B.V.			
Kwintsheul 2	In	HVC Aardwarmte Wippolderlaan B.V. *	02-08-2022	20 896	12-10-2022
	Out	Energie Transitie Partners B.V.			
Monster 2	In	HVC Aardwarmte Polanen B.V. *	02-08-2022	20 897	15-10-2022
	Out	Energie Transitie Partners B.V. J.C.P. van den Ende M.G.W. van den Ende			

Licence	In/Out	Company	Permission	Gov. gazette	Effective from
		S.P.C. van den Ende			
		T.J.M. van den Ende			
Naaldwijk 5	In	HVC Aardwarmte Polanen B.V. *	02-08-2022	20 873	15-10-2022
	Out	Trias Westland B.V.			
Drachten 3	In	Shell Geothermal B.V. *	02-09-2022	23 698	12-09-2022
	Out	DDH Energy B.V.			
Kampen 2	In	Aardwarmtecluster I KKP B.V. *	06-10-2022	27 241	01-12-2022
	Out	Gedeputeerde Staten van Overijssel			

* New operator.

Company changes in production licences

Licence	In/Out	Company	Permission	Gov. gazette	Effective from
Middenmeer III	In	ECW Geo Middenmeer B.V. *	03-08-2022	25 904	
	Out	ECW Geoholding B.V.			
Honselersdijk	In	Green Well Westland B.V. *	07-09-2022	24 155	20-09-2022
	Out	J.W.M. Scheffers G. Verkade B.V.			

* New operator.

Company changes in production licences – not formalized

Licence	In/Out	Company	Permission	Gov. gazette	Effective from
Honselersdijk	In	Green Well Westland B.V.	02-07-2019	41 236	-
	Out	J.W.M. Scheffers G. Verkade B.V.			

Name changes

Previous company name	New company name
Hydreco Geomec B.V.	Aardyn B.V.

10.4 Rock salt

No changes.

10.5 Coal

No changes.

11.

Seismic surveys

In 2022, no 2D seismic surveys were recorded on the Dutch part of the North Sea. However, in 2022 one offshore 3D seismic survey has started as a joint project between Nederlandse Aardolie Maatschappij B.V. (NAM) and Wintershall Noordzee B.V. This 3D survey is carried out in the blocks K15/L13 and K18b/L16a with a targeted area of approximately 458 km² (see Figure 11.1). As the acquisition phase of this joint project is still in progress in 2023, this 3D seismic survey will not be included in the statistics of 2022. For 2022, no 3D seismic surveys were recorded on land. Though, during 2022 13 2D seismic lines were recorded on land with a cumulative length of approximately 83 km. Hereof, 12 2D seismic lines are recorded as part of the programme Seismische Campagne Aardwarmte Nederland (SCAN) directed by EBN (see Figure 11.1), and one 2D seismic line was recorded in Eindhoven by Ennatuurlijk B.V.

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

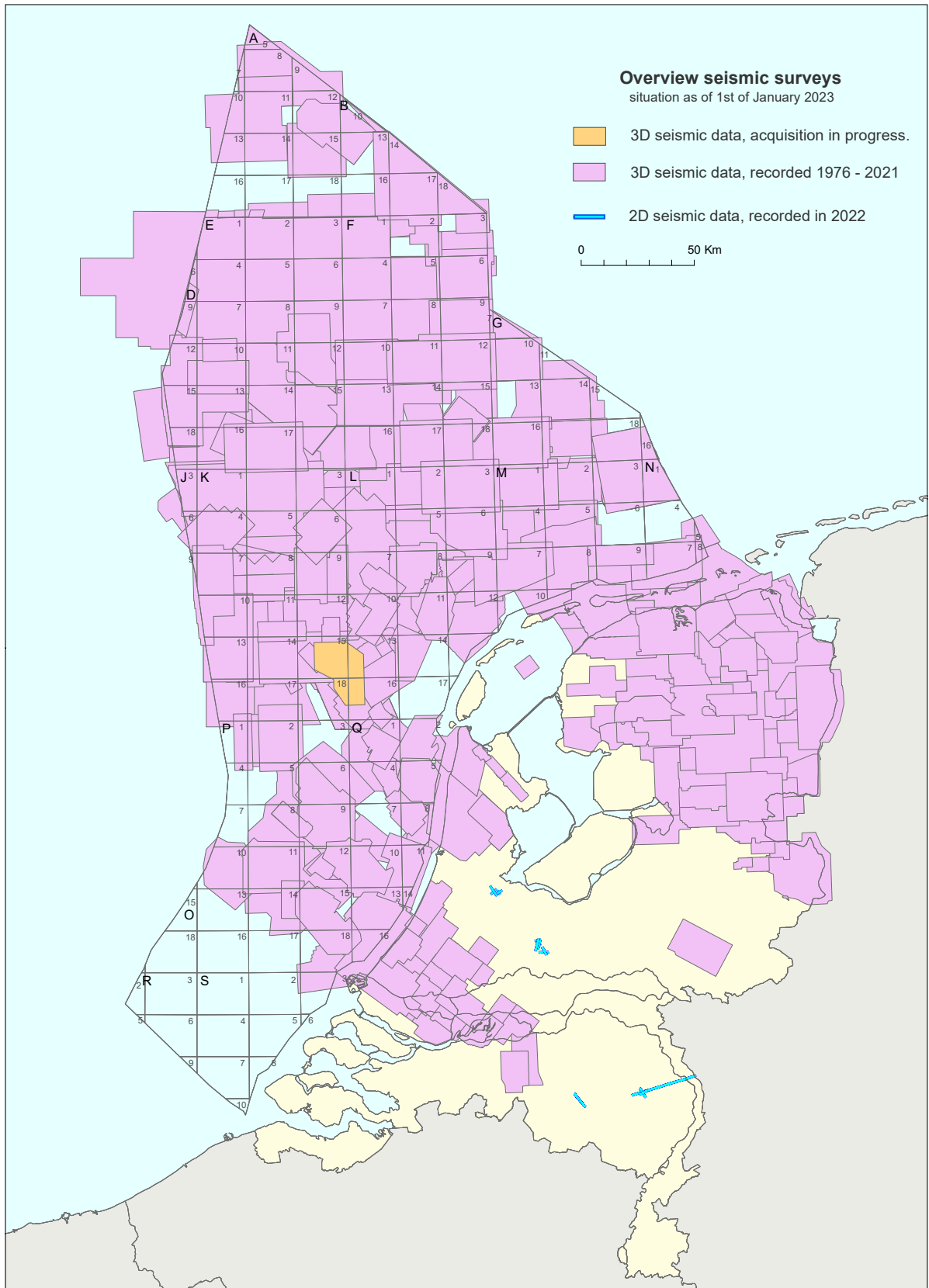


Figure 11.1 Overview of 3D seismic surveys as at 1 January 2023 and 2D seismic lines acquired in 2022.

12.

Oil and gas wells completed in 2022

The wells completed in 2022 have first been grouped according to their drilling location (onshore or offshore) and secondly according to whether they are categorised as exploration, appraisal, or production wells. The final table is an aggregated overview of the drilling activities in 2022.

This year 4 exploration wells have been drilled, all of them offshore, of which 1 encountered oil and gas, 2 gas and 1 was dry. Together this means a success-ratio of 75 %. The number of exploration wells has increased by 2 when compared with last year.

Three offshore appraisal wells were drilled in 2022, of which 2 confirmed an oil discovery and one confirmed a gas discovery. No onshore appraisal wells were drilled in 2022. The number of appraisal wells drilled in 2022 is the same compared with 2021.

In total 3 production wells were drilled in 2022, a decrease of 4 compared with 2021. Of these, 1 was drilled from land to an offshore field. The other two wells were drilled offshore.

All wells, except for F05-06-S2, F06-09 and Q11-B-01, were drilled in production licences. F05-06-S2, F06-09 and Q11-B-01 were drilled in exploration licences.

12.1 Onshore

Production wells

	Name	Licence	Operator	Result
1	MSM-01-S2	Q16c-Diep	ONE-Dyas	Technical Failure

12.2 Offshore

Exploration wells

	Name	Licence	Operator	Result
1	F03-09	F03c	Dana	Oil and Gas
2	F05-06-S2	F05	Neptune	Dry
3	L11-15	L11d	ONE-Dyas	Gas
4	Q11-B-01	Q08, Q10b & Q11	Kistos	Gas

Appraisal wells

	Name	Licence	Operator	Result
1	F06-08	F06a	ONE-Dyas	Oil
2	F06-09	F06b	ONE-Dyas	Oil
3	N04-04	N04, N05 & N08	ONE-Dyas	Gas

Production wells

	Name	Licence	Operator	Result
1	K02-A-08-S2	K02b	Neptune	Gas
2	L13-FE-105-S1	L13	NAM	Gas

12.3 Summary

Oil and gas wells completed in 2022

Area	Type	Result							Total
		Gas	Gas shows	Oil	Oil shows	Oil&Gas	Dry	Other	
Onshore	Exploration	-	-	-	-	-	-	-	-
	Appraisal	-	-	-	-	-	-	-	-
	Production	-	-	-	-	-	-	1	1
Offshore	Exploration	2	-	-	-	1	1	-	4
	Appraisal	1	-	2	-	-	-	-	3
	Production	2	-	-	-	-	-	-	2
	Total	5	-	2	-	1	1	1	10

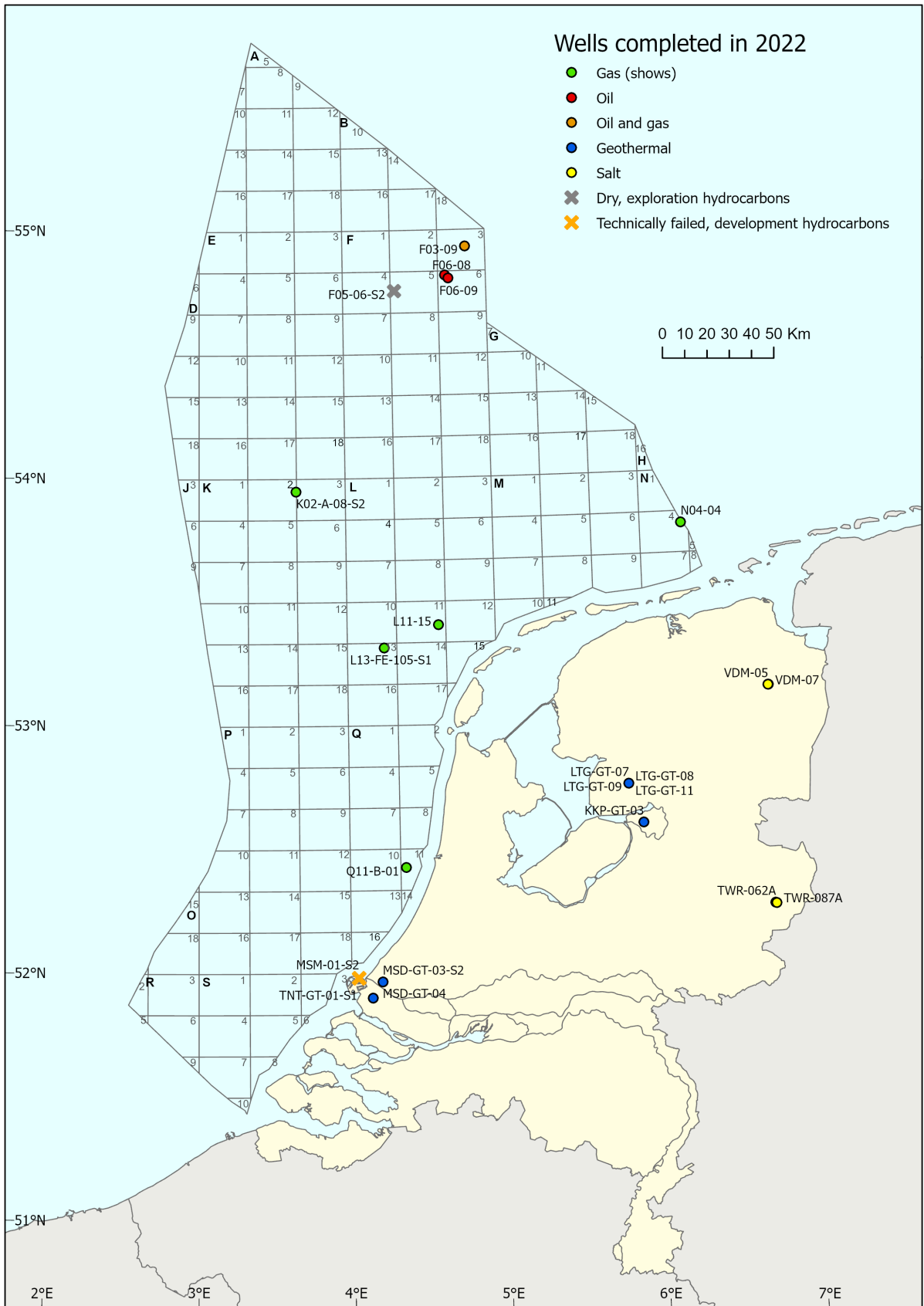


Figure 12.1 Wells completed in 2022.

13.

Platforms and pipelines, Sea

No offshore platforms, subsea installations or pipelines were installed in 2022. Two platforms were removed, and four pipelines/cables were decommissioned.

For a complete list of platforms and pipelines or control/power cables, see Annexes W and X. The platform and pipeline or cable data were supplied by NexStep (National Platform for Re-use and Decommissioning).

Platforms, removed in 2022

Platform	Operator	Installed	No. legs	Gas/Oil
Q04-A	Wintershall	1999	4	Gas
Q04-B	Wintershall	2002	4	Gas

Pipelines and cables, decommissioned in 2022

Operator	Name	From	To	Laid	Diameter (inches)	Length (km)	Product
Wintershall	W45	D12-A	D15-FA-1	2004	10	4.9	Seawater
Wintershall	W46	D12-A	D15-FA-1	2004	3	5.1	Control & Power
ONE-Dyas	NLP009	P11-E	P15-F	2015	8	9.8	Seawater
ONE-Dyas	NLP010	P11-E	P15-F	2015	2	9.8	Seawater

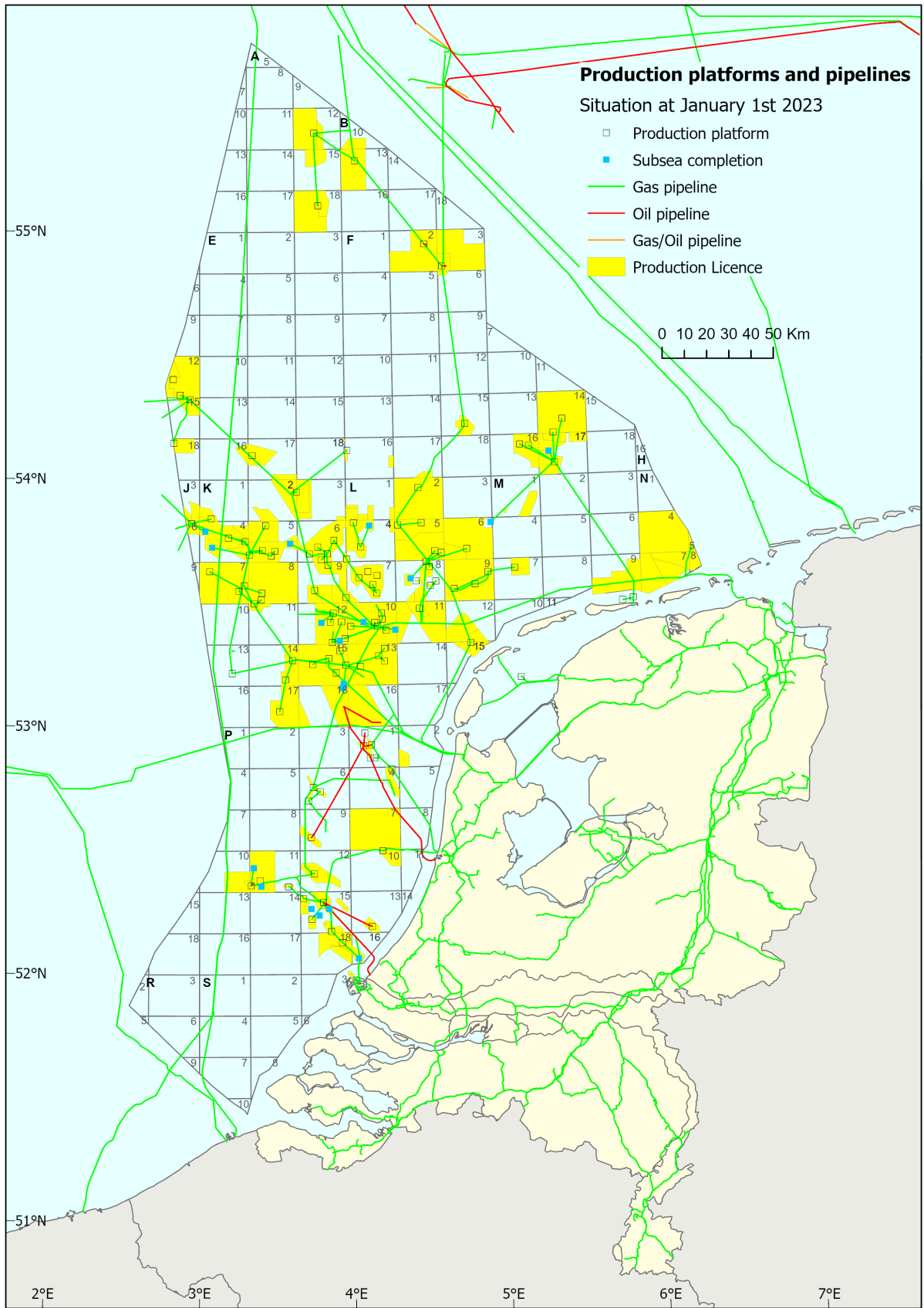


Figure 13.1 Offshore production platforms and pipelines as at 1 January 2023 (Source: <https://nationalegeoregister.nl>).

Annexes

A. Natural gas and oil accumulations

By status as at 1 January 2023

A.1 Natural gas accumulations

Developed accumulations

a. In production

Accumulation	Company	Licence name [Type] ***	Gas/Oil
's-Gravenzande	NAM	Rijswijk [pl]	G
Ameland-Oost	NAM	Noord-Friesland [pl]	G
Ameland-Westgat	NAM	Noord-Friesland [pl]	G
Anjum	NAM	Noord-Friesland [pl]	G
Assen	NAM	Drenthe IIb [pl]	G
Bedum	NAM	Groningen [pl]	G
Bergen	TAQA	Bergen II [pl]	G
Blesdijke	Vermilion	Gorredijk [pl], Steenwijk [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 IV [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
De Blesse	Vermilion	Gorredijk [pl], Steenwijk [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
Een	NAM	Drenthe IIb [pl], Groningen [pl]	G
Eernewoude	Vermilion	Leeuwarden [pl]	G
Eesveen	Vermilion	Drenthe VI [pl], Steenwijk [pl]	G
Eleveld	NAM	Drenthe IIb [pl]	G
Ezumazijl	NAM	Noord-Friesland [pl]	G
Faan	NAM	Groningen [pl]	G
Feerwerd	NAM	Groningen [pl]	G

Accumulation	Company	Licence name [Type] ***	Gas/Oil
Gaag	NAM	Rijswijk [pl]	G
Geesbrug	Vermilion	Drenthe V [pl]	G
Groet	TAQA	Bergen II [pl], Bergermeer [pl]	G
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 IV [pl]	G
Hekelingen	NAM	Beijerland [pl], Botlek IV [pl]	G
Kollum	NAM	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	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
Noordwolde	Vermilion	Gorredijk [pl]	G
Oosterhesselen	NAM	Drenthe IIb [pl]	G
Oostrum	NAM	Noord-Friesland [pl]	G
Opeinde	Vermilion	Leeuwarden [pl], Tietjerksteradeel II [pl]	G
Opeinde-Zuid	Vermilion	Akkrum [el], Leeuwarden [pl]	G
Opende-Oost	NAM	Groningen [pl]	G
Oud-Beijerland Zuid	NAM	Beijerland [pl], Botlek IV [pl]	G
Oude Pekela	NAM	Groningen [pl]	G
Oudeland	NAM	Beijerland [pl]	G

Accumulation	Company	Licence name [Type] ***	Gas/Oil
Pernis	NAM	Rijswijk [pl]	G
Pernis-West	NAM	Rijswijk [pl]	G
Pieterzijl Oost	NAM	Groningen [pl], Tietjerksteradeel III [pl]	G
Reedijk	NAM	Botlek IV [pl]	G
Ried	Vermilion	Leeuwarden [pl]	G
Rustenburg	NAM	Middelie [pl]	G
Saaksum	NAM	Groningen [pl]	G
Schermer	TAQA	Bergen II [pl]	G
Schoonebeek Gas	NAM	Schoonebeek [pl]	G
Sonnega- Weststellingwerf	Vermilion	Steenwijk [pl]	G
Spijkenisse-Intra	NAM	Botlek IV [pl]	G
Spijkenisse-Oost	NAM	Botlek IV [pl]	G
Spijkenisse-West	NAM	Beijerland [pl], Botlek IV [pl]	G
Sprang	Vermilion	Waalwijk [pl]	G
Surhuisterveen	NAM	Groningen [pl], Tietjerksteradeel III [pl]	G
Tietjerksteradeel	Vermilion	Tietjerksteradeel II [pl]	G
Vinkega	Vermilion	Drenthe IIa [pl], Drenthe IIIa [pl], Gorredijk [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
Weststellingwerf	Vermilion	Gorredijk [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-B	Wintershall	D12a [pl], D12b [pl]	G
D12-D	Wintershall	D12a [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], F06a [pl]	G&O
F15a-A	TotalEnergies	F15a [pl]	G
F15a-B	TotalEnergies	F15a [pl]	G
G14-A&B	Neptune	G14a & G17b [pl], G17a [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]	G
G17cd-A	Neptune	G17c & G17d [pl]	G
J03-C Unit	TotalEnergies	J03a [pl], J03b & J06a [pl]	G
K01-A Unit	TotalEnergies	J03a [pl], K01a [pl], K04a [pl]	G
K02b-A	Neptune	K02b [pl], K03a [pl], K03c [pl]	G
K04-A	TotalEnergies	K04a [pl], K04b & K05a [pl], K05b & K05c [pl]	G
K04a-B	TotalEnergies	K04a [pl]	G
K04a-D	TotalEnergies	J03b & J06a [pl], K04a [pl]	G
K04a-Z	TotalEnergies	K04a [pl]	G
K04-E	TotalEnergies	K04a [pl], K04b & K05a [pl]	G
K04-N	TotalEnergies	K04a [pl], K04b & K05a [pl]	G
K05a-A	TotalEnergies	K04a [pl], K04b & K05a [pl], K08 & K11a [pl]	G
K05a-B	TotalEnergies	K04b & K05a [pl], K05b & K05c [pl]	G
K05a-D	TotalEnergies	K04b & K05a [pl]	G
K05a-En	TotalEnergies	K04b & K05a [pl], K05b & K05c [pl]	G
K05-C North	TotalEnergies	K05b & K05c [pl]	G
K05-C Unit	TotalEnergies	K04b & K05a [pl], K05b & K05c [pl]	G
K05-U	TotalEnergies	K02c [pl], K05b & K05c [pl]	G
K06-A	TotalEnergies	K03b [pl], K06a, K06b, L07a, L07b & L07c [pl]	G
K06-C	TotalEnergies	K06a, K06b, L07a, L07b & L07c [pl]	G
K06-D	TotalEnergies	K06a, K06b, K09c & K09d [pl], L07a, L07b & L07c [pl]	G
K06-DN	TotalEnergies	K06a, K06b, L07a, L07b & L07c [pl]	G
K06-G	TotalEnergies	K06a, K06b, L07a, L07b & L07c [pl]	G
K07-FA	NAM	K07 [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-B	Neptune	K09a & K09b [pl]	G
K12-B	Neptune	K12a [pl], K15 [pl]	G
K12-B9	Neptune	K12a [pl], K15 [pl]	G
K12-D	Neptune	K12a [pl]	G
K12-G	Neptune	K12a [pl], L10 & L11a [pl]	G
K12-S3	Neptune	K12a [pl]	G
K14-FA	NAM	K14a [pl]	G

Accumulation	Company	Licence name [Type] ***	Gas/Oil
K14-FB	NAM	K14a [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-FI	NAM	K15 [pl]	G
K15-FK	NAM	K15 [pl]	G
K15-FL	NAM	K12a [pl], K15 [pl]	G
K15-FM	NAM	K15 [pl]	G
K15-FN	NAM	K15 [pl]	G
K15-FO	NAM	K15 [pl]	G
K17-FA	NAM	K17a [pl]	G
K18-Golf	Wintershall	K15 [pl], K18b [pl]	G
L01-A	TotalEnergies	L01a [pl], L01d [pl], L04a & L04b [pl]	G
L02-FA	NAM	L02 [pl]	G
L02-FB	NAM	F17c [pl], L02 [pl]	G
L04-A	TotalEnergies	L04a & L04b [pl]	G
L04-F	TotalEnergies	L01e [pl], L04a & L04b [pl]	G
L04-G	TotalEnergies	L01f [pl], L04a & L04b [pl]	G
L04-I	TotalEnergies	L04a & L04b [pl]	G
L05a-A	Neptune	L02 [pl], L04c [pl], L05a [pl]	G
L05a-D	Neptune	L02 [pl], L05a [pl]	G
L05-C	Wintershall	L05b [pl], L06b [pl]	G
L06-B	Wintershall	L06a [pl]	G
L08-A-West	Wintershall	L08b, L08d & L08e [pl]	G
L08-D	ONE-Dyas	L08a & L08c [pl], L08b, L08d & L08e [pl], L11b [pl]	G
L08-P	Wintershall	L05c [pl], L08b, L08d & L08e [pl]	G
L09-FA	NAM	L09 [pl]	G
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

Accumulation	Company	Licence name [Type] ***	Gas/Oil
L10-N	Neptune	L10 & L11a [pl]	G
L10-O	Neptune	L10 & L11a [pl]	G
L10-P	Neptune	L10 & L11a [pl]	G
L11b-A	ONE-Dyas	L11b [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-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	M07a [pl]	G
M07-B	ONE-Dyas	M07a [pl]	G
Markham	Spirit	J03a [pl], J03b & J06a [pl]	G
N07-FA	NAM	N07a [pl], Noord-Friesland [pl]	G
P10a-De Ruyter Western Extension	Dana Petroleum	P10a [pl]	G
P11b-Van Ghent East	Dana Petroleum	P11b [pl]	G
P11b-Witte de With	Dana Petroleum	P11b [pl]	G
P15-11	TAQA	P15a, P15b, P15d, P15e & P15f [pl]	G
P18-2	TAQA	P18a [pl], P18c [pl]	G
P18-4	TAQA	P18a [pl]	G
P18-6	TAQA	P15c, P15g, P15h, P15i & P15j [pl], P18a [pl]	G
Q01-B	Wintershall	Q01c-diep [pl], Q04a [pl]	G
Q01-D	Wintershall	Q01c-diep [pl]	G
Q10-A	KISTOS NL2	Q07 & Q10a [pl]	G
Q16-FA	ONE-Dyas	Q16a [pl]	G

b. Gas storage

Accumulation	Company	Licence name [Type]***	Gas/Oil
Aardgasbuffer Zuidwending	EnergyStock	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 within 5 years

Accumulation	Company	Licence name [Type]***	Gas/Oil
Assen-Zuid	NAM	Drenthe IIb [pl]	G
Blesdijke-East	Vermilion	Gorredijk [pl], Steenwijk [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
A15-A	Petrogas	A12a [pl], A12d [pl], A15a [pl]	G
B10-FA	Petrogas	A12b & B10a [pl]	G
B16-FA	Petrogas	B10c & B13a [pl], B16a [el]	G
D15 Tourmaline	Neptune	D15a [pl]	G
F03c-Anteatier	Dana Petroleum	F03c [pl]	G
F16-P	Wintershall	F16a & F16b [pl]	G
K09c-B	Neptune	K09c & K09d [pl]	G
L10-19	Neptune	L10 & L11a [pl]	G
L11-7	Neptune	L10 & L11a [pl]	G
L11-Clover	ONE-Dyas	L11d [pl]	G
L12a-A	Neptune	L12a [pl], L12b & L15b [pl]	G
M09-FA	NAM	M09a [pl], Noord-Friesland [pl]	G
M10-FA	KISTOS NL1	Open	G
M11-FA	KISTOS NL1	Noord-Friesland [pl]	G
N04-A	ONE-Dyas	N04, N05 & N08 [pl]	G
N04-C	ONE-Dyas	N04, N05 & N08 [pl]	G
N05-A	ONE-Dyas	N04, N05 & N08 [pl]	G
P18-7	ONE-Dyas	P18b [pl], P18c [pl], Q16a [pl], Q16c-diep [pl]	G
Q10-Beta	KISTOS NL2	Q08, Q10b & Q11 [el]	G
Q11-Beta	KISTOS NL2	Q07 & Q10a [pl], Q08, Q10b & Q11 [el]	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

Accumulation	Company	Licence name [Type]***	Gas/Oil
Deurningen	NAM	Twenthe [pl]	G
Egmond-Binnen	NAM	Middelie [pl]	G
Exloo	NAM	Drenthe IIb [pl]	G
Ezumazijl-South	NAM	Noord-Friesland [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], Q16c-diep [pl]	G
Marknesse	Vermilion	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
Schiermonnikoog-Wad	NAM	Noord-Friesland [pl]	G
Terschelling-Noord	-	Open	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	-	B16b, B17, E03a, E06a, F01 & F02b [el]	G
D12 Ilmenite	Wintershall	D12a [pl]	G
E11-Vincent	-	Open	G
E12 Lelie	-	Open	G
E12 Tulp East	-	Open	G
E13 Epidoot	-	Open	G
E17-3	Neptune	E17a & E17b [pl], K02b [pl]	G
J09 Alpha North	NAM	J09 [el], K07 [pl]	G

Accumulation	Company	Licence name [Type]***	Gas/Oil
K08-FB	NAM	K08 & K11a [pl]	G
K08-FD	NAM	K04b & K05a [pl], K08 & K11a [pl]	G
K08-FE	NAM	K08 & K11a [pl]	G
K08-FF	NAM	K08 & K11a [pl]	G
K14-FC	NAM	K14a [pl]	G
K15-FF	NAM	K15 [pl]	G
K16-5	-	Open	G
K17-FB	NAM	K17a [pl]	G
K17-Zechstein	NAM	K17a [pl]	G
K18-FB	Wintershall	K18b [pl]	G
K6-GT4	TotalEnergies	K06a, K06b, L07a, L07b & L07c [pl]	G
L02-FC	NAM	L01c [pl], L02 [pl]	G
L05b-A	Wintershall	L05b [pl]	G
L07-D	-	Open	G
L07-F	-	L07e & L08f [el]	G
L08-I	-	Open	G
L10-11	Neptune	L10 & L11a [pl]	G
L10-21	Neptune	L10 & L11a [pl]	G
L10-6	Neptune	L10 & L11a [pl]	G
L11-1	Neptune	L10 & L11a [pl]	G
L11a-B	Neptune	L10 & L11a [pl]	G
L12-FD	-	L09 [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
M01-A	-	M01a & M01c [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	P06a [pl]	G
P10b-Van Brakel	Dana Petroleum	P10b [pl]	G
P12-F (P12-14)	Wintershall	Open	G

Accumulation	Company	Licence name [Type]***	Gas/Oil
P15-S	TAQA	P15a, P15b, P15d, P15e & P15f [pl]	G
Q02-A	-	Open	G
Q13-FC	-	Open	G
Q14-A	-	Q08, Q10b & Q11 [el]	G

Production (temporary) 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
Annerveen	U	NAM	Drenthe IIb [pl], Groningen [pl]	G&O
Appelscha	U	NAM	Drenthe IIb [pl]	G
Barendrecht	T	NAM	Rijswijk [pl]	G&O
Barendrecht-Ziedewij	U	NAM	Rijswijk [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
Dalen	T	NAM	Drenthe IIb [pl], Drenthe V [pl], Schoonebeek [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	U	KISTOS NL1	Donkerbroek [pl], Donkerbroek-West [pl]	G
Donkerbroek-West	A	KISTOS NL1	Donkerbroek [pl], Donkerbroek-West [pl]	G
Emmen	A	NAM	Drenthe IIb [pl]	G
Emmen-Nieuw Amsterdam	T	NAM	Drenthe IIb [pl], Schoonebeek [pl]	G
Emshoern	A	NAM	Groningen [pl]	G
Engwierum	U	NAM	Noord-Friesland [pl]	G
Franeke	U	Vermilion	Leeuwarden [pl]	G
Gasseltternijveen	U	NAM	Drenthe IIb [pl]	G
Geestvaartpolder	U	NAM	Rijswijk [pl]	G
Groet-Oost	U	TAQA	Middelie [pl]	G
Grouw-Rauwerd	T	Vermilion	Leeuwarden [pl], Oosterend [pl]	G

Accumulation	Status **	Company	Licence name [Type]***	Gas/Oil
Harlingen Lower Cretaceous	U	Vermilion	Leeuwarden [pl]	G
Harlingen Upper Cretaceous	U	Vermilion	Leeuwarden [pl]	G
Hemrik (Akkrum 11)	A	KISTOS NL1	Akkrum 11 [pl]	G
Hoogenweg	A	NAM	Hardenberg [pl]	G
Houwerzijl	U	NAM	Groningen [pl]	G
Kiel-Windeweer	U	NAM	Drenthe IIb [pl], 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	T	NAM	Noord-Friesland [pl]	G
Middenmeer	U	Vermilion	Slootdorp [pl]	G
Nijensleek	U	Vermilion	Drenthe IIa [pl], Steenwijk [pl]	G
Noorderdam	U	NAM	Rijswijk [pl]	G
Norg-Zuid	U	NAM	Drenthe IIb [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
Roden	T	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
Sebaldeburen	T	NAM	Groningen [pl]	G
Sleen	A	NAM	Drenthe IIb [pl]	G
Slootdorp	U	Vermilion	Slootdorp [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
Ureterp	U	NAM	Groningen [pl], Tietjerksteradeel III [pl]	G
Vierhuizen	T	NAM	De Marne [pl], Groningen [pl], Noord-Friesland [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	U	Vermilion	Zuidwal [pl]	G
D12-A	U	Wintershall	D12a [pl], D15a [pl]	G

Accumulation	Status **	Company	Licence name [Type]***	Gas/Oil
D12-C	T	Wintershall	D12a [pl]	G
D15a-A	T	Neptune	D12a [pl], D15a [pl]	G
D15a-A104	U	Neptune	D15a [pl]	G
D18a-A	U	Neptune	D18a [pl]	G
E18-A	A	Wintershall	Open	G
F03-FA	A	Spirit	Open	G
F16-E	U	Wintershall	E18a [pl], F16a & F16b [pl]	G
G14-C	U	Neptune	G14a & G17b [pl]	G
Halfweg	A	Petrogas	Q01a-ondiep & Q01b-ondiep [pl], Q02c [pl]	G
K05a-Es	U	TotalEnergies	K04b & K05a [pl]	G
K05-F	U	TotalEnergies	K04b & K05a [pl], K05b & K05c [pl], K06a, K06b, L07a, L07b & L07c [pl]	G
K05-G	U	TotalEnergies	K04b & K05a [pl]	G
K06-N	U	TotalEnergies	K06a, K06b, L07a, L07b & L07c [pl]	G
K06-T	U	TotalEnergies	K06a, K06b, L07a, L07b & L07c [pl]	G
K07-FD	T	NAM	K07 [pl]	G
K09ab-A	U	Neptune	K09a & K09b [pl], K09c & K09d [pl], L07d [pl], L10 & L11a [pl]	G
K09ab-C	T	Neptune	K09a & K09b [pl], K09c & K09d [pl]	G
K09ab-D	T	Neptune	K09a & K09b [pl]	G
K09c-A	U	Neptune	K06a, K06b, L07a, L07b & L07c [pl], K09c & K09d [pl]	G
K09c-C	U	Neptune	K09c & K09d [pl]	G
K10-B (gas)	A	Wintershall	Open	G
K10-C	A	Wintershall	Open	G
K10-V	A	Wintershall	K07 [pl]	G
K11-FA	A	NAM	Open	G
K11-FB	A	GDFP	Open	G
K11-FC	A	GDFP	Open	G
K12-A	A	GDFP	K12a [pl]	G
K12-C	U	Neptune	K12a [pl]	G
K12-E	A	GDFP	K09a & K09b [pl], K12a [pl], L10 & L11a [pl]	G
K12-H (K12-S2 & K12-D5)	U	Neptune	K12a [pl]	G
K12-K	U	Neptune	K12a [pl]	G
K12-L	U	Neptune	K09c & K09d [pl], K12a [pl]	G
K12-M	U	Neptune	K12a [pl]	G
K12-S1	A	GDFP	K12a [pl]	G
K13-A	A	Wintershall	Open	G
K13-B	A	Wintershall	Open	G
K13-CF	A	Wintershall	Open	G

Accumulation	Status **	Company	Licence name [Type]***	Gas/Oil
K13-DE	A	Wintershall	Open	G
K15-FH	T	NAM	K15 [pl]	G
K15-FJ	T	NAM	K15 [pl]	G
K15-FP	U	NAM	K15 [pl]	G
K15-FQ	T	NAM	K15 [pl], L13 [pl]	G
L04-B	A	Total	K06a, K06b, L07a, L07b & L07c [pl], L04a & L04b [pl]	G
L04-D	U	TotalEnergies	L04a & L04b [pl]	G
L05-B	U	Wintershall	L05b [pl]	G
L06d-S1	A	ONE	Open	G
L07-A	A	Total	K06a, K06b, L07a, L07b & L07c [pl]	G
L07-B	U	TotalEnergies	K06a, K06b, L07a, L07b & L07c [pl]	G
L07-C	U	TotalEnergies	K06a, K06b, L07a, L07b & L07c [pl]	G
L07-G	U	TotalEnergies	K06a, K06b, L07a, L07b & L07c [pl]	G
L07-H	U	TotalEnergies	K06a, K06b, L07a, L07b & L07c [pl]	G
L07-H South-East	U	TotalEnergies	K06a, K06b, L07a, L07b & L07c [pl]	G
L07-N	A	Total	K06a, K06b, L07a, L07b & L07c [pl]	G
L08-A	U	Wintershall	L08a & L08c [pl], L08b, L08d & L08e [pl]	G
L08-G	U	Wintershall	L08a & L08c [pl]	G
L08-H	U	Wintershall	L08a & L08c [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	GDFP	L07e & L08f [el], L10 & L11a [pl]	G
L10-Q	T	Neptune	L10 & L11a [pl]	G
L10-S1	A	PLACID	L10 & L11a [pl]	G
L10-S2	U	Neptune	L10 & L11a [pl]	G
L10-S3	A	GDFP	L10 & L11a [pl]	G
L10-S4	U	Neptune	L10 & L11a [pl]	G
L11a-A	A	GDFP	L10 & L11a [pl]	G
L11-Lark	A	GDFP	L10 & L11a [pl]	G
L13-FB	T	NAM	L13 [pl]	G
L13-FD	T	NAM	L13 [pl]	G
L13-FH	A	NAM	L13 [pl]	G
L14-FA	A	Transcanada Int.	Open	G
P02-NE	A	Wintershall	Open	G

Accumulation	Status **	Company	Licence name [Type]***	Gas/Oil
P02-SE	A	Wintershall	Open	G
P06-D	U	Wintershall	P06a [pl]	G
P06-Main	U	Wintershall	P06a [pl]	G
P06-South	A	Wintershall	Open	G
P09-A	A	Wintershall	Open	G
P09-B	A	Wintershall	Open	G
P11-12	A	ONE-Dyas	P11a [pl]	G
P11a-E	A	ONE-Dyas	P11a [pl]	G
P11b-Van Nes	U	Dana Petroleum	P11b [pl]	G
P12-C	A	Wintershall	Open	G
P12-SW	U	Wintershall	P12a [pl]	G
P14-A	A	Wintershall	Open	G
P15-09	T	TAQA	P15a, P15b, P15d, P15e & P15f [pl], P15c, P15g, P15h, P15i & P15j [pl], P18a [pl]	G
P15-10	A	TAQA	P15c, P15g, P15h, P15i & P15j [pl]	G
P15-12	A	TAQA	P15a, P15b, P15d, P15e & P15f [pl]	G
P15-13	T	TAQA	P15a, P15b, P15d, P15e & P15f [pl]	G
P15-14	A	TAQA	Open	G
P15-15	U	TAQA	P15a, P15b, P15d, P15e & P15f [pl]	G
P15-16	U	TAQA	P15a, P15b, P15d, P15e & P15f [pl]	G
P15-17	U	TAQA	P15a, P15b, P15d, P15e & P15f [pl]	G
P15-19	T	TAQA	P15a, P15b, P15d, P15e & P15f [pl]	G
Q04-A	A	Wintershall	Open	G
Q04-B	A	Wintershall	Open	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], Q16c-diep [pl], T01 [pl]	G
Q16-Maasmond	T	ONE-Dyas	Botlek Maasmond [pl], Q16c-diep [pl]	G

** T = production temporary ceased, U = production ceased, 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 IV [pl]	O
Rotterdam	NAM	Rijswijk [pl]	O
F02a-Hanze	Dana Petroleum	F02a [pl]	O
P11b-De Ruyter	Dana Petroleum	P10a [pl], P11b [pl]	O
P15 Rijn	TAQA	P15a, P15b, P15d, P15e & P15f [pl], P15c, P15g, P15h, P15i & P15j [pl]	O
Q13a-Amstel	Neptune	Q13a [pl]	O

Undeveloped accumulations

a. Production start (expected) within 5 years

Accumulation	Company	Licence name [Type]***	Gas/Oil
F03c-Bokje	Dana Petroleum	F03c [pl]	O
F06-IJssel	ONE-Dyas	F03b [pl], F06a [pl], F06b [el], F06c & F06d [el]	O
F17-NE (Rembrandt)	Wintershall	F17a-diep [pl], F17c [pl]	O
F17-SW (Vermeer)	Wintershall	F17a-diep [pl], F17c [pl], L02 [pl]	O
Orion	KISTOS NL2	Q07 & Q10a [pl]	O

b. Production 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 [pl]	O
Woubrugge	-	Open	O
Zweelo	NAM	Drenthe IIb [pl]	O
B18-FA	-	Open	O
F03-FC	-	Open	O
F06b-Snellius	Dana Petroleum	F06b [el]	O
F06b-Zulu North	Dana Petroleum	F03c [pl], F06b [el]	O
F14-FA	-	Open	O
F17-FA (Korvet)	-	Open	O
F17-FB (Brigantijn)	-	Open	O

Accumulation	Company	Licence name [Type]***	Gas/Oil
F18-FA (Fregat)	-	Open	O
K10-B (oil)	-	Open	O
L01-FB	-	Open	O
L05a-E	Neptune	L01c [pl], L02 [pl], L04c [pl], L05a [pl]	O
P08-A Horizon-West	-	P09a [pl]	O
P12-West (P12-3)	Wintershall	Open	O&G
Q01-Northwest	-	Open	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
Schoonebeek Olie	T	NAM	Schoonebeek [pl]	O
Haven	A	Petrogas	Q01a-ondiep & Q01b-ondiep [pl]	O
Helder	U	Petrogas	Q01a-ondiep & Q01b-ondiep [pl]	O
Helm	U	Petrogas	Q01a-ondiep & Q01b-ondiep [pl]	O
Hoorn	U	Petrogas	Q01a-ondiep & Q01b-ondiep [pl]	O
Horizon	U	Petrogas	P09a [pl], P09c [pl]	O
Kotter	A	Wintershall	K18b [pl]	O
Logger	A	Wintershall	L16a [pl]	O
P11b-Van Ghent	U	Dana Petroleum	P11b [pl]	O

** T = production temporary ceased, U = production ceased, A = abandoned.

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

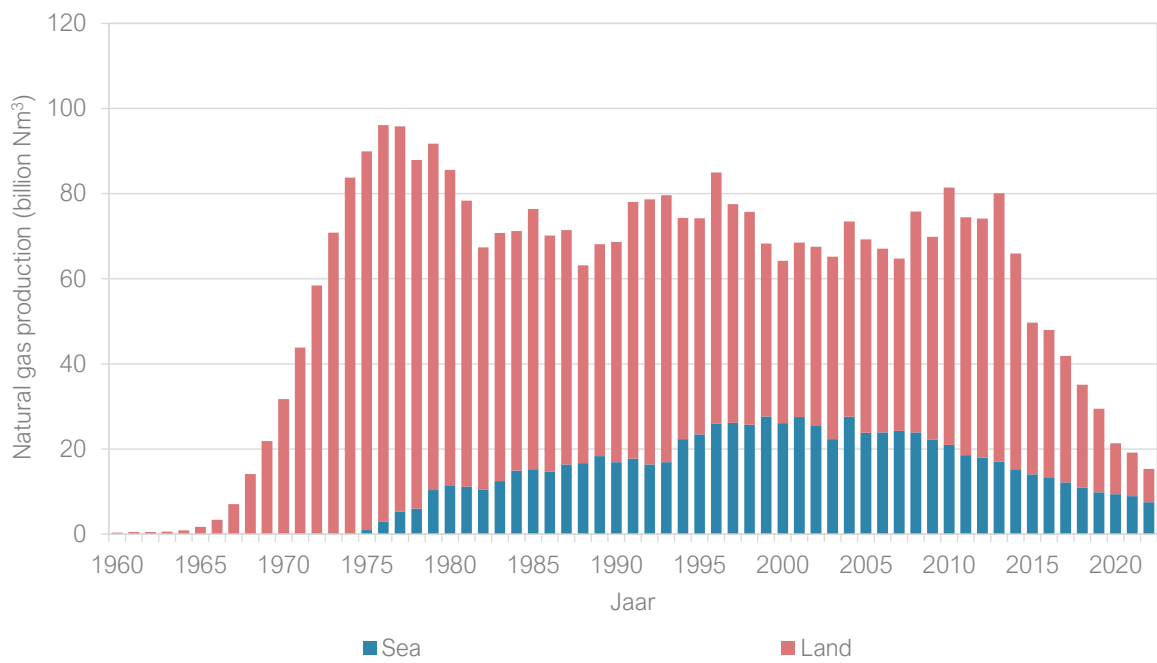
B. Production of natural gas in million Nm³

Year	* Land	Sea	Total
1960	363.8	0.0	363.8
1961	451.0	0.0	451.0
1962	509.8	0.0	509.8
1963	571.3	0.0	571.3
1964	830.0	0.0	830.0
1965	1,722.6	0.0	1,722.6
1966	3,376.9	0.0	3,376.9
1967	7,033.3	0.0	7,033.3
1968	14,107.3	0.0	14,107.3
1969	21,884.4	0.0	21,884.4
1970	31,663.6	7.5	31,671.1
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	95,775.7
1978	81,935.1	5,967.8	87,902.9
1979	81,354.2	10,351.9	91,706.1
1980	74,103.0	11,466.6	85,569.6
1981	67,204.3	11,178.9	78,383.2
1982	56,853.8	10,492.0	67,345.8
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	63,182.4
1989	49,810.1	18,286.8	68,096.9
1990	51,719.3	16,918.6	68,637.9
1991	60,378.5	17,705.3	78,083.8
1992	62,252.6	16,371.9	78,624.5

Year	* Land	Sea	Total
1993	62,680.9	16,914.2	79,595.1
1994	51,982.7	22,301.2	74,283.9
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	40,463.3	24,283.3	64,746.6
2008	51,861.0	24,012.5	75,873.5
2009	47,719.2	22,202.5	69,921.7
2010	60,503.4	20,948.8	81,452.2
2011	55,763.9	18,709.6	74,473.5
2012	56,103.0	18,035.7	74,138.8
2013	62,911.2	17,159.3	80,070.5
2014	50,454.2	15,521.3	65,975.5
2015	35,422.3	14,435.5	49,857.8
2016	34,385.3	13,574.2	47,959.5
2017	29,551.7	12,295.3	41,847.0
2018	23,927.1	11,138.6	35,065.7
2019	19,595.0	9,844.0	29,439.1
2020	11,903.8	9,398.0	21,301.8
2021	10,231.3	8,904.0	19,135.3
2022	7,79.4	7,498.3	15,278.7
Total	2,794,130.1	810,680.7	3,604,812.3

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

Production of natural gas 1960 – 2022



C. Natural gas reserves and cumulative production in billion Nm³

Year	Land		Sea		Total		
	as at 1 Jan.	Expected reserves	Cumulative production	Expected reserves	Cumulative production	Expected reserves	Cumulative production
1974		2,125	256	200	0	2,325	256
1975		2,125	339	200	0	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

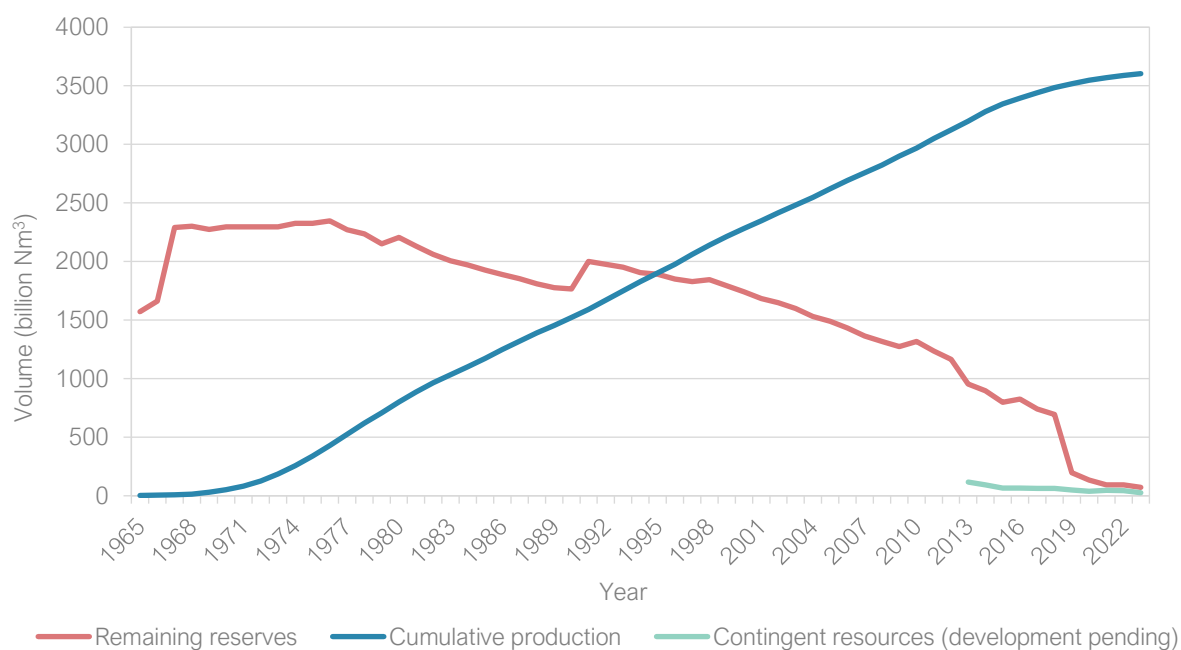
Year as at 1 Jan.	Land		Sea		Total	
	Expected reserves	Cumulative production	Expected reserves	Cumulative production	Expected reserves	Cumulative production
2006	1,218	2,152	213	539	1,431	2,691
2007	1,168	2,196	195	563	1,363	2,758
2008	1,129	2,236	188	587	1,317	2,823
2009	1,101	2,288	173	611	1,274	2,899
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 as at 1 Jan.	Land			Sea			Total		
	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	695	62	3,484
2019	125	18	2,746	71	32	773	196	50	3,519
2020	66	21	2,766	66	19	783	133	39	3,549
2021	35	33	2,777	57	13	792	92	46	3,569
2022	38	19	2,787	54	24	801	93	43	3,588
2023	27	19	2,794	45	7	810	72	26	3,604

Natural gas reserves and cumulative production (1 January 2023), 1965 – 2023



Past production 2012 – 2022 and supply of natural gas (Base Scenario) from the small fields 2023 – 2047, 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
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	14.9	-	-	-	-	-	-
2021	14.2	-	-	-	-	-	-
2022	12.0	-	-	-	-	-	-
2023	-	3.2	7.6	0.0	0.0	0.0	0.0
2024	-	2.7	7.2	0.0	0.0	0.0	0.0
2025	-	2.0	6.1	0.0	0.0	0.1	0.4
2026	-	1.7	5.1	0.2	0.1	0.2	1.7

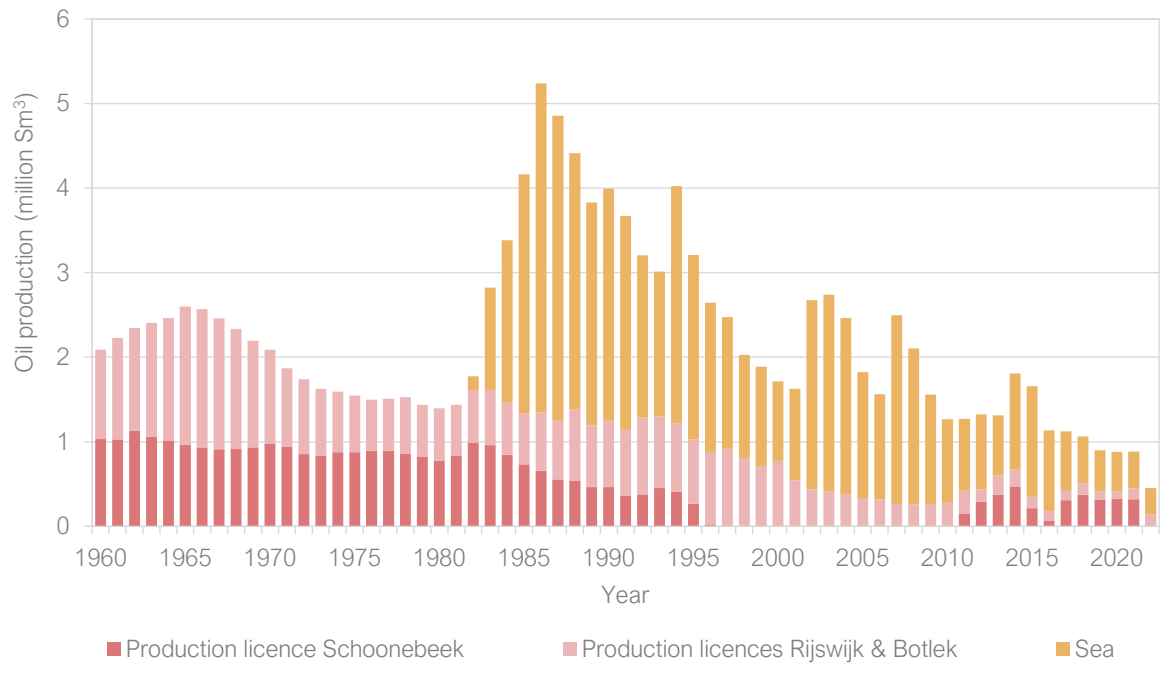
Year	Past production	Expected supply from reserves onshore	Expected supply from reserves offshore	Expected supply from contingent resources onshore	Expected supply from contingent resources offshore	Expected supply from undiscovered accumulations onshore	Expected supply from undiscovered accumulations offshore
2027	-	1.2	4.5	0.9	0.4	0.3	1.7
2028	-	0.9	4.0	1.0	0.8	0.4	2.4
2029	-	0.8	3.4	1.2	1.2	0.4	2.6
2030	-	0.7	2.9	1.3	1.1	0.5	2.7
2031	-	0.6	2.5	1.0	0.8	0.6	3.1
2032	-	0.6	2.0	0.7	0.6	0.6	3.3
2033	-	0.5	1.6	0.6	0.4	0.7	3.4
2034	-	0.5	0.7	0.5	0.3	0.7	3.4
2035	-	0.4	0.6	0.5	0.3	0.7	3.4
2036	-	0.0	0.6	0.5	0.2	0.8	3.3
2037	-	0.0	0.5	0.4	0.1	0.8	3.4
2038	-	0.0	0.4	0.1	0.1	0.8	3.4
2039	-	0.0	0.3	0.1	0.1	0.8	3.7
2040	-	0.0	0.3	0.1	0.0	0.8	3.7
2041	-	0.0	0.2	0.2	0.0	0.8	3.5
2042	-	0.0	0.2	0.0	0.0	0.8	3.3
2043	-	0.0	0.1	0.0	0.0	0.8	3.2
2044	-	0.0	0.1	0.0	0.0	0.8	3.1
2045	-	0.0	0.1	0.0	0.0	0.8	3.0
2046	-	0.0	0.0	0.0	0.0	0.8	3.0
2047	-	0.0	0.0	0.0	0.0	0.8	3.0
Total	-	15.7	50.9	9.3	6.6	15.0	67.6

D. Oil production in million Sm³

Year	Schoonebeek production licence	Rijswijk & Botlek production licence	Sea	Total
to 1959	11.749	0.000	0.000	11.749
1960	1.031	1.058	0.000	2.089
1961	1.030	1.197	0.000	2.227
1962	1.129	1.217	0.000	2.346
1963	1.057	1.350	0.000	2.407
1964	1.011	1.454	0.000	2.465
1965	0.963	1.638	0.000	2.601
1966	0.932	1.636	0.000	2.568
1967	0.913	1.545	0.000	2.458
1968	0.914	1.419	0.000	2.333
1969	0.933	1.262	0.000	2.195
1970	0.976	1.112	0.000	2.088
1971	0.941	0.927	0.000	1.868
1972	0.856	0.883	0.000	1.739
1973	0.838	0.787	0.000	1.626
1974	0.878	0.716	0.000	1.594
1975	0.877	0.672	0.000	1.549
1976	0.892	0.605	0.000	1.497
1977	0.891	0.618	0.000	1.509
1978	0.862	0.668	0.000	1.530
1979	0.820	0.616	0.000	1.436
1980	0.779	0.618	0.000	1.397
1981	0.839	0.597	0.000	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

Year	Schoonebeek production licence	Rijswijk & Botlek production licence	Sea	Total
1992	0.379	0.907	1.921	3.207
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	0.000	0.918	1.557	2.474
1998	0.000	0.810	1.219	2.029
1999	0.000	0.715	1.173	1.888
2000	0.000	0.776	0.936	1.713
2001	0.000	0.542	1.085	1.628
2002	0.000	0.439	2.236	2.675
2003	0.000	0.416	2.325	2.741
2004	0.000	0.381	2.082	2.463
2005	0.000	0.335	1.490	1.825
2006	0.000	0.322	1.238	1.561
2007	0.000	0.264	2.233	2.497
2008	0.000	0.261	1.841	2.102
2009	0.000	0.264	1.296	1.560
2010	0.000	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	0.109	0.705	1.124
2018	0.375	0.133	0.556	1.064
2019	0.311	0.102	0.487	0.901
2020	0.326	0.086	0.468	0.880
2021	0.322	0.127	0.437	0.885
2022	0.000	0.140	0.313	0.453
Total	43.418	42.334	65.442	151.192

Oil production 1960 – 2022



E. Oil reserves and cumulative production in million Sm³

Year	Land		Sea		Total		
	as at 1 January	Expected reserves	Cumulative production	Expected reserves	Cumulative production	Expected reserves	Cumulative production
1970		36.0	35.4	-	0.0	36.0	35.4
1971		34.0	37.5	-	0.0	34.0	37.5
1972		32.0	39.4	-	0.0	32.0	39.4
1973		29.0	41.1	-	0.0	29.0	41.1
1974		27.0	42.8	-	0.0	27.0	42.8
1975		40.0	44.4	14.0	0.0	54.0	44.4
1976		51.0	45.9	14.0	0.0	65.0	45.9
1977		49.0	47.4	16.0	0.0	65.0	47.4
1978		46.0	48.9	7.0	0.0	53.0	48.9
1979		44.0	50.4	9.0	0.0	53.0	50.4
1980		43.0	51.9	11.0	0.0	54.0	51.9
1981		41.0	53.3	14.0	0.0	55.0	53.3
1982		39.0	54.7	20.0	0.0	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

Year as at 1 January	Land		Sea		Total	
	Expected reserves	Cumulative production	Expected reserves	Cumulative production	Expected reserves	Cumulative production
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
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 as at 1 January	Land			Sea			Total		
	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
2021	9.2	5.0	85.2	2.5	13.0	64.7	11.6	18.0	149.9
2022	8.4	3.9	85.6	1.9	20.7	65.1	10.3	24.6	150.8
2023	4.1	6.5	85.8	1.3	4.4	65.4	5.4	10.9	151.2

Oil reserves and cumulative production in million Sm³ (1 January 2023), 1970 – 2023



Past production and supply of oil from reserves from small fields until 2038, in million Sm³.

Year	Past production	Expected supply from reserves	Expected supply from contingent resources
2011	1.3	-	-
2012	1.3	-	-
2013	1.3	-	-
2014	1.3	-	-
2015	1.8	-	-
2016	1.7	-	-
2017	1.1	-	-
2018	1.1	-	-
2019	1.1	-	-
2020	0.9	-	-
2021	0.9	-	-
2022	0.5	-	-
2023	-	0.6	0.0
2024	-	0.8	0.0
2025	-	0.7	0.3
2026	-	0.6	1.2
2027	-	0.5	1.1
2028	-	0.5	0.8

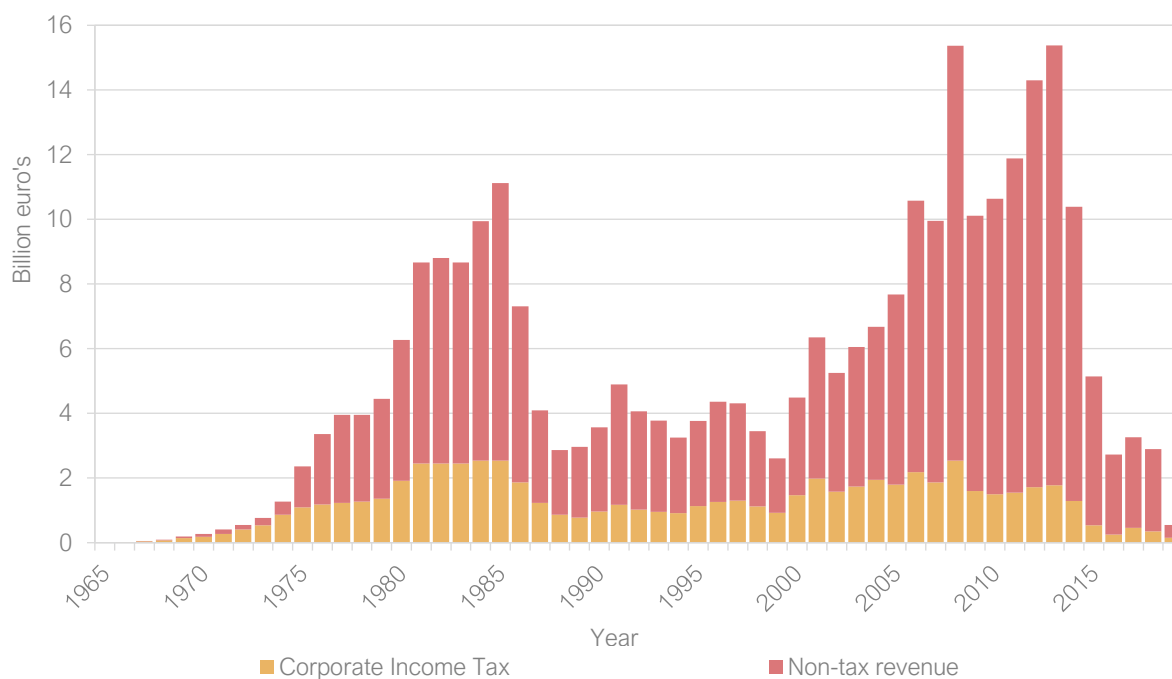
Year	Past production	Expected supply from reserves	Expected supply from contingent resources
2029	-	0.4	0.7
2030	-	0.4	0.7
2031	-	0.3	0.7
2032	-	0.3	0.6
2033	-	<0.1	0.8
2034	-	<0.1	0.7
2035	-	<0.1	0.7
2036	-	<0.1	0.6
2037	-	<0.1	0.6
2038	-	<0.1	0.5
Total	-	5.3	10.1

F. Natural gas revenues

Year	Non-tax revenue (10 ⁹ €)	Corporation tax (10 ⁹ €)	Total (10 ⁹ €)
1965	0.00	0.00	0.00
1966	0.00	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
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

Year	Non-tax revenue (10 ⁹ €)	Corporation tax (10 ⁹ €)	Total (10 ⁹ €)
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	0.56

Natural gas revenues (in billion euros), 1965 – 2019



The revenues as presented above are provided by the Ministry of Economic Affairs and Climate Policy. The revenues presented here are based on a so-called transaction basis. This means they have been allocated to the year in which the production on which the income is based took place. By contrast, revenue recorded on a cash basis is recorded at the time the State actually receives the revenue, which is sometime later than the transaction-based revenue.

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

From 2019 onwards, only an estimate is made of the non-taxable resources on a cash basis, which is why the historical data up to and including 2019 and the forecasts are shown separately. The table below shows the gas revenues for 2019, 2020, 2021 and 2022 and an estimate for the years 2023 to 2028 in million euros. EBN's dividend reached zero in 2022 due to the introduction of the solidarity contribution. Mining Act revenues increased significantly in 2022 due to the increase in the gas price and the resulting higher tax revenues. GasTerra's dividend will go to zero in 2026 because GasTerra will be wound up on 31 December 2026.

Non-tax revenue (in million euros), 2019 – 2028 (based on estimates from March 2023)

Year	Dividend EBN	Dividend GasTerra	Mining Act	Total (10 ⁶ €)
2019	141.8	3.6	432.4	557.8
2020	35.9	3.6	34.8	74.3
2021	2.8	3.6	25.8	32.2
2022	0	3.6	1,614.6	1,618.2
<i>Forecast</i>				
2023	2,300	3.6	3,163	5,466.6
2024	2,200	3.6	980	3,183.6
2025	1,975	3.6	810	2,788.6
2026	1,025	0	240	1,265.0
2027	550	0	80	630.0
2028	250	0	0	250.0

Tax income estimates for the years 2023 to 2028 are based on price forecasts of the CPB (on the basis of the gas trading hub prices as published by TTF). The current market conditions due to, among others, the situation in Ukraine, create high and volatile gas prices. The following gas prices in euro cents per cubic meter have been estimated:

Gas price forecasts in eurocent per cubic meter

Year	2023	2024	2025	2026	2027	2028
Gas price	59	62	51	37	32	32

G. Exploration licences for hydrocarbons, Land

As at 1 January 2023

	Licence holder	Licence	km ²	Effective from	Effective till	Gov. gazette
1	Vermilion Energy Netherlands B.V.	Akkrum *	210	14-03-2013		10 461
2	Vermilion Energy Netherlands B.V.	Engelen	97	14-10-2009	31-12-2025	16 878
3	Vermilion Energy Netherlands B.V.	Follega	3	15-06-2010	30-06-2025	9 426
4	Vermilion Energy Netherlands B.V.	Hemelum	450	17-01-2012	28-12-2028	1 490
5	Vermilion Energy Netherlands B.V.	Ijsselmuiden	447	17-01-2014	16-01-2024	1 958
6	Vermilion Energy Netherlands B.V.	Lemsterland	111	15-06-2010	30-06-2025	9 427
7	Vermilion Energy Netherlands B.V.	Oosterwolde	127	20-04-2007	31-12-2025	83
8	Vermilion Energy Netherlands B.V.	Opmeer	229	19-12-2012	18-12-2024	205
9	Vermilion Energy Netherlands B.V.	Utrecht	1,144	26-04-2007	31-12-2025	85
		Total	2,818			

* Applied for production licence.

H. Production licences for hydrocarbons, Land

As at 1 January 2023

Licence holder	Licence	km ²	Effective from	Effective till	Gov. gazette
1 Kistos NL1 B.V.	Akkrum 11	6	26-07-2012	04-04-2025	6 909
2 Kistos NL1 B.V.	Donkerbroek	22	04-04-1995	04-04-2025	66
3 Kistos NL1 B.V.	Donkerbroek-West	2	16-03-2011	04-04-2025	4 902
4 Nederlandse Aardolie Maatschappij B.V.	Beijerland	140	14-02-1997	14-02-2027	243
5 Nederlandse Aardolie Maatschappij B.V.	Botlek IV	221	23-12-2022	19-07-2026	35 375
6 Nederlandse Aardolie Maatschappij B.V.	Botlek Breeddiep	8	23-12-2022	19-07-2026	35 375
7 Nederlandse Aardolie Maatschappij B.V. ExxonMobil Producing Netherlands B.V.	De Marne	7	04-10-1994	04-10-2034	189
8 Nederlandse Aardolie Maatschappij B.V.	Drenthe IIb	1,881	17-03-2012		6 883
9 Nederlandse Aardolie Maatschappij B.V.	Groningen	2,970	30-05-1963		126
10 Nederlandse Aardolie Maatschappij B.V.	Hardenberg	161	22-10-1990	22-10-2035	149
11 Nederlandse Aardolie Maatschappij B.V.	Middelie	946	12-05-1969		94
12 Nederlandse Aardolie Maatschappij B.V. ExxonMobil Producing Netherlands B.V.	Noord-Friesland	1,593	27-02-1969		47
13 Nederlandse Aardolie Maatschappij B.V.	Rijswijk	1,094	03-01-1955		21
14 Nederlandse Aardolie Maatschappij B.V.	Rossum-De Lutte	46	12-05-1961		116
15 Nederlandse Aardolie Maatschappij B.V.	Schoonebeek	930	03-05-1948		110
16 Nederlandse Aardolie Maatschappij B.V.	Tietjerksteradeel III	168	25-01-2018		5 149
17 Nederlandse Aardolie Maatschappij B.V.	Tubbergen	177	11-03-1953		80
18 Nederlandse Aardolie Maatschappij B.V.	Twenthe	276	01-04-1977		26
19 ONE-Dyas B.V. TAQA Offshore B.V.	Botlek-Maas	3	04-03-2014	19-07-2026	7 445
20 ONE-Dyas B.V.	Botlek Maasmond	3	10-07-2019	19-07-2026	39 438
21 TAQA Onshore B.V. Dana Petroleum Netherlands B.V. RockRose (NL) CS1 B.V.	Bergen II	221	23-12-2006		232
22 TAQA Onshore B.V.	Bergermeer	19	23-12-2006		232
23 TAQA Piek Gas B.V. Dana Petroleum Netherlands B.V. RockRose (NL) CS1 B.V.	Alkmaar	12	23-12-2006		232
24 Vermilion Energy Netherlands B.V. Parkmead (E&P) Ltd.	Andel Va	61	05-08-2015	29-12-2038	29 954
25 Vermilion Energy Netherlands B.V. Parkmead (E&P) Ltd.	Andel Vb	142	05-08-2015	29-12-2038	29 954
26 Vermilion Energy Netherlands B.V.	Drenthe IIa	7	17-03-2012		6 883

Licence holder	Licence	km ²	Effective from	Effective till	Gov. gazette
27 Vermilion Energy Netherlands B.V.	Drenthe IIIa	1	17-03-2012		6 885
28 Vermilion Energy Netherlands B.V. Parkmead (E&P) Ltd.	Drenthe IV	7	18-07-2007		140
29 Vermilion Energy Netherlands B.V. Parkmead (E&P) Ltd.	Drenthe V	25	20-06-2015		18 037
30 Vermilion Energy Netherlands B.V. Parkmead (E&P) Ltd.	Drenthe VI	363	20-06-2015		18 037
31 Vermilion Energy Netherlands B.V.	Gorredijk	629	29-07-1989	31-12-2039	145
32 Vermilion Energy Netherlands B.V.	Leeuwarden	276	27-02-1969		46
33 Vermilion Energy Netherlands B.V.	Marknesse	19	26-01-2010	09-03-2030	1 446
34 Vermilion Energy Netherlands B.V.	Oosterend	69	05-09-1985		84
35 Vermilion Energy Netherlands B.V. Parkmead (E&P) Ltd.	Papekop	35	08-06-2006	19-07-2031	113
36 Vermilion Energy Netherlands B.V.	Slootdorp	99	01-05-1969		94
37 Vermilion Energy Netherlands B.V.	Steenwijk	99	16-09-1994	16-09-2029	177
38 Vermilion Energy Netherlands B.V.	Tietjerksteradeel II	251	25-01-2018		5 149
39 Vermilion Energy Netherlands B.V.	Waalwijk	101	17-08-1989	31-12-2035	154
40 Vermilion Energy Netherlands B.V.	Zuid-Friesland III	105	09-03-2010	19-04-2030	4 016
41 Vermilion Energy Netherlands B.V.	Zuidwal	6	07-11-1984		190
	Total	13,201			

I. Subsurface storage licences, Land

As at 1 January 2023

Licence holder	Licence	km ²	Effective from	Effective till	Gov. gazette	Substance
1 EnergyStock B.V. Nobian Salt B.V.	Zuidwending	1	11-04-2006	11-04-2036	77	Natural gas
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	Natural gas
5 Nederlandse Aardolie Maatschappij B.V.	Norg	81	01-04-2003		68	Natural gas
6 Nobian Salt B.V.	Twenthe-Rijn de Marssteden	2	02-10-2010	12-11-2040	15 650	Diesel oil
7 Nobian 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	Natural gas
9 TAQA Piek Gas B.V. Dana Petroleum Netherlands B.V. RockRose (NL) CS1 B.V.	Alkmaar	12	01-04-2003		68	Natural gas
	Total	175				

J. Exploration licences for geothermal energy, Land

As at 1 January 2023

	Licence holder	Licence	km ²	Effective from	Effective till	Gov. gazette
1	Aardyn B.V.	Bommelerwaard 2	53	13-03-2021	23-04-2025	13 788
2	Aardyn B.V. GeoMEC-4P Realisatie & Exploitatie B.V.	Brielle 2	25	13-10-2009	30-11-2025	15 990
3	Aardyn B.V.	Delft-Abtswoude	12	10-06-2021	21-07-2025	33 918
4	Aardyn B.V. Haagse Aardwarmte Leyweg B.V.	Den Haag 4a	59	04-02-2021	12-11-2023	6 428
5	Aardyn B.V. Haagse Aardwarmte Leyweg B.V.	Den Haag 6a	23	04-02-2021	30-10-2023	6 426
6	Aardyn B.V. Haagse Aardwarmte Leyweg B.V. Eneco Warmte & Koude B.V.	Nootdorp-Oost 2	6	13-02-2020	16-10-2023	11 275
7	Aardyn B.V.	Rotterdam 4	20	18-12-2012	06-11-2024	2013/208
8	Aardyn B.V. Gemeente Rotterdam Shell Geothermal B.V.	Rotterdam-Stad	69	26-09-2020	06-11-2028	50 991
9	Aardyn B.V. Geothermie Brabant B.V.	Someren	105	18-07-2020	28-08-2024	39 740
10	Aardyn B.V. Izzy Projects B.V.	Terheijden 2	23	12-01-2021	22-02-2025	2 223
11	Aardyn B.V. GeoMEC-4P Realisatie & Exploitatie B.V.	Vierpolders	5	10-02-2010	30-12-2025	2 211
12	Aardyn B.V. Geothermie Brabant B.V.	West-Brabant	405	13-12-2019	23-01-2024	69 491
13	Aardyn B.V. Haagse Aardwarmte Leyweg B.V. Eneco Warmte & Koude B.V.	Ypenburg 1a	32	31-03-2022	16-10-2023	9 359
14	Ammerlaan Geothermie B.V.	Pijnacker-Nootdorp 4b	< 1	31-03-2022	16-10-2023	9 359
15	Ammerlaan Geothermie B.V.	Pijnacker-Nootdorp 4c	< 1	31-03-2022	29-06-2023	9 358
16	DDGeothermie Sneek B.V.	Sneek	53	16-01-2019	31-12-2027	3 279
17	Geothermie Delft B.V.	Pijnacker-Nootdorp 6b *2	9	31-03-2022	29-06-2023	9 358
18	Eavor Europe B.V.	Leiden 2	96	18-08-2021	28-09-2024	39 080
19	Eavor Europe B.V.	Purmerend 2	49	09-11-2021	20-12-2024	46 524
20	ECW Geoholding B.V.	Middenmeer 4	59	17-02-2018	30-03-2024	12 045
21	EnergieWende B.V. De Bruijn Geothermie B.V.	De Lier 8	10	10-04-2019	03-09-2023	21 093

Licence holder	Licence	km ²	Effective from	Effective till	Gov. gazette
22 EnergieWende B.V. De Bruijn Geothermie B.V.	De Lier VI	10	05-09-2019	16-10-2023	49 901
23 ENGIE Energy Solutions B.V. Gemeente Haarlem	Haarlem-Schalkwijk	100	17-05-2019	27-06-2024	28 683
24 ENGIE Energy Solutions B.V.	Rotterdam Prins Alexander	20	15-02-2021	26-03-2024	8 459
25 ENGIE Energy Solutions B.V. Shell Geothermal B.V.	Rotterdam-Bar	222	21-01-2021	03-03-2024	3 725
26 ENGIE Energy Solutions B.V.	Utrecht	263	30-10-2019	10-12-2023	59 865
27 ENGIE Energy Solutions B.V.	Wellerlooi	20	20-05-2021	30-06-2024	33 270
28 Ennatuurlijk B.V.	Breda-Moerdijk 1	96	11-11-2022	22-12-2028	30 920
29 Ennatuurlijk B.V.	Eindhoven 2	66	19-10-2021	29-11-2024	44 559
30 FrieslandCampina Consumer Products International B.V.	Leeuwarden 5	158	14-03-2018	21-03-2027	15 509
31 Gedeputeerde Staten van Overijssel	Koekoekspolder 2	23	06-10-2022	31-12-2023	27 241
32 Gemeente Zwolle	Zwolle	74	23-12-2017	02-02-2024	2018/202
33 GeoPower Exploitatie B.V.	Maasland 6	7	18-04-2020	29-05-2023	23 010
34 GeoPower Exploitatie B.V.	Maasland 8	1	03-02-2022	28-02-2023	9 879
35 GeoPower Exploitatie B.V.	Maasland 9	1	21-10-2021	30-11-2023	47 926
36 N.V. HVC	Alkmaar	32	17-10-2018	27-11-2026	65 375
37 N.V. HVC	Den Helder	21	14-11-2018	27-12-2026	65 384
38 N.V. HVC	Drechtsteden	27	05-02-2019	18-03-2027	11 074
39 N.V. HVC	Hoorn	75	08-07-2021	18-08-2026	35 518
40 N.V. HVC	Lelystad	20	14-11-2018	27-12-2026	67 020
41 N.V. HVC	Velsen	40	18-12-2018	28-01-2023	73 447
42 HVC Aardwarmte Maasdijk B.V.	Maasdijk 2 * ²	4	25-10-2019	05-12-2024	59 321
43 HVC Aardwarmte Maasdijk B.V.	Maasdijk 3 * ²	5	21-10-2021		47 926
44 HVC Aardwarmte Maasdijk B.V.	Maasdijk 4 * ²	6	03-02-2022	28-02-2023	9 879
45 HVC Aardwarmte Maasdijk B.V.	Westland-Zuidwest 1a * ²	51	27-01-2021	11-04-2023	4 791
46 HVC Aardwarmte Polanen B.V.	Monster 2 * ²	9	26-10-2018		65 345
47 HVC Aardwarmte Polanen B.V.	Naaldwijk 5 * ²	1	02-08-2022		20 873
48 HVC Aardwarmte Wippolderlaan B.V.	Den Hoorn	8	21-01-2020	02-03-2024	4 906
49 HVC Aardwarmte Wippolderlaan B.V.	Kwintshuil 2	3	19-07-2019	31-05-2024	41 655
50 HVC Aardwarmte Wippolderlaan B.V.	Wateringen 1	1	04-02-2021	12-11-2023	6 428
51 HVC Aardwarmte Wippolderlaan B.V.	Wateringen 2	< 1	04-02-2021	30-10-2023	6 426
52 IPS Geothermal Energy B.V.	Zoetermeer 2	15	30-10-2021	10-12-2025	45 551
53 Aardwarmtecluster I KKP B.V.	Kampen 2	5	06-10-2022	31-12-2023	27 241
54 Aardwarmte Klazienaveen B.V.	Klazienaveen	61	27-10-2010	31-12-2023	17 245
55 Aardwarmte Klazienaveen B.V.	Klazienaveen 2	15	01-02-2021	31-12-2023	5 543
56 Larderel Energy B.V.	Eemland	196	11-09-2020	23-10-2023	48 120
57 Geocombinatie Leeuwarden B.V.	Leeuwarden	27	28-10-2014	08-12-2026	31 137
58 Geothermie Plukmade B.V.	Made 2	53	28-05-2019	08-07-2023	30 925
59 Provincie Drenthe Gemeente Emmen	Erica	72	27-10-2010	06-12-2023	17 250
60 Shell Geothermal B.V.	Capelle aan den IJssel	40	09-02-2021	22-03-2026	7 578

Licence holder	Licence	km ²	Effective from	Effective till	Gov. gazette
Eneco Warmte & Koude B.V.					
61 Shell Geothermal B.V.	Drachten 3	28	27-10-2021	02-06-2024	45 234
62 Shell Geothermal B.V. D4 B.V.	Rijnland	235	25-08-2021	05-10-2027	39 442
63 Shell Geothermal B.V. ENGIE Energy Solutions B.V.	Rotterdam 7	70	21-01-2021	03-03-2024	3 720
64 Shell Geothermal B.V. Havenbedrijf Rotterdam N.V.	Rotterdam-Haven	245	10-01-2020	20-02-2024	2 717
65 Tellus Nijmegen B.V.	Nijmegen	193	14-04-2021	25-05-2026	19 746
66 Tellus Renkum B.V.	Renkum	433	14-07-2020	24-08-2025	38 613
67 Tullip Energy Exploration & Development B.V. Duurzaam Opwekken Amersfoort B.V.	Amersfoort	33	11-09-2020	23-10-2023	48 119
68 Tullip Energy Exploration & Development B.V. MPD Groene Energie B.V.	Ede	40	05-06-2020	16-07-2024	31 394
69 Tullip Energy Exploration & Development B.V. Energie Transitie Support B.V. Provenance Exploration Consultancy B.V.	Oss	41	14-06-2022	25-07-2026	16 167
70 Visser & Smit Hanab B.V. ENGIE Energy Solutions B.V.	Brakel-Zuidoost	27	13-03-2021	23-04-2024	13 789
71 Aardwarmte Vogelaer B.V.	Poeldijk 2 * ²	3	19-09-2019		52 379
72 Duurzaam Voorne Holding B.V.	Nissewaard 2	76	16-10-2021	26-11-2025	44 345
73 WarmteStad B.V.	Groningen 2 *	18	16-04-2011		7 134
74 Wayland Energy B.V.	Bleiswijk 6 * ²	11	08-01-2019		1 507
75 Wayland Energy B.V.	Leiden 3	31	18-08-2021	28-09-2025	39 081
76 Wayland Energy B.V.	Zoetermeer	23	30-10-2021	10-12-2025	45 549
77 Wayland Energy B.V.	Zuidplas 2	53	25-08-2021	20-08-2024	39 440
78 Yeager Energy B.V.	Nissewaard	68	16-10-2021	26-11-2025	44 344
79 Yeager Energy B.V.	Oude Rijn	89	18-08-2021	28-09-2025	39 083
80 Yeager Energy B.V.	Purmerend 3	55	09-11-2021	20-12-2025	46 526
	Total	4,733			

* Applied for extension.

*² Applied for a production licence.

K. Production licences for geothermal energy, Land

As at 1 January 2023

Licence holder	Licence	km ²	Effective from	Effective till	Gov. gazette
1 Aardyn B.V. Haagse Aardwarmte Leyweg B.V.	Den Haag	10	16-04-2020	27-05-2023	22 460
2 Aardyn B.V. Duurzaam Voorne Holding B.V.	Oostvoorne	17	03-12-2020	12-01-2024	64 446
3 Aardyn B.V. GeoMEC-4P Realisatie & Exploitatie B.V.	Vierpolders	6	21-06-2017	01-08-2052	36 194
4 Ammerlaan Geothermie B.V.	Pijnacker-Nootdorp 4	4	24-12-2016	03-02-2052	3 132
5 Ce-Ren Beheer B.V.	Heemskerk	3	15-04-2016	26-05-2046	20 802
6 Gebroeders Duijvestijn Energie B.V.	Pijnacker-Nootdorp 5	5	24-12-2016	03-02-2052	3 136
7 ECW Geo Andijk B.V.	Andijk	5	24-05-2019	04-07-2054	30 715
8 ECW Geo Middenmeer B.V.	Middenmeer I	5	05-02-2019	18-03-2054	11 105
9 ECW Geo Middenmeer B.V.	Middenmeer II	3	05-02-2019	18-03-2054	13 570
10 ECW Geoholding B.V.	Middenmeer III	14	03-08-2022	13-09-2024	
11 EnergieWende B.V. De Bruijn Geothermie B.V.	De Lier	6	14-07-2016	24-08-2051	38 394
12 GeoPower Exploitatie B.V.	Maasland	5	08-01-2019	18-02-2054	1 501
13 Green Well Westland B.V.	Honselersdijk	3	02-07-2019	12-08-2054	41 236
14 Hoogweg Aardwarmte B.V.	Luttelgeest	6	24-05-2019	04-07-2052	30 998
15 Hoogweg Aardwarmte B.V.	Luttelgeest III	53	13-01-2022	23-02-2024	1 730
16 IPS Geothermal Energy B.V. 85 Degrees Renewables 1 & 2 B.V.	Bleiswijk	4	28-11-2008	08-01-2039	237
17 IPS Geothermal Energy B.V. Fānqié Noordeinde Vastgoed B.V.	Bleiswijk 1b	2	20-03-2015	30-04-2032	8 784
18 Aardwarmtecluster I KKP B.V.	Kampen	5	27-09-2014	07-11-2044	28 239
19 Geocombinatie Leeuwarden B.V.	Leeuwarden I	3	21-04-2021	01-06-2023	21 237
20 Californië Lipzig Gielen Geothermie B.V.	Californië V	5	06-07-2017	16-08-2052	39 833
21 Aardwarmte Combinatie Luttelgeest B.V.	Luttelgeest II	25	03-12-2020	22-10-2023	64 901
22 Mijwater Energy B.V.	Heerlen	41	13-10-2009	23-11-2044	15 963
23 Nature's Heat B.V.	Kwintsheul	3	19-07-2019	29-08-2054	41 655
24 Trias Westland B.V.	Naaldwijk	5	20-12-2019	30-01-2050	70 986
25 Trias Westland B.V.	Naaldwijk II	5	05-03-2021	15-04-2023	12 014-n1
26 Visser & Smit Hanab B.V. GeoBrothers B.V.	Zevenbergen	3	18-12-2019	28-01-2053	70 528
27 Aardwarmte Vogelaer B.V.	Poeldijk	5	31-08-2017	11-10-2052	52 090
28 Wayland Energy B.V.	Lansingerland II	7	14-09-2021	25-10-2023	41 276

Licence holder	Licence	km ²	Effective from	Effective till	Gov. gazette
29 Wayland Energy B.V.	Nootdorp-Oost I	11	01-07-2022	11-08-2024	18 668
30 Wayland Energy B.V.	Nootdorp-Oost II	5	20-07-2022	30-08-2024	19 772
31 Wayland Energy Bergschenhoek B.V.	Lansingerland	5	08-01-2019	18-02-2054	3 389
32 Californië Wijnen Geothermie B.V. GeoWeb B.V.	Californie IV	4	06-07-2017	16-08-2052	39 843
	Total	283			

L. Exploration licences for rock salt, Land

As at 1 January 2023

No ongoing exploration licences as at 1 January 2023.

M. Production licences for rock salt, Land

As at 1 January 2023

	Licence holder	Licence	km ²	Effective from	Effective till	Gov. gazette
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	Nobian Salt B.V.	Adolf van Nassau III	28	16-11-2010		18 324
7	Nobian Salt B.V.	Buurse	30	18-06-1918		Staatsblad 421
8	Nobian Salt B.V.	Isidorushoeve	20	08-06-2012	19-07-2052	14 668
9	Nobian Salt B.V.	Twenthe-Rijn	48	20-10-1933		207
10	Nobian Salt B.V.	Twenthe-Rijn Helmerzijde	1	29-10-2008	09-12-2048	216
11	Nobian Salt B.V.	Twenthe-Rijn Oude Maten	1	01-06-2013	12-07-2053	18 332
12	Nobian Salt B.V.	Uitbreiding Adolf van Nassau II	1	21-12-2009		81
	EnergyStock B.V.					
13	Nobian Salt B.V.	Uitbreiding Adolf van Nassau III	77	21-12-2009		81
14	Nobian Salt B.V.	Uitbreiding Twenthe-Rijn	9	01-12-1994		249
15	Nobian 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, Land

As at 1 January 2023

	Licence holder	Licence	Effective from	km ²	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, Sea

As at 1 January 2023

	Licence holder	Licence	km ²	Effective from	Effective till	Gov. gazette
1	Jetex Petroleum Ltd	P08b	105	07-10-2016	31-12-2024	52 818
2	Jetex Petroleum Ltd	P10c	249	21-07-2016	31-12-2024	38 277
3	Kistos NL2 B.V.	Q08, Q10b & Q11 *	758	29-09-2018		56 679
4	Nederlandse Aardolie Maatschappij B.V.	B16b, B17, E03a, E06a, F01 & F02b	1,366	23-07-2020	02-09-2025	40 590
5	Nederlandse Aardolie Maatschappij B.V. Neptune Energy Netherlands B.V. RockRose (NL) CS5 B.V.	F04a	178	24-02-2022	02-09-2025	6 678-n1
6	Nederlandse Aardolie Maatschappij B.V. ONE-Dyas B.V. RockRose (NL) CS5 B.V. Wintershall Noordzee B.V.	J09 *	18	11-04-2014		10 508
7	Neptune Energy Netherlands B.V.	E07	400	04-09-2015	16-10-2023	27 592
8	Neptune Energy Netherlands B.V. Gas Plus Netherlands B.V. RockRose (NL) CS5 B.V.	E15c	113	22-04-2008	31-12-2023	78
9	Neptune Energy Netherlands B.V.	G13b	16	03-07-2019	22-08-2024	36 563n
10	Neptune Energy Netherlands B.V. Nederlandse Aardolie Maatschappij B.V.	L03	406	13-05-2016	30-06-2024	24 426
11	Neptune Energy Netherlands B.V.	L07e & L08f	41	12-04-2022	23-05-2026	10 390
12	ONE-Dyas B.V. Dana Petroleum Netherlands B.V.	F06b *	260	07-04-2009		70
13	ONE-Dyas B.V.	F06c & F06d *	129	18-10-2019	28-11-2023	56 147
14	ONE-Dyas B.V.	M02a & M02b *2	63	22-11-2011		1 486
15	ONE-Dyas B.V. Hansa Hydrocarbons Limited	M03b & N01a	183	23-12-2022	31-12-2025	35 377
16	ONE-Dyas B.V.	M04a *2	121	21-09-2010		14 900
17	Petrogas E&P Netherlands B.V. RockRose (NL) CS1 B.V. TAQA Offshore B.V.	B16a *	67	11-05-1987		70
18	Wintershall Noordzee B.V. Neptune Energy Netherlands B.V. Rosewood Exploration Ltd. TAQA Offshore B.V.	F10	401	19-12-2014	30-12-2023	36 868
19	Wintershall Noordzee B.V. Neptune Energy Netherlands B.V. Rosewood Exploration Ltd. TAQA Offshore B.V.	F11a	60	19-12-2014	30-12-2023	36 868

Licence holder	Licence	km ²	Effective from	Effective till	Gov. gazette
20 Wintershall Noordzee B.V. Neptune Energy Netherlands B.V. Rosewood Exploration Ltd.	F18b-diep	31	30-12-2009	30-12-2023	152
	Total	4,965			

* Applied for a production licence.

*² Prolongation based on preliminary provision.

P. Production licences for hydrocarbons, Sea

As at 1 January 2023

	Licence holder	Licence	km ²	Effective from	Effective till	Gov. gazette
1	Dana Petroleum Netherlands B.V. ONE-Dyas B.V. RockRose (NL) CS1 B.V. TAQA Offshore B.V.	F02a	245	24-08-1982	31-12-2042	139
2	Dana Petroleum Netherlands B.V. Neptune Energy Netherlands B.V. TAQA Offshore B.V.	F03c	291	15-04-2020	08-03-2023	22 283-n1
3	Dana Petroleum Netherlands B.V.	P10a	5	31-05-2005	31-12-2027	102
4	Dana Petroleum Netherlands B.V.	P10b	100	07-04-2009	31-12-2027	70
5	Dana Petroleum Netherlands B.V.	P11b	210	03-04-2004	31-12-2027	67
6	Kistos NL2 B.V.	Q07 & Q10a	472	14-07-2017	24-08-2042	41 910
7	Nederlandse Aardolie Maatschappij B.V.	F17c	18	04-12-1996	04-12-2024	207
8	Nederlandse Aardolie Maatschappij B.V.	K07	408	08-07-1981	31-12-2030	120
9	Nederlandse Aardolie Maatschappij B.V. ONE-Dyas B.V. RockRose (NL) CS5 B.V. Wintershall Noordzee B.V.	K08 & K11a	435	26-10-1977	31-12-2030	197
10	Nederlandse Aardolie Maatschappij B.V.	K14a	125	16-01-1975	31-12-2030	6
11	Nederlandse Aardolie Maatschappij B.V.	K15	412	14-10-1977	31-12-2030	197
12	Nederlandse Aardolie Maatschappij B.V.	K17a	200	19-01-1989	19-01-2029	12
13	Nederlandse Aardolie Maatschappij B.V. Wintershall Noordzee B.V.	K18a	36	15-03-2007	09-05-2023	57
14	Nederlandse Aardolie Maatschappij B.V.	L02	406	15-03-1991	15-03-2031	55
15	Nederlandse Aardolie Maatschappij B.V.	L09	409	18-09-2010	09-05-2035	14 911
16	Nederlandse Aardolie Maatschappij B.V. ONE-Dyas B.V. RockRose (NL) CS5 B.V. Wintershall Noordzee B.V.	L13	413	26-10-1977	31-12-2030	197
17	Nederlandse Aardolie Maatschappij B.V. ExxonMobil Producing Netherlands B.V.	M09a	213	10-04-1990	10-04-2030	56
18	Nederlandse Aardolie Maatschappij B.V.	N07a	141	23-12-2003	10-03-2034	252
19	Neptune Energy Netherlands B.V. DNO North Sea (U.K.) limited Wintershall Noordzee B.V.	D15a	63	06-09-1996	05-09-2028	138
20	Neptune Energy Netherlands B.V. DNO North Sea (U.K.) limited Wintershall Noordzee B.V.	D18a	58	29-08-2012	09-10-2032	19 757

	Licence holder	Licence	km ²	Effective from	Effective till	Gov. gazette
21	Neptune Energy Netherlands B.V. TotalEnergies EP Nederland B.V. Vermilion Energy Netherlands B.V.	E16a	29	29-06-2007	09-08-2032	128
22	Neptune Energy Netherlands B.V. TotalEnergies EP Nederland B.V. Vermilion Energy Netherlands B.V.	E17a & E17b	114	28-06-2007	08-08-2032	128
23	Neptune Energy Netherlands B.V. TAQA Offshore B.V.	F03b	44	15-04-2020	31-12-2047	22 283-n1
24	Neptune Energy Netherlands B.V. Nederlandse Aardolie Maatschappij B.V. TAQA Offshore B.V.	G14a & G17b	193	15-12-2006	31-12-2035	248
25	Neptune Energy Netherlands B.V.	G16a	133	06-01-1992	06-01-2032	245
26	Neptune Energy Netherlands B.V.	G17a	48	28-12-2020	14-12-2026	1 763
27	Neptune Energy Netherlands B.V. Wintershall Noordzee B.V.	G17c & G17d	130	10-11-2000	10-11-2025	188
28	Neptune Energy Netherlands B.V.	K02b	110	20-01-2004	24-08-2023	16
29	Neptune Energy Netherlands B.V.	K03a	83	24-08-1998	24-08-2023	122
30	Neptune Energy Netherlands B.V.	K03c	32	26-11-2005	31-12-2025	233
31	Neptune Energy Netherlands B.V. ONE-Dyas B.V. Rosewood Exploration Ltd. XTO Netherlands Ltd.	K09a & K09b	90	11-08-1986	11-08-2026	129
32	Neptune Energy Netherlands B.V. ONE-Dyas B.V. Rosewood Exploration Ltd. XTO Netherlands Ltd.	K09c & K09d	147	18-12-1987	18-12-2027	229
33	Neptune Energy Netherlands B.V. ONE-Dyas B.V. Production North Sea Netherlands Ltd. Rosewood Exploration Ltd. XTO Netherlands Ltd.	K12a	267	18-02-1983	18-02-2023	11
34	Neptune Energy Netherlands B.V.	L01c	12	17-01-2020	14-03-2031	16 108
35	Neptune Energy Netherlands B.V.	L04c	12	07-01-1994	07-01-2034	2
36	Neptune Energy Netherlands B.V.	L05a	163	15-03-1991	15-03-2031	55
37	Neptune Energy Netherlands B.V.	L07d	6	17-02-2021	20-06-2033	8 975
38	Neptune Energy Netherlands B.V. Neptune Energy Participation Netherlands B.V. ONE-Dyas B.V. Rosewood Exploration Ltd. XTO Netherlands Ltd.	L10 & L11a	499	13-01-1971	01-01-2025	4
39	Neptune Energy Netherlands B.V. Mercuria Hydrocarbons B.V. ONE-Dyas B.V.	L12a	119	25-09-2008	14-03-2030	189

Licence holder	Licence	km ²	Effective from	Effective till	Gov. gazette
Wintershall Noordzee B.V.					
40 Neptune Energy Netherlands B.V.	L12b & L15b	92	06-08-2008	12-03-2030	155
Mercuria Hydrocarbons B.V.					
Wintershall Noordzee B.V.					
41 Neptune Energy Netherlands B.V.	L15c	4	07-09-1990	07-09-2030	172
42 Neptune Energy Netherlands B.V.	N07b	87	14-02-2015	09-03-2034	5 845
Rosewood Exploration Ltd.					
XTO Netherlands Ltd.					
43 Neptune Energy Netherlands B.V.	Q13a	30	28-11-2006	31-12-2034	231
Aceiro Energy B.V.					
TAQA Offshore B.V.					
44 ONE-Dyas B.V.	L11b	47	15-06-1984	15-06-2024	110
45 ONE-Dyas B.V.	L11c	7	21-12-2018	24-08-2031	143
46 ONE-Dyas B.V.	L11d	172	21-12-2018	24-08-2031	143
Neptune Energy Netherlands B.V.					
47 ONE-Dyas B.V.	M01a & M01c	54	28-06-2007	07-06-2025	128
48 ONE-Dyas B.V.	M07a	64	22-03-2001	31-12-2035	19
TAQA Offshore B.V.					
49 ONE-Dyas B.V.	N04, N05 & N08	430	25-07-2019	04-09-2049	42 716
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	6	23-09-2015	03-11-2025	45 676
TAQA Offshore B.V.					
52 ONE-Dyas B.V.	P18b	37	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	28	29-12-1992	29-12-2032	227
TotalEnergies EP Nederland B.V.					
55 ONE-Dyas B.V.	Q16c-diep	21	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	132	01-07-2005	31-12-2039	129
RockRose (NL) CS1 B.V.					
TAQA Offshore B.V.					
59 Petrogas E&P Netherlands B.V.	A12b & B10a	79	03-02-2022	16-03-2037	3 997
RockRose (NL) CS1 B.V.					
TAQA Offshore B.V.					
60 Petrogas E&P Netherlands B.V.	A12d	33	01-07-2005	31-12-2034	129

Licence holder	Licence	km ²	Effective from	Effective till	Gov. gazette
RockRose (NL) CS1 B.V. TAQA Offshore B.V.					
61 Petrogas E&P Netherlands B.V. RockRose (NL) CS1 B.V.	A15a	67	27-12-2011	31-12-2039	746
62 Petrogas E&P Netherlands B.V. RockRose (NL) CS1 B.V. TAQA Offshore B.V.	A18a	110	01-07-2005	31-12-2039	129
63 Petrogas E&P Netherlands B.V. RockRose (NL) CS1 B.V.	A18c	47	01-07-2005	31-12-2034	125
64 Petrogas E&P Netherlands B.V. RockRose (NL) CS1 B.V. TAQA Offshore B.V.	B10c & B13a	252	01-07-2005	31-12-2039	129
65 Petrogas E&P Netherlands B.V. Aceiro Energy B.V.	P09a	17	16-08-1993	16-08-2033	127
66 Petrogas E&P Netherlands B.V.	P09c	18	16-08-1993	16-08-2033	126
67 Petrogas E&P Netherlands B.V.	Q01a-ondiep & Q01b-ondiep	43	23-12-2017	31-12-2023	193
68 Petrogas E&P Netherlands B.V. RockRose (NL) CS1 B.V.	Q02c	32	14-07-1994	14-07-2034	18
69 Spirit Energy Nederland B.V. RockRose (NL) CS1 B.V. TotalEnergies EP Nederland B.V.	J03b & J06a	47	06-11-1992	06-11-2032	219
70 TAQA Offshore B.V. Dana Petroleum Netherlands B.V. ONE-Dyas B.V. RockRose (NL) CS1 B.V. Wintershall Noordzee B.V.	P15a, P15b, P15d, P15e & P15f	119	12-07-1984	12-07-2024	110
71 TAQA Offshore B.V. Dana Petroleum Netherlands B.V. ONE-Dyas B.V. RockRose (NL) CS1 B.V. Wintershall Noordzee B.V.	P15c, P15g, P15h, P15i & P15j	34	07-05-1992	07-05-2032	114
72 TAQA Offshore B.V.	P18a	105	30-04-1992	30-04-2032	99
73 TAQA Offshore B.V. Dana Petroleum Netherlands B.V. RockRose (NL) CS1 B.V.	P18c	6	02-06-1992	02-06-2032	99
74 TotalEnergies EP Nederland B.V. ONE-Dyas B.V. TAQA Offshore B.V.	F06a	8	09-09-1982	31-12-2042	139
75 TotalEnergies EP Nederland B.V. RockRose (NL) CS1 B.V. Vermilion Energy Netherlands B.V.	F15a	53	06-05-1991	06-05-2031	52
76 TotalEnergies EP Nederland B.V.	J03a	30	12-01-1996	12-01-2036	22

Licence holder	Licence	km ²	Effective from	Effective till	Gov. gazette
Nederlandse Aardolie Maatschappij B.V.					
77 TotalEnergies EP Nederland B.V.	K01a	40	10-02-1997	31-12-2034	46
Nederlandse Aardolie Maatschappij B.V.					
78 TotalEnergies EP Nederland B.V.	K02c	42	21-01-2004	31-12-2036	16
79 TotalEnergies EP Nederland B.V.	K03b	7	30-01-2001	20-06-2033	19
Vermilion Energy Netherlands B.V.					
80 TotalEnergies EP Nederland B.V.	K04a	209	29-12-1993	29-12-2033	220
81 TotalEnergies EP Nederland B.V.	K04b & K05a	229	01-06-1993	01-06-2033	87
RockRose (NL) CS1 B.V.					
Vermilion Energy Netherlands B.V.					
82 TotalEnergies EP Nederland B.V.	K05b & K05c	136	07-11-1996	31-12-2023	207
83 TotalEnergies EP Nederland B.V.	K06a, K06b, L07a, L07b & L07c	415	17-02-2021	20-06-2033	8 975
Vermilion Energy Netherlands B.V.					
84 TotalEnergies EP Nederland B.V.	L01a	31	12-09-1996	31-12-2023	135
SGPO Van Dyke B.V.					
85 TotalEnergies EP Nederland B.V.	L01d	7	13-11-1996	31-12-2023	207
86 TotalEnergies EP Nederland B.V.	L01e	12	13-11-1996	31-12-2027	207
Vermilion Energy Netherlands B.V.					
87 TotalEnergies EP Nederland B.V.	L01f	17	14-01-2003	14-01-2033	235
Vermilion Energy Netherlands B.V.					
88 TotalEnergies EP Nederland B.V.	L04a & L04b	141	30-12-1981	20-06-2033	230
Vermilion Energy Netherlands B.V.					
89 Wintershall Noordzee B.V.	D12a	214	06-09-1996	31-12-2031	138
Neptune Energy Participation Netherlands B.V.					
90 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.					
91 Wintershall Noordzee B.V.	E18a	1	04-10-2002	21-10-2032	175
Dana Petroleum Netherlands B.V.					
Neptune Energy Netherlands B.V.					
RockRose (NL) CS5 B.V.					
92 Wintershall Noordzee B.V.	F16a & F16b	18	04-10-2002	21-10-2032	175
Neptune Energy Netherlands B.V.					
93 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.					
94 Wintershall Noordzee B.V.	K18b *	155	15-03-2007	09-05-2023	57
Nederlandse Aardolie Maatschappij B.V.					
RockRose (NL) CS1 B.V.					
95 Wintershall Noordzee B.V.	L05b	237	28-06-2003	09-08-2038	134
Dana Petroleum Netherlands B.V.					

	Licence holder	Licence	km ²	Effective from	Effective till	Gov. gazette
96	Wintershall Noordzee B.V. Dana Petroleum Netherlands B.V.	L05c	8	03-12-1996	31-12-2028	209
97	Wintershall Noordzee B.V. Dana Petroleum Netherlands B.V.	L06a	332	24-11-2010	04-01-2031	18 910
98	Wintershall Noordzee B.V. Dana Petroleum Netherlands B.V.	L06b	60	01-07-2003	11-08-2038	134
99	Wintershall Noordzee B.V. ONE-Dyas B.V.	L08a & L08c	44	18-08-1988	18-08-2028	146
100	Wintershall Noordzee B.V. Dana Petroleum Netherlands B.V. ONE-Dyas B.V.	L08b, L08d & L08e	69	17-05-1993	17-05-2033	78
101	Wintershall Noordzee B.V. Nederlandse Aardolie Maatschappij B.V. RockRose (NL) CS1 B.V.	L16a *	238	12-06-1984	12-06-2024	84
102	Wintershall Noordzee B.V. RockRose (NL) CS1 B.V.	P06a	21	14-04-1982	31-12-2024	54
103	Wintershall Noordzee B.V. RockRose (NL) CS1 B.V. Vermilion Energy Netherlands B.V.	P12a	4	08-03-1990	08-03-2030	27
104	Wintershall Noordzee B.V. TAQA Offshore B.V.	Q01c-diep	140	23-12-2017	31-12-2030	193
105	Wintershall Noordzee B.V. Mercuria Hydrocarbons B.V. RockRose (NL) CS1 B.V.	Q04a	9	02-12-1999	02-12-2030	228
		Total	12,557			

* Applied for extension.

Q. Subsurface storage licences, Sea

As at 1 January 2023

	Licence holder	Licence	km ²	Effective from	Effective till	Gov. gazette	Substance
1	TAQA Offshore B.V. EBN CCS B.V.	P18-2 *	27	13-07-2022	31-12-2041	18 510	Carbon dioxide
2	TAQA Offshore B.V.	P18-4 * ²	11	01-01-2021	01-01-2041	21 233	Carbon dioxide

* Start storage not before 01-01-2024.

*² Injection expected from 01-01-2026.

R. Blocks and operators, Sea

As at 1 January 2023

Block(part)	Open area (km ²)	Operator	Licence (km ²)	
			Exploration	Production
A04	0			
A05	91			
A07	47			
A08	382			
A09	141			
A10	129			
A11	392			
A12a		Petrogas		132
A12b		Petrogas		31
A12c	194			
A12d		Petrogas		33
A13	211			
A14	393			
A15a		Petrogas		67
A15b	326			
A16	293			
A17	395			
A18a		Petrogas		110
A18b	238			
A18c		Petrogas		47
B10a		Petrogas		48
B10b	85			
B10c		Petrogas		46
B13a		Petrogas		206
B13b	187			
B14	198			
B15	0			
B16a		Petrogas	67	
B16b		NAM	198	
B16c	130			
B17		NAM	395	
B18	199			
D03	2			

Block(part)	Open area (km ²)	Operator	Licence (km ²)	
			Exploration	Production
D06	60			
D09	149			
D12a		Wintershall		214
D12b		Wintershall		41
D15a		Neptune		63
D15b	184			
D18a		Neptune		58
D18b	139			
E01	374			
E02	396			
E03a		NAM	248	
E03b	148			
E04	398			
E05	398			
E06a		NAM	41	
E06b	357			
E07		Neptune	400	
E08	400			
E09	400			
E10	401			
E11	401			
E12	401			
E13	403			
E14	403			
E15a	290			
E15c		Neptune	113	
E16a		Neptune		29
E16b	375			
E17a		Neptune		87
E17b		Neptune		27
E17c	290			
E18a		Wintershall		1
E18b	403			
F01		NAM	396	
F02a		Dana NL		245
F02b		NAM	89	
F02c	62			
F03a	62			
F03b		Neptune		44
F03c		Dana NL		291

Block(part)	Open area (km ²)	Operator	Licence (km ²)	
			Exploration	Production
F04a		NAM	178	
F04b	220			
F05	398			
F06a		Total		8
F06b		ONE-Dyas	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			
F13	403			
F14	403			
F15a		Total		53
F15b	350			
F16a		Wintershall		7
F16b		Wintershall		12
F16c	386			
F17a	(ondiep) 386	Wintershall		(diep) 386
F17c		NAM		18
F18a	373			
F18b	(ondiep) 31	Wintershall	31	
G07	122			
G10	397			
G11	174			
G13a	387			
G13b		Neptune	16	
G14a		Neptune		155
G14b	248			
G15	226			
G16a		Neptune		133
G16b	272			
G17a		Neptune		48
G17b		Neptune		38
G17c		Neptune		34
G17d		Neptune		96
G17e	189			
G18	405			

Block(part)	Open area (km ²)	Operator	Licence (km ²)	
			Exploration	Production
H13	1			
H16	73			
J03a		Total		30
J03b		Spirit		14
J03c	100			
J06a		Spirit		32
J06b	51			
J09		NAM	18	
K01a		Total		40
K01b	366			
K02a	255			
K02b		Neptune		110
K02c		Total		42
K03a		Neptune		83
K03b		Total		7
K03c		Neptune		32
K03d	283			
K04a		Total		209
K04b		Total		69
K04c	25			
K04d	104			
K05a		Total		160
K05b		Total		126
K05c		Total		10
K05d	68			
K05e	44			
K06a		Total		229
K06b		Total		7
K06c	99			
K06d	28			
K06e	45			
K07		NAM		408
K08		NAM		409
K09a		Neptune		44
K09b		Neptune		46
K09c		Neptune		101
K09d		Neptune		46
K09e	172			
K10	374			

Block(part)	Open area (km ²)	Operator	Licence (km ²)	
			Exploration	Production
K11a		NAM		26
K11b	385			
K12a		Neptune		267
K12b	144			
K13	324			
K14a		NAM		125
K14b	287			
K15		NAM		412
K16	267			
K17a		NAM		200
K17b	214			
K18a		NAM		36
K18b		Wintershall		155
K18c	223			
L01a		Total		31
L01b	327			
L01c		Neptune		12
L01d		Total		7
L01e		Total		12
L01f		Total		17
L02		NAM		406
L03		Neptune	406	
L04a		Total		136
L04b		Total		5
L04c		Neptune		12
L04d	255			
L05a		Neptune		163
L05b		Wintershall		237
L05c		Wintershall		8
L06a		Wintershall		332
L06b		Wintershall		60
L06c	16			
L07a		Total		166
L07b		Total		10
L07c		Total		3
L07d		Neptune		6
L07e		Neptune	31	
L07f	194			
L08a		Wintershall		34
L08b		Wintershall		42
L08c		Wintershall		10

Block(part)	Open area (km ²)	Operator	Licence (km ²)	
			Exploration	Production
L08d		Wintershall		16
L08e		Wintershall		10
L08f		Neptune	10	
L08g	133			
L08h	153			
L09		NAM		409
L10		Neptune		411
L11a		Neptune		89
L11b		ONE-Dyas		47
L11c		ONE-Dyas		7
L11d		ONE-Dyas		172
L11e	96			
L12a		Neptune		119
L12b		Neptune		37
L12c	255			
L13		NAM		413
L14	413			
L15a	133			
L15b		Neptune		55
L15c		Neptune		4
L16a		Wintershall		238
L16b	176			
L17	388			
L18	13			
M01a		ONE-Dyas		2
M01b	352			
M01c		ONE-Dyas		52
M02a		ONE-Dyas	28	
M02b		ONE-Dyas	34	
M02c	344			
M03a	358			
M03b		ONE-Dyas	49	
M04a		ONE-Dyas	121	
M04b	287			
M05	408			
M06	408			
M07a		ONE-Dyas		64
M07b	346			
M08	391			
M09a		NAM		213
M09b	158			

Block(part)	Open area (km ²)	Operator	Licence (km ²)	
			Exploration	Production
M10	195			
M11	28			
N01a		ONE-Dyas	134	
N01b	83			
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			
P01	209			
P02	416			
P03	416			
P04	170			
P05	417			
P06a		Wintershall		21
P06b	396			
P07	222			
P08a	314			
P08b		Jetex	105	
P09a		Petrogas		17
P09b	384			
P09c		Petrogas		18
P10a		Dana NL		5
P10b		Dana NL		100
P10c		Jetex	249	
P11a		ONE-Dyas		6
P11b		Dana NL		210
P11c	205			
P12a		Wintershall		4
P12b	416			
P13	422			
P14	422			
P15a		TAQA		51
P15b		TAQA		3

Block(part)	Open area (km ²)	Operator	Licence (km ²)	
			Exploration	Production
P15c		TAQA		2
P15d		TAQA		29
P15e		TAQA		16
P15f		TAQA		20
P15g		TAQA		13
P15h		TAQA		8
P15i		TAQA		1
P15j		TAQA		11
P15k	269			
P16	423			
P17	424			
P18a		TAQA		105
P18b		ONE-Dyas		37
P18c		TAQA		6
P18d		ONE-Dyas		2
P18e	259			
Q01a		Petrogas		(ondiep) 33
Q01b		Petrogas		(ondiep) 10
Q01c		Wintershall		(diep) 140
Q01d	(diep) 10			
Q01e	171			
Q01f	89			
Q01g	(ondiep) 52			
Q01h	(ondiep) 61			
Q01i	(diep) 5			
Q01j	(diep) 1			
Q02a	304			
Q02c		Petrogas		32
Q04a		Wintershall		9
Q04b	408			
Q05	298			
Q07		Kistos		419
Q08		Kistos	244	
Q10a		Kistos		53
Q10b		Kistos	367	
Q11		Kistos	147	
Q13a		Neptune		30
Q13b	367			
Q14	24			
Q16a		ONE-Dyas		28
Q16b	119			

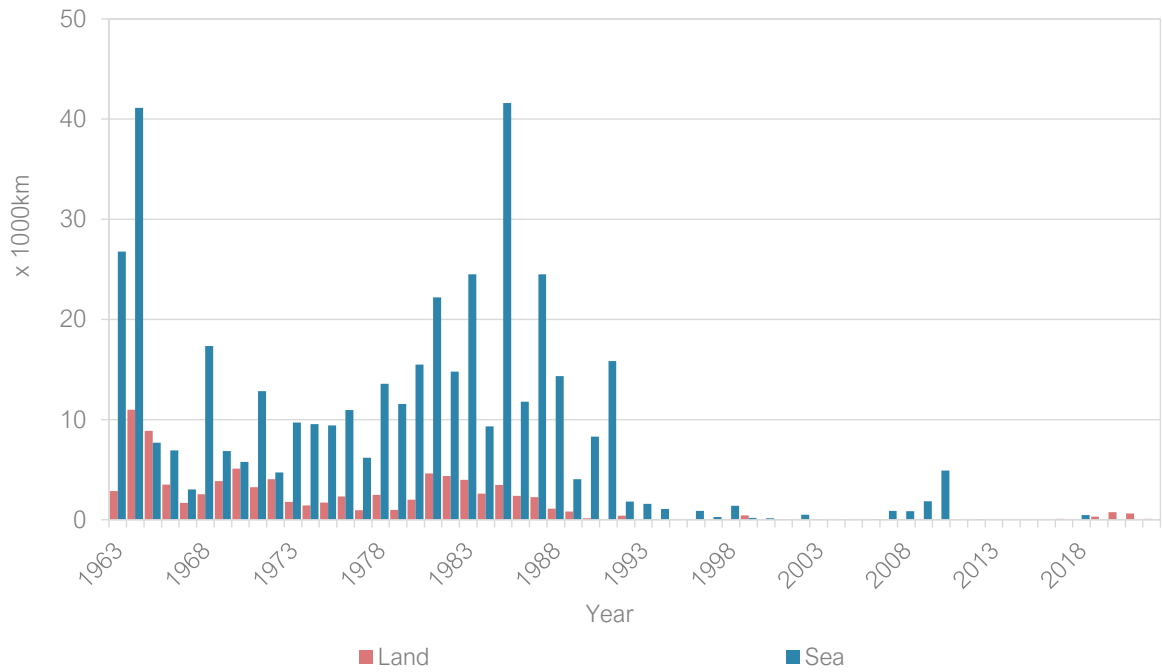
Block(part)	Open area (km ²)	Operator	Licence (km ²)	
			Exploration	Production
Q16c	(ondiep) 7	ONE-Dyas		(diep) 21
R02	103			
R03	425			
R05	7			
R06	311			
R09	28			
S01	425			
S02	425			
S03	224			
S03a		ONE-Dyas		2
S04	427			
S05	349			
S06	10			
S07	360			
S08	95			
S10	36			
S11	0			
T01		ONE-Dyas		1
Total	39,522		4,965	12,557

S. Seismic surveys

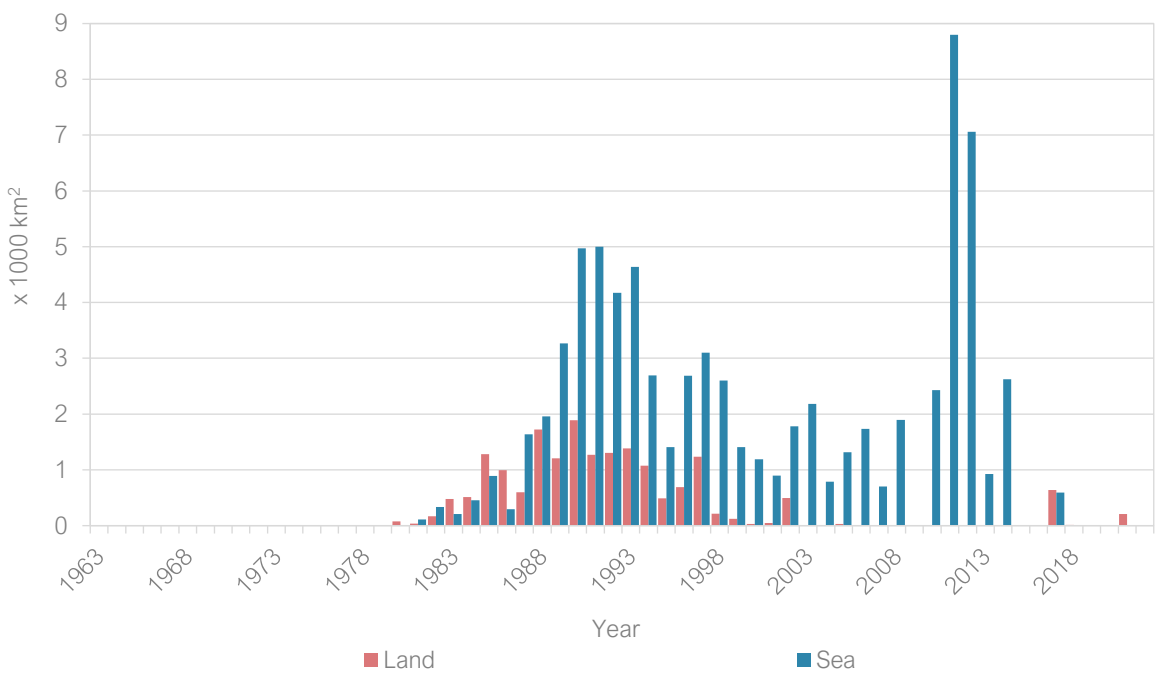
Year	Land		Sea	
	2D (km)	3D (km ²)	2D (km)	3D (km ²)
1963	2,860	-	26,778	-
1964	10,992	-	41,136	-
1965	8,885	-	7,707	-
1966	3,510	-	6,939	-
1967	1,673	-	3,034	-
1968	2,541	-	17,349	-
1969	3,857	-	6,846	-
1970	5,113	-	5,780	-
1971	3,252	-	12,849	-
1972	4,034	-	4,716	-
1973	1,783	-	9,708	-
1974	1,422	-	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

Year	Land		Sea	
	2D (km)	3D (km ²)	2D (km)	3D (km ²)
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	-	-	-
2020	770	-	-	-
2021	636	207	-	-
2022	83	-	-	-

2D seismic surveys 1963 – 2022



3D seismic surveys 1963 – 2022



T. Number of oil and gas wells, Land

Year	Exploration					Appraisal					Production
	O	G	O&G	D	Σ	O	G	O&G	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
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

Year	Exploration					Appraisal					Production
	O	G	O&G	D	Σ	O	G	O&G	D	Σ	Σ
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
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	-	-	-	-	-	-
2020	-	1	-	-	1	-	-	-	-	-	3
2021	-	-	-	-	-	-	2	-	-	2	1
2022	-	-	-	-	-	-	-	-	-	-	-
Total	35	234	19	329	617	30	247	3	37	317	1,777

O = Oil; G = Gas; O&G = Oil and gas; D = Dry; Σ = Total

U. Number of oil and gas wells, Sea

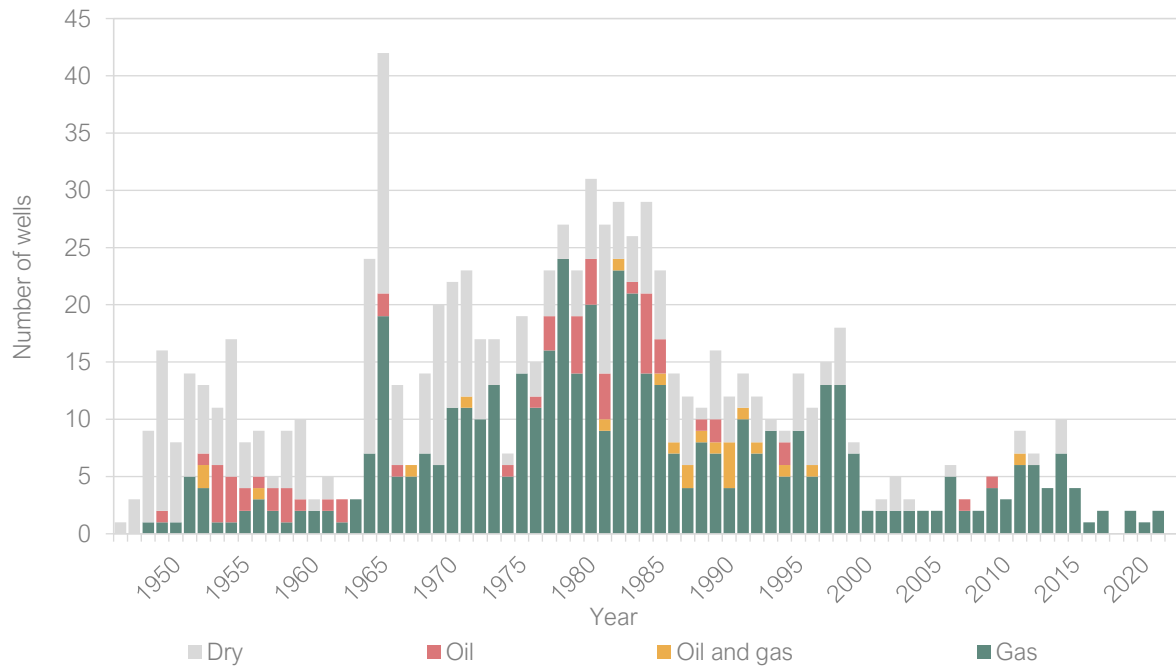
Year	Exploration					Appraisal					Production
	O	G	O&G	D	Σ	O	G	O&G	D	Σ	Σ
1962	-	1	1	1	3	-	-	-	-	-	-
1963	-	-	-	-	-	-	-	-	-	-	-
1964	-	-	-	1	1	-	-	-	-	-	-
1965	-	-	-	-	-	-	-	-	-	-	-
1966	-	-	-	-	-	-	-	-	-	-	-
1967	-	-	-	-	-	-	-	-	-	-	-
1968	-	2	-	5	7	-	-	-	-	-	-
1969	1	8	-	8	17	-	-	-	-	-	-
1970	1	7	-	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
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

Year	Exploration					Appraisal					Production
	O	G	O&G	D	Σ	O	G	O&G	D	Σ	Σ
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	-	3	1	1	5	-	-	-	-	-	6
2019	-	2	-	-	2	-	2	1	-	3	7
2020	-	2	-	-	2	-	-	-	-	-	6
2021	-	1	1	-	2	1	-	-	-	1	6
2022	-	2	1	1	4	2	1	0	0	3	2
Total	53	353	26	372	804	35	117	4	28	184	607

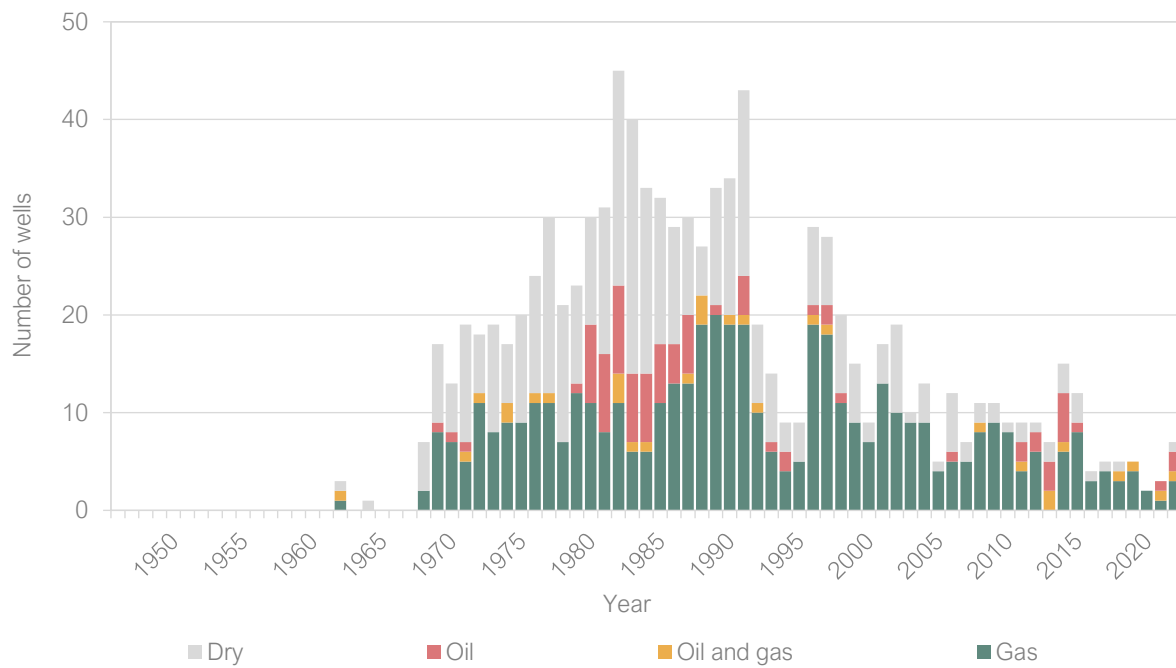
O = Oil; G = Gas; O&G = Oil and gas; D = Dry; Σ = Total.

V. Number of wells, Land and Sea since 1946

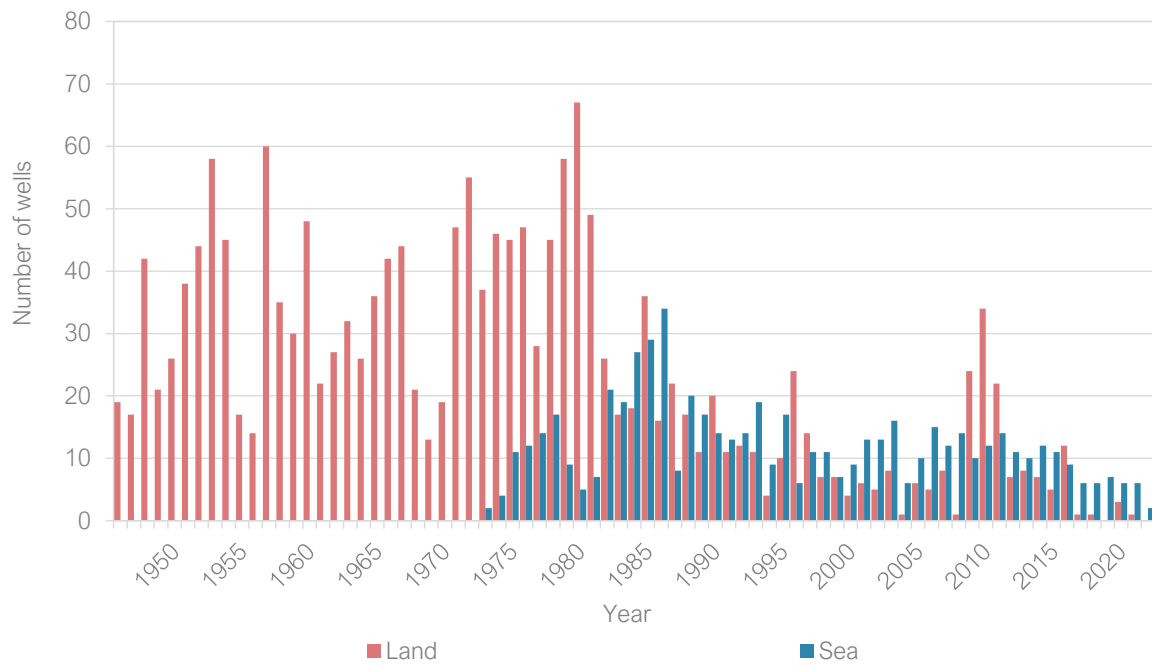
Exploration and appraisal wells, Land



Exploration and appraisal wells, Sea



Production wells



W. Platforms, Sea

As at 1 January 2023

Platforms

Platform	Operator	Status	Product	Installed	Removed	Function	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	3
AWG-1W	NAM	Operational	Gas	1983		Wellheads	4
K07-FA-1P	NAM	Operational	Gas	1982		Processing	6
K07-FA-1W	NAM	Operational	Gas	1980		Wellheads	4
K07-FB-1	NAM	Operational	Gas	2003		Wellheads	4
K07-FD-1	NAM	Operational	Gas	1998		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	Decom.	Gas	1977	1999	Wellheads	4
K14-FA-1C	NAM	Operational	Gas	1985		Compression	8
K14-FA-1P	NAM	Operational	Gas	1976		Processing	10
K14-FA-1V	NAM	Operational	Gas	1985		Vent Stack or Flare	2
K14-FB-1	NAM	Operational	Gas	1997		Wellheads	4
K15-FA-1	NAM	Operational	Gas	1976		Wellheads	10
K15-FA-1R	NAM	Operational	Gas	2012		Riser	1
K15-FB-1	NAM	Operational	Gas	1978		Wellheads	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		Wellheads	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
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	Temporarily suspended	Gas	1997		Wellheads	1
D15-FA-1	Neptune	Operational	Gas	1999		Processing	6
D18a-A	Neptune	Decom. prog.	Gas	2013		Processing	4
E17a-A	Neptune	Operational	Gas	2009		Processing	4

Platform	Operator	Status	Product	Installed	Removed	Function	Number of legs
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	Decom. prog.	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	Decom. prog.	Gas	1987		Processing	4
K09ab-B	Neptune	Operational	Gas	1999		Processing	4
K09c-A	Neptune	Decom. prog.	Gas	1987		Processing	4
K11-B	Neptune	Decom.	Gas	1995	2005	Wellheads	4
K12-A	Neptune	Decom. prog.	Gas	1983		Manifold	4
K12-BD	Neptune	Operational	Gas	1985		Wellheads	4
K12-BP	Neptune	Operational	Gas	1987		Processing	8
K12-C	Neptune	Decom. prog.	Gas	1984		Processing	4
K12-CC	Neptune	Decom. prog.	Gas	1988		Compression	4
K12-D	Neptune	Operational	Gas	1985		Processing	4
K12-E	Neptune	Decom.	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-AD	Neptune	Operational	Gas	1974		Wellheads	10
L10-AP	Neptune	Operational	Gas	1975		Processing	8
L10-B	Neptune	Operational	Gas	1974		Processing	4
L10-BB	Neptune	Operational	Gas	1980		Wellheads	3
L10-C	Neptune	Decom.	Gas	1974	2020	Wellheads	4
L10-D	Neptune	Decom.	Gas	1977	2020	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	Decom.	Gas	1984	2020	Wellheads	4
L10-K	Neptune	Decom.	Gas	1984	2000	Wellheads	4
L10-L	Neptune	Operational	Gas	1988		Processing	4
L10-M	Neptune	Operational	Gas	1999		Processing	4
L11a-A	Neptune	Decom.	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	Permanently suspended	Gas	2004		Processing	4
D12-B	Wintershall	Operational	Gas	2019		Production	4
E18-A	Wintershall	Decom.	Gas	2009	2019	Wellheads	4
F16-A	Wintershall	Permanently suspended	Gas	2005		Processing	6

Platform	Operator	Status	Product	Installed	Removed	Function	Number of legs
K10-BP	Wintershall	Decom.	Gas	1981	2014	Processing	6
K10-BW	Wintershall	Decom.	Gas	1981	2014	Wellheads	6
K10-C	Wintershall	Decom.	Gas	1981	1997	Processing	4
K10-V	Wintershall	Decom.	Gas	1993	2005	Processing	4
K13-AP	Wintershall	Operational	Gas	1974		Processing	8
K13-AW	Wintershall	Operational	Gas	1974		Riser	4
K13-B	Wintershall	Decom.	Gas	1976	1997	Processing	4
K13-CP	Wintershall	Decom.	Gas	1977	1995	Compression	6
K13-CW	Wintershall	Decom.	Gas	1977	1995	Wellheads	4
K13-D	Wintershall	Decom.	Gas	1978	1995	Wellheads	4
K18-Kotter-P	Wintershall	Decom.	Oil	1984	2019	Processing	8
K18-Kotter-W	Wintershall	Decom.	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
L08-A	Wintershall	Permanently suspended	Gas	1988		Processing	4
L08-G	Wintershall	Permanently suspended	Gas	1988		Processing	6
L08-H	Wintershall	Permanently 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	Decom.	Oil	1985	2019	Processing	4
L16-Logger-W	Wintershall	Decom.	Oil	1985	2019	Accommodation or Office	4
P02-NE	Wintershall	Decom.	Gas	1996	2004	Wellheads	4
P02-SE	Wintershall	Decom.	Gas	1997	2004	Wellheads	4
P06-A	Wintershall	Permanently suspended	Gas	1982		Processing	8
P06-B	Wintershall	Permanently suspended	Gas	1985		Processing	4
P06-D	Wintershall	Permanently suspended	Gas	2000		Processing	4
P06-S	Wintershall	Decom.	Gas	1997	2013	Wellheads	4
P12-C	Wintershall	Decom.	Gas	1990	1999	Wellheads	4
P12-SW	Wintershall	Permanently suspended	Gas	1990		Processing	4
P14-A	Wintershall	Decom.	Gas	1993	2008	Wellheads	4
Q01-D	Wintershall	Operational	Gas	2013		Processing	4
Q04-A	Wintershall	Decom.	Gas	1999	2022	Processing	4
Q04-B	Wintershall	Decom.	Gas	2002	2022	Processing	4
Q04-C	Wintershall	Operational	Gas	2002		Processing	4
Q08-A	Wintershall	Decom.	Gas	1986	2012	Wellheads	3
Q08-B	Wintershall	Decom.	Gas	1994	2012	Wellheads	4
Zuidwal	Vermilion	Decom. prog.	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

Platform	Operator	Status	Product	Installed	Removed	Function	Number of legs
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
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	Permanently suspended	Gas	1984		Wellheads	4
L04-PN	Total	Operational	Gas	1999		Wellheads	4
L07-A	Total	Permanently suspended	Gas	1984		Wellheads	4
L07-B	Total	Temporarily suspended	Gas	1976		Processing	4
L07-BB	Total	Permanently suspended	Gas	1979		Wellheads	4
L07-C	Total	Permanently suspended	Gas	1976		Wellheads	4
L07-H	Total	Permanently suspended	Gas	1989		Wellheads	4
L07-N	Total	Permanently suspended	Gas	1988		Wellheads	4
L07-P	Total	Permanently suspended	Gas	1976		Processing	8
L07-PK	Total	Permanently suspended	Gas	1982		Compression	4
L07-Q	Total	Permanently suspended	Gas	1976		Accommodation or Office	4
P15-A	TAQA	Operational	Oil	1985		Wellheads	4
P15-B	TAQA	Decom.	Oil	1985	2003	Wellheads	4
P15-C	TAQA	Operational	Gas	1985		Wellheads	6
P15-D	TAQA	Operational	Gas	1993		Processing	6
P15-E	TAQA	Decom. prog.	Gas	1993		Wellheads	4
P15-F	TAQA	Operational	Gas	1993		Wellheads	4
P15-G	TAQA	Decom. prog.	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	Decom. prog.	Oil	1993		Processing	4
Q01-Halfweg	Petrogas	Decom. prog.	Gas	1995		Production	4
Q01-Haven-A	Petrogas	Decom. prog.	Oil	1989		Production	1
Q01-Helder-AP	Petrogas	Decom. prog.	Oil	1982		Processing	4
Q01-Helder-AW	Petrogas	Decom. prog.	Oil	1982		Production	6
Q01-Helder-B	Petrogas	Decom.	Oil	1986	1988	Wellheads	1

Platform	Operator	Status	Product	Installed	Removed	Function	Number of legs
Q01-Helm-AP	Petrogas	Permanently suspended	Oil	1982		Processing	4
Q01-Helm-AW	Petrogas	Permanently suspended	Oil	1981		Production	4
Q01-Hoorn-AP	Petrogas	Decom. prog.	Oil	1983		Processing	4
Q01-Hoorn-AW	Petrogas	Decom. prog.	Oil	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	Permanently suspended	Gas	2016		Wellheads	4
F02-A-Hanze	DANA	Operational	Oil	2000		Processing	6
P11-B-De Ruyter	DANA	Operational	Oil	2006		Processing	4
P11-Unity	DANA	Operational	Gas	2020		Wellheads	1
Q10-A	Kistos	Operational	HiCal	2018		Production	4
F03-FA	Spirit	Decom.	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	Decom.	Gas	1994	2019	Wellheads	4
L10-AC	NGT	Operational	Gas	1987		Compression	4
L10-AR	NGT	Operational	Gas	1975		Riser	4

Decom. = Decommissioned

Decom. Prog. = Decommissioning in progress

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

Subsea production installations

Subsea production installation	Operator	Status	Product	Installation	Decom.	Function
L13-FH-1	NAM	Decom.	Gas	1995	2011	Wellheads
G17a-S1	Neptune	Operational	Gas	2005		Wellheads
K12-S1	Neptune	Decom.	Gas	1990	2003	Wellheads
K12-S2	Neptune	Decom. prog.	Gas	2002		Wellheads
K12-S3	Neptune	Operational	Gas	2003		Wellheads
L10-S1	Neptune	Decom.	Gas	1988	1997	Wellheads
L10-S2	Neptune	Decom. prog.	Gas	1997		Wellheads
L10-S3	Neptune	Decom.	Gas	1993	2004	Wellheads
L10-S4	Neptune	Operational	Gas	1996		Wellheads
L14-S1	Neptune	Decom.	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	Decom.	Gas	2009	2021	Wellheads
P09-B	Wintershall	Decom.	Gas	2009	2021	Wellheads
Q05-A	Wintershall	Decom.	Gas	2004	2013	Wellheads
K04a-D	TOTAL	Operational	Gas	1997		Wellheads
K04-Z	TOTAL	Operational	Gas	2012		Wellheads
K05-F	TOTAL	Temporarily suspended	Gas	2008		Wellheads

Subsea production installation	Operator	Status	Product	Installation	Decom.	Function
L04-G	TOTAL	Operational	Gas	2005		Wellheads
P15-10S	TAQA	Decom.	Gas	1992	2019	Wellheads
P15-12S	TAQA	Decom.	Gas	1992	2019	Wellheads
P15-14S	TAQA	Decom.	Gas	1992	2019	Wellheads
L06d-S1	ONE-Dyas	Decom.	Gas	2005	2014	Wellheads
Q16-FA-1	ONE-Dyas	Operational	Gas	1998		Wellheads
F02-A-Hanze TMLS	DANA	Temporarily suspended	Oil	2000		Offloading
P11-B-De Ruyter TMLS	DANA	Operational	Oil	2006		Offloading
P11b-Van Ghent	DANA	Permanently suspended	Oil	2011		Wellheads
P11b-Van Nes	DANA	Permanently suspended	Gas	2012		Wellheads
P11-B-WYE Manifold	DANA	Operational	Gas	2011		Manifold

Decom. = Decommissioned

Decom. Prog. = Decommissioning in progress

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

X. Pipelines, Sea

As at 1 January 2023

From	To	Pipeline	Operator	Status	Product	Installation	Decom.	Length (km)	Diameter (inch)
A12-CPP	NOGAT EXT Sidetap A12	A12CPP to NOGAT P/L	Petrogas	Operational	Gas	2007		16,5	16,0
A18	A12-CPP	A18 to A12CPP P/L	Petrogas	Operational	Gas	2014		32,0	12,0
AME-1	AWG-1R	NP008	NAM	Operational	Gas	1985		4,0	20,0
AME-2	AWG-1R	NP022	NAM	Operational	Gas	1991		5,0	11,0
AWG-1R	NP-001-ST-KP-118.9-36-24	NP009	NAM	Operational	Gas	1985		7,0	20,0
AWG-1R	AME-2	NU023	NAM	Operational	Chemicals	1991		5,0	4,0
B13-A	A12-CPP	B13 to A12CPP P/L	Petrogas	Operational	Gas	2011		20,3	16,0
D12-A	D15-FA-1	W45	Wintershall	Decom.	Salt water	2004	2022	4,9	10,0
D12-A	D15-FA-1	W46	Wintershall	Decom.	Control & Power	2004	2022	5,1	3,0
D12-B	D15-FA-1	W74	Wintershall	Operational	Gas	2019		11,8	10,0
D12-B	D15-FA-1	W76	Wintershall	Operational	Chemicals	2019		11,8	3,0
D15-FA-1	Wingate	W72	Wintershall	Operational	Chemicals	2011		20,5	2,0
D15-FA-1	L10-AR	NP-002	NGT	Operational	Gas	1999		140,6	36,0
D18a-A	D15-FA-1	GP-069	Neptune	Decom. in prog.	Gas	2013		21,5	8,0
D18a-A	D15-FA-1	GP-070	Neptune	Decom. in prog.	Chemicals	2013		21,5	2,0
E17a-A	Sidetap D15-FA to L10-AC KP 35.73	GP-009	Neptune	Operational	Gas	2010		2,0	12,0
E18-A	F16-A	W47	Wintershall	Decom.	Salt water	2009	2019	5,3	10,0
E18-A	F16-A	W55	Wintershall	Decom.	Control & Power	2009	2019	5,5	3,0
F02-A-Hanze	NOGAT EXT Sidetap F02-Hanze	Gas export line to NOGAT	Dana	Operational	Gas	2001		1,5	4,0
F02-A-Hanze	NOGAT EXT Sidetap F02-Hanze	SSIV control in Sidetap	Dana	Operational	Control & Power	2001		1,5	3,0
F02-A-Hanze	F02-A-Hanze TMLS	TMLS control umbilical	Dana	Temporarily suspended	Control & Power	2000		1,5	3,0
F02-A-Hanze	F02-A-Hanze TMLS	TMLS Hanze	Dana	Temporarily suspended	Oil	2000		1,5	16,0
F03-FA	NOGAT EXT Sidetap F02-Hanze	1@F03-FA	Spirit	Decom.	Gas	2010	2019	23,0	10,0

From	To	Pipeline	Operator	Status	Product	Installation	Decom.	Length (km)	Diameter (inch)
F03-FA	NOGAT EXT Sidetap F02-Hanze	2@F03-FA	Spirit	Decom.	Control & Power	2010	2019	23,0	3,0
F03-FB-F1	F03-FB OLT	TP-006	Neptune	Operational	Oil	1992		2,0	16,0
F03-FB-F1	F03-FB OLT	TP-008	Neptune	Operational	Control & Power	1992		2,0	3,0
F03-FB-F1	L02-FA-1	TP-003	NOGAT	Operational	Gas	1992		108,1	24,0
F15-A	TP-003-ST-KP-71.52	TP-007	NOGAT	Operational	Gas	1993		0,3	16,0
F16-A	NP-002-ST-KP-61.88-36	W48	Wintershall	Decom.	Salt water	2004	2020	32,0	24,0
G14-A	G17d-AP	GP-007	Neptune	Operational	Gas	2005		19,8	12,0
G14-A	G17d-AP	GP-052	Neptune	Operational	Chemicals	2005		19,8	2,0
G14-B	G17d-AP	GP-008	Neptune	Decom. in prog.	Gas	2007		13,4	12,0
G14-B	G17d-AP	GP-054	Neptune	Decom. in prog.	Chemicals	2007		13,4	2,0
G16a-A	G17d-AP	GP-005	Neptune	Operational	Gas	2005		17,6	10,0
G16a-A	G17d-AP	GP-051	Neptune	Operational	Condensate	2005		17,6	2,0
G16a-B	G17d-AP	GP-024	Neptune	Operational	Gas	2011		13,9	14,0
G16a-B	G17d-AP	GP-055	Neptune	Operational	Chemicals	2011		13,9	2,0
G17a-S1	G17d-AP	GP-031	Neptune	Operational	Gas	2005		5,7	6,0
G17a-S1	G17d-AP	GP-036	Neptune	Operational	Control & Power	2005		5,8	3,0
G17d-AP	L06d-S1	NLU007	ONE-Dyas	Permanently suspended	Control & Power	2006		40,0	3,0
G17d-AP	NP-001-ST-KP-118.9-36-24	NP-004	NGT	Operational	Gas	2001		64,5	18,0
Harlingen Treatment Center	Zuidwal	02-GLYCOL-3-ZW	Vermilion	Decom. in prog.	Chemicals	1986		20,3	3,0
Harlingen Treatment Center	Zuidwal	03-20KV POWER CABLE	Vermilion	Decom. in prog.	Control & Power	1985		20,3	
J06-A-Markham	K13-AP	W10	Wintershall	Operational	Gas	1992		85,8	24,0
J06-A-Markham	W10 - Subsea Isolation Valve	W56	Wintershall	Operational	Control & Power	1992		0,3	3,0
J06-A-Markham	K01-A	J06A-K01A	Total	Operational	Chemicals	2002		9,1	3,0
J06-A-Markham	K04a-D	J06A-K04aD	Total	Operational	Control & Power	1997		7,4	2,5
J06-A-Markham	ST-1-Markham	2@ST-1-Markham	Spirit	Decom.	Chemicals	1994	2019	5,5	2,0
J06-C-Markham	J06-A-Markham	1@J06-C-Markham	Spirit	Operational	Gas	2006		0,0	14,0
K01-A	J06-A-Markham	K01A-J06A	Total	Operational	Gas	2002		9,1	14,0
K02b-A	NP-002-ST-KP-61.88-36	GP-006	Neptune	Operational	Gas	2005		2,8	12,0
K04-A	K04-BE	K04A-K04BE	Total	Operational	Chemicals	2001		8,1	2,5

From	To	Pipeline	Operator	Status	Product	Installation	Decom.	Length (km)	Diameter (inch)
K04-A	K05-A	K04A-K05A	Total	Operational	Gas	1998		6,7	12,0
K04a-D	J06-A-Markham	K04aD-J06A	Total	Operational	Gas	1997		7,3	4,0
K04-BE	K04-A	K04BE-K04A_1	Total	Decom.	Gas	2001	2003	8,0	9,5
K04-BE	K04-A	K04BE-K04A_2	Total	Operational	Gas	2004		8,0	10,0
K04-Z	K05-A	K04Z-K05A	Total	Operational	Gas	2014		17,2	6,0
K05-A	W10 - WGT EXT Sidetap K05-A	1@K05A	Wintershall	Decom.	Gas	1994	2012	0,3	16,0
K05-A	W10 - WGT EXT Sidetap K05-A	W51	Wintershall	Operational	Gas	2012		0,3	14,0
K05-A	K04-A	K05A-K04A_1	Total	Operational	Chemicals	1998		6,7	3,0
K05-A	K04-A	K05A-K04A_2	Total	Operational	Control & Power	1998		6,9	2,5
K05-A	K04-Z	K05A-K04Z	Total	Operational	Control & Power	2014		17,6	3,2
K05-A	K05-B	K05A-K05B	Total	Operational	Control & Power	1995		6,5	3,5
K05-A	K05-CU	K05A-K05CU	Total	Operational	Chemicals	2011		15,2	3,0
K05-A	K05-D	K05A-K05D	Total	Operational	Chemicals	1994		10,6	3,0
K05-B	K05-A	K05B-K05A_1	Total	Decom.	Gas	1995	2010	6,5	8,0
K05-B	K05-A	K05B-K05A_2	Total	Operational	Gas	2012		6,7	8,0
K05-B	K05-EN/C	K05B-K05EN/C	Total	Operational	Control & Power	1997		6,2	3,5
K05-CU	K05-A	K05CU-K05A	Total	Operational	Gas	2011		15,2	10,0
K05-D	K05-A	K05D-K05A	Total	Operational	Gas	1994		10,6	12,0
K05-D	K05-EN/C	K05D-K05EN/C	Total	Operational	Chemicals	1997		2,8	2,5
K05-EN/C	K05-D	K05EN/C-K05D_1	Total	Decom.	Gas	1997	2001	2,7	10,0
K05-EN/C	K05-D	K05EN/C-K05D_2	Total	Operational	Gas	2001		2,7	10,0
K05-F	K06-N	K05F-K06N	Total	Operational	Gas	2008		9,8	8,0
K06-C	K05-F	K06C-K05F	Total	Operational	Control & Power	2008		18,3	4,1
K06-C	K06-D	K06C-K06D	Total	Operational	Chemicals	1992		3,8	3,0
K06-C	K06-DN	K06C-K06DN	Total	Operational	Chemicals	1992		5,3	3,0
K06-C	K06-GT	K06C-K06GT	Total	Operational	Chemicals	2005		6,9	3,0
K06-C	K06-N	K06C-K06N	Total	Operational	Chemicals	1993		8,5	3,0
K06-C	K09c-A	NP-006	NGT	Operational	Gas	1991		5,2	16,0

From	To	Pipeline	Operator	Status	Product	Installation	Decom.	Length (km)	Diameter (inch)
K06-D	K06-C	K06D-K06C	Total	Operational	Gas	1992		3,8	10,0
K06-DN	K06-C	K06DN-K06C	Total	Operational	Gas	1992		5,3	12,0
K06-GT	K06-C	K06GT-K06C	Total	Operational	Gas	2005		6,9	10,0
K06-GT	L04-B	K06GT-L04B-(L07A)	Total	Decom.	Gas	1999	2005	10,3	10,0
K06-N	K06-C	K06N-K06C	Total	Operational	Gas	1993		8,5	12,0
K07-FA-1P	K08-FA-1PP	NP006	NAM	Operational	Gas	1982		9,0	18,0
K07-FB-1	K07-FD-1	NP053	NAM	Operational	Gas	2003		17,0	12,0
K07-FD-1	K08-FA-1PP	NP037	NAM	Operational	Gas	1998		9,0	13,0
K08-FA-1PP	K14-FA-1P	NP001	NAM	Operational	Gas	1977		31,0	24,0
K08-FA-1PP	K14-FA-1C	NP038	NAM	Operational	Gas	1998		31,0	24,0
K08-FA-1PP	K07-FD-1	NU040	NAM	Operational	Chemicals	1997		9,0	3,0
K08-FA-1PP	K08-FA-2	NU054	NAM	Operational	Chemicals	2002		4,0	4,0
K08-FA-1PP	K07-FB-1	NU055	NAM	Operational	Chemicals	2003		26,0	4,0
K08-FA-2	K08-FA-1PP	NP003	NAM	Operational	Gas	1978		4,0	11,0
K08-FA-2	K08-FA-1PP	NP015	NAM	Operational	Gas	1989		4,0	10,0
K08-FA-3	K07-FA-1P	NP011	NAM	Operational	Gas	1986		9,0	12,0
K09ab-A	NGT Sidetap K09c-A	NP-010	NGT	Permanently suspended	Gas	1987		16,7	8,0
K09ab-B	Sidetap D15-FA to L10-AC KP 106.76	GP-023	Neptune	Operational	Gas	1999		0,1	10,0
K09c-A	L10-AR	NP-005	NGT	Operational	Gas	1987		36,6	16,0
K10-B	K13-AP	1@K10B	Wintershall	Decom.	Gas	1992	2004	16,8	20,0
K10-BP	K13-CP	2@K10B	Wintershall	Decom.	Gas	1978	1993	6,4	8,0
K10-C	K13-B	1@K10C	Wintershall	Decom.	Gas	1982	1994	19,2	20,0
K10-V	K10-BP	1@K10V	Wintershall	Decom.	Gas	1993	2003	14,2	10,0
K11-FA-1	K08-FA-1PP	NP004	NAM	Temporarily suspended	Chemicals	1978		6,0	6,0
K12-A	L10-AP	GP-002	Neptune	Operational	Gas	1983		29,2	14,0
K12-A	L10-AP	GP-044	Neptune	Operational	Chemicals	1983		29,2	2,0
K12-BP	L10-AR	NP-003	NGT	Operational	Gas	1987		21,5	18,0
K12-C	Sidetap K12-A to L10-AP KP 8.6	GP-021	Neptune	Operational	Gas	1984		0,4	10,0
K12-C	Sidetap K12-A to L10-AP KP 8.6 Piggyback	GP-046	Neptune	Operational	Chemicals	1984		0,4	2,0
K12-D	K12-C	GP-020	Neptune	Operational	Gas	1985		4,4	10,0
K12-D	K12-C	GP-045	Neptune	Operational	Chemicals	1985		4,1	2,0

From	To	Pipeline	Operator	Status	Product	Installation	Decom.	Length (km)	Diameter (inch)
K12-G	L10-AP	GP-003	Neptune	Operational	Gas	2001		15,6	14,0
K12-G	L10-AP	GP-050	Neptune	Permanently suspended	Chemicals	2001		15,6	2,0
K12-K	K12-BP	GP-004	Neptune	Operational	Gas	2007		10,3	14,0
K12-K	K12-BP	GP-053	Neptune	Operational	Chemicals	2007		10,3	2,0
K12-S2	K12-C	GP-029	Neptune	Decom. in prog.	Gas	2002		6,9	6,0
K12-S2	K12-C	GP-032	Neptune	Decom. in prog.	Control & Power	2002		7,0	5,0
K12-S3	K12-BP	GP-030	Neptune	Operational	Gas	2004		3,4	6,0
K12-S3	K12-BP	GP-056	Neptune	Operational	Chemicals	2004		3,5	3,0
K13-AP	Afsluiter WGT zeeleiding	W09	Wintershall	Operational	Gas	1975		120,5	36,0
K13-B	K13-AP	1@K13B	Wintershall	Decom.	Gas	1977	1991	9,2	10,0
K13-CP	K13-AP	1@K13C	Wintershall	Decom.	Gas	1977	1992	10,3	20,0
K13-D	K13-CP	1@K13D	Wintershall	Decom.	Gas	1978	1987	3,2	8,0
K14-FA-1C	W09 - WGT Sidetap K14-FA	NP002	NAM	Operational	Gas	1977		0,2	24,0
K14-FA-1P	K15-FB-1	NP035	NAM	Temporarily suspended	Air or Nitrogen	1997		17,0	16,0
K14-FA-1P	K14-FB-1	NU034	NAM	Operational	Chemicals	1997		9,0	4,0
K14-FB-1	K14-FA-1P	NP033	NAM	Operational	Gas	1997		9,0	10,0
K14-FB-1	K17-FA-1	NP057	NAM	Operational	Chemicals	2005		15,0	2,0
K15-FA-1	W09 - WGT Sidetap K15-FA	NP005	NAM	Temporarily suspended	Gas	1978		1,3	24,0
K15-FA-1	K14-FA-1C	NP012	NAM	Operational	Gas	1987		24,0	18,0
K15-FA-1	K15-FG-1	NU021	NAM	Operational	Chemicals	1991		7,0	4,0
K15-FA-1	L13-FH-1	NU032	NAM	Temporarily suspended	Chemicals	1995		9,0	3,0
K15-FB-1	LoCal Sidetap onshore Callantssoog	NP007	NAM	Operational	Gas	1983		84,0	24,0
K15-FB-1	K15-FC-1	NU019	NAM	Operational	Chemicals	1991		8,0	4,0
K15-FB-1	K15-FK-1	NU056	NAM	Operational	Chemicals	2003		9,0	4,0
K15-FC-1	K15-FB-1	NP016	NAM	Operational	Gas	1990		8,0	10,0
K15-FG-1	K15-FA-1	NP020	NAM	Operational	Gas	1990		7,0	11,0
K15-FK-1	K15-FB-1	NP050	NAM	Operational	Gas	2003		8,0	10,0
K17-FA-1	K14-FB-1	NP051	NAM	Operational	Gas	2005		15,0	16,0
K18-G1	K15-FA-1R	W49	Wintershall	Operational	Gas	2011		10,0	8,0
K18-G1	K15-FA-1R	W57	Wintershall	Operational	Control & Power	2011		10,0	3,0
K18-G2	K18-G1	W60	Wintershall	Operational	Gas	2014		0,1	4,0
K18-G2	K18-G1	W61	Wintershall	Operational	Control & Power	2014		0,1	4,0
K18-Kotter-P	Q01-Helder-AP	W11	Wintershall	Decom.	Salt water	1984	2019	20,2	12,0

From	To	Pipeline	Operator	Status	Product	Installation	Decom.	Length (km)	Diameter (inch)
L02-FA-1	Sidetap onshore NOGAT Callantsoog	TP-001	NOGAT	Operational	Gas	1991		144,2	36,0
L04-A	K06-GT	L04A-K06GT	Total	Operational	Gas	2017		13,1	10,0
L04-A	L04-G	L04A-L04G	Total	Operational	Control & Power	2005		10,5	4,5
L04-A	L04-PN	L04A-L04PN	Total	Operational	Chemicals	1999		11,5	3,0
L04-A	L07-P	L04A-L07P	Total	Permanently suspended	Gas	1982		22,8	12,0
L04-B	K06-GT	(L07A)-L04B-K06GT	Total	Decom.	Chemicals	1999	2005	10,3	3,0
L04-B	L07-A	L04B-L07A	Total	Permanently suspended	Gas	1985		10,1	10,0
L04-G	L04-A	L04G-L04A	Total	Operational	Gas	2005		10,5	6,0
L04-PN	L04-A	L04PN-L04A_1	Total	Decom.	Gas	1999	2007	11,5	10,0
L04-PN	L04-A	L04PN-L04A_2	Total	Operational	Gas	1999		11,5	10,0
L05a-D	L05-FA-1	GP-071	Neptune	Operational	Gas	2013		10,6	10,0
L05a-D	L05-FA-1	GP-072	Neptune	Operational	Chemicals	2013		10,6	2,0
L05-B	L08-P4	W12	Wintershall	Operational	Gas	2003		6,4	10,0
L05-B	L08-P4	W13	Wintershall	Operational	Control & Power	2003		6,4	3,0
L05-C	L08-P4	W14	Wintershall	Operational	Gas	2006		8,0	10,0
L05-C	L08-P4	W15	Wintershall	Operational	Control & Power	2006		8,0	10,0
L05-FA-1	TP-001-ST-KP-19.665	TP-004	NOGAT	Operational	Gas	1992		0,4	16,0
L06-B	L08-P4	W52	Wintershall	Operational	Gas	2014		19,2	8,0
L06-B	L08-P4	W53	Wintershall	Operational	Control & Power	2014		19,2	3,0
L06d-S1	G17d-AP	NLP006	ONE-Dyas	Permanently suspended	Gas	2006		40,0	6,0
L07-A	L04-B	L07A-L04B	Total	Permanently suspended	Chemicals	1985		10,1	3,0
L07-A	L07-P	L07A-L07P	Total	Permanently suspended	Gas	1985		10,4	10,0
L07-B	L07-P	L07B-L07P	Total	Permanently suspended	Gas	1977		8,0	12,0
L07-B	L07-P	L07B-L07P_W	Total	Permanently suspended	Water	1977		8,0	4,0
L07-H	L07-N	L07H-L07N	Total	Permanently suspended	Gas	1989		6,4	10,0
L07-N	L07-H	L07N-L07H	Total	Permanently suspended	Chemicals	1989		6,4	3,0
L07-N	L07-P	L07N-L07P	Total	Permanently suspended	Gas	1988		4,1	10,0
L07-P	L10-AP	L07P - L10A	Total	Permanently suspended	Gas	1977		15,9	16,0

From	To	Pipeline	Operator	Status	Product	Installation	Decom.	Length (km)	Diameter (inch)
L07-P	L04-A	L07P-L04A	Total	Permanently suspended	Chemicals	1982		22,8	3,0
L07-P	L07-A	L07P-L07A	Total	Permanently suspended	Chemicals	1985		10,1	3,0
L07-P	L07-B	L07P-L07B	Total	Permanently suspended	Chemicals	1977		8,0	3,0
L07-P	L07-N	L07P-L07N	Total	Permanently suspended	Chemicals	1988		4,1	3,0
L08-A	L08-G	W16	Wintershall	Decom.	Salt water	1988	2020	10,0	8,0
L08-A-West	L08-P4	W21	Wintershall	Operational	Gas	2000		10,3	6,0
L08-A-West	L08-P4	W22	Wintershall	Operational	Control & Power	2000		10,3	4,0
L08-G	L08-P	W17	Wintershall	Decom.	Salt water	1994	2020	7,4	8,0
L08-G	NP-001-ST-KP-20.4-36	NP-007	NGT	Decom.	Gas	1988	2021	21,3	14,0
L08-H	W16 - L08-H Sidetap	1@L08-H	Wintershall	Decom.	Salt water	1988	2020	0,2	8,0
L08-P	L08-G	W18	Wintershall	Decom.	Salt water	1994	2020	7,4	2,0
L08-P	L08-P4	W19	Wintershall	Operational	Gas	2000		3,0	12,0
L08-P4	NP-001-ST-KP-20.4-36	W20	Wintershall	Operational	Gas	2000		27,8	16,0
L09-FA-1	L09-FF-1P	NP058	NAM	Operational	Gas	2008		20,0	16,0
L09-FB-1	Sidetap leiding L09-FA naar L09-FB	NP059	NAM	Operational	Gas	2008		0,9	16,0
L09-FF-1P	L09-FF-1P Sidetap	NP036	NAM	Operational	Gas	1997		19,0	24,0
L09-FF-1P	L09-FA-1	NP060	NAM	Operational	Chemicals	2008		20,0	2,0
L09-FF-1P	L09-FA-1	NP062	NAM	Operational	Chemicals	2008		20,0	2,0
L10-AR	Uithuizen Gasbehandeling NGT	NP-001	NGT	Operational	Gas	1974		177,6	36,0
L10-B	L10-AP	GP-001	Neptune	Operational	Gas	1984		6,8	14,0
L10-B	L10-AD	GP-010	Neptune	Decom. in prog.	Water	1974		7,3	10,0
L10-B	L10-AD	GP-037	Neptune	Decom. in prog.	Water	1974		7,3	2,0
L10-C	L10-AP	GP-011	Neptune	Decom.	Gas	1974	2016	1,1	10,0
L10-C	L10-AP	GP-038	Neptune	Decom.	Chemicals	1974	2016	1,1	2,0
L10-D	L10-AP	GP-012	Neptune	Decom.	Gas	1977	2016	1,0	10,0
L10-D	L10-AP	GP-039	Neptune	Decom.	Chemicals	1977	2016	1,0	2,0
L10-E	L10-AP	GP-013	Neptune	Operational	Gas	1977		4,0	10,0
L10-E	Sidetap L10-B to L10-AP KP 3.86	GP-014	Neptune	Operational	Gas	1984		0,1	10,0
L10-E	L10-AP	GP-040	Neptune	Permanently suspended	Water	1977		4,0	2,0
L10-F	L10-AP	GP-015	Neptune	Operational	Gas	1980		4,3	10,0
L10-F	L10-AP	GP-041	Neptune	Operational	Water	1980		4,3	2,0

From	To	Pipeline	Operator	Status	Product	Installation	Decom.	Length (km)	Diameter (inch)
L10-G	Sidetap L10-B to L10-AP KP 6.44	GP-016	Neptune	Decom.	Gas	1984	2016	4,7	10,0
L10-G	Sidetap L10-B to L10-AP KP 6.44	GP-042	Neptune	Decom.	Chemicals	1984	2016	4,7	2,0
L10-L	L10-AP	GP-017	Neptune	Operational	Gas	1988		2,2	10,0
L10-L	L10-AP	GP-043	Neptune	Operational	Water	1988		2,2	2,0
L10-M	L10-AP	GP-022	Neptune	Operational	Gas	2000		12,0	10,0
L10-M	L10-AP	GP-049	Neptune	Permanently suspended	Chemicals	2000		12,0	2,0
L10-S2	L10-AP	GP-026	Neptune	Decom. in prog.	Gas	1997		6,6	6,0
L10-S2	L10-AP	GP-034	Neptune	Decom. in prog.	Control & Power	1997		6,8	4,0
L10-S2	L10-AP	GP-047	Neptune	Decom. in prog.	Chemicals	1997		6,6	2,0
L10-S4	L10-AP	GP-028	Neptune	Operational	Water	1997		8,2	6,0
L10-S4	L10-AP	GP-035	Neptune	Operational	Control & Power	1997		8,4	4,0
L10-S4	L10-AP	GP-048	Neptune	Operational	Water	1997		8,2	2,0
L11b-PA	NP-007-ST-KP-14.4	NLP008	ONE-Dyas	Operational	Gas	2016		0,1	8,0
L13-FC-1P	K15-FA-1	NP010	NAM	Operational	Gas	1986		15,0	18,0
L13-FC-1P	L13-FD-1	NU014	NAM	Operational	Chemicals	1989		4,0	4,0
L13-FC-1P	L13-FE-1	NU018	NAM	Operational	Chemicals	1991		4,0	4,0
L13-FD-1	L13-FC-1P	NP013	NAM	Operational	Gas	1989		4,0	7,0
L13-FE-1	L13-FC-1P	NP017	NAM	Operational	Gas	2013		4,0	10,0
L13-FE-1	L13-FC-1P	NP017B	NAM	Temporarily suspended	Gas	1990		1,1	10,0
L13-FE-1	L13-FC-1P	NP017C	NAM	Temporarily suspended	Gas	1990		4,0	10,0
L13-FH-1	K15-FA-1	NP031	NAM	Temporarily suspended	Gas	1995		9,0	6,0
L13-FI	K15-FA-1	NP064	NAM	Operational	Gas	2019		6,5	20,0
L13-FI	K15-FA-1	NP065	NAM	Operational	Chemicals	2018		6,6	2,0
L15-FA-1	TP-001-ST-KP-82.753	TP-005	NOGAT	Operational	Gas	1992		0,4	16,0
L16-Logger-P	K18-Kotter-P	W23	Wintershall	Decom.	Salt water	1984	2019	18,8	8,0
L16-Logger-P	K18-Kotter-P	W24	Wintershall	Decom.	Water	1985	2019	18,8	6,0
M07-A	L09-FF-1P	NLP004	ONE-Dyas	Operational	Gas	2009		12,0	6,0
M07-A	L09-FF-1P	NLP005	ONE-Dyas	Operational	Chemicals	2009		12,0	2,0
NOGAT EXT Border Crossing	F03-FB-F1	NOGAT EXT NId Gas	Wintershall	Operational	Gas	2000		86,8	20,0
NOGAT EXT Border Crossing	F03-FB-F1	NOGAT EXT NId Oil	Wintershall	Permanently suspended	Salt water	2000		86,8	4,0

From	To	Pipeline	Operator	Status	Product	Installation	Decom.	Length (km)	Diameter (inch)
NP-007-ST-KP-14.4	NP-001-ST-KP-20.4-36	NP-007B	NGT	Operational	Gas	2021		6,9	14,0
P02-NE	P06-A	1@P02NE	Wintershall	Decom.	Gas	1996	2002	38,1	10,0
P06-A	L10-AR	W25	Wintershall	Permanently suspended	Chemicals	1983		78,6	20,0
P06-B	P06-A	W27	Wintershall	Decom.	Salt water	1985	2021	3,9	12,0
P06-B	P06-A	W65	Wintershall	Decom.	Salt water	1985	2021	3,9	3,0
P06-D	P06-B	W29	Wintershall	Decom.	Salt water	2001	2021	6,7	10,0
P06-S	P06-B	1@P06S	Wintershall	Decom.	Gas	1996	2012	6,6	6,0
P09-B	P06-D	W31	Wintershall	Decom.	Salt water	2009	2021	16,6	8,0
P09-B	P06-D	W32	Wintershall	Decom.	Control & Power	2009	2021	16,6	3,0
P09-Horizon	Q01-Helder-AW	Horizon to Helder P/L	Petrogas	Decom. in prog.	Oil	1993		47,5	10,0
P11-B-De Ruyter	Tie-in leiding P11-B-De Ruyter naar P12-SW	Gas export line	Dana	Decom.	Gas	2005	2019	20,0	8,0
P11-B-De Ruyter	P15-D	Gas export line P15-D	Dana	Operational	Gas	2019		38,0	8,0
P11-B-De Ruyter	P11-B-WYE Manifold	SSIV umbilical WYE to P11-B-De Ruyter	Dana	Operational	Control & Power	2011		0,2	7,0
P11-B-De Ruyter	P11-B-De Ruyter TMLS	TMLS De Ruyter	Dana	Operational	Oil	2005		1,5	16,0
P11-B-De Ruyter	P11-Unity	Unity umbilical	Dana	Operational	Control & Power	2021		8,0	5,0
P11b-Van Ghent	P11-B-De Ruyter	Van Ghent flowline	Dana	Permanently suspended	Gas	2011		4,9	8,0
P11b-Van Nes	P11-B-WYE Manifold	Van Nes flowline (@ WHPS)	Dana	Permanently suspended	Gas	2011		8,0	8,0
P11-B-WYE Manifold	P11-B-De Ruyter	SSIV umbilical (gas export) to WYE	Dana	Operational	Control & Power	2011		0,2	5,0
P11-B-WYE Manifold	P11b-Van Ghent	Van Ghent control umbilical	Dana	Permanently suspended	Control & Power	2011		4,5	5,0
P11-B-WYE Manifold	P11b-Van Nes	Van Nes control umbilical	Dana	Permanently suspended	Control & Power	2011		8,0	5,0
P11-B-WYE Manifold	P11-B-De Ruyter	Van Nes flowline (@ P11-B)	Dana	Permanently suspended	Gas	2011		0,2	10,9
P11-E	P15-F	NLP009	ONE-Dyas	Decom.	Salt water	2015	2022	9,8	8,0
P11-E	P15-F	NLP010	ONE-Dyas	Decom.	Salt water	2015	2022	9,8	2,0
P11-Unity	P11-B-WYE Manifold	Unity flowline	Dana	Operational	Gas	2021		8,0	8,0
P12-C	P12-SW	1@P12C	Wintershall	Decom.	Gas	1990	2001	6,9	8,0

From	To	Pipeline	Operator	Status	Product	Installation	Decom.	Length (km)	Diameter (inch)
P12-C	P12-SW	2@P12C	Wintershall	Decom.	Gas	1990	2002	6,9	8,0
P12-SW	P06-A	W33	Wintershall	Decom.	Salt water	1990	2021	42,0	12,0
P12-SW	P06-A	W63	Wintershall	Decom.	Salt water	1990	2021	42,0	3,0
P14-A	P15-D	1@P14-A	Wintershall	Decom.	Gas	1993	2007	12,6	10,0
P14-A	P15-D	2@P14A	Wintershall	Decom.	Chemicals	1993	2007	12,5	2,0
P15-10S	P15-D	DPL-15S101	TAQA	Decom.	Gas	1993	2018	3,9	4,0
P15-12S	P15-D	DPL-15S121	TAQA	Decom.	Gas	1993	2018	6,1	4,0
P15-14S	P15-G	DPL-15S141	TAQA	Decom.	Gas	1993	2018	3,7	4,0
P15-B	P15-C	DPL-15B1	TAQA	Decom.	Oil	1985	2003	3,4	10,0
P15-B	P15-C	DPL-15B2	TAQA	Decom.	Water	1985	2003	3,4	6,0
P15-C	P15-B	DPL-15B3	TAQA	Decom.	Chemicals	1985	2003	3,4	6,0
P15-C	P15-B	DPL-15B4	TAQA	Decom.	Gas	1985	2003	3,4	4,0
P15-C	P15 Hoek van Holland Metering station	DPL-15C1	TAQA	Operational	Oil	1985		42,6	10,0
P15-D	Maasvlakte onshore (gas)	DPL-15D1	TAQA	Operational	Gas	1993		40,1	26,0
P15-D	P15-E	DPL-15E2	TAQA	Decom. in prog.	Chemicals	1993		13,9	2,0
P15-D	P15-F	DPL-15F2	TAQA	Operational	Chemicals	1993		9,1	3,0
P15-D	P15-G	DPL-15G2	TAQA	Decom. in prog.	Chemicals	1993		9,1	3,0
P15-D	P15-10S	DPL-15S102	TAQA	Decom.	Chemicals	1993	2018	3,9	2,0
P15-D	P15-12S	DPL-15S122	TAQA	Decom.	Chemicals	1993	2018	6,1	2,0
P15-D	P18-A	DPL-18A2	TAQA	Operational	Chemicals	1993		20,8	3,0
P15-D	Q10-A	P15-D to Q10-A	Kistos	Operational	Chemicals	2018		42,5	2,0
P15-E	P15-D	DPL-15E1	TAQA	Decom. in prog.	Gas	1993		13,9	10,0
P15-F	P15-D	DPL-15F1	TAQA	Operational	Gas	1993		9,1	12,0
P15-G	P15-D	DPL-15G1	TAQA	Decom. in prog.	Gas	1993		9,1	12,0
P15-G	P15-14S	DPL-15S142	TAQA	Decom.	Chemicals	1993	2018	3,7	2,0
P18-A	P15-D	DPL-18A1	TAQA	Operational	Gas	1993		20,8	16,0
Q01-D	W38 - Q01-D Side tap	W54	Wintershall	Operational	Gas	2013		2,0	8,0
Q01-Halfweg	Q01-Hoorn-AP	Halfweg to Hoorn P/L	Petrogas	Decom.	Gas	1995	2019	12,4	12,0
Q01-Halfweg	Q01-Hoorn-AP	Hoorn to Halfweg cable	Petrogas	Decom.	Control & Power	1995	2019	12,4	3,0
Q01-Haven-A	Q01-Helder-AW	Haven to Helder former P/L	Petrogas	Decom.	Oil	1989	1995	5,8	8,0

From	To	Pipeline	Operator	Status	Product	Installation	Decom.	Length (km)	Diameter (inch)
Q01-Haven-A	Q01-Helder-AW	Haven to Helder P/L	Petrogas	Decom. in prog.	Oil	1995		5,8	8,0
Q01-Haven-A	Q01-Helder-AW	Helder to Haven cable	Petrogas	Operational	Control & Power	1989		5,8	3,0
Q01-Helder-AW	Q01-Helm-AP	Helder to Helm P/L	Petrogas	Decom. in prog.	Oil	1982		6,0	20,0
Q01-Helder-B	Q01-Helder-AW	Helder B to Helder P/L	Petrogas	Decom.	Oil	1986	1989	1,9	8,0
Q01-Helm-AP	Sidetap onshore Ijmuiden (olie)	Helm to Ijmuiden P/L	Petrogas	Temporarily suspended	Oil	1982		56,7	20,0
Q01-Hoorn-AP	W38 - Q01-D Side tap	W67	Wintershall	Operational	Chemicals	2002		7,0	2,0
Q01-Hoorn-AP	Q01-Helder-AW	Hoorn to Helder P/L	Petrogas	Decom. in prog.	Gas	1983		3,6	10,0
Q01-Hoorn-AP	WGT Sidetap Hoorn	Hoorn to WGT P/L	Petrogas	Decom. in prog.	Gas	1995		17,5	12,0
Q04-A	P06-A	W36	Wintershall	Permanently suspended	Chemicals	2000		35,3	14,0
Q04-B	Q04-A	W37	Wintershall	Decom.	Salt water	2001	2021	7,3	10,0
Q04-C	Q01-Hoorn-AP	W38	Wintershall	Operational	Gas	2002		14,2	16,0
Q04-C	Subsea aansluiting Q08	W41A	Wintershall	Operational	Gas	2011		30,6	10,0
Q05-A	Q08-B	1@Q05A	Wintershall	Decom.	Gas	2004	2011	13,5	8,0
Q05-A	Q08-B	2@Q05A	Wintershall	Decom.	Control & Power	2004	2011	13,7	3,0
Q08-B	Q08-A	1@Q08B	Wintershall	Decom.	Gas	1994	2011	8,3	8,0
Q10-A	P15-D	Q10-A to P15-D	Kistos	Operational	Gas	2018		42,5	14,0
Q13a-A	P15-C	GP-073	Neptune	Operational	Oil	2013		24,4	8,0
Q16-FA-1	P18-A	NLP001	ONE-Dyas	Operational	Gas	1998		10,3	8,0
Q16-FA-1	P18-A	NLP002	ONE-Dyas	Temporarily suspended	Chemicals	1998		10,3	2,0
Q16-FA-1	P18-A	NLU003	ONE-Dyas	Operational	Control & Power	1998		10,3	3,0
Scheveningen	Q13a-A	GP-074	Neptune	Operational	Control & Power	2013		13,7	3,5
Sidetap leiding L09-FA naar L09-FB	L09-FB-1	NP061	NAM	Operational	Chemicals	2008		0,9	2,0
Sidetap leiding L09-FA naar L09-FB	L09-FB-1	NP063	NAM	Operational	Water	2008		0,9	2,0
ST-1-Markham	J06-A-Markham	1@ST-1-Markham	Spirit	Decom.	Gas	1994	2019	5,5	12,0
Subsea aansluiting Q08	Wijk aan Zee	W41	Wintershall	Operational	Gas	1986		13,7	10,0
Tie-in leiding P11-B-De Ruyter naar P12-SW	P12-SW	Gas export line P12-SW	Dana	Decom.	Gas	2005	2019	9,0	8,0

From	To	Pipeline	Operator	Status	Product	Installation	Decom.	Length (km)	Diameter (inch)
Tie-in leiding P11-B-De Ruyter naar P12-SW	P15-C	Gas export line P15-C	Dana	Decom.	Gas	2019	2019	17,0	8,0
W38 - Q01-D Side tap	Q04-C	W67X	Wintershall	Temporarily suspended	Salt water	2002		7,3	2,0
Wingate	D15-FA-1	W50	Wintershall	Operational	Gas	2011		20,5	12,0
Zuidwal	Harlingen Treatment Center	01-GAS-20-ZW	Vermilion	Decom. in prog.	Gas	1986		20,3	20,0

Decom. = Decommissioned

Decom. Prog. = Decommissioning in progress

Source: NexStep, Nationaal Platform voor Re-use & Decommissioning, www.nexstep.nl.

Y. Authorities involved in mining

Ministry of Economic Affairs and Climate Policy

Directorate - General of Groningen and Subsurface

Address: Bezuidenhoutseweg 73 P.O. Box 20411
 2594 AC The Hague 2500 EK The Hague

Telephone: 070 379 89 11

Website: www.rijksoverheid.nl

TNO – Advisory Group for Economic Affairs

Address: Princetonlaan 6 Postbus 80015
 3584 CB Utrecht 3508 EC Utrecht

Telephone: 088 866 42 56

Website: 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

Website: 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 onshore and offshore the Netherlands, 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

Land/onshore:

In this annual review, the terms land and onshore refer to the Dutch mainland and that part of the Netherlands territorial waters located on the landward side of the line referred to in the appendix of the Mining Act

Sea/offshore:

In this annual review, the terms sea and offshore refer to that part of the continental shelf over which the Kingdom of the Netherlands has sovereign rights and which is located on the seaward side of the line referred to in the appendix of the Mining Act.

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 m³:**

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 m³ is defined as a standard m³ in Standard no. 5024-1976(E) of the International Organisation for Standardisation (ISO) and is usually abbreviated Sm³.

Normal m³:

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 m³ is defined as a normal m³ in Standard no. 5024-1976(E) of the International Organisation for Standardisation (ISO) and is usually abbreviated Nm³.

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 m³ of 0 °C and 101.325 kPa. or 1.01325 bar).

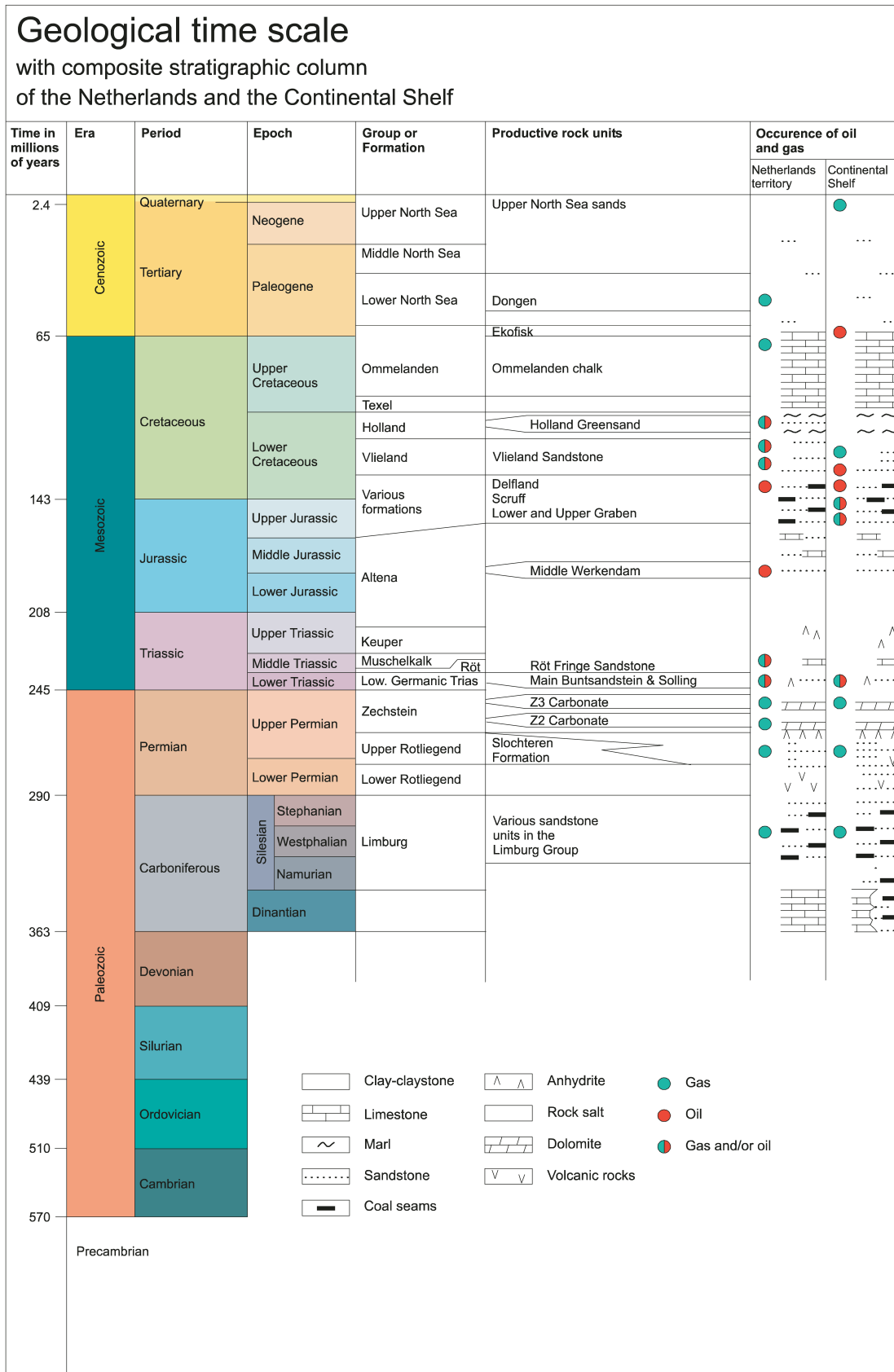
One Nm³ gas with a calorific value of 36.5 MJ is equivalent to 36.5/35.17 Nm³ Geq.

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).

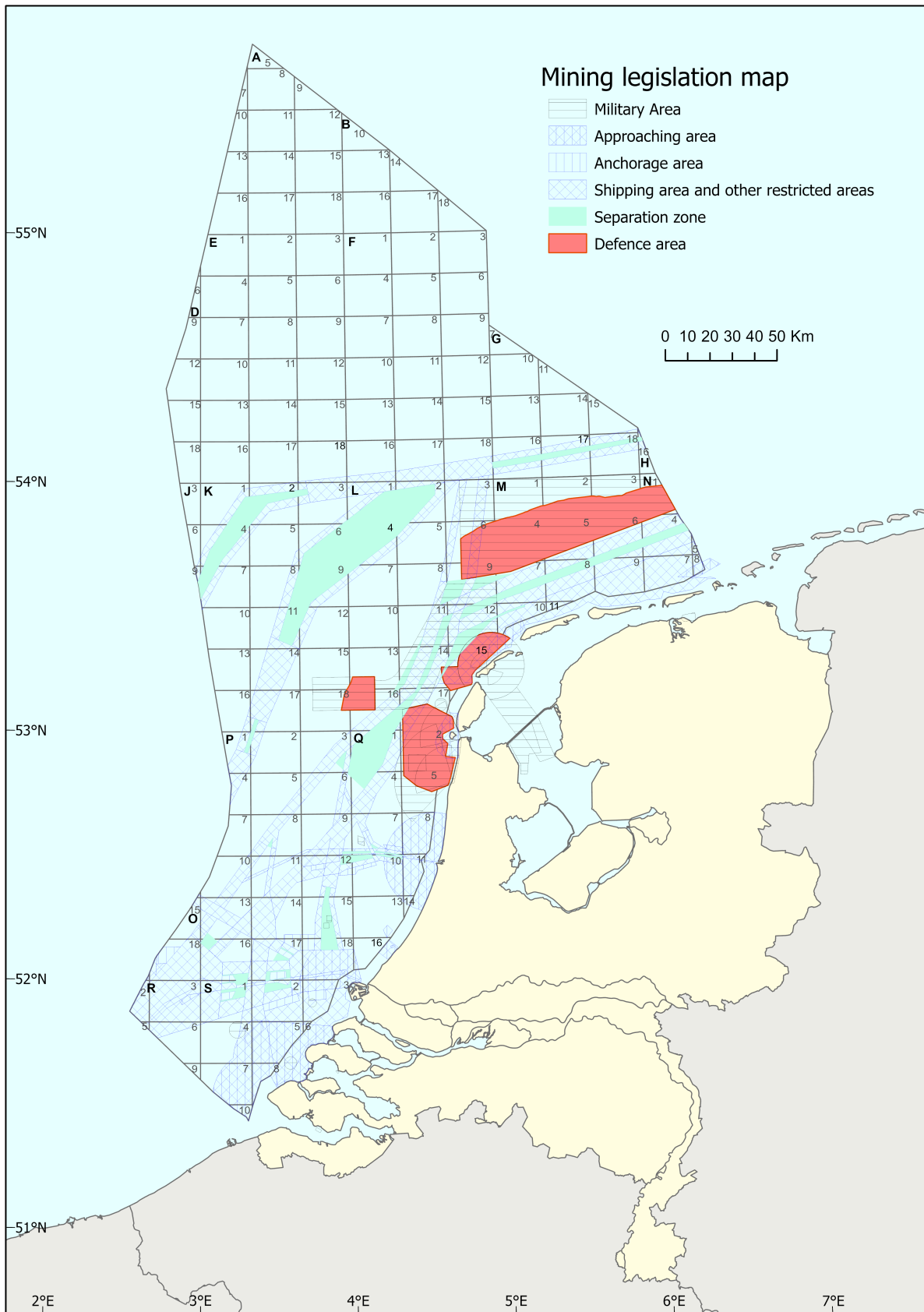
Fuel	Unit	Giga joule	Giga calorie	Oil equiv. tonnes	Oil equiv. barrels	Coal equiv. tonnes	Gas equiv. 1000 m ³
Fuelwood (dry)	tonnes	13.51	3.23	0.32	2.36	0.46	0.43
Coal	tonnes	29.30	7.00	0.70	5.11	1.00	0.93
Lignite	tonnes	17.00	4.06	0.41	2.96	0.58	0.54
Coke	tonnes	28.50	6.81	0.68	4.97	0.97	0.90
Coke-oven 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.

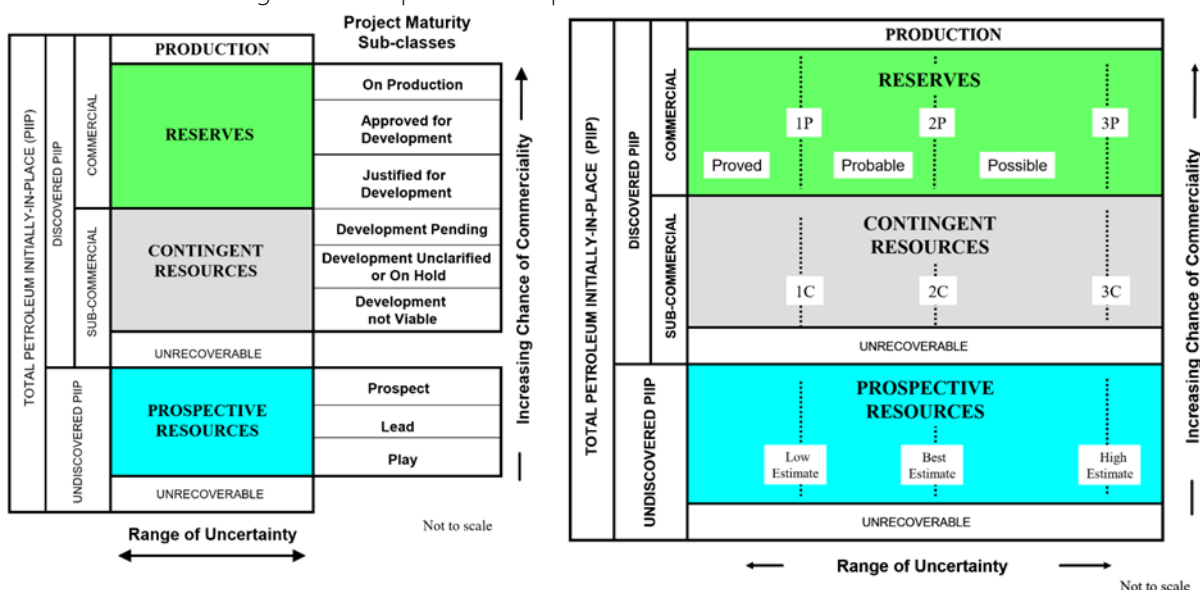


Figure Appendix 3.1 Schematic representation of the PRMS classification.

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) and 3P (possible) for the resources classified as reserves and 1C, 2C and 3C for the corresponding probabilities of the contingent resources.

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



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