

Natural resources and geothermal energy in the Netherlands

NATURAL RESOURCES AND GEOTHERMAL ENERGY IN THE NETHERLANDS

2021 Annual review

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 onshore Netherlands and offshore Netherlands that fall under the Mining Act.

The first section of this annual review deals with developments during the year 2021. The second part of this report comprises annexes giving an overview of the situation as at 1 January 2022, and the developments during preceding decades.

Chapters 1 and 2 review the changes in the estimates of natural gas and oil resources in 2021 and the resulting situation as at 1 January 2022. 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) and oil production for the next 25 years. In view of the recent changing circumstances surrounding gas production, both a low 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 State Secretary 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 to offshore and onshore licensing 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 2021.

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 permits 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, July 2022.

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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 Nm³ = 0.9457 Sm³.

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 natural gas resources as at 1 January 2022 are estimated at 135.9 billion Nm³, of which 4.8 billion Nm³ is in the Groningen gas field. This reduction compared to 1 January 2021 is due to the write-down of the Groningen reserves (1.9 billion Nm³), production (19.1 billion Nm³) and an increase due to re-evaluations in the small fields (16.8 billion Nm³). The small fields onshore Netherlands contain 33.6 billion Nm³ natural gas in reserves; those on the Netherlands part of the Northsea contain 54.2 billion Nm³ natural gas in reserves. Oil resources at 1 January 2022 were 34.8 million Sm³, of which 8.4 million Sm³ are reserves and 3.9 million Sm³ contingent resources in onshore oilfields and 1.9 million Sm³ reserves and 20.7 million Sm³ contingent resources in offshore fields.

Natural gas production

In 2021 the volume of natural gas produced from Dutch gas fields was 19.1 billion Nm³. Onshore gas fields accounted for 10.2 billion Nm³. 3.7 billion Nm³ came from small fields and 6.5 billion Nm³ from the Groningen gas field. The offshore gas fields produced 8.9 billion Nm³. As a result, total production in 2021 dropped by 10.2 % compared to 2020. For details, see Chapter 3.

Oil production

In 2021 a total of 0.89 million Sm³ oil was produced, this is 0.7 % more than in 2020. Onshore fields accounted for 0.45 million Sm³, which is an increase of 9.0 % compared with 2020. Offshore production was 0.44 million Sm³, a decrease of 6.6 %. For details, see Chapter 3.

Subsurface storage

In 2021 one new storage licence for the permanent storage of CO₂ was applied for. For details, see chapter 4.

Geothermal energy

In 2021 two geothermal wells were realised but no geothermal installations have been completed. As at 1 January 2022 there are 26 production installations, of which 19 are currently producing. The cumulative reported annual production in 2021 was 6.3 PJ. For details, see Chapter 5.

Salt

As at 1 January 2022 there were 16 production licences and no exploration licences in force. One application for a production licence submitted previously is in procedure. In 2021 no new salt production wells were drilled. The production of rock salt in 2021 was 6.1 million tonnes. For details, see Chapter 6.

Coal

There are no developments to report for 2021. There are still five coal production licences in force. For details, see Chapter 7.

Hydrocarbon licences

For onshore the Netherlands 3 exploration licences and 2 production licences are pending since earlier years. In 2021, 3 extensions of exploration licence and 2 of production licences were granted. No new

onshore exploration or production licences were granted by 2021. Two production licences were reduced in size.

At sea 5 applications for exploration licences and 3 production licences are pending. One part of a production licence was requested from an inactive area as described in the fallow acreage covenant. In 2021, 2 extensions were granted for exploration licences at sea and 13 for production licences.

No new offshore exploration or production licences were granted in 2021. The size of 1 exploration licence and 4 production licences was reduced. In addition, 1 production licence was split and 3 exploration licences and 3 production licences were relinquished. For details, see Chapters 8 and 9.

Geothermal licences

In 2021 13 applications for geothermal exploration licences were pending of which 3 new applications. 24 exploration licences were awarded, 17 exploration licences were prolonged and 1 exploration licence is relinquished.

In 2021 5 new applications for production licences were submitted and 3 new production licences for geothermal energy were awarded. For details, see Chapter 8.

Oil and gas wells

In total, 12 wells were drilled for oil and gas on land and at sea in 2021, the same amount as in 2020. Of the two exploration wells one found gas and one found oil and gas. In addition, 3 evaluation wells and 7 production wells were drilled. For details, see Chapter 12.

1.

Natural gas resources and future domestic production

1.1 Introduction

This chapter reports on the natural gas resources in the Netherlands and in the Dutch part of the Northsea. It presents estimates of the natural gas resources as at 1 January 2022 and the changes compared to the resources as at 1 January 2021. 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 (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). The contingent resource subclasses 'unclarified' or 'on hold' and 'development not viable' have not been included in the recoverable gas resources, considering the uncertainty whether these projects will be realised. The prospective resources are reported as the subclass of prospects only.

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

The reporting of the natural gas resources in this report relates to the proven "plays".

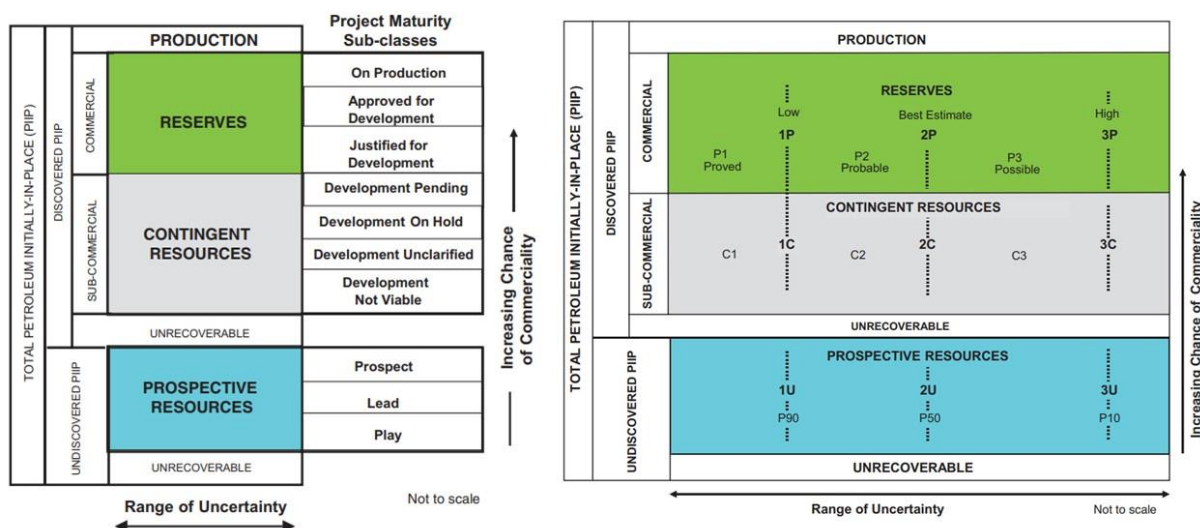


Figure 1.1 Schematic representation of the PRMS¹ classification (Appendix 3).

1.2 Natural gas accumulations

As at 1 January 2022, there were 499 proven accumulations of natural gas in the Netherlands (see Table 1.1) and almost half (217) are currently in production, 4 fewer compared to last year. A further 4 gas fields were being used to store gas (in addition to the one gas storage facility in salt caverns). The remaining 113 accumulations are not developed, but it is expected that 26 of them will be brought into production in the next five years. Development of the remaining 87 remains uncertain. 164 of the accumulations that are not producing at the time, produced in the past but their exploitation was (temporarily) ceased. The total number of fields increased by 4 compared to 1 January 2021. This includes 2 new discoveries (Blesdijke-East and N04-A) and 2 accumulations were re-evaluated and are now assumed to have economical potential. In 2021, a total of 3 fields on land and 9 fields at sea ceased production and were abandoned (see Table 3.2). A complete list of all fields, grouped according to status and with information on operators and licences, is presented in Annex A.1.

Table 1.1 Proven natural gas accumulations as at 1 January 2022, classified according to their status.

Status of gas accumulation	On land	At sea	Total
I. Developed			
a. Producing	94	123	217
b. Natural gas storage*	5	0	5
II. Undeveloped			
a. Production to start 2021-2025	9	17	26
b. Production not expected within the next 5 years	36	51	87
III. Production ceased			
a. Temporarily ceased	15	16	31
b. Ceased	50	83	133
Total	209	290	499

*Including gas storage in one cavern cluster.

1.3 Resource estimates

Gas resources as at 1 January 2022

On 1 January 2022 the total gas resource in developed and undeveloped accumulations was 135.9 billion Nm³ (Table 1.2).

Reserves and contingent resources

The remaining reserves total to 92.6 billion Nm³ of which 4.8 billion Nm³ reserves in the Groningen field and 87.8 billion Nm³ in the remaining (small) fields (Table 1.2).

That part of the contingent resources which is likely to be produced, is partly in currently producing accumulations but the greater share is in as yet undeveloped accumulations. All in all, the small fields contain contingent resources of 19.3 billion Nm³ on land and 24.0 billion Nm³ at sea. As described above the Groningen field does not contain any contingent resources.

Table 1.2 Netherlands natural gas resources as at 1 January 2022, in billion Nm³.

Area	Reserves	Contingent resources (development pending)	Total
Groningen	4.8	-	4.8
On land	33.6	19.3	52.9
At sea	54.2	24.0	78.2
Total	92.6	43.2	135.9

In order to incorporate volumes of natural gas of different qualities in calculations, they have been converted to Groningen gas equivalents (Geq) based on their calorific value (Table 1.3). The Groningen gas equivalent is calculated relative to a calorific value of 35.17 MJ/Nm³, the calorific value of the original content of the Groningen field. Since 2010, however, a calorific value of 35.08 MJ/Nm³ has been assigned to the volume of gas still to be produced from the Groningen field, to reflect a slight change in the composition of the gas produced from this field. The Groningen gas currently being produced is therefore slightly lower than the Groningen equivalent.

Table 1.3 Netherlands natural gas resources as at 1 January 2022, in billion m³ Geq.

Accumulations	Reserves	Contingent resources (development pending)	Total
Groningen	4.8	-	4.8
On land	35.6	20.4	56.0
At sea	62.0	25.8	87.8
Total	102.4	46.2	148.6

Revisions in natural gas supply compared to 1 January 2021

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

- Re-evaluations of previously proven accumulations including new discoveries.
- Production during 2021.

Table 1.4 Revised estimates of expected natural gas resources compared to 1 January 2021, in billion Nm³. Cumulative for reserves and contingent resources. The adjustment is the cumulative of the re-evaluation and production over 2021.

Area	At 01-01-2021	Re-evaluation	Production	Adjustment	At 01-01-2022
Groningen	6.6	4.6	-6.5	-1.9	4.8
On land	61.3	-4.7	-3.7	-8.4	52.9
At zee	70.3	16.8	-8.9	7.9	78.2
Total	138.2	16.8	-19.1	-2.3	135.9

The net result is a decrease of the resource by 2.3 billion Nm³ compared to 1 January 2021. Production in 2021 is described in detail in Chapter 3.

Re-evaluation

Operators periodically evaluate the gas fields in technical and economic terms. New developments and insights may lead to changed estimates of the resources. As a result of such re-evaluations of producing and non-producing fields, the estimates of resources were adjusted upward by 16.8 billion Nm³ in 2021.

The adjustment of the resources is based on commercial considerations, production performance and the implementation of technical modifications. The latter include the drilling of new wells and the application of techniques to prolong production.

The exploration and evaluation wells BLD-01-S2 and N04-03 have found gas (Table 1.5). The locations of the new discoveries are indicated by the asterisks in Figure 1.2. The gas resources in these new accumulations have been taken into account in the re-evaluation (Table 1.4).

Table 1.5 Natural gas accumulations discovered in 2021.

Accumulation	Discovery well	Licence [Type]	Operator
Blesdijke-East	BLD-01-S2	Gorredijk [pl], Steenwijk [pl]	Vermilion Energy Netherlands B.V.
N04-A	N04-03	N04, N05 & N08 [pl]	ONE-Dyas B.V.

pl: production licence

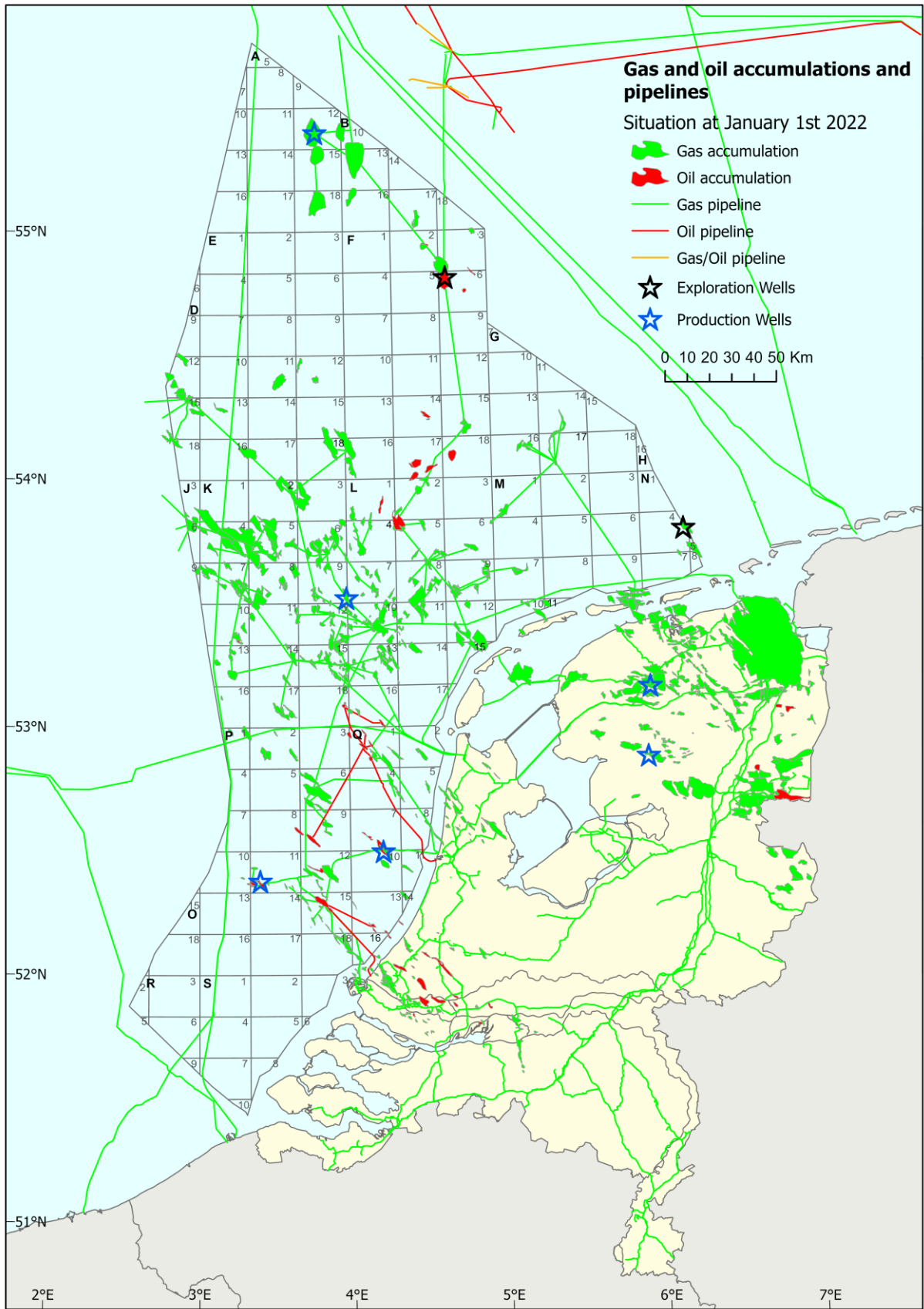


Figure 1.2 Map showing oil and gas accumulations in the Netherlands as at 1 January 2022. All gas wells, including the production wells are asingend with an asterisk.

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 slowing down the decline 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. The coalition agreement has set policy for no new permits to be issued for gas extraction under the Wadden Sea. Gas from the North Sea has less of an impact on society than onshore gas extraction. However at sea other interests must be taken into account, such as 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 up or possibly reused for transport of CO₂ to underground storage in depleted gas fields. It also hints at future developments in the direction of transporting hydrogen from wind farms to the coast. 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. This measure is expected to have a stimulating effect on exploration and production efforts.

Recently, the need for gas production from the Netherlands has been emphasized even more by the Ukraine war. In a recent letter to parliament¹ policy has been announced to slow down the decline in gas production from small fields as much as possible.

The following paragraphs deal successively 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 2018 (letter to the House of Representatives, DGETM-EI / 18057375). The reporting on the small fields is largely composed of data from gas producers. The reference date for the report is 1 January 2022.

The expected developments in the supply of Dutch natural gas (domestic production) describe the coming 25 years (2022 to 2046).

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.

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

The production from the Groningen field is provided in gas years that runs from October to October in the following calendar year. For the gas year 2021/2022, the production level has been set at a gas production of 4.5 billion Nm³. From gas year 2022-2023, the deployment of the Groningen field will change. 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).

On February 14, 2022, a decree made it possible to use UGS Grijpskerk as a low-calorific gas storage facility. This keeps a closure date of the Groningen field in 2023 or 2024 within reach. The definitive closure of the Groningen field depends, among other things, on the moment that UGS Grijpskerk can take over the reserve role of the Groningen field.

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.

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.

- 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).

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 may accelerate gas production and slow down the decline in production levels.
- b. The current higher (expected) gas price.
- 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 stock.
- e. The image of fossil fuels among investing parties leads to a limitation of investment scope for the operator.
- f. 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 (permit) procedures.

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

1. Data of prospects, from the TNO database (based on art. 113 Mining Decree).
2. Expected timing and size of production from reserves and contingent resources (edited profiles from art. 113).
3. Number of expected future exploration wells to be drilled per year.
4. 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.

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. However, geopolitical developments have stressed the desirability of gas production from the Netherlands. 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 low production scenario is presented this year.

Scenario Low consists of a scenario in which 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).

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 in addition to an increase in exploration to 7 wells per year at sea.

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

Note: Due to the uncertainty in the forecasts, the reserves and contingent inventories presented in Section 1.1-1.3 are only comparable to the Low Scenario.

Expected gas production from small fields on land

In 2022, the production of the reserves from the currently producing small fields on land (green in Figure 1.3) is expected to be 3.8 billion m³ Geq per year. A cumulative production from reserves of 21 billion m³ Geq from the small fields on land will be realised until 2038.

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 3 billion m³ Geq. However, the annual production from the contingent resources also shows a gradual decline from 2027 with a very limited production until 2038. Ultimately, up to and including 2045, 7 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 7 billion m³ Geq from prospective resources can be achieved. After 2031, the 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.

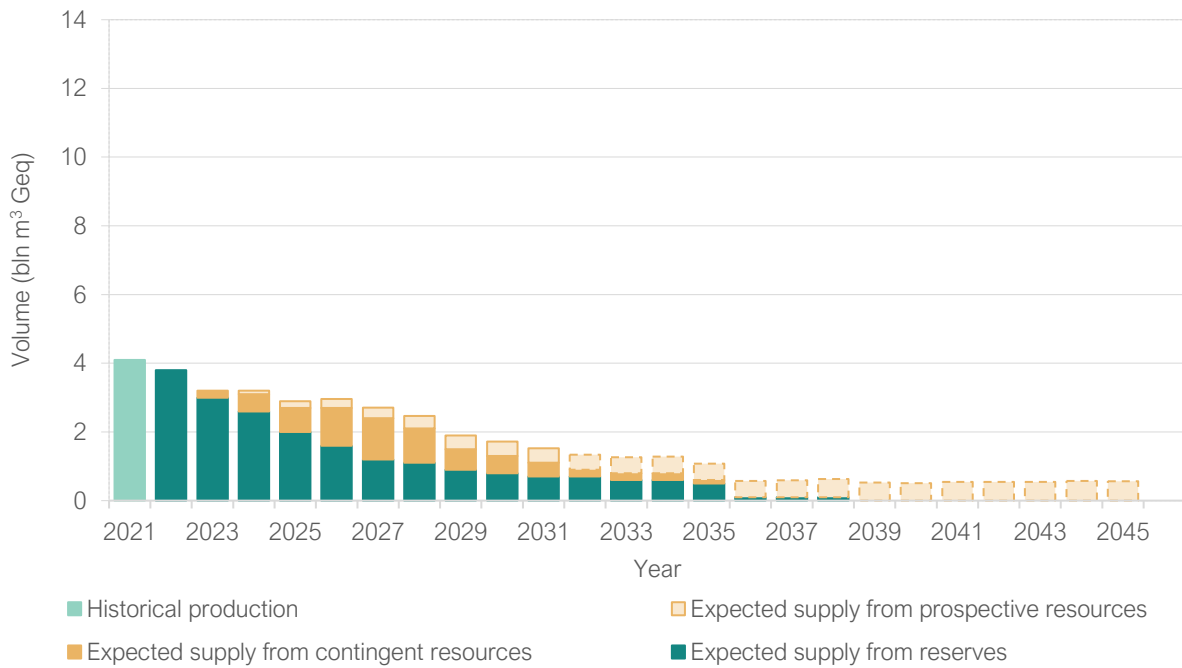


Figure 1.3 Actual production in 2021 and expected production of natural gas from the small fields on land from 2022 to 2046. Production from the Groningen field is excluded. The data underlying this profile are given in Annex B and C. After 2031, the expectations for the prospective resources are very uncertain as the boundary conditions may change. Therefore they are indicated in dotted lines. NB; this figure only shows the Low scenario.

Expected gas production from small fields at sea

In 2021 the annual production of reserves from the producing small fields at sea (green in Figure 1.4) is estimated to be 9 billion m³ Geq decreasing to one billion m³ Geq in 2034. In total, 62 billion m³ Geq of reserves are expected to remain.

As usual, the contingent resources will come into production with a slight delay (yellow). This initially compensates the decrease in production from the reserves. But these resources also show a gradual decrease from 2027 onwards. In total, the contingent resources amount to 1 billion m³ Geq.

Consequently, from 2031 onwards, gas production at sea will have to come mainly from gas fields that have not yet been discovered (light yellow). In total, in the known prospective resources, there is a potential of economically attractive resources of 80 billion m³ Geq. Based on a scenario with four exploration wells per year and subsequent field development, a total production of 56 billion m³ Geq may be realised in the next 25 years. After 2031, the 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.

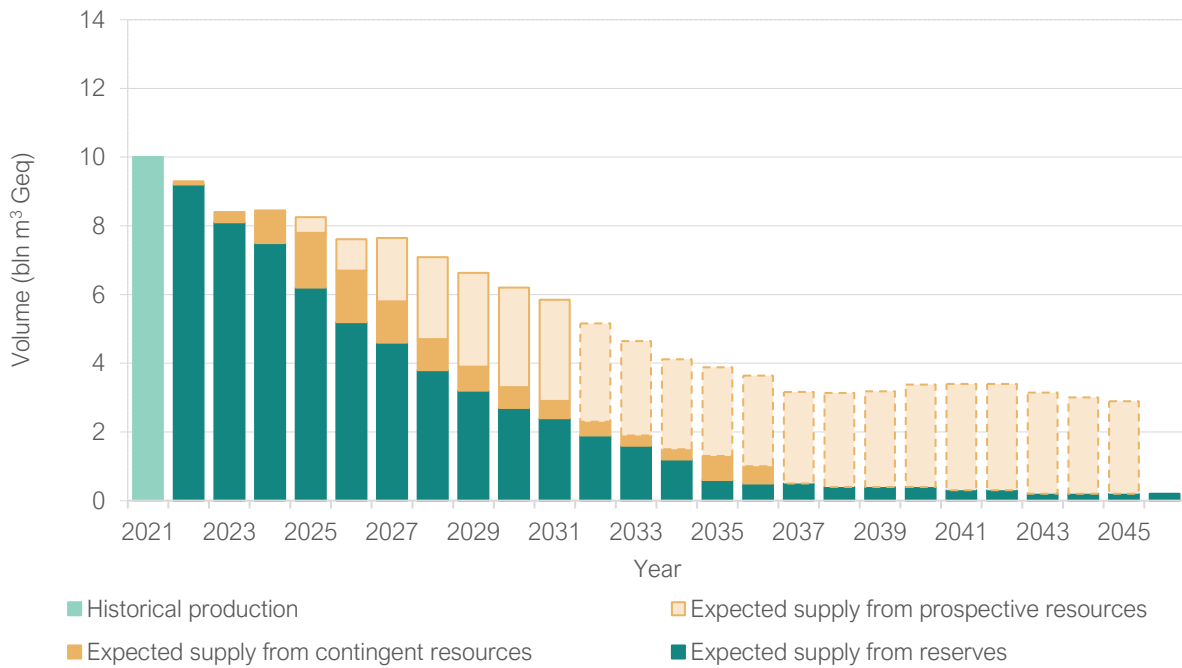


Figure 1.4 Actual production in 2021 and expected production of natural gas from the small fields at sea from 2022 to 2046. The data underlying this profile are given in Annex B and C . After 2031, the expectations for the prospective resources are very uncertain as the boundary conditions may change. Therefore they are indicated in dotted lines NB; this figure only shows the Low scenario.

Since production from existing fields is falling sharply, relatively large shifts may be present in the profile due to the changes in resource classification. This is evident, for example, in the contingent resources, where it gradually decreases until 2034, after which it increases by 0.5 billion m³ Geq.

Expected total gas production from the small fields

Figure 1.5 shows the cumulative forecast of gas production from the small fields for land and sea together for Scenario Low and Scenario High. A very substantial effort is required to realize the High scenario, in particular a tripling of the number of drillings compared to the average of the past 5 years. NB; the gas price has been kept the same in both scenarios, as it has no direct effect on the activity level as long as it does not fall below a minimum level of 15 ct/m³ (as in 2020).

Scenario Low	Scenario High
Entire reserve resources existing fields	
Contingent resources (pending production) with no political bottleneck	Contingent inventories (pending production) Projects with a (politically) uncertain character requiring a decision.
35 ct gas price	35 ct gas price
5 exploration wells	10 exploration wells (Additional offshore wells)

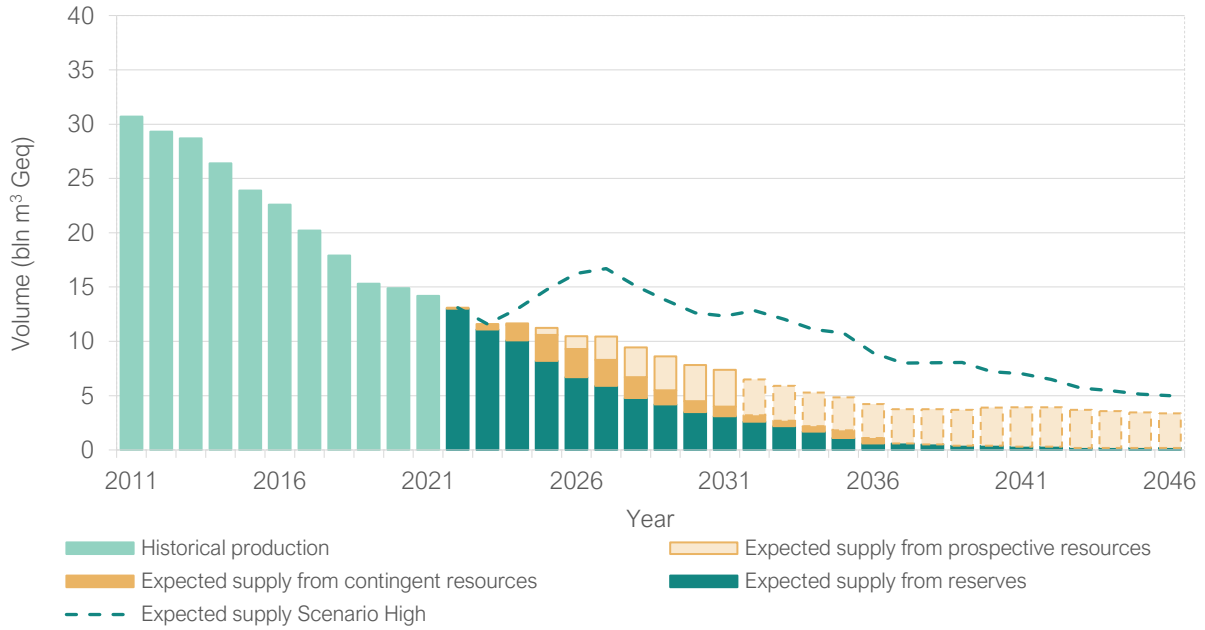


Figure 1.5 Actual production (2011 – 2021) and expected production of natural gas from the small fields (excluding the Groningen field) from 2022 to 2046. The green dotted line shows the production for the High Scenario. The Groningen field has not been taken into account here. For the conversion from 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 Overview B and C. For the conversion from volume unit to energy unit 1 billion m³ Geq equals approximately to 10 TWh or 35 PJ. The data underlying this profile are given in Annex B and C.

2. Oil resources

On 1 January 2022 52 proven oil accumulations were known in the Netherlands (see Table 2.1). Ten of these will be in production as of 1 January 2022 and four more new fields are expected to be put into production in the next five years. Compared to the previous year, one new occurrence was discovered (F06-IJssel) and two fields were merged (Orion). All oil fields are included in Overview 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 2021.

Status of oil accumulation	Land	Sea	Total
I. Developed			
Producing	3	7	10
II. Undeveloped			
a. Production start 2020 - 2024	0	4	4
b. Other	10	15	25
III. Production ceased			
a. Temporarily ceased	0	0	0
b. Ceased	8	5	13
Total	21	31	52

Oil resources as at 1 January 2022

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 (SPE, 2018). Table 2.2 shows the reserves (i.e. part of the resources that can be produced commercially and have been qualified as such by the operators) and the subclass 'development pending' of the contingent resources, for which it may be reasonable to consider as commercially recoverable, but do not yet meet all the criteria. The remaining subclasses of the contingent resources that have a greater uncertainty regarding the eventual realisation (i.e. on hold, unclarified or unviable) are not included in Table 2.2. Because the PRMS is a project-based resource classification, both reserves and contingent resources may be present in one accumulation.

The total oil resources as at 1 January 2022 amounts to 34.8 million Sm³, made up of 10.3 million Sm³ in reserves and 24.6 million Sm³ in contingent resources (development pending).

Table 2.2 Oil resources in million Sm³ as at 1 January 2022.

Area	Reserves	Contingent resources (development pending)	Total
Land	8.4	3.9	12.3
Sea	1.9	20.7	22.6
Total	10.3	24.6	34.8

Revised estimates of the oil resources compared to 1 January 2021

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

- Re-evaluation of previously proven accumulations
- Production during 2021

The total re-evaluation leads to a growth of 6.2 million Sm³ of oil. Production in 2021 is smaller than the re-evaluation, as a result of which the total oil reserves have increased by 5.3 million Sm³ compared to January 1, 2021. It is striking that the total oil stock at sea has increased (again) this year.

Table 2.3 Revised estimates of oil reserves compared to 1 January 2021, in million Sm³.

Area	Oil resources at 1 January 2021	Re-evaluation	Production	Adjustment	Oil resources at 1 January 2022
Land	14.1	-1.4	-0.4	-1.8	12.3
Sea	15.5	7.5	-0.4	7.1	22.6
Total	29.6	6.2	-0.9	5.3	34.8

Figure 2.1 and Overview D show the realized oil production from 2011 and the prognosed oil production for the next twenty-five years. The prognosis is based on the operators' annual reports. Within the prognosis displayed in figure 2.1, TNO has taken into account the uncertainty surrounding the development of the contingent resources. Compared to last year's prognosis (0.9 million Sm³), production has barely lagged behind (-3 %). Because some oil fields will come into production in 2024, the expected production from contingent resources will increase significantly from that year. The abrupt decline in production in 2039 is due to the fact that the production prognosis of the reserves for a number of fields is limited to the year 2038. In addition, the number of producing fields is small, so that adjustments in prognosis of a small number of them have a direct effect on the cumulative profile.

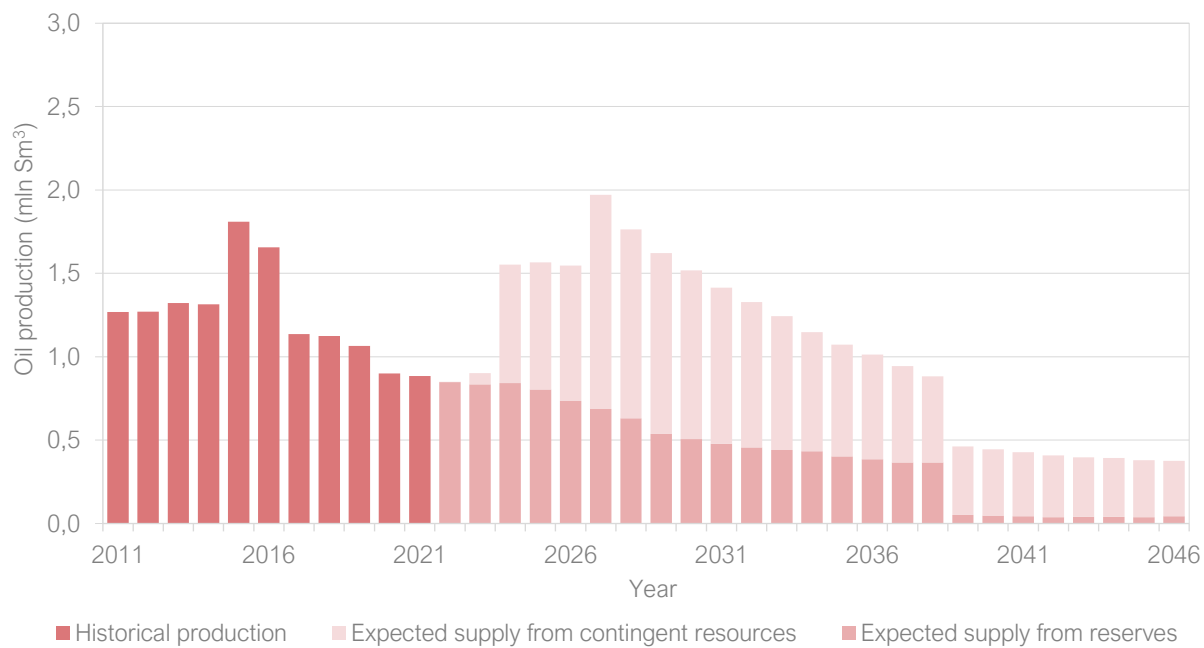


Figure 2.1 Historical (2011-2021) and prognosed (2022-2046) oil production on both land and sea from 2011 to 2046 (in miljoen Sm³).

3.

Production of natural gas, oil and condensate

During the year 2021, the fields below were put into production or taken out of production.

Table 3.1 Fields put into production in 2021

Field name	In production	Discovery year	Mineral
P11b-Van Ghent East	November	2011	Gas
P11b-Witte de With	November	2013	Gas

Table 3.2 Fields taken out of production in 2021

Field name	Out of production	Discovery year	Mineral
Zuidwal	January	1970	Gas
P11b-Van Ghent	February	2008	Oil & Gas
K09c-C	April	2017	Gas
Q04-A	April	1999	Gas
Q04-B	April	1998	Gas
K09c-A	July	1985	Gas
P06-D	July	2000	Gas
P06-Main	July	1968	Gas
Annerveen	July	1962	Gas
D12-A	July	2002	Gas
Kiel-Windeweer	July	1997	Gas
K09ab-A	August	1983	Gas

The tables below show the aggregated production figures for natural gas, oil and condensate in 2021. Condensate is considered a by-product of oil or gas production. The changes compared to 2020 are shown in both absolute and percentage terms. The tables are based on production data provided by the operators.

The decrease in gas production compared to 2020 (-10.2 %) is this year again largely due to the reduction in production from the Groningen gas field (-18.5%). Excluding the Groningen gas field, the decrease in gas production in the small fields is -5.1 % on land and -5.3 % at sea (Table 3.3).

We do not see the same picture in oil production. The oil production on land has increased here (+9.0 %) and in a volume that even exceeds the decrease at sea (-6.6 %), as a result of which the total oil production in the Netherlands has increased slightly this year (+0.7 %) (Table 3.4).

Overview of production in 2021 and changes compared to 2020

Table 3.3 Natural gas production in 2021 and changes compared to 2020 (in billion Nm³)

Field	Production 2020	Production 2021	Changes compared to 2020	%
Groningen	8.0	6.5	-1.5	-18.5
Other, on land	3.9	3.7	-0.2	-5.1
On land (subtotal)	11.9	10.2	-1.7	-14.0
At sea	9.4	8.9	-0.5	-5.3
Total	21.3	19.1	-2.2	-10.2

Table 3.4 Oil production in 2021 and changes compared to 2020 (in 1000 Sm³)

Field	Production 2020	Production 2021	Changes compared to 2020	%
On land	412.0	448.9	36.9	9.0
At sea	467.6	436.5	-31.0	-6.6
Total	879.6	885.4	5.8	0.7
Production per day*	2.410	2.426	0.016	

* Total annual production of oil, divided by 365 days.

Table 3.5 Condensate production in 2021 and changes compared to 2020 (in 1000 Sm³)

Field	Production 2020	Production 2021	Changes compared to 2020	%
On land	73,7	71,3	-2,4	-3,3
At sea	72,1	61,1	-11,0	-15,2
Total	145,8	132,5	-13,4	-9,2

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

** Excluding coproduced condensate from production licences for geothermal energy.

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

3.1 Natural gas production on land in 2021

The table below gives the monthly production of natural gas for each production licence on land. The production per licence is a summation of the well production of those wells with a surface location within the relevant licence. The production data was provided by the operators. Slight differences may occur with the totals per year due to rounding off the monthly production.

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

Table 3.6 Natural gas production on land in 2021, per licence (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	0.4	0.8	1.1	1.0	0.9	0.6	0.6	0.8	0.2	0.0	0.0	0.4	6.8
Beijerland	NAM	1.2	1.4	0.2	0.9	0.6	0.4	0.7	1.1	0.4	1.0	0.4	0.6	8.9
Bergen II	TAQA On	3.4	1.1	1.9	3.3	3.4	1.0	3.4	3.6	3.2	3.2	3.0	2.5	33.0
Botlek III	NAM	16.6	11.6	15.1	14.7	13.8	10.0	9.9	13.6	7.9	11.2	10.2	10.4	145.0
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	14.0	11.9	12.6	12.8	13.4	12.2	7.8	7.5	8.7	6.9	6.2	6.8	120.8
Drenthe IV	Vermilion	0.4	0.0	0.0	0.0	0.0	0.0	0.6	0.5	0.3	0.3	0.1	0.2	2.6
Drenthe V	Vermilion	1.1	1.3	1.0	1.4	1.2	0.9	1.4	0.8	1.3	1.5	1.2	1.1	14.4
Drenthe VI	Vermilion	21.2	19.2	20.4	18.8	20.2	17.7	19.2	19.9	14.8	15.6	14.8	15.6	217.3
Gorredijk	Vermilion	10.9	6.9	6.7	7.2	5.5	3.0	2.2	2.4	11.0	11.9	11.8	11.7	91.1
Groningen	NAM	968.6	729.1	862.3	872.6	824.7	347.8	469.8	509.8	451.8	123.7	405.3	525.5	7,090.8
Hardenberg	NAM	1.9	1.6	1.8	1.4	1.6	1.6	1.7	1.0	1.4	1.7	1.7	2.0	19.4
Leeuwarden	Vermilion	3.5	2.5	3.3	2.9	2.9	2.3	2.5	1.7	13.2	13.5	15.2	14.4	78.0
Middelie	NAM	25.3	21.2	23.7	22.6	22.2	21.4	22.1	22.8	21.4	21.7	10.3	20.8	255.4
Noord-Friesland	NAM	132.6	123.4	132.0	110.4	113.3	114.2	123.2	123.2	116.8	111.3	116.0	121.1	1,437.7
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	20.1	22.8	20.2	14.7	13.1	14.5	9.5	20.6	16.6	19.0	20.2	18.8	210.1
Schoonebeek	NAM	32.3	27.2	30.9	28.8	27.4	25.4	29.7	18.2	25.1	27.0	24.9	23.0	320.0
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	11.0	9.2	10.3	8.9	9.5	8.1	8.7	10.3	6.3	6.2	5.8	5.9	100.2
Tietjerksteradeel II	Vermilion	5.8	5.3	5.5	5.5	7.7	5.4	7.0	7.2	7.2	7.3	6.9	7.0	77.9
Tietjerksteradeel III	NAM	4.6	3.8	4.2	4.1	4.1	2.7	3.6	2.6	2.8	2.4	3.3	4.0	42.0
Waalwijk	Vermilion	1.8	1.4	1.6	1.2	1.0	0.9	0.0	0.0	0.5	1.8	1.8	1.7	13.7
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		1,276.7	1,001.7	1,154.8	1,133.3	1,086.4	590.1	723.6	767.7	710.9	387.2	659.2	793.6	10,285.3

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

Production on land per stratigraphic reservoir

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

Figure 3.1 shows that the largest contribution to gas production from the small fields comes from the Rotliegend and Triassic reservoirs. The sharp decrease in production of about -10 % per year over the period 2003 - 2006 is reversed in 2007, mainly due to the start of natural gas extraction from fields under the Wadden Sea. From 2008, the annual production continues to drop by about -5 % per year. In 2013 the

annual production deviates from this trend with a slight increase. Yet the downward trend resumes after 2013 and becomes even more pronounced in recent years. During the period 2017 – 2019, decreases are calculated of -12 %, -15 % and -22 % respectively. This downward trend continues in 2020 and 2021, but less strong (-4 %).

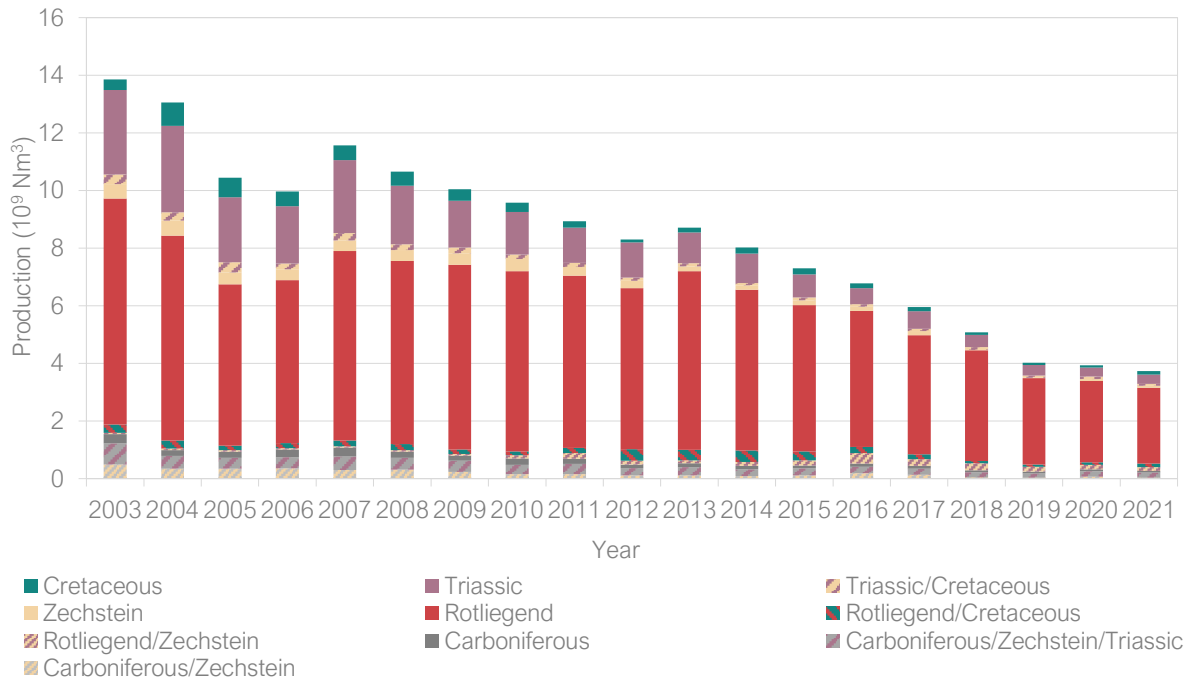


Figure 3.1 Gas production on land, per reservoir (excluding the Groningen gas field).

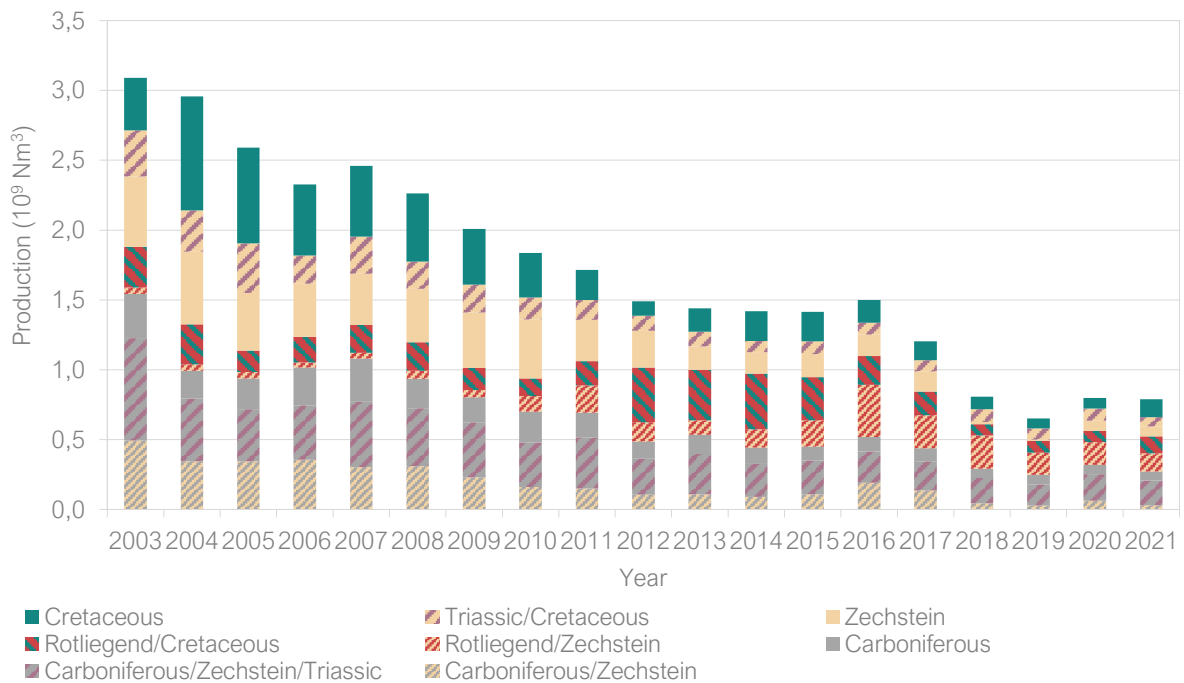


Figure 3.2 Gas production on land, per reservoir (excluding gas field Groningen, Rotliegend and Triassic reservoirs).

In Figure 3.2 the contributions from the Rotliegend and Triassic reservoirs are not included. This makes the contributions to gas production from Cretaceous, Zechstein and Carboniferous reservoirs more clearly

visible. It is also noted that on the mainland there is no production from Jurassic reservoirs. Production from this group of reservoirs generally shows a declining trend, but production has been stable from 2012 onwards. This is mainly due to the production from the Cretaceous and Zechstein (Slootdorp field) while the production from the combined Rotliegend/Cretaceous reservoirs actually decreases (depletion of the Vinkega in particular). The increase in production in the Rotliegend/Zechstein group of reservoirs in 2016 was caused by an increase in production from Middelie from 29 to 161 million Nm³ and the reclassification of Slootdorp due to the start of production from the Rotliegend (this was Zechstein only). From 2017, gas production will once again show a sharp, declining trend due to the pressure reduction of the existing fields. The production increase of the Zechstein, Carboniferous/Zechstein and Carboniferous/Zechstein/Triassic reservoirs has reversed the downward trend in 2020

3.2 Natural gas production at sea in 2021

The table below gives the monthly production of natural gas for each offshore production licence. The production per licence is a summation of the well production of those wells with a surface location within the relevant licence. The production data was provided by the operators. Slight differences may occur with the totals per year due to rounding off the monthly production.

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

Table 3.7 Natural gas production at sea in 2021 (in million Nm³)

Licence	Operator	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Total
A12a	Petrogas	21.8	19.2	27.0	35.3	36.1	32.3	37.7	37.1	24.1	32.0	41.1	41.2	384.8
A18a	Petrogas	47.2	39.7	39.4	44.7	44.8	39.1	42.2	39.5	29.4	35.2	41.3	40.2	482.7
B10c & B13a	Petrogas	23.6	21.4	18.8	19.7	19.7	20.0	20.8	18.0	12.1	16.7	20.2	18.1	229.1
D12a	Wintershall	93.6	82.5	92.0	79.3	69.2	77.9	81.1	36.6	65.9	65.5	63.6	58.2	865.4
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
D18a	Neptune	0.0	0.0	0.0	0.0	0.0	0.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	0.0
E17a & E17b	Neptune	36.6	30.0	37.1	34.1	30.2	9.8	24.4	30.0	28.1	22.3	24.9	25.1	332.6
F02a	Dana NL	1.3	1.2	1.3	1.2	1.1	1.1	1.3	1.2	0.7	1.4	1.3	1.3	14.5
F03a	Spirit	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
F03b	Neptune	14.0	12.8	10.7	13.2	13.8	8.3	13.3	12.3	8.2	5.5	12.4	12.3	136.8
F15a	TotalEnergies	10.1	9.8	10.4	10.0	9.3	7.8	8.2	7.9	7.1	6.1	7.7	5.0	99.4
F16a & F16b	Wintershall	0.0	0.0	0.0	0.0	0.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	0.0
G14 & G17b	Neptune	23.3	20.3	13.3	20.4	19.6	26.4	19.1	11.9	28.1	29.6	26.5	25.2	263.7
G16a	Neptune	20.6	18.2	9.7	17.8	18.4	18.6	11.9	4.5	17.1	20.6	17.3	18.4	193.1
G17c & G17d	Neptune	7.1	6.1	3.0	6.2	5.9	6.1	3.5	0.3	3.2	3.9	3.0	3.4	51.8
J03b & J06a	Spirit	5.4	6.7	3.1	5.9	5.3	5.7	3.4	3.3	0.3	0.0	0.0	0.0	39.1
K01a	TotalEnergies	13.5	11.1	6.5	13.1	15.2	13.9	9.8	11.6	1.0	0.0	5.6	12.9	114.2
K02b	Neptune	11.9	9.1	10.6	11.3	9.0	6.5	8.6	12.5	12.2	10.7	11.2	10.6	124.4
K04a	TotalEnergies	28.5	26.1	27.4	26.2	27.5	24.8	26.6	22.2	11.0	23.0	21.1	21.7	286.1

Licence	Operator	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Total
K04b & K05a	TotalEnergies	50.3	46.2	50.8	48.2	49.5	46.9	48.4	41.1	28.1	47.9	46.0	47.1	550.5
K05b & K05c	TotalEnergies	5.1	3.7	3.9	4.8	4.9	3.7	1.4	4.3	3.7	5.6	5.2	5.0	51.4
K06a, K06b, L07a, L07b & L07c	TotalEnergies	15.4	17.3	19.3	20.2	17.5	20.2	20.3	11.8	21.6	16.0	15.7	15.0	210.3
K07	NAM	7.3	4.2	4.3	3.8	3.9	3.7	4.2	1.2	4.1	4.3	3.7	5.1	49.8
K08 & K11a	NAM	25.4	18.6	19.6	22.3	20.5	16.7	17.2	15.5	9.9	21.4	15.4	14.4	217.0
K09a & K09b	Neptune	0.3	0.8	0.0	0.0	0.5	3.1	1.5	2.8	3.8	4.5	2.0	4.0	23.3
K09c & K09d	Neptune	1.3	1.1	1.1	1.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.7
K12a	Neptune	38.1	30.7	33.0	19.7	22.2	25.8	37.2	37.9	34.9	34.6	33.2	32.0	379.4
K14a	NAM	2.5	0.8	2.0	1.7	2.2	1.5	2.0	2.1	2.1	2.3	1.7	2.3	23.2
K15	NAM	39.7	31.3	37.9	37.6	38.8	33.3	36.6	35.0	8.7	27.7	36.0	36.6	399.1
K17a	NAM	6.6	6.6	7.0	6.1	5.3	4.6	5.1	5.6	1.5	1.8	4.9	4.7	59.8
K18b	Wintershall	21.0	14.0	18.9	17.3	17.4	14.8	16.3	16.8	10.5	15.2	15.3	15.6	193.0
L02	NAM	21.5	19.3	20.9	19.8	19.3	16.7	20.1	20.8	19.7	20.4	20.7	15.5	234.8
L04a & L04b	TotalEnergies	9.3	13.7	13.4	9.0	9.8	9.4	14.3	8.0	12.0	12.8	11.6	12.4	135.7
L05a	Neptune	47.1	30.9	48.7	51.8	49.4	46.6	50.8	45.7	5.3	46.3	50.3	28.7	501.7
L05b	Wintershall	6.0	5.7	6.1	3.4	1.8	2.6	2.3	2.3	1.8	1.8	1.8	1.8	37.4
L06a	Wintershall	4.4	3.6	3.7	2.5	1.7	3.4	3.4	3.9	3.0	3.4	3.4	3.4	39.9
L08b, L08d & L08e	Wintershall	6.7	6.0	6.3	4.7	3.6	6.4	6.5	6.7	5.9	5.9	6.1	6.2	71.1
L09	NAM	28.3	16.7	24.4	22.3	22.2	20.5	21.1	16.6	19.3	20.8	19.1	17.3	248.5
L10 & L11a	Neptune	19.2	16.5	17.3	10.7	8.2	9.3	13.2	12.1	15.3	18.1	17.5	17.2	174.8
L11b	ONE Dyas	20.2	20.2	13.4	9.7	7.0	10.3	4.2	9.0	10.0	9.5	17.5	12.5	143.7
L12b & L15b	Neptune	20.7	14.9	10.7	18.9	17.6	16.4	17.3	18.0	15.9	12.1	5.7	18.0	186.2
L13	NAM	27.2	20.8	23.7	23.6	22.1	13.5	22.3	21.8	20.7	19.3	15.2	20.7	250.7
M07a	ONE Dyas	13.5	10.1	13.4	13.3	13.8	10.5	13.1	10.0	10.8	11.9	10.9	11.6	143.1
P06a	Wintershall	7.6	6.4	7.4	6.8	6.3	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	34.6
P09a	Petrogas	0.0	0.0	0.0	0.0	0.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	0.0
P09c	Petrogas	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	1.1
P11b	DANA NL	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.8	0.8	0.6	15.5	25.3	49.3
P15a, P15b, P15d, P15e & P15f	TAQA OFF	0.3	0.3	0.3	0.3	0.3	0.2	0.0	0.1	0.0	0.2	0.2	0.2	2.5
P15c, P15g, P15h, P15i & P15j	TAQA OFF	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
P18a	TAQA OFF	8.1	7.5	9.7	8.6	9.5	4.7	0.3	1.9	1.7	8.4	8.3	5.5	74.2
Q01a-ondiep & Q01b-ondiep	Petrogas	0.1	0.1	0.0	0.0	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	1.2
Q01c-diep	Wintershall	12.6	14.1	15.2	14.1	14.6	4.1	9.5	15.5	13.8	6.5	0.7	0.5	121.2
Q04a	Wintershall	11.5	12.7	14.3	8.9	9.3	2.1	6.4	9.1	8.5	3.8	4.7	11.3	102.4
Q07 & Q10a	KISTOS2	53.8	44.4	48.2	36.3	37.4	24.2	17.1	10.9	15.2	49.2	56.2	56.2	449.1
Q13a	Neptune	0.9	0.7	0.8	0.7	0.7	0.6	0.3	0.3	0.2	0.6	0.7	0.7	7.3

Licence	Operator	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Total
Q16a	ONE Dyas	4.2	2.9	4.0	3.7	3.8	2.0	0.1	1.3	0.7	3.2	3.7	3.0	32.6
Q16c-diep	ONE Dyas	0.2	0.0	6.5	10.6	4.4	3.3	0.0	0.0	0.8	1.5	0.9	0.0	28.2
Total		896.0	758.1	817.7	801.9	772.0	680.6	725.3	638.2	558.9	710.5	747.1	743.7	8,850.0

Production at sea per stratigraphic reservoir

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

Figure 3.3 shows all producing reservoir groups. The figure shows, as on land, that the contribution of the Rotliegend and Triassic reservoirs is dominant. From 2003 to 2007, production is still growing slightly, but from 2008 it decreases steadily. In 2011, the production at sea falls below 20 billion Nm³ per year. The strongly decreasing trend in production (approx. -9% per year) over the period 2014–2019 is reversed in 2020, mainly due to the start of gas production from gas field D12-B.

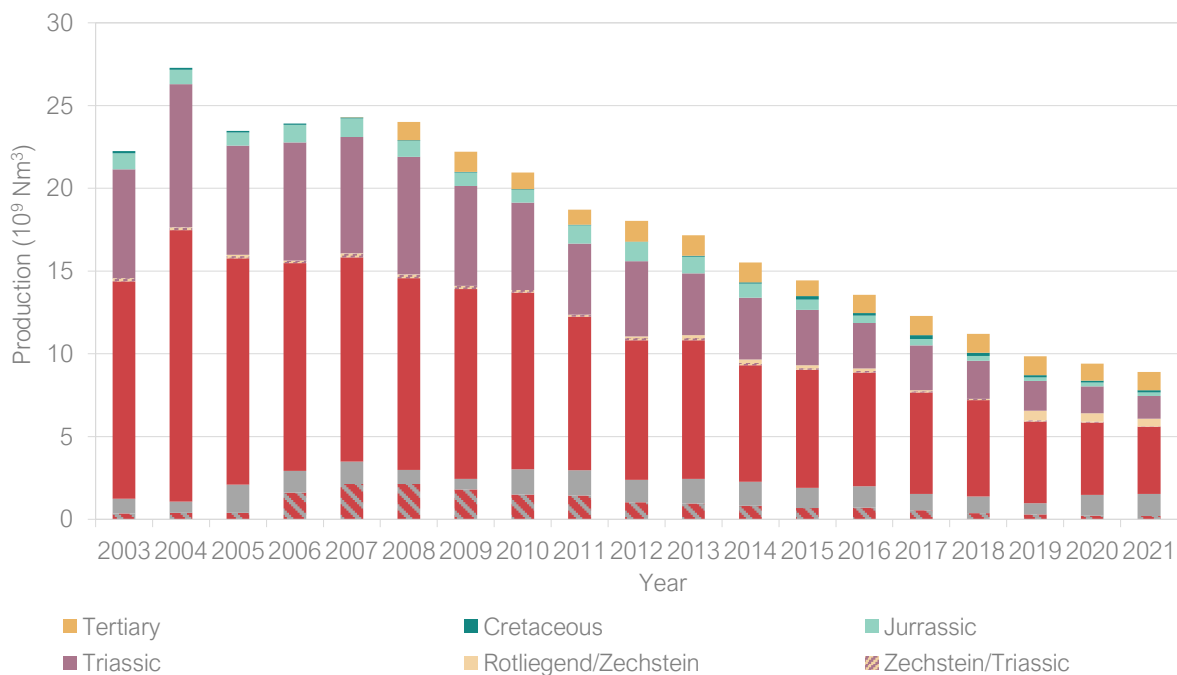


Figure 3.3 Gas production at sea, per reservoir.

In Figure 3.4 the contributions from the Rotliegend and Triassic reservoirs are not included, so that the contributions from other reservoirs to the total gas production are more visible. Over the period 2005 - 2007, the contribution from fields with a combined Carboniferous–Rotliegend reservoir has almost tripled, since 2008 the production from this reservoir has gradually decreased again. Striking is the start of production from the so-called 'shallow gas' reservoirs (Tertiary) in the northern offshore in 2008. Production from the Tertiary remains reasonably stable because the B13-A field was put into production in 2015. The start of production of Q10-A (Rotliegend/Zechstein) in 2019 and D12-B (Carboniferous) in 2020 has reversed the downward trend from 2016 to 2018. Production in 2021 has increased again compared to last year due to the good production of A12-FA, D12-B and D.



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

3.3 Oil and condensate production in 2021

The tables below give the monthly production of oil and condensate for each production licence. The production per licence is a summation of the well production of those wells with a surface location within the relevant licence. The production data was provided by the operators. Slight differences may occur with the totals per year due to rounding off the monthly production.

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

Table 3.8 Oil production in 2021, per licence (in 1000 Sm³)

Licence *	Operator	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Total
Rijswijk	NAM	12.5	9.7	6.3	11.5	11.7	4.3	11.7	10.4	10.9	13.1	12.7	12.4	127.3
Schoonbeek	NAM	39.0	36.3	44.3	40.1	37.3	37.8	36.4	40.3	1.5	1.6	0.0	6.9	321.5
F02a	Dana NL	11.4	9.9	11.0	10.3	10.1	8.9	10.9	10.8	6.2	12.4	11.4	11.3	124.6
F03b	Neptune	3.5	3.2	2.6	3.2	3.5	2.0	3.2	3.1	2.1	1.2	3.1	3.1	33.7
P09c	Petrogas	1.7	1.3	0.9	0.9	1.2	1.1	0.7	1.2	1.1	1.1	1.0	1.3	13.4
P11b	Dana NL	5.9	5.2	5.8	4.6	5.7	5.1	6.0	4.6	5.2	4.0	5.2	4.4	61.7
P15a, P15b, P15d, P15e & P15f	TAQA OFF	3.5	3.1	3.3	3.2	3.3	3.2	3.2	1.8	0.1	2.1	2.7	2.3	31.8
Q01a-ondiep & Q01b-ondiep	Petrogas	1.6	3.1	2.6	2.4	3.9	1.5	1.2	3.3	3.4	3.0	3.0	3.0	32.1
Q13a	Neptune	10.8	9.7	10.3	9.5	9.4	8.2	9.9	4.4	2.2	8.6	8.6	8.4	99.8
Q16c-diep	ONE Dyas	0.9	0.0	1.1	4.8	9.2	9.7	0.0	0.3	5.0	5.7	2.8	0.0	39.4
Total		90.8	81.4	88.2	90.6	95.3	81.8	83.1	80.1	37.5	52.9	50.5	53.2	885.4

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

Table 3.9 Condensate* production in 2021, per licence (in 1000 Sm³)

Licence **	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
On land ***	8.2	6.2	6.5	6.3	5.8	5.7	4.5	5.9	5.3	5.8	5.0	6.2	71.3
At sea	6.6	5.2	6.4	6.0	5.9	4.9	4.3	4.4	3.1	4.1	5.2	5.1	61.1
Total	14.8	11.3	12.9	12.3	11.7	10.6	8.8	10.2	8.4	9.9	10.2	11.3	132.5

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

** Excluding coproduced condensate from production licences for geothermal energy.

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

4.

Subsurface storage

4.1 Introduction subsurface storage

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 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 meter) 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).

4.2 Overview licences

One new storage licence was applied for in 2021. It concerns the permanent storage of CO₂ in the depleted gas field P18-2. The proposed decree was made available for examination on 17 December 2021. As of 1 January 2022 nine storage licences were in force. The storage licence P18-4 for CO₂ has already been granted but is 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 the map with the location of the storage permits.

Gas storage

During several decades the seasonal variation in gas demand (winter/summer) was balanced by adjusting the level of gas production of the Groningen field. An important reason for this was that the small fields could be produced without being disturbed (as part of the small fields policy). As the reserves in the Groningen field decreased, the pressure and thus the flexibility in the production rate of the Groningen field gradually declined accordingly. In order to maintain sufficient flexibility to meet fluctuations in gas demand and thus guarantee the security of gas supply, four underground gas storage facilities have been put into operation since 1997.

Since 1997, the natural gas in the 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 for the Dutch gas system 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 at least until recently 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.

The natural gas is stored in (former) gas fields, except in Zuidwending where storage takes place in salt caverns.

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



Figure 4.1 Storage licences as of 1 January 2022.

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 2021. From 2015 onwards, the capacity used by the storage facility in Norg has risen sharply because the working volume in the storage plan was increased from 3 to 7 billion Nm³ (adjusted to 6 billion Nm³ in 2019) after the production of Groningen was reduced. Also, the Bergermeer storage facility discharged more gas from 2016 after years of filling.

The mismatch of injection and discharge in Grijpskerk in particular in 2021 was caused by the low level of filling combined with a relatively high extraction of natural gas. This is mainly caused by underfilling before the start of winter 2021. The recent events in Ukraine and volatile gas prices will have an effect on the filling levels of the gas storages in 2022. The EU requires each member state to fill its gas storage facilities to at least 80% and the Netherlands has also taken measures² to achieve this.

In addition to the underground storage facilities for natural gas, liquefied natural gas (LNG) is stored in tanks at surface at a terminal on the Maasvlakte (with a total capacity of approximately 310 million m³ gas considerably smaller than underground storage). This terminal, owned by Gasunie and Vopak, also plays a role in gas supply in times of high peaks in gas demand, for example on very cold winter days.

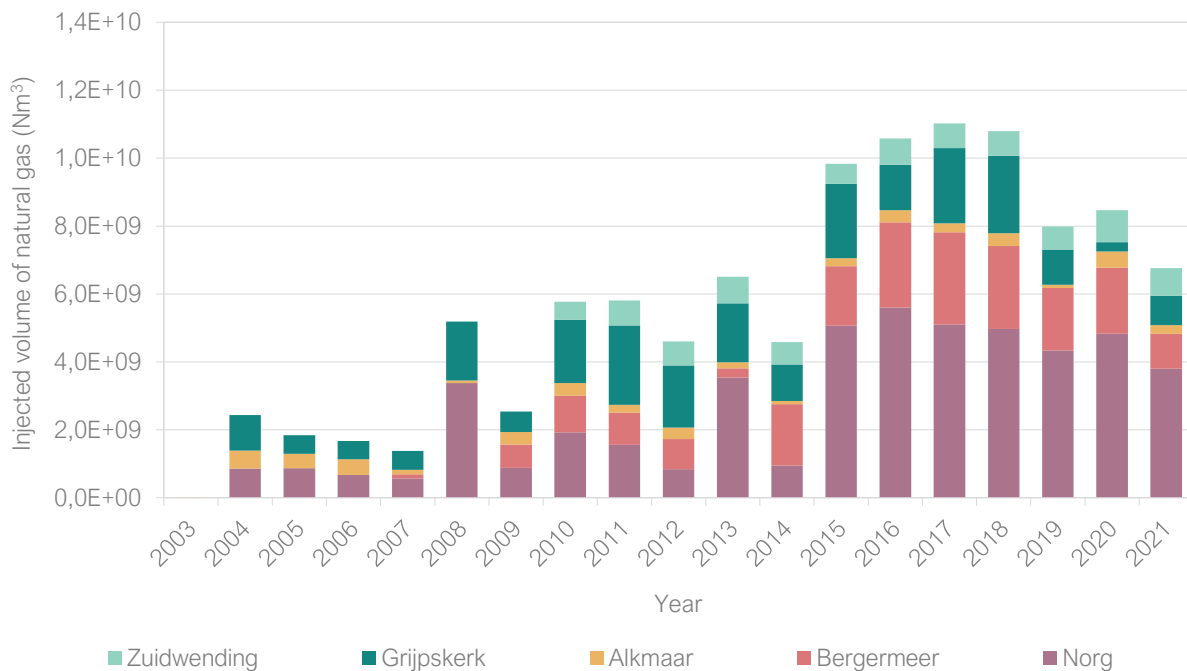


Figure 4.2 Injected volume of natural gas per UGS from 2003 to 2021.

²<https://www.rijksoverheid.nl/actueel/nieuws/2022/07/05/kabinet-zet-in-op-zoveel-mogelijk-vullen-gasopslagen>

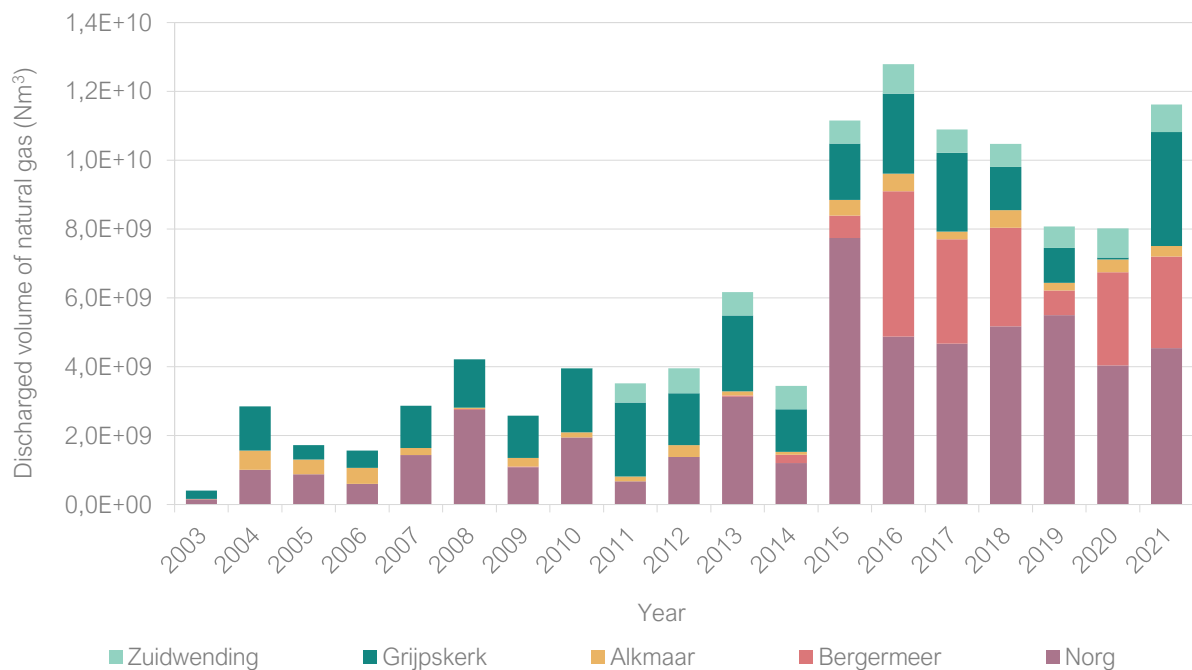


Figure 4.3 Discharged volume of natural gas per UGS from 2003 to 2021.

Storage of nitrogen and oil

In The Netherlands, the subsurface is used for the 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) nitrogen used to convert high-calorific gas to low-calorific Groningen quality gas is stored.

CO₂ storage

There are advanced plans to use depleted offshore natural gas fields in the coming years to provide significant capacity for the permanent storage of CO₂. For the depleted gas field P18-4, located just off the coast of Zuid-Holland, a storage licence was granted in 2013, but it is not yet in force. On 17 December 2021, a proposed amendment decree was made available for public examination. The plan is to store up to 8 Mton CO₂ in the depleted gas field P18-4 from 2026 to 2041. For the adjacent gas field P18-2 a storage licence has been requested in 2021. The plan is to store a maximum of 32 Mt CO₂ in here from 2024 to 2041.

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 producing 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 2021

The monthly quantities of natural gas and nitrogen that were stored in the subsurface and consequently discharged in 2021, 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	Total	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
Alkmaar	TAQA	255	-	-	0	-	-	0	113	106	36	0	0	0
Bergermeer	TAQA	1,027	-	0	0	54	0	63	158	203	294	115	74	65
Grijpskerk	NAM	871	0	0	0	0	228	236	30	13	365	0	0	0
Norg	NAM	3,802	0	0	0	0	290	911	907	1056	638	0	0	0
Zuidwending	EnergyStock	808	32	60	40	57	56	62	79	170	98	46	33	74
Total		6,762	32	60	40	111	574	1,273	1,287	1,548	1,430	161	107	139

Table 4.3 Discharged natural gas (in million Nm³).

Licence	Operator	Total	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
Alkmaar	TAQA	309	-	213	0	-	-	0	0	0	0	0	74	22
Bergermeer	TAQA	2,658	870	526	450	85	140	12	64	62	10	0	150	289
Grijpskerk	NAM	3,304	1,306	582	31	80	0	0	0	0	0	18	1	1,286
Norg	NAM	4,546	885	769	486	532	0	0	0	0	0	144	732	997
Zuidwending	EnergyStock	802	143	79	116	85	46	34	34	6	40	72	64	83
Total		11,620	3,203	2,169	1,083	782	186	47	98	69	51	235	1,021	2,678

Table 4.4 Stored nitrogen (in million Nm³).

Licence	Operator	Total	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
Winschoten II	Gasunie	58.0	3.8	2.9	9.2	5.3	4.3	3.0	5.4	4.2	4.7	7.3	0.4	7.3

Table 4.5 Discharged nitrogen (in million Nm³).

Licence	Operator	Total	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
Winschoten II	Gasunie	66.6	14.6	1.7	2.3	1.8	4.3	10.2	1.9	7.1	8.3	4.1	4.3	5.9

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 2021. 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 2021.

Status date	Number	Description	Remarks
01-01-2021	39	Exploration licences in the process of application	Out of 39, 8 were in full competition
Changes in 2021	24	Geothermal exploration licences awarded	Of the 24, 5 were in full competition.
	5	Geothermal exploration licences rejected	Of the 5, 3 were in full competition.
	4	Geothermal exploration licences applied for*	Of the 4 applications, 1 application was submitted in full competition.
01-01-2022	14	Exploration licences in the process of application	-

* In addition 6 more applications were filed late 2021. These were not yet officially published in the Government Gazette in 2021. These unpublished applications will be included in the 2022 statistics.

Table 5.2 Changes in licenced exploration licences for geothermal energy in 2021.

Status date	Number	Description
01-01-2021	60	Geothermal energy exploration licences in force.
Changes in 2021	24	Geothermal exploration licences awarded.
	4 → 2	4 geothermal exploration licences merged into 2.
	4 → 8	4 geothermal exploration licences split into 8.
	3	Geothermal exploration licences converted into production licences for geothermal energy.
	1	Geothermal exploration licence was expired, withdrawn or relinquished .
	17	Geothermal exploration licences were extended or applied for an extension.
	4	Geothermal exploration licences were spatially restricted.
01-01-2022	82	Geothermal energy exploration licences in force.

Table 5.3 Changes in geothermal production licences in 2021.

Status date	Number	Description
01-01-2021	25	Geothermal production licences in force.
	5*	Geothermal production licences in the process of application.
	3	Geothermal production licences awarded.
Changes in 2021	3	Geothermal production licences applied for.
01-01-2022	5	Geothermal production licences in the process of application.
	28	Geothermal production licences in force.

* 2 of these were submitted late December 2020 and were published in 2021.

Changes in the licence position in 2021 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 position. In the histogram bar of year 2021 the number of licence applications is presented as well.

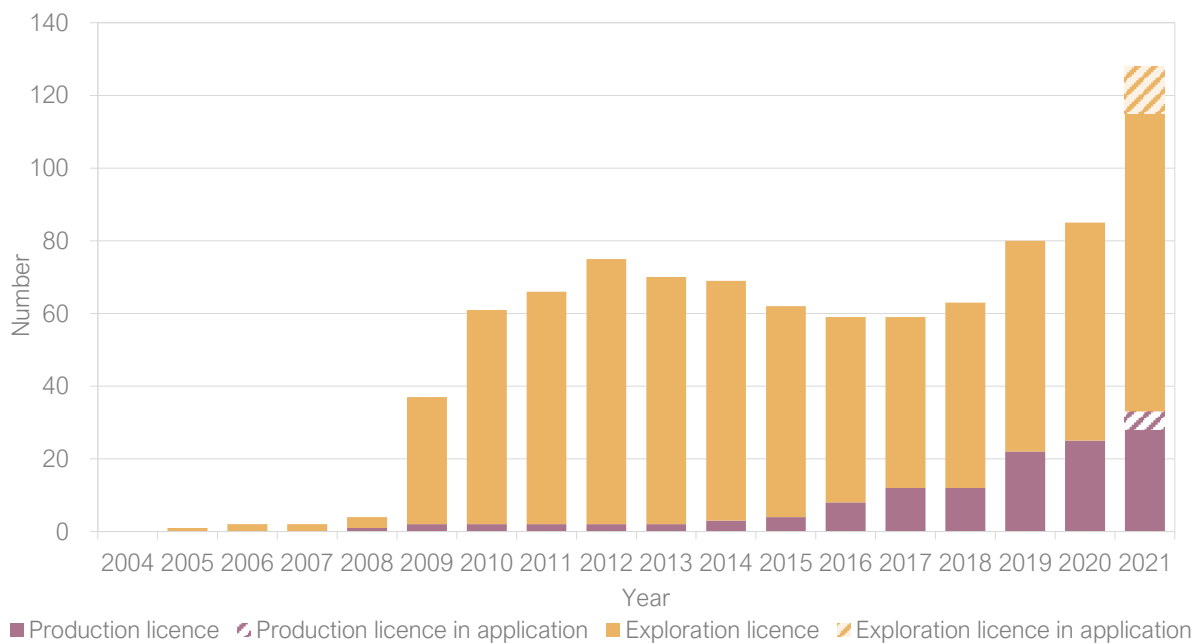


Figure 5.1 Number of licences for geothermal energy in force per year. For the year 2021 the number of applications is presented as well.

5.2 Geothermal wells and production installations as at 1 January 2022

In 2021 2 geothermal wells were completed (see Table 5.4 and Figure 5.2). These concern wells within the licences Leeuwarden I and Luttelgeest. In 2021 two additional wells became operational for the geothermal production installation Naaldwijk Geothermie. This installation now consists of two injection and two production wells, a geothermal quartet.

As at 1 January 2022 there were 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. Nineteen 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 2022).

Table 5.4 Geothermal wells completed in 2021.

	Name of well	Geothermal energy licence	Operator
1	LTG-GT-10	Luttelgeest	Hoogweg Aardwarmte B.V.
2	LEW-GT-01	Leeuwarden I	Geocombinatie Leeuwarden B.V.

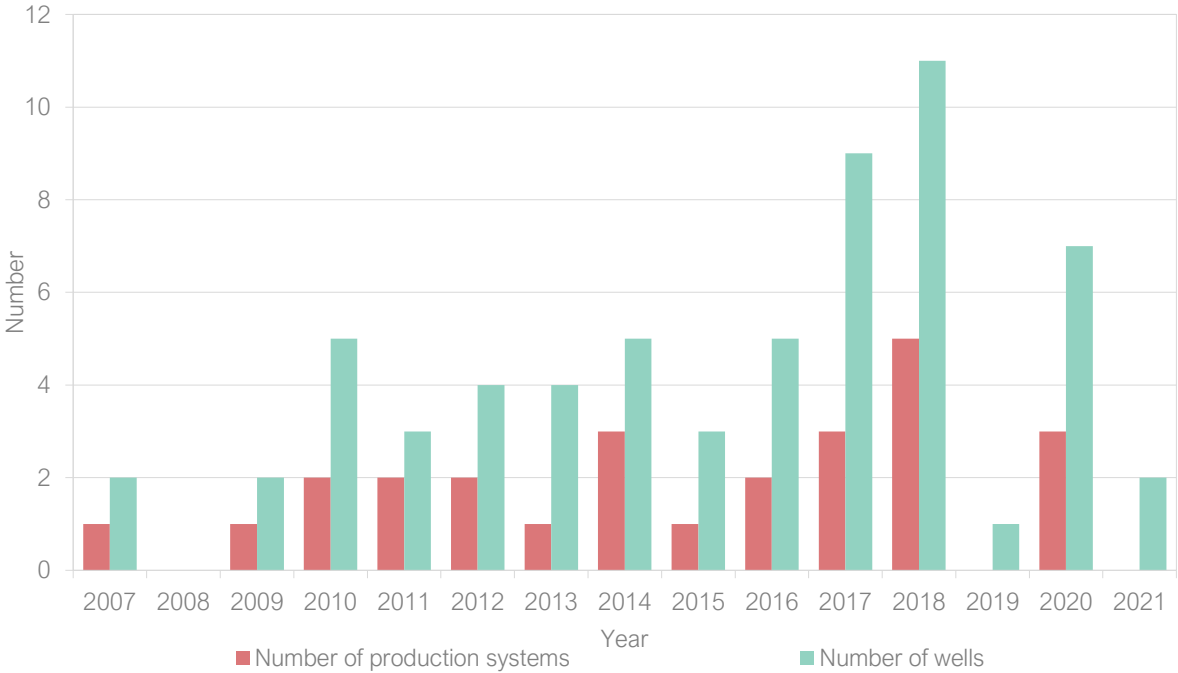


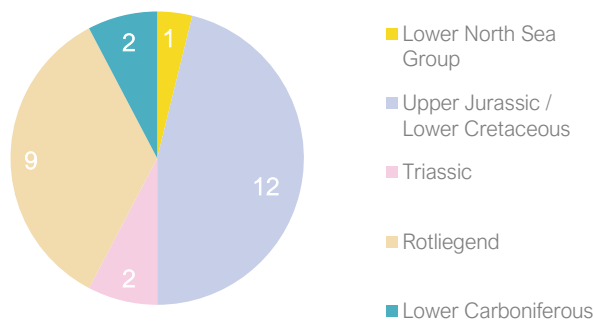
Figure 5.2 Number of geothermal wells completed (side-tracks excluded) per calendar year and number of installations completed since 2007.

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.

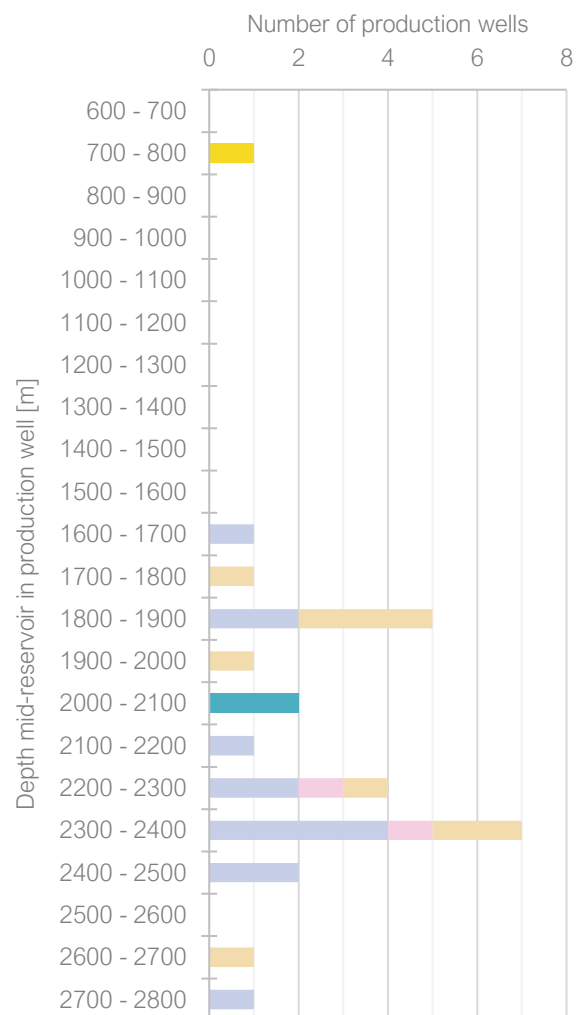
The geothermal heat is produced from depth intervals between 700 and 2800 meter and from various geological units (Figure 5.3a and b). The mid depth of the producing zone is displayed in Figure 5.3 b. Most of the geothermal installations produce heat from the Upper-Jurassic and Lower-Cretaceous strata in the southwest of the Netherlands, 12 installations. Two installations in the southwest of the Netherlands produce from strata of Triassic age. The nine production installations in Noord-Holland, Overijssel and Flevoland produce from Rotliegend strata, whereas two installations in North-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 distinct heating networks for the built environment. Another project is planned to supply 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

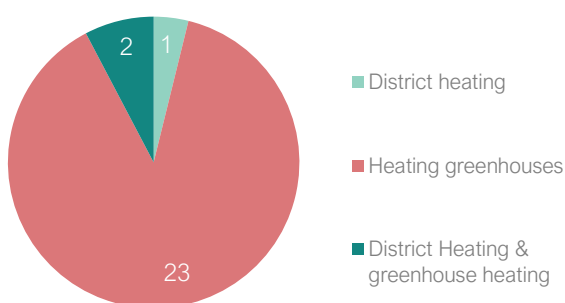


Figure 5.3. a) Stratigraphy of the productive interval, b) Depth to mid of aquifer (certain geothermal production installations have multiple production wells), c) Uses of the heat produced.

5.3 Production of geothermal energy in 2021

Of the 26 geothermal installations (Mijnwater Energiecentrale Heerlen excluded) 19 were operational in 2021 (Table 5.5). The operational installations have submitted the obligatory monthly production figures. Of the 7 non-operational installations 2 were temporarily closed-in and 3 were in the start-up phase. The other two 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 2021 one installation was shut down. In addition, there is one installation that was expanded with two operational wells in 2021.

Table 5.5 Geothermal installations.

	Name geothermal energy installation	Wells	Geothermal energy licence	Operational in 2021
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	Installation Berkel en Rodenrijs	VDB-GT-3&4	Bleiswijk-1b	No
5	Installation Bleiswijk	VDB-GT-1&2	Bleiswijk	Yes
6	Koekoekspolder Geothermie	KKP-GT-1&2	Kampen	Yes
7	Mijnwater Energiecentrale Heerlen	HLH-G-1&2	Heerlen	Yes, WKO
8	Pijnacker-Nootdorp Geothermie	PNA-GT-5&6	Pijnacker-Nootdorp-4	yes
9	Pijnacker-Nootdorp Zuid Geothermie	PNA-GT-3&4	Pijnacker-Nootdorp-5	Yes
10	-	HAG-GT-1&2	Den Haag	No
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 II	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	Luttelgeest	Yes
26	-	LTG-GT-4,5&6	Luttelgeest II	No
27	-	TNT-GT-1&2	Oostvoorne	No

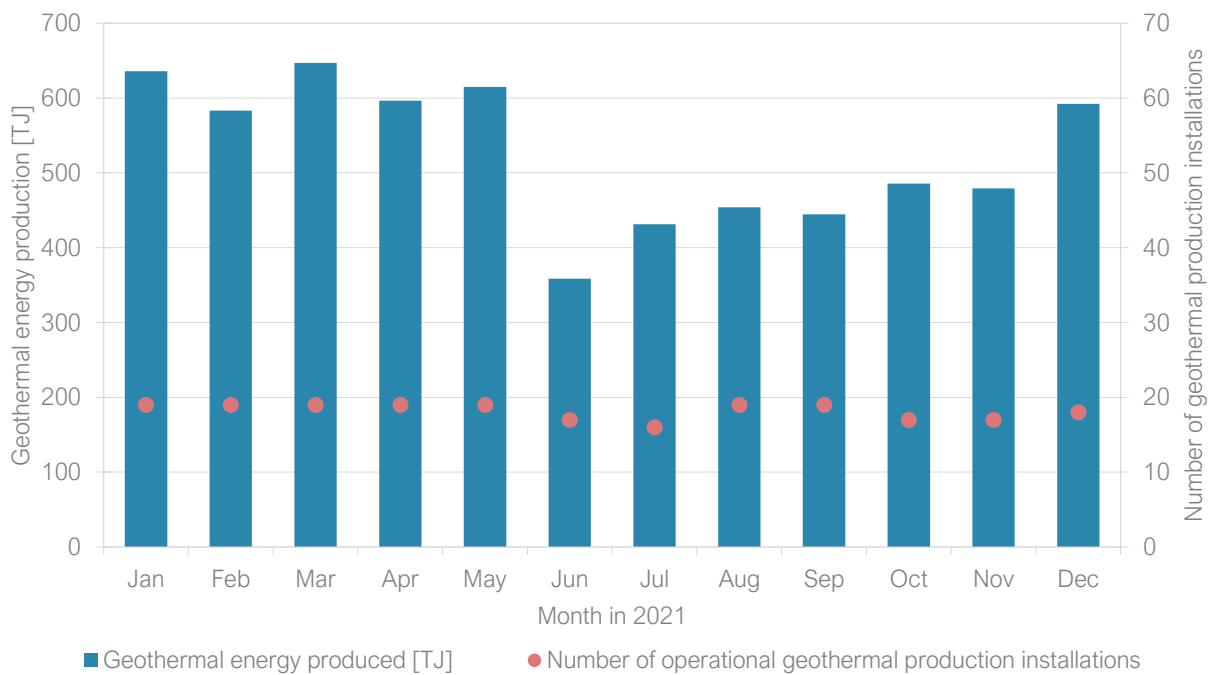


Figure 5.4 Monthly production of geothermal energy in terajoules and the number of geothermal energy production installations contributing to the reported production (Mijnwater Energiecentrale Heerlen excluded).

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 6.321 PJ ($1 \text{ PJ} = 10^{15} \text{ J}$) in 2021 (Figure 5.5).

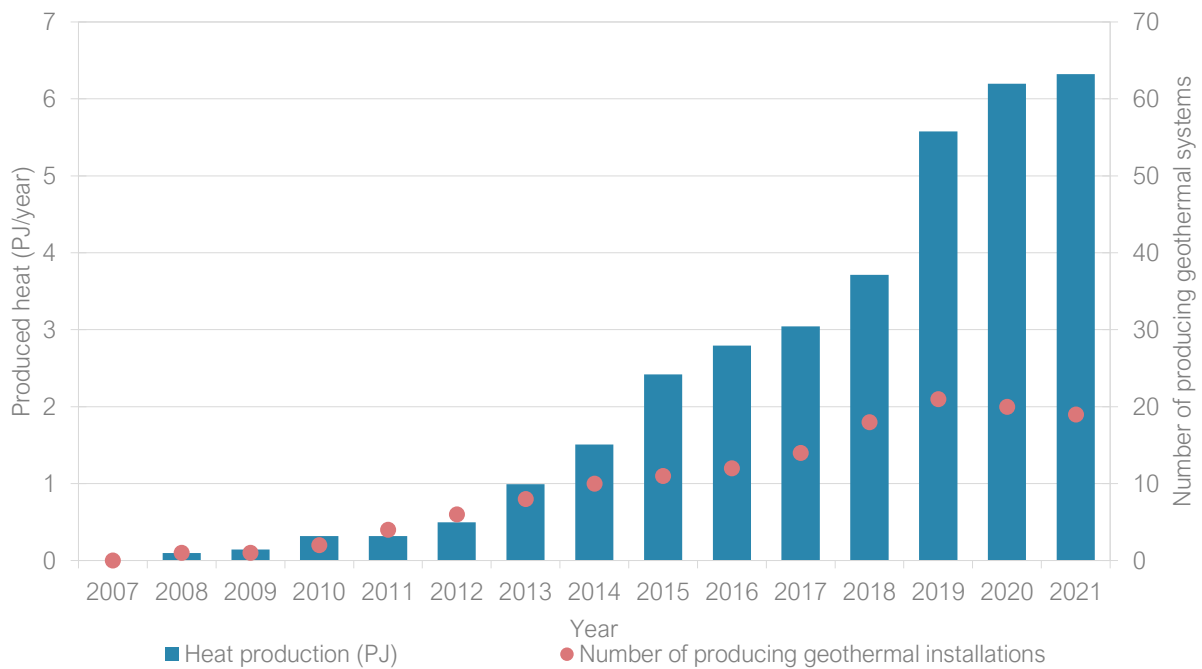


Figure 5.5 Annual production of geothermal energy (PJ/year) and number of operating geothermal installations.

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 production 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.

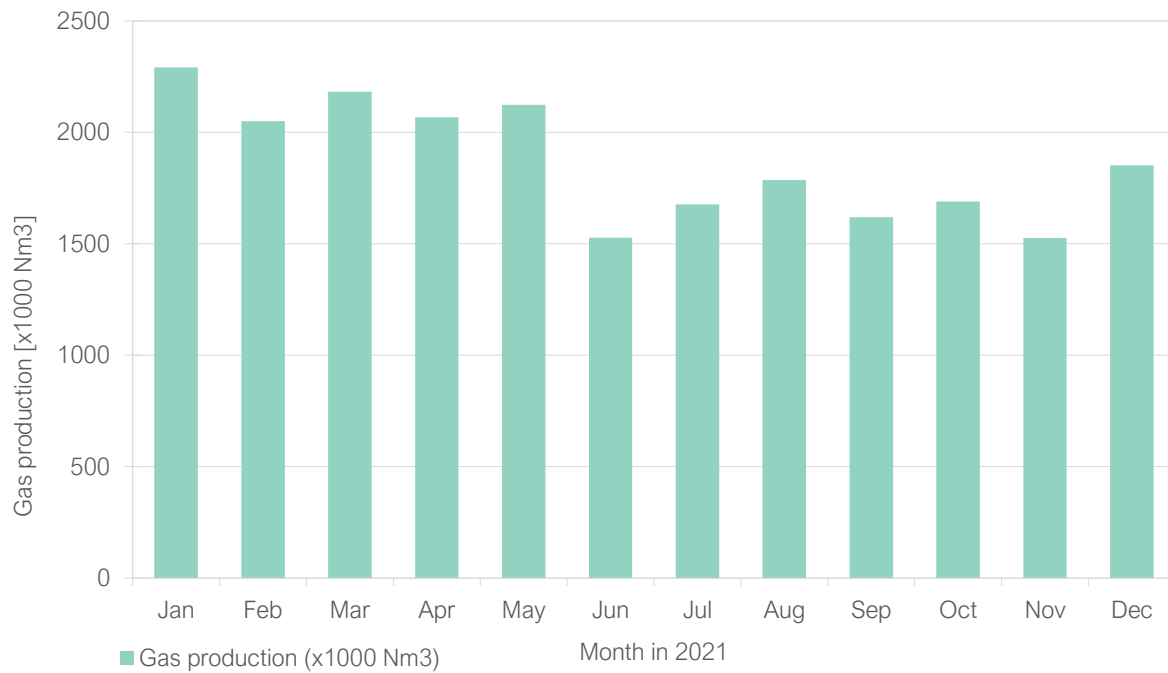


Figure 5.6 Volumes of hydrocarbons co-produced with geothermal energy. Gas in 1000 Nm³.

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

* 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.

6. Salt

On 1 January 2022 sixteen production and no exploration licences were in force. In 2021 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 can 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 2021 no salt production wells were drilled, this is the first time since 1947.

The table below shows the production data of salt per licence during 2021. Monthly production during 2021 varied between 444 and 571 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 2021 (in 1000 ton)

Licence	Operator	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Adolf van Nassau III	Nobian	117	109	86	69	54	88	74	83	77	41	60	92	952
Uitbr. Adolf van Nassau III	Nobian	116	113	158	139	114	149	156	142	117	96	113	135	1,549
Barradeel II	Frisia	11.6	7.1	0.0	0.0	2.5	3.5	3.5	3.3	3.0	3.2	3.2	4.2	45
Havenmond	Frisia	41	8	34	21	63	64	80	72	65	88	76	86	699
Twenthe-Rijn	Nobian	151	151	142	163	168	108	155	160	143	166	159	140	1,806
Uitbr. Twenthe-Rijn	Nobian	43	42	37	48	66	1	53	63	55	67	64	57	596
Twenthe-Rijn Helmerzijde	Nobian	13	11	9	9	7	0	4	3	6	16	18	17	114
Twenthe-Rijn Oude Maten	Nobian	18	13	12	13	13	9	6	2	1	0	8	20	117
Veendam	Nedmag	20	18	20	19	19	22	19	24	24	19	21	18	244
	Total	532	473	498	481	508	444	551	552	492	496	524	571	6,121

Figure 6.1 shows the production of rock salt from 2007 to 2021. During this period, the salt production is fairly constant, around 6 million tons per year. In 2021, total salt production was slightly above 6 million tons. Compared to the two previous years, total production is again above 6 million tons, this is because production from the Havenmond production licence became active.

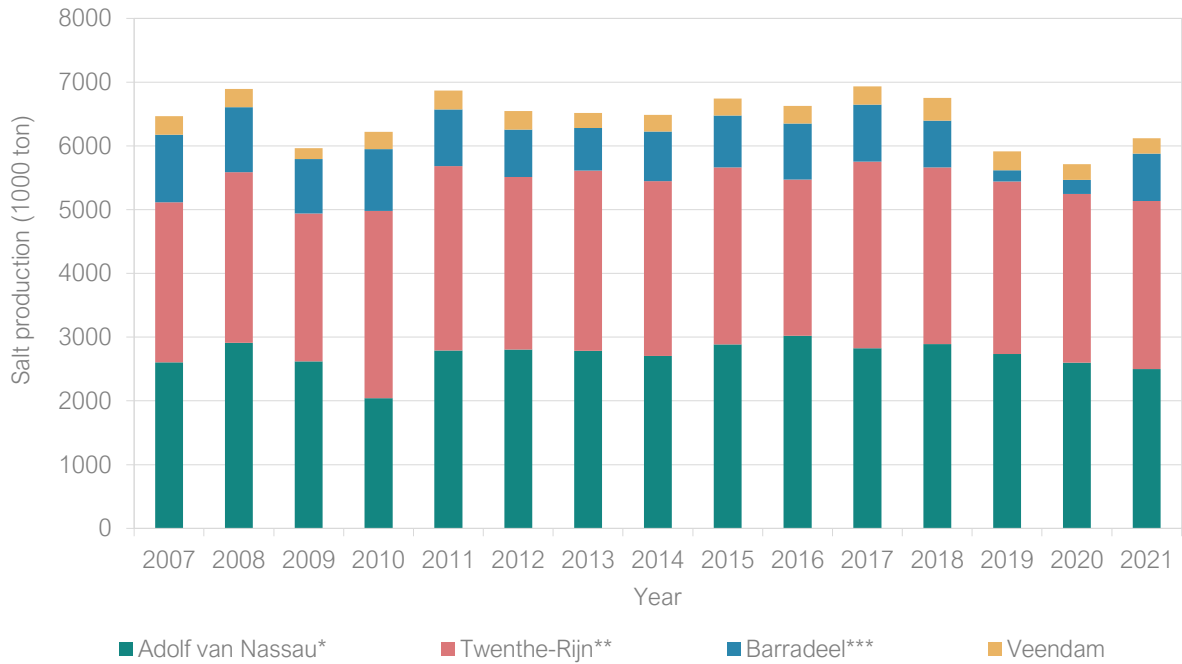


Figure 6.1 Salt production 2007 – 2021, the prouctin data is based on information supplied by the operators.

* 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 leaches 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'. Only brine production data has been reported. Currently six salt caverns are in operation as storage caverns. In 2021 the leaching of a seveth cavern took place.

After development by Nouryon the caverns are handed over to the storage licence Zuidwending owned by EnergyStock. For more information about storage see Chapter 4.

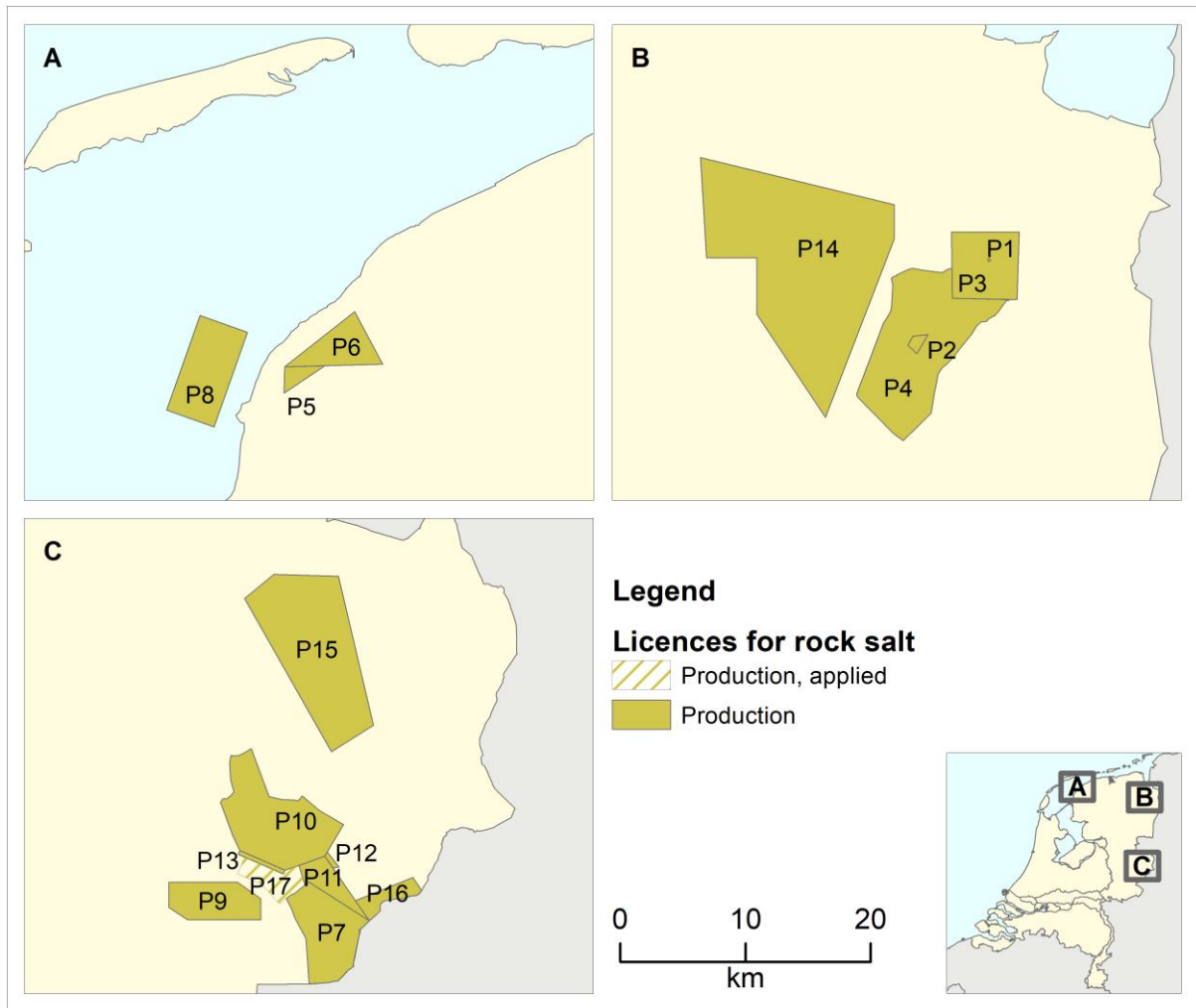


Figure 6.2 Licence for rock salt production as at 1 January 2022.

Table 6.1 Names of rock salt production licences, as indicated on the map in Figure 6.2.

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

7. Coal

As at 1 January 2022 there were five production licences for coal in force. In 2021 there were no mining activities in the licence areas.

Production licences as at 1 January 2022, land

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

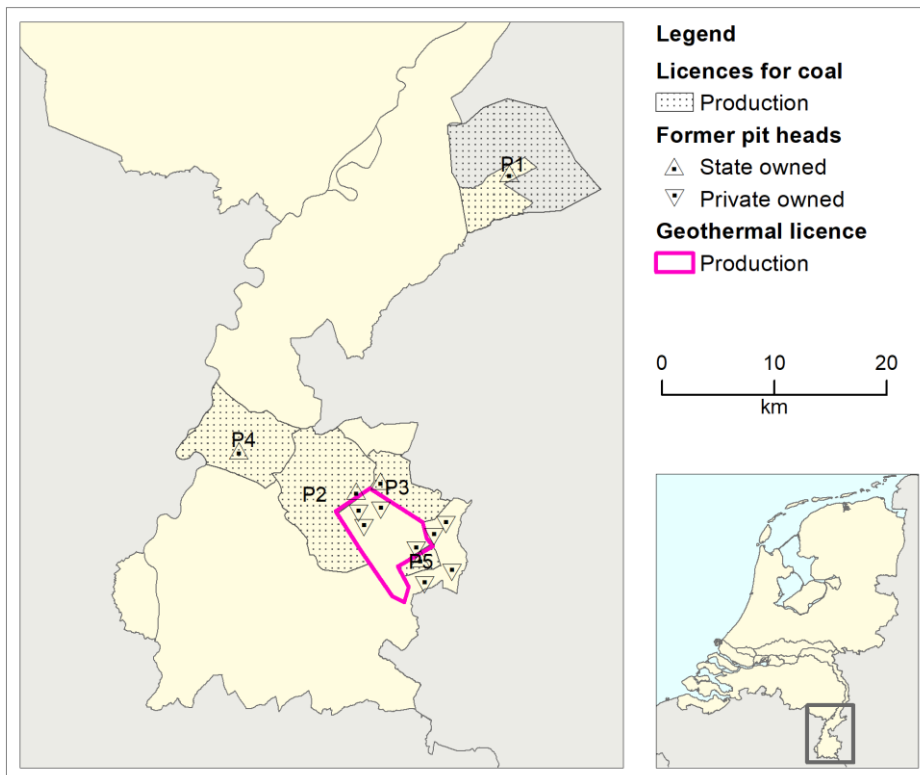


Figure 7.1 Licences for coal as at 1 January 2022.

8.

Licences, changes in 2021, Land

Changes in the onshore licences for hydrocarbon exploration and production, which took place during 2021, are listed in the tables below. This also includes all pending applications for permits.

8.1 Exploration licences hydrocarbons

Applied for

Licence	Official Journal of the EU	Date	Closing date	Staatscourant	Applicant(s)
De Kempen *	C 174	15-06-2011	14-09-2011	11 021	Basgas Energia; Cuadrilla Brabant
Breda-Maas * ²	C 178	18-06-2011	19-09-2011	11 810	Cuadrilla Brabant
Waskemeer * ³	C 84	22-03-2014	23-06-2014	10 937	NAM
Slootdorp-Oost * ³	C 55	14-02-2015	18-05-2015	10 234	Vermilion
Brielle * ³	C 170	23-05-2015	24-08-2015	15 891	Oranje-Nassau cs; Vermilion

* Application withdrawn with retrospective effect on 17 October 2016.

*² Application withdrawn with retrospective effect on 23 December 2019.

*³ Application ongoing, published in an earlier annual review.

Prolonged

Licence holder	Licence	Effective from	Effective till
Vermilion Energy Netherlands B.V.	Engelen	16-03-2021	31-12-2025
Vermilion Energy Netherlands B.V.	Oosterwolde	16-03-2021	31-12-2025
Vermilion Energy Netherlands B.V.	Utrecht	16-03-2021	31-12-2025

Expired

Licence holder	Licence	Effective from	km ²
Kistos NL1 B.V.	Terschelling-Noord	10-09-2015 *	23

* According to MinEZK decision of 24 december 2021: Article 10, third paragraph, does not apply here.

8.2 Production licences hydrocarbons

Applied for

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

* Application ongoing, published in an earlier annual review.

Reduced

Licence holder	Licence	Effective from	km ²
Vermilion Energy Netherlands B.V.	Leeuwarden	31-12-2021	276
Vermilion Energy Netherlands B.V.	Slootdorp	31-12-2021	99

Prolonged

Licence holder	Licence	Effective from	Effective till
Vermilion Energy Netherlands B.V.	Gorredijk	20-01-2021	31-12-2039
Vermilion Energy Netherlands B.V.	Waalwijk	20-01-2021	31-12-2035*

* Corrected enddate (Government Gazette 2021/3500-n1, 2-6-2021)

Area

Total area land	Under licence for hydrocarbons
42,203 km ²	16,433 km ² (38.9 %)

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	E5	IJsselmuiden	E9	Schagen
E2	Engelen	E6	Lemsterland	E10	Utrecht
E3	Follega	E7	Oosterwolde		
E4	Hemelum	E8	Opmeer		
Exploration licence as applied for					
E11	Brielle	E13	Waskemeer		
E12	Slotdorp-Oost				
Production licence					
P1	Akkrum 11	P15	Drenthe IIb	P29	Rijswijk
P2	Alkmaar	P16	Drenthe IIIa	P30	Rossum-De Lutte
P3	Andel Va	P17	Drenthe IV	P31	Schoonebeek
P4	Andel Vb	P18	Drenthe V	P32	Slotdorp
P5	Beijerland	P19	Drenthe VI	P33	Steenwijk
P6	Bergen II	P20	Gorredijk	P34	Tietjerksteradeel II
P7	Bergermeer	P21	Groningen	P35	Tietjerksteradeel III
P8	Botlek III	P22	Hardenberg	P36	Tubbergen
P9	Botlek Maasmond	P23	Leeuwarden	P37	Twenthe
P10	Botlek-Maas	P24	Marknesse	P38	Waalwijk
P11	De Marne	P25	Middelie	P39	Zuid-Friesland III
P12	Donkerbroek	P26	Noord-Friesland	P40	Zuidwal
P13	Donkerbroek-West	P27	Oosterend		
P14	Drenthe IIa	P28	Papekop		
Production licence as applied for					
P41	Akkrum	P42	Terschelling-Noord		
Storage licence					
S1	Alkmaar	S5	Twenthe-Rijn de Marssteden		
S2	Bergermeer	S6	Zuidwending		
S3	Grijpskerk				
S4	Norg				

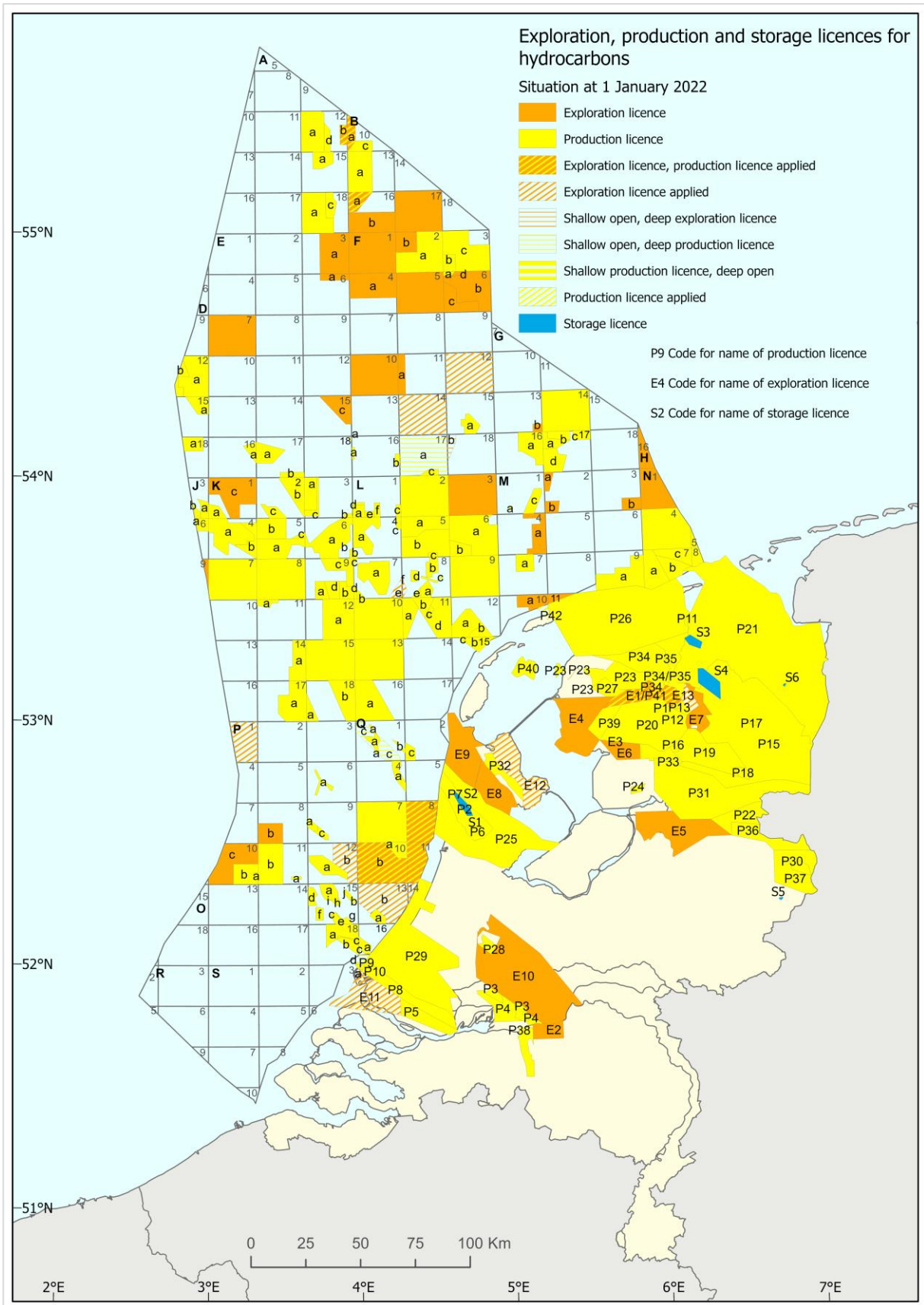


Figure 8.1 Exploration, production and storage licences for hydrocarbons as at 1 January 2022.

8.5 Exploration licences geothermal energy

Applied for

Licence	Staatscourant	Date	Closing date	Applicant(s)
Midwoud *	53 132	21-09-2017	21-12-2017	Vermilion Energy Netherlands B.V.
Noord-Holland Noord *	28 807	28-05-2018	27-08-2018	Vermilion Energy Netherlands B.V.
Friesland-Midden *	51 804	17-09-2018	17-12-2018	Vermilion Energy Netherlands B.V.
Zuidwesthoek *	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.
Gooi and Vechtstreek *	41 195	04-08-2020	03-11-2020	Larderel Energy B.V.
Oss 1 *	53 666	19-10-2020	18-01-2021	Tullip Energy Exploration & Development B.V. cs
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.

* Application ongoing, published in an earlier annual review.

Denied

Applicant	Area	As at	km ²
Hybrid Energy Solutions B.V. cs *	Midden-Delfland	20-01-2021	29
Hybrid Energy Solutions B.V. cs	Delft-Tanthof	09-06-2021	12
Hybrid Energy Solutions B.V. cs * ²	Katwijk	18-08-2021	24
Hybrid Energy Solutions B.V. cs	Zoeterwoude	18-08-2021	35
Fānqié Noordeinde Vastgoed B.V. * ³	Bleiswijk-Noord	30-10-2021	26
		Total	126

* Fully competitive application with the applications Rotterdam 7 en Rotterdam-Bar.

*² Fully competitive application with the applications Leiden 2 en Leiden 3.

*³ Fully competitive application with the applications Zoetermeer en Zoetermeer 2.

Awarded

Licence holder	Licence	Effective from	km ²
Hydreco GeoMEC B.V. cs	Terheijden 2	12-01-2021	23
ENGIE Energy Solutions B.V. cs	Rotterdam-Bar	21-01-2021	222
Shell Geothermal B.V. cs	Rotterdam 7	21-01-2021	70
Aardwarmte Klazienaveen B.V.	Klazienaveen 2	30-01-2021	15
Shell Geothermal B.V. cs	Capelle aan den IJssel	09-02-2021	40

Licence holder	Licence	Effective from	km ²
ENGIE Energy Solutions B.V.	Rotterdam Prins Alexander	15-02-2021	20
Hydreco GeoMEC B.V.	Bommelerwaard 2	13-03-2021	53
Visser & Smit Hanab B.V. cs	Brakel-Zuidoost	13-03-2021	27
Tellus Nijmegen B.V.	Nijmegen	14-04-2021	193
DDH Energy B.V.	Drachten 2	21-04-2021	9
ENGIE Energy Solutions B.V.	Wellerlooi	20-05-2021	20
Hydreco GeoMEC B.V.	Delft-Abtswoude	10-06-2021	12
N.V. HVC	Hoorn	08-07-2021	75
Eavor Europe B.V.	Leiden 2	18-08-2021	96
Wayland Energy B.V.	Leiden 3	18-08-2021	31
Yeager Energy B.V.	Oude Rijn	18-08-2021	89
Shell Geothermal B.V. cs	Rijnland	25-08-2021	235
Yeager Energy B.V.	Nissewaard	16-10-2021	68
Duurzaam Voorne Holding B.V.	Nissewaard 2	16-10-2021	76
Ennatuurlijk B.V.	Eindhoven 2	19-10-2021	66
Wayland Energy B.V.	Zoetermeer	30-10-2021	23
IPS Geothermal Energy B.V.	Zoetermeer 2	30-10-2021	15
Eavor Europe B.V.	Purmerend 2	09-11-2021	49
Yeager Energy B.V.	Purmerend 3	09-11-2021	55
		Total	1,582

Split

Licence holder	Licence	Effective from	km ²
<i>Original</i>			
Energie Transitie Partners B.V.	Westland-Zuidwest		52
Hydreco GeoMEC B.V. cs	Den Haag 4		60
Hydreco GeoMEC B.V. cs	Den Haag 6		23
Energie Transitie Partners B.V.	Maasdijk		6
<i>After split</i>			
Energie Transitie Partners B.V.	Westland-Zuidwest 1a	27-01-2021	51
Energie Transitie Partners B.V.	Naaldwijk 4	27-01-2021	2
Hydreco GeoMEC B.V. cs	Den Haag 4a	04-02-2021	59
Hydreco GeoMEC B.V. cs	Wateringen 1	04-02-2021	1
Hydreco GeoMEC B.V. cs	Den Haag 6a	04-02-2021	23
Hydreco GeoMEC B.V. cs	Wateringen 2	04-02-2021	< 1
Energie Transitie Partners B.V.	Maasdijk 3	21-10-2021	5
Energie Transitie Partners B.V.	Maasland 9	21-10-2021	1

Merged

Licence holder	Licence	Effective from	km ²
<i>Original</i>			
Wayland Energy B.V.	Zuidplas		46
Wayland Energy B.V.	Waddinxveen 2		7
DDH Energy B.V.	Drachten		19
DDH Energy B.V.	Drachten 2		9
<i>After merge</i>			
Wayland Energy B.V.	Zuidplas 2	25-08-2021	53
DDH Energy B.V.	Drachten 3	27-10-2021	28

Prolonged

Licence holder	Licence	Effective from	Effective till
EnergieWende B.V. cs	De Lier 8	07-01-2021	03-09-2023
Provincie Drenthe cs	Klazienaveen	01-02-2021	31-12-2023
Vereniging van Eigenaren Oude Campspolder	Maasland 2	24-02-2021	31-12-2022
Gedeputeerde Staten van Overijssel	Koekoekspolder IIa	12-03-2021	31-12-2023
Trias Westland B.V.	De Lier V	17-03-2021	31-12-2022
Trias Westland B.V.	Naaldwijk 3	17-03-2021	31-12-2022
Hydreco GeoMEC B.V.	Pijnacker-Nootdorp 6a	30-09-2021	29-06-2023
DDH Energy B.V.	Drachten	27-10-2021	02-06-2024
Hydreco GeoMEC B.V.	Tilburg-Geertruidenberg	25-11-2021	19-08-2025
Provincie Drenthe	Erica	15-12-2021	06-12-2023
Geocombinatie Leeuwarden B.V.	Leeuwarden	18-12-2021	08-12-2026
WarmteStad B.V.	Groningen 2	31-07-2020	In application
A-ware Production B.V.	Heerenveen	20-05-2021	In application
Hydreco GeoMEC B.V. cs	Vierpolders	30-12-2021	In application
Hydreco GeoMEC B.V. cs	Brielle 2	30-12-2021	In application
Energie Transitie Partners B.V.	Kwintsheul 2	31-12-2021	In application
ECW Geoholding B.V.	Middenmeer 2	30-12-2022	In application

Reduced

Licence holder	Licence	Effective from	km ²
Trias Westland B.V.	Naaldwijk 3	05-03-2021	* 7
Trias Westland B.V.	De Lier V	17-03-2021	< 1
Geocombinatie Leeuwarden B.V.	Leeuwarden	21-04-2021	* 27
Hydreco GeoMEC B.V.	Tilburg-Geertruidenberg	25-11-2021	213

* Remaining are after production licence has been granted.

Expired

Licence holder	Licence	Effective from	km ²
Ekowarmte B.V.	Velden	22-3-2021	21

8.6 Production licences geothermal energy

Applied for

Licence	Publication	Date	Closing date	Applicant(s)
Luttelgeest III	-	18-12-2020	-	Hoogweg Aardwarmte B.V.
Nootdorp-Oost 3	-	23-12-2020	-	Wayland Energy B.V.
Nootdorp-Oost II	-	10-06-2021	-	Wayland Energy B.V.
Middenmeer III	-	21-07-2021	-	ECW Geoholding B.V.
Delft I	-	11-11-2021	-	Geothermie Delft B.V.

Awarded

Licence holder	Licence	Effective from	km ²
Trias Westland B.V.	Naaldwijk II	05-03-2021	5
Geocombinatie Leeuwarden B.V.	Leeuwarden I	21-04-2021	3
Wayland Energy B.V.	Lansingerland II	14-09-2021	7
		Total	15

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 licence					
E1	Alkmaar	E29	Kwintsheul 2	E57	Purmerend 3
E2	Amersfoort	E30	Leeuwarden	E58	Renkum
E3	Bleiswijk 6	E31	Leeuwarden 5	E59	Rijnland
E4	Bommelerwaard 2	E32	Leiden 2	E60	Rotterdam 4
E5	Brakel-Zuidoost	E33	Leiden 3	E61	Rotterdam 7
E6	Brielle 2	E34	Lelystad	E62	Rotterdam Prins Alexander
E7	Capelle aan den IJssel	E35	Luttelgeest II	E63	Rotterdam-Bar
E8	De Lier 8	E36	Maasdijk 2	E64	Rotterdam-Haven
E9	De Lier V	E37	Maasdijk 3	E65	Rotterdam-Stad
E10	De Lier VI	E38	Maasland 2	E66	Sneek
E11	Delft-Abtswoude	E39	Maasland 6	E67	Someren
E12	Den Haag 4a	E40	Maasland 7	E68	Terheijden 2
E13	Den Haag 6a	E41	Maasland 9	E69	Tilburg-Geertruidenberg
E14	Den Helder	E42	Made 2	E70	Utrecht
E15	Den Hoorn	E43	Middenmeer 2	E71	Velsen
E16	Drachten 3	E44	Middenmeer 3	E72	Vierpolders
E17	Drechtsteden	E45	Middenmeer 4	E73	Wateringen 1
E18	Ede	E46	Monster 2	E74	Wateringen 2
E19	Eemland	E47	Naaldwijk 3	E75	Wellerlooi
E20	Eindhoven 2	E48	Nijmegen	E76	West-Brabant
E21	Erica	E49	Nissewaard	E77	Westland-Zuidwest 1a
E22	Groningen 2	E50	Nissewaard 2	E78	Ypenburg
E23	Haarlem-Schalkwijk	E51	Nootdorp-Oost 2	E79	Zoetermeer
E24	Heerenveen	E52	Nootdorp-Oost 3	E80	Zoetermeer 2
E25	Hoorn	E53	Oude Rijn	E81	Zuidplas 2
E26	Klazienaveen	E54	Pijnacker-Nootdorp 6a	E82	Zwolle
E27	Klazienaveen 2	E55	Poeldijk 2		
E28	Koekoekspolder IIa	E56	Purmerend 2		
Exploration licence as applied for					
E83	Almere	E87	Edam-Volendam 1	E93	Oss 1
E84	Almere-Diemen 1	E88	Friesland-Midden	E94	Westeinder 1
E85	Amstelveen-Haarlemmermeer 1	E89	Gooi en Vechtstreek	E95	Zuidwesthoek
E86	Amsterdam-Amstelveen 1	E90	Kudelstaart 1		
		E91	Midwoud		
		E92	Noord-Holland Noord		
Production licence					
P1	Andijk	P11	Kampen	P21	Naaldwijk
P2	Bleiswijk	P12	Kwintsheul	P22	Naaldwijk II
P3	Bleiswijk 1b	P13	Lansingerland	P23	Oostvoorne
P4	Californië IV	P14	Lansingerland II	P24	Pijnacker-Nootdorp 4
P5	Californië V	P15	Leeuwarden I	P25	Pijnacker-Nootdorp 5
P6	De Lier	P16	Luttelgeest	P26	Poeldijk
P7	Den Haag	P17	Luttelgeest II	P27	Vierpolders
P8	Heemskerk	P18	Maasland	P28	Zevenbergen
P9	Heerlen	P19	Middenmeer I		
P10	Honselersdijk	P20	Middenmeer II		
Production licence as applied for					
P29	Delft I	P31	Middenmeer III	P33	Nootdorp-Oost II
P30	Luttelgeest III	P32	Nootdorp-Oost 3		

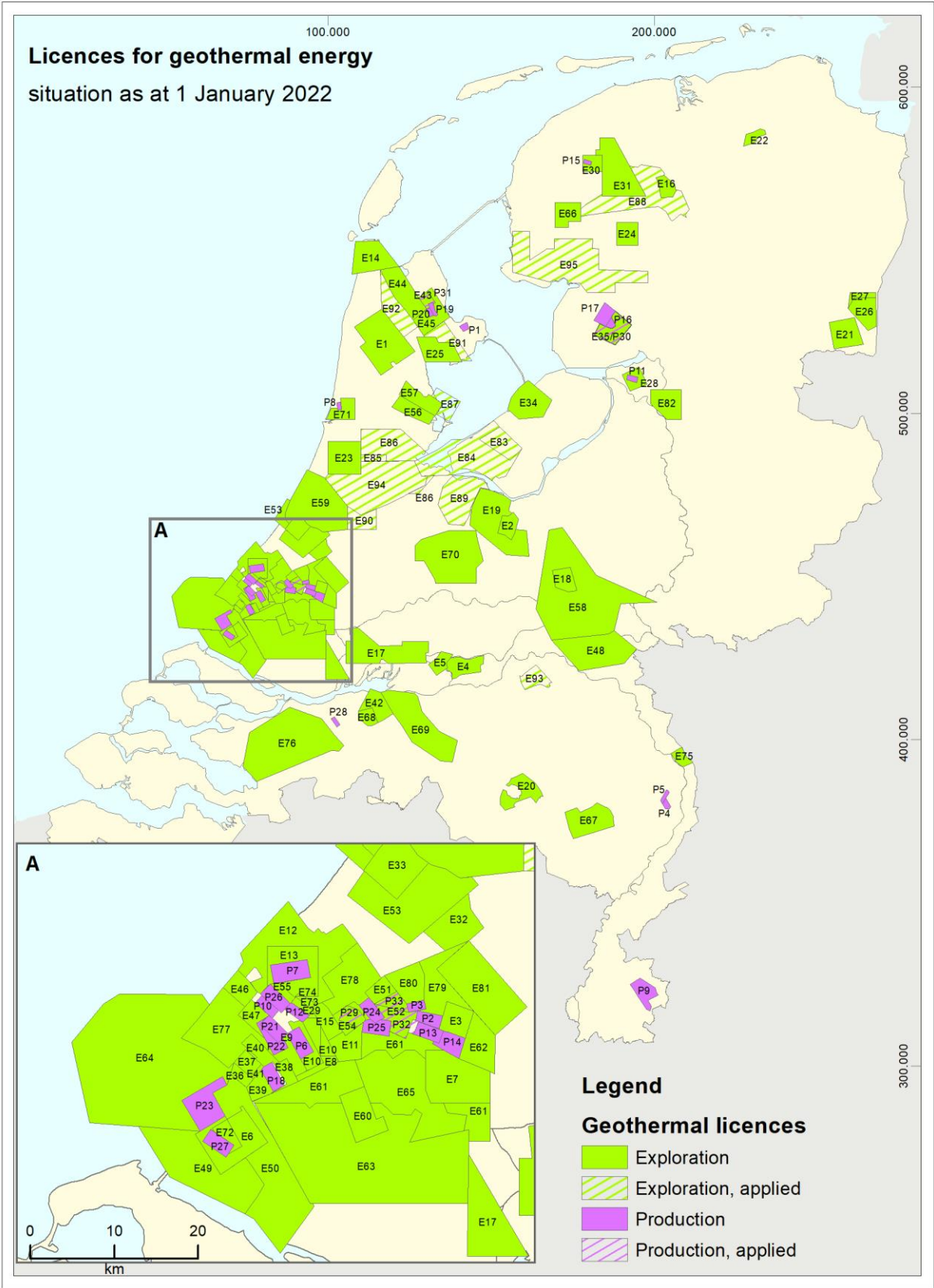


Figure 8.2 Licences for geothermal energy as at 1 January 2022.

8.8 Production licences rock salt

Applied for

Licence	Staatscourant	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 2021, Sea

Changes in the offshore licences for hydrocarbon exploration and production, which took place during 2021, are listed in the tables below. Also, all current licence applications are included.

9.1 Exploration licences hydrocarbons

Applied for

Licence	Official Journal of the EU	Date	Closing date	Staatscourant	Applicant(s)
D6 * ³	C 342	17-09-2016	19-12-2016	52-953	Simwell
E4 * ³	C 342	17-09-2016	19-12-2016	52-953	Simwell
P1 * ²	C 444	23-12-2017	26-03-2018	6 265	Swift cs
F12 * ⁴	C 425	26-11-2018	25-02-2019	69 746	HALO; NAM
F14 *	C 269	12-08-2019	11-11-2019	46 542	HALO
F15e * ⁴	C 51/3	14-02-2020	15-05-2020	13-156	NAM
L7e & L8f	C152/11	29-04-2021	29-07-2021	22 946	Neptune
P12b, Q13b & Q14	C231/3	16-06-2021	15-09-2021	33 294	Kistos

* Application ongoing, published in an earlier annual review.

*² Republishing publication December 3, 2016.

*³ Application withdrawn as of March 3, 2021.

*⁴ Application withdrawn by NAM as of September 17, 2021.

Awarded

Licence holder	Licence	Effective from	km ²
ONE-Dyas B.V.	G15 & H13 *	17-11-2020	227

* Application withdrawn as of April 22, 2021 (Draft decision as of November 16, 2020).

Prolonged

Licence holder	Licence	Effective from	Effective till
Neptune Energy Netherlands B.V. cs	L3	08-02-2021	30-06-2024
Neptune Energy Netherlands B.V.	K1c	26-03-2021	30-12-2022

Reduced

Licence holder	Licence	Effective from	km ²
ONE-Dyas B.V. cs	M3b	25-11-2021	49

Relinquished

Licence holder	Licence	Effective from	km ²
ONE-Dyas B.V. cs	G18	11-09-2021	405
Nederlandse Aardolie Maatschappij B.V.	G7, G10, G11 & G13a	18-09-2021	1,079
ONE-Dyas B.V. cs	S3b	28-10-2021	65
		Total	1,549

9.2 Production licences hydrocarbons

Applied for

Licence	Publication	Date	Closing date	Applicant(s)
B16a *	Govern. Gazette 105	06-05-1993	-	Petrogas cs
Q8, Q10b & Q11 *	-	20-12-2019	-	Kistos
A12b & B10a *2	Govern. Gazette 22	30-12-1999	-	Petrogas cs

* Application ongoing, published in an earlier annual review.

*2 Renewed application as of 21-10-2020.

Split

Licence holder	Licence	Effective from	km ²
<i>Original</i>			
Total E&P Nederland B.V. cs	K6a, K6b, L7a, L7b & L7c		421
<i>After splitting</i>			
Total E&P Nederland B.V. cs	K6a, K6b, L7a, L7b & L7c	17-02-2021	415
Total E&P Nederland B.V. cs	L7d	17-02-2021	6

Prolonged

Licence holder	Licence	Effective from	Effective till
ONE-Dyas B.V. cs	M7a	25-02-2021	31-12-2035
Total E&P Nederland B.V. cs	K3b	06-03-2021	20-06-2033
Petrogas E&P Netherlands B.V.	Q1a-ondiep & Q1b-ondiep	17-06-2021	31-12-2023
Neptune Energy Netherlands B.V. cs	E16a	04-08-2021	09-08-2032
Neptune Energy Netherlands B.V. cs	E17a & E17b	04-08-2021	08-08-2032
Neptune Energy Netherlands B.V. cs	D15a	18-08-2021	05-09-2028
Wintershall Noordzee B.V. cs	D12a	01-09-2021	31-12-2031

Licence holder	Licence	Effective from	Effective till
Total E&P Nederland B.V. cs	L4a & L4b	02-10-2021	20-06-2033
Total E&P Nederland B.V.	K2c	06-11-2021	31-12-2036
Total E&P Nederland B.V.	K5b & K5c	06-11-2021	31-12-2023
Neptune Energy Netherlands B.V. cs	Q13a	09-12-2021	31-12-2034
Wintershall Noordzee B.V. cs	P6a	31-12-2021	31-12-2024
Total E&P Nederland B.V. cs	K1a	10-02-2022	Applied

Applied for fallow area

Licence	Publication	Date	Closing date	Applicant(s)
G14 & G17b*	www.nlog.nl	10-05-2019	09-08-2019	ONE-Dyas B.V.
G17e & G17d*	www.nlog.nl	10-05-2019	09-08-2019	ONE-Dyas B.V.
F2a	www.nlog.nl	06-12-2021	07-03-2022	Neptune Energy Netherlands B.V.

* Application withdrawn as of April 22, 2021

Reduced

Licence holder	Licence	Effective from	km ²
Neptune Energy Netherlands B.V. cs	D15a	18-08-2021	63
Wintershall Noordzee B.V. cs	P6a	31-12-2021	21
Petrogas E&P Netherlands B.V. cs	P9a	31-12-2021	17
Petrogas E&P Netherlands B.V. cs	P9c	31-12-2021	18

Relinquished/Expired

Licence holder	Licence	Effective from	km ²
ONE-Dyas B.V. cs	G17e	16-12-2021	189
Petrogas E&P Netherlands B.V.	P8a	31-12-2021	26
Wintershall Noordzee B.V. cs	Q5d	31-12-2021	20
		Total	235

Area

Total area sea	In licence for hydrocarbons
56,396 km ²	19,075 km ² (33.8 %)

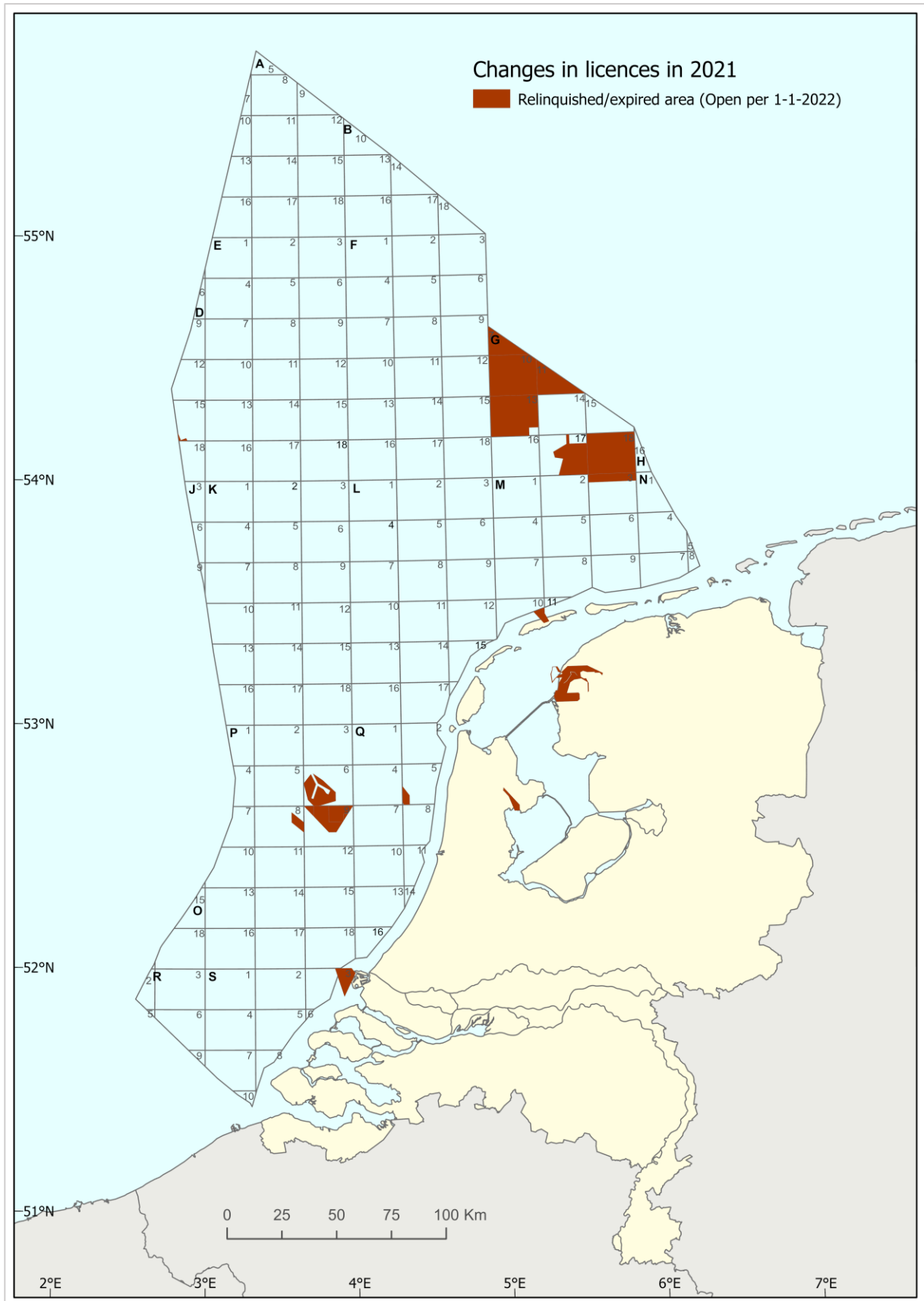


Figure 9.1 Changes in hydrocarbon licences during the year 2021.

9.3 Storage licences

Changes regarding storage licences during 2021 are listed in the table below.

Applied for

Licence	Date	Closing date	Staatscourant	Applicant(s)
P18-2 *	12-2-2021	-	13 367	TAQA Offshore B.V., EBN CCS B.V.

* Draft decision of December 16, 2021, regarding application of February 12, 2021 (carbon dioxide storage).

Started

Licence holder	Licence	Effective from	km ²
TAQA Offshore B.V.	P18-4 *	01-01-2021	11

* Draft decision on amendment of permit of 16 December 2021, regarding the updating of the various plans and financial security.

10.

Licences, company- and name changes in 2021

The tables below list changes in chronological order which took place during 2021, as a result of mutations in consortia of companies participating in licences as well as name changes of participating companies or name changes as a result of legal mergers.

10.1 Hydrocarbons

Company changes in exploration licences

Licence	Relinquishing company	Acquiring company	Effective from	Staatscourant
F4a	Hague and London Oil Plc.	HALO Exploration & Production Netherlands	23-03-2021	24 957

Company changes in production licences

Licence	Relinquishing company	Acquiring company	Effective from	Staatscourant
L7d	Total E&P Nederland B.V. Vermilion Energy Netherlands B.V.	Neptune Energy Netherlands B.V.	17-02-2021	8 975
P8a	Aceiro Energy B.V.	-	03-07-2021	34 930

Name changes

Previous company name	New company name
Tulip Oil Netherlands B.V.	Kistos NL1 B.V.
Tulip Oil Netherlands Offshore B.V.	Kistos NL2 B.V.
HALO Exploration & Production Netherlands B.V.	RockRose (NL) CS5 B.V.
Total E&P Nederland B.V.	TotalEnergies EP Nederland B.V.

10.2 Storage

No changes.

10.3 Geothermal energy

Company changes in exploration licences

Licence	Relinquishing company	Acquiring company	Effective from	Staatscourant
Klazienaveen	Provincie Drenthe	Aardwarmte Klazienaveen B.V.	01-02-2021	5 540
	Gemeente Emmen	*		
Naaldwijk 4	Energie Transitie Partners B.V.	Trias Westland B.V. *	27-01-2021	4 791
Wateringen 1	Hydreco GeoMEC B.V.	Energie Transitie Partners B.V.	04-02-2021	6 428
	Haagse Aardwarmte Leyweg B.V.	*		
Wateringen 2	Hydreco GeoMEC B.V.	Energie Transitie Partners B.V.	04-02-2021	6 426
	Haagse Aardwarmte Leyweg B.V.	*		
Maasland 2	Vereniging van Eigenaren Oude Campspolder	GeoPower Exploitatie B.V. *	24-02-2021	10 289
Made 2	Hydreco GeoMEC B.V.	Geothermie Plukmade B.V. *	20-04-2021	21 231
	Geothermie Brabant B.V.			
Maasland 9	Energie Transitie Partners B.V.	GeoPower Exploitatie B.V. *	21-10-2021	47 926
Tilburg-Geertruidenberg	-	Ennatuurlijk B.V.	25-11-2021	48 069

* New operator.

Company changes in production licences

Licence	Relinquishing company	Acquiring company	Effective from	Staatscourant
Heerlen	Gemeente Heerlen	Mijnwater Energy B.V. *	09-02-2021	7 571
Bleiswijk	A en G van den Bosch B.V.	IPS Geothermal Energy B.V. *	14-12-2021	49 748
		85 Degrees Renewables 1 & 2 B.V.		
Bleiswijk 1b	A en G van den Bosch B.V.	IPS Geothermal Energy B.V. *	14-12-2021	49 746
		Fānqié Noordeinde Vastgoed B.V.		

* New operator.

Name changes

Previous company name	New company name
ECW Geowarmte I B.V.	ECW Geo Middenmeer B.V.

10.4 Rock salt

Name changes

Previous company name	New company name
Nouryon Salt B.V.	Nobian Salt B.V.

10.5 Coal

No changes.

11.

Seismic surveys

In 2021, no 3D and 2D seismic surveys were recorded offshore. On land, Vermilion Energy Netherlands recorded a 3D survey in the southwestern part of Friesland in 2021. The 3D survey has an approximate surface area of 207 km². Also on land, 20 2D seismic lines were recorded in 2021 with a cumulative length of approximately 636 km (see figure 11.1). These 2D lines were recorded as part of the Netherlands Seismic Campaign for Geothermal Energy programme (SCAN) led by EBN.

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

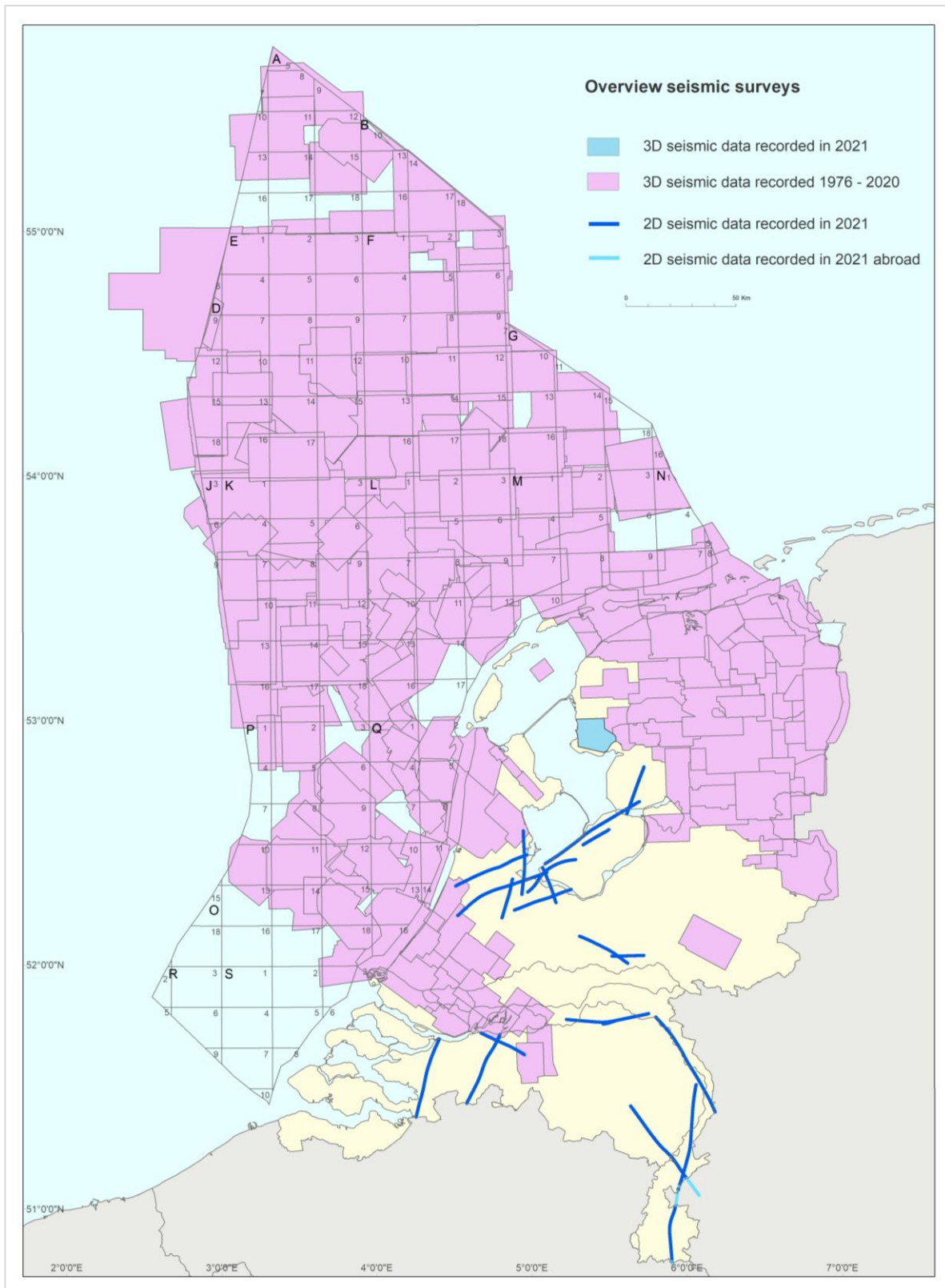


Figure 11.1 Overview of 3D seismic surveys as at 1 January 2021 and 2D seismic lines acquired in 2021.

12.

Oil and gas wells completed in 2021

The wells completed in 2021 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 2021.

This year 2 exploration wells have been drilled, both offshore, of which 1 encountered oil and gas and 1 gas. Together this means a success-ratio of 100 %. The number of exploration wells has decreased by 1 when compared with last year.

Three appraisal wells were drilled in 2021, of which 2 were drilled onshore (result being gas shows and gas) and 1 drilled offshore (result being oil). In comparison with 2020, this means 3 more appraisal wells were drilled.

In total 7 – successful – production wells were drilled in 2021, a decrease of 2 compared with 2020. All wells, with the exception of F06-07, were drilled in a production license. F06-07 was drilled in an exploration license.

12.1 Onshore

Appraisal wells

	Name	License	Operator	Result
1	BLD-01-S1	Steenwijk	Vermilion	Gas Shows
2	BLD-01-S2	Steenwijk	Vermilion	Gas

Production wells

	Name	License	Operator	Result
1	NGA-06-S1	Leeuwarden	Vermilion	Gas

12.2 Offshore

Exploration wells

	Name	License	Operator	Result
1	F06-07	F06b	ONE-Dyas	Oil and Gas
2	N04-03	N04, N05 & N08	ONE-Dyas	Gas

Appraisal wells

	Name	License	Operator	Result
1	Q10-A-04-S2	Q07 & Q10a	Kistos NL2	Oil

Production wells

	Name	License	Operator	Result
1	A12-A-07-S2	A12a	Petrogas	Gas
2	A12-A-10	A12a	Petrogas	Gas
3	K09AB-A-04	K09a & K09b	Neptune	Gas
4	P11-F-01	P11b	Dana	Gas
5	P11-G-01	P11b	Dana	Gas
6	Q10-A-04-S1	Q07 & Q10a	Kistos NL2	Gas

12.3 Summary

Oil- and gas wells completed in 2021

Area	Type	Result							Total
		Gas	Gas shows	Oil	Oil shows	Oil&Gas	Dry	Other	
Onshore	Exploration	-	-	-	-	-	-	-	-
	Appraisal	1	1	-	-	-	-	-	2
	Production	1	-	-	-	-	-	-	1
Offshore	Exploration	1	-	-	-	1	-	-	2
	Appraisal	-	-	1	-	-	-	-	1
	Production	6	-	-	-	-	-	-	6
	Total	9	1	1	-	1	-	-	12



Figur 12.1 Wells completed in 2021.

13.

Platforms en pipelines, Sea

No offshore platforms or subsea installations were installed in 2021. Two subsea installations were decommissioned: P09-A en P09-B. Also, three pipelines/cables were installed and ten 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 control/power cable data were supplied by NexStep (National Platform for Re-use and Decommissioning).

Subsea installantions, decomissioned in 2021

Subseas	Operator	Installed	No. legs	Gas/Oil	Function
P09-A	Wintershall	2009	n.a.	Gas	Satellite
P09-B	Wintershall	2009	n.a.	Gas	Satellite

Pipelines and cables, installed in 2021

Operator	From	To	Diameter (inches)	Length (km)	Product
Dana Petroleum	P11-Unity	P11-B-WYE Manifold	8	8	Gas
Dana Petroleum	P11-B-De Ruyter	P11-Unity		8	Control & Power
NGT	NP-007-ST-KP-14.4	NP-001-ST-KP-20.4-36	14	6.9	Gas

Pipelines and cables, decommissioned in 2021

Operator	From	To	Installed	Diameter (inches)	Length (km)	Product
Wintershall	P06-A	L10-AR	1983	20	78.6	Chemicals
Wintershall	P06-B	P06-A	1985	12	3.9	SaltWater
Wintershall	P06-D	P06-B	2001	10	6.7	SaltWater
Wintershall	P09-B	P06-D	2009	8	16.6	SaltWater
Wintershall	P09-B	P06-D	2009	3	16.6	Control & Power
Wintershall	P12-SW	P06-A	1990	12	42	SaltWater
Wintershall	Q04-B	Q04-A	2001	10	7.3	SaltWater
Wintershall	P12-SW	P06-A	1990	3	42	SaltWater
Wintershall	P06-B	P06-A	1985	3	3.9	SaltWater

Operator	From	To	Installed	Diameter (inches)	Length (km)	Product
Wintershall	L08-G	NP-001-ST-KP-20.4-36	1988	14	21.3	Gas

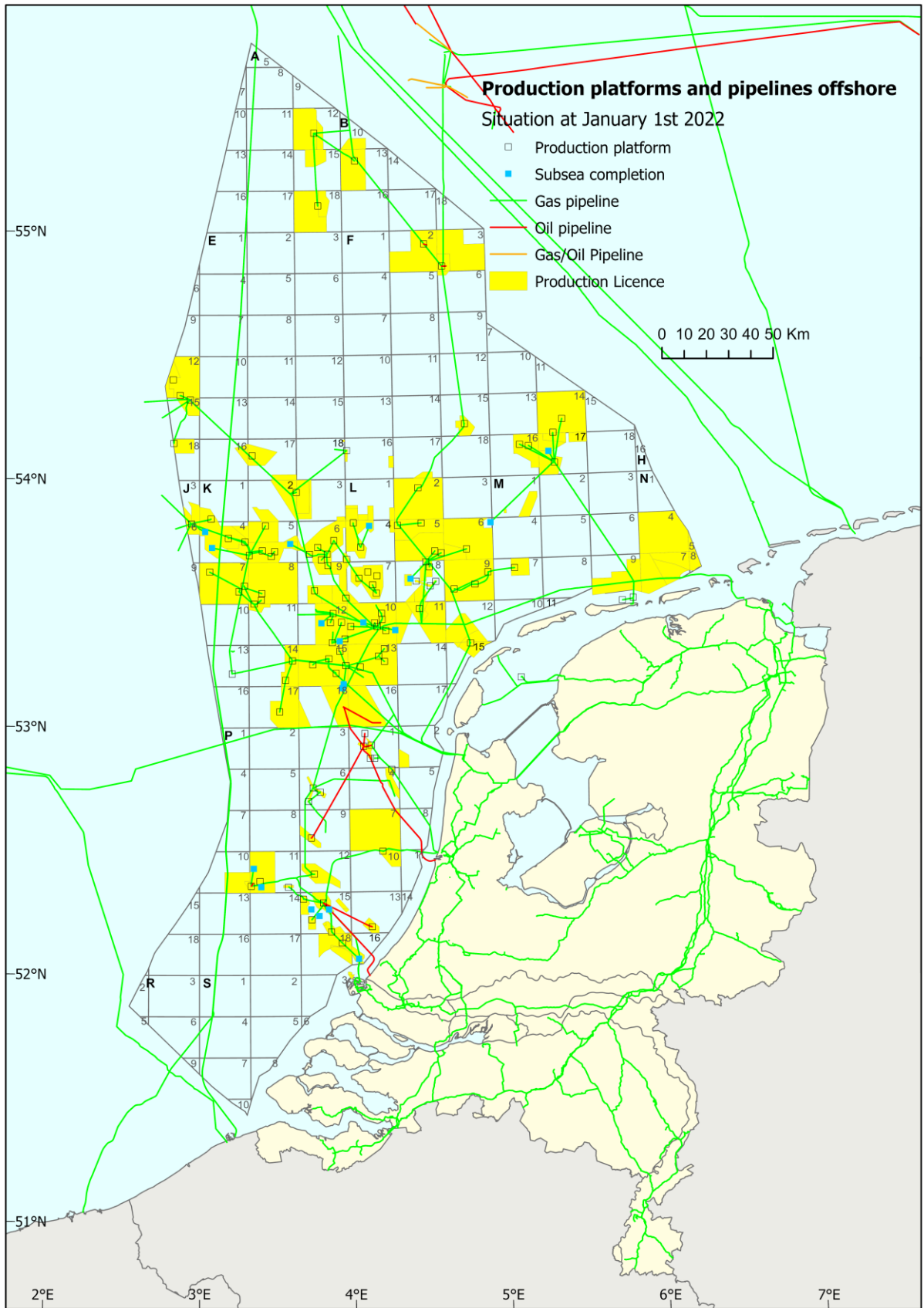


Figure 13.1 Offshore production platforms and pipelines as at 1 January 2022 (Source: <https://nationaalgeoregister.nl>).

Annexes

A. Natural gas and oil accumulations

By status as at 1 January 2022

A.1 Natural gas accumulations

Developed accumulations

a. In production

Accumulation	Company	Licence name [Type] ***	Gas/Oil
's-Gravenzande	NAM	Rijswijk [wv]	G
Ameland-Oost	NAM	Noord-Friesland [wv]	G
Ameland-Westgat	NAM	Noord-Friesland [wv]	G
Anjum	NAM	Noord-Friesland [wv]	G
Assen	NAM	Drenthe IIb [wv]	G
Bedum	NAM	Groningen [wv]	G
Bergen	TAQA	Bergen II [wv]	G
Blesdijke	Vermilion	Gorredijk [wv], Steenwijk [wv]	G
Blija-Ferwerderadeel	NAM	Noord-Friesland [wv]	G
Blija-Zuid	NAM	Noord-Friesland [wv]	G
Blija-Zuidoost	NAM	Noord-Friesland [wv]	G
Blijham	NAM	Groningen [wv]	G
Boerakker	NAM	Groningen [wv]	G
Botlek	NAM	Botlek III [wv], Rijswijk [wv]	G
Brakel	Vermilion	Andel Va [wv]	G&O
Coevorden	NAM	Hardenberg [wv], Schoonebeek [wv]	G
Collendoorn	NAM	Hardenberg [wv], Schoonebeek [wv]	G
De Blesse	Vermilion	Gorredijk [wv], Steenwijk [wv]	G
De Lier	NAM	Rijswijk [wv]	G&O
De Wijk	NAM	Drenthe IIb [wv], Schoonebeek [wv]	G
Den Velde	NAM	Hardenberg [wv], Schoonebeek [wv]	G
Diever	Vermilion	Drenthe VI [wv]	G
Een	NAM	Drenthe IIb [wv], Groningen [wv]	G
Eernewoude	Vermilion	Leeuwarden [wv]	G
Eesveen	Vermilion	Drenthe VI [wv], Steenwijk [wv]	G
Eleveld	NAM	Drenthe IIb [wv]	G
Ezumazijl	NAM	Noord-Friesland [wv]	G
Faan	NAM	Groningen [wv]	G
Feerwerd	NAM	Groningen [wv]	G
Gaag	NAM	Rijswijk [wv]	G
Geesbrug	Vermilion	Drenthe V [wv]	G
Groet	TAQA	Bergen II [wv]	G
Grolloo	Vermilion	Drenthe IV [wv]	G
Groningen	NAM	Groningen [wv]	G
Grootegast	NAM	Groningen [wv], Tietjerksteradeel III [wv]	G
Hardenberg	NAM	Hardenberg [wv], Schoonebeek [wv]	G

Accumulation	Company	Licence name [Type] ***	Gas/Oil
Hardenberg-Oost	NAM	Hardenberg [wv], Schoonebeek [wv]	G
Harkema	NAM	Tietjerksteradeel III [wv]	G
Heinenoord	NAM	Botlek III [wv]	G
Hekelingen	NAM	Beijerland [wv], Botlek III [wv]	G
Kollum	NAM	Tietjerksteradeel III [wv]	G
Kollum-Noord	NAM	Noord-Friesland [wv], Tietjerksteradeel III [wv]	G
Kommerzijl	NAM	Groningen [wv], Tietjerksteradeel III [wv]	G
Langezwaag	Vermilion	Gorredijk [wv]	G
Lauwersoog	NAM	Noord-Friesland [wv]	G
Leens	NAM	Groningen [wv]	G
Leeuwarden-Nijega	Vermilion	Leeuwarden [wv], Tietjerksteradeel II [wv]	G
Loon op Zand	Vermilion	Waalwijk [wv]	G
Loon op Zand-Zuid	Vermilion	Waalwijk [wv]	G
Maasdijk	NAM	Rijswijk [wv]	G
Marum	NAM	Groningen [wv], Tietjerksteradeel III [wv]	G
Metslawier-Zuid	NAM	Noord-Friesland [wv]	G
Middelburen	Vermilion	Akkrum [opv], Leeuwarden [wv]	G
Middelie	NAM	Middelie [wv]	G
Moddergat	NAM	Noord-Friesland [wv]	G
Molenpolder	NAM	Groningen [wv]	G
Monster	NAM	Rijswijk [wv]	G
Munnekezijl	NAM	De Marne [wv], Groningen [wv], Noord-Friesland [wv]	G
Nes	NAM	Noord-Friesland [wv]	G
Noordwolde	Vermilion	Gorredijk [wv]	G
Oosterhesselen	NAM	Drenthe IIb [wv]	G
Oostrum	NAM	Noord-Friesland [wv]	G
Opeinde	Vermilion	Leeuwarden [wv], Tietjerksteradeel II [wv], Tietjerksteradeel III [wv]	G
Opeinde-Zuid	Vermilion	Akkrum [opv], Leeuwarden [wv]	G
Opende-Oost	NAM	Groningen [wv]	G
Oud-Beijerland Zuid	NAM	Beijerland [wv], Botlek III [wv]	G
Oude Pekela	NAM	Groningen [wv]	G
Oudeland	NAM	Beijerland [wv]	G
Pernis	NAM	Rijswijk [wv]	G
Pernis-West	NAM	Rijswijk [wv]	G
Pieterzijl Oost	NAM	Groningen [wv], Tietjerksteradeel III [wv]	G
Reedijk	NAM	Botlek III [wv]	G
Ried	Vermilion	Leeuwarden [wv]	G
Rustenburg	NAM	Middelie [wv]	G
Saaksum	NAM	Groningen [wv]	G
Schermer	TAQA	Bergen II [wv]	G
Schoonebeek Gas	NAM	Schoonebeek [wv]	G
Sonnega-Weststellingwerf	Vermilion	Steenwijk [wv]	G
Spijkenisse-Intra	NAM	Botlek III [wv]	G
Spijkenisse-Oost	NAM	Botlek III [wv]	G
Sprang	Vermilion	Waalwijk [wv]	G
Surhuisterveen	NAM	Groningen [wv], Tietjerksteradeel III [wv]	G

Accumulation	Company	Licence name [Type] ***	Gas/Oil
Tietjerksteradeel	Vermilion	Tietjerksteradeel II [wv]	G
Ureterp	NAM	Groningen [wv], Tietjerksteradeel II [wv], Tietjerksteradeel III [wv]	G
Vinkega	Vermilion	Drenthe IIIa [wv], Drenthe IIa [wv], Gorredijk [wv]	G
Vries	NAM	Drenthe IIb [wv]	G
Waalwijk-Noord	Vermilion	Waalwijk [wv]	G
Wanneperveen	NAM	Schoonebeek [wv]	G
Warffum	NAM	Groningen [wv]	G
Warga-Wartena	Vermilion	Leeuwarden [wv], Tietjerksteradeel II [wv]	G
Westbeemster	NAM	Bergen II [wv], Middelie [wv]	G
Weststellingwerf	Vermilion	Gorredijk [wv]	G
Wieringa	NAM	Groningen [wv], Noord-Friesland [wv], Tietjerksteradeel III [wv]	G
Zuidwending-Oost	NAM	Groningen [wv]	G
A12-FA	Petrogas	A12a [wv], A12d [wv]	G
A18-FA	Petrogas	A18a [wv], A18c [wv]	G
B13-FA	Petrogas	B10c & B13a [wv]	G
D12-B	Wintershall	D12a [wv], D12b [wv]	G
D12-D	Wintershall	D12a [wv]	G
E17a-A	Neptune	E16a [wv], E17a & E17b [wv]	G
F02a-Pliocene	Dana Petroleum	F02a [wv]	G
F03-FB	Neptune	F02a [wv], F03b [wv], F05 [opv], F06a [wv]	G&O
F15a-A	TotalEnergies	F15a [wv]	G
F15a-B	TotalEnergies	F15a [wv]	G
G14-A&B	Neptune	G14 & G17b [wv], G17a [wv]	G
G16a-A	Neptune	G16a [wv]	G
G16a-B	Neptune	G16a [wv]	G
G16a-C	Neptune	G16a [wv]	G
G16a-D	Neptune	G16a [wv]	G
G17a-S1	Neptune	G17a [wv]	G
G17cd-A	Neptune	G17c & G17d [wv]	G
J03-C Unit	TotalEnergies	J03a [wv], J03b & J06a [wv], K01a [wv], K04a [wv]	G
K01-A Unit	TotalEnergies	J03a [wv], K01a [wv], K04a [wv]	G
K02b-A	Neptune	K02b [wv], K03a [wv], K03c [wv]	G
K04-A	TotalEnergies	K04a [wv], K04b & K05a [wv], K05b & K05c [wv]	G
K04-E	TotalEnergies	K04a [wv], K04b & K05a [wv]	G
K04-N	TotalEnergies	K04a [wv], K04b & K05a [wv]	G
K04a-B	TotalEnergies	K04a [wv], K04b & K05a [wv]	G
K04a-D	TotalEnergies	J03b & J06a [wv], K04a [wv]	G
K04a-Z	TotalEnergies	K04a [wv]	G
K05-C North	TotalEnergies	K05b & K05c [wv]	G
K05-C Unit	TotalEnergies	K04b & K05a [wv], K05b & K05c [wv]	G
K05-U	TotalEnergies	K02c [wv], K05b & K05c [wv]	G
K05a-A	TotalEnergies	K04a [wv], K04b & K05a [wv], K08 & K11a [wv]	G
K05a-B	TotalEnergies	K04b & K05a [wv], K05b & K05c [wv]	G
K05a-D	TotalEnergies	K04b & K05a [wv]	G
K05a-En	TotalEnergies	K04b & K05a [wv], K05b & K05c [wv]	G

Accumulation	Company	Licence name [Type] ***	Gas/Oil
K06-A	TotalEnergies	K03b [wv], K06a, K06b, L07a, L07b & L07c [wv]	G
K06-C	TotalEnergies	K06a, K06b, L07a, L07b & L07c [wv]	G
K06-D	TotalEnergies	K06a, K06b, K09c & K09d [wv], L07a, L07b & L07c [wv]	G
K06-DN	TotalEnergies	K06a, K06b, L07a, L07b & L07c [wv]	G
K06-G	TotalEnergies	K06a, K06b, L07a, L07b & L07c [wv]	G
K07-FA	NAM	K07 [wv]	G
K07-FB	NAM	J09 [opv], K07 [wv]	G
K07-FC	NAM	K07 [wv], K08 & K11a [wv]	G
K07-FE	NAM	K07 [wv]	G
K08-FA	NAM	K08 & K11a [wv]	G
K08-FC	NAM	K08 & K11a [wv]	G
K09ab-B	Neptune	K09a & K09b [wv]	G
K12-B	Neptune	K12a [wv], K15 [wv]	G
K12-B9	Neptune	K12a [wv], K15 [wv]	G
K12-D	Neptune	K12a [wv]	G
K12-G	Neptune	K12a [wv], L10 & L11a [wv]	G
K12-S3	Neptune	K12a [wv]	G
K14-FA	NAM	K14a [wv]	G
K14-FB	NAM	K14a [wv], K17a [wv]	G
K15-FA	NAM	K15 [wv], L13 [wv]	G
K15-FB	NAM	K15 [wv]	G
K15-FC	NAM	K15 [wv]	G
K15-FD	NAM	K15 [wv]	G
K15-FE	NAM	K15 [wv]	G
K15-FG	NAM	K15 [wv]	G
K15-FI	NAM	K15 [wv]	G
K15-FK	NAM	K15 [wv]	G
K15-FL	NAM	K12a [wv], K15 [wv]	G
K15-FM	NAM	K15 [wv]	G
K15-FN	NAM	K15 [wv]	G
K15-FO	NAM	K15 [wv]	G
K15-FP	NAM	K15 [wv]	G
K17-FA	NAM	K17a [wv]	G
K18-Golf	Wintershall	K15 [wv], K18b [wv]	G
L01-A	TotalEnergies	L01a [wv], L01d [wv], L04a & L04b [wv]	G
L02-FA	NAM	L02 [wv]	G
L02-FB	NAM	F17c [wv], L02 [wv]	G
L04-A	TotalEnergies	L04a & L04b [wv]	G
L04-F	TotalEnergies	L01e [wv], L04a & L04b [wv]	G
L04-G	TotalEnergies	L01f [wv], L04a & L04b [wv]	G
L04-I	TotalEnergies	L04a & L04b [wv]	G
L05-B	Wintershall	L05b [wv]	G
L05-C	Wintershall	L05b [wv], L06b [wv]	G
L05a-A	Neptune	L02 [wv], L04c [wv], L05a [wv]	G
L05a-D	Neptune	L02 [wv], L05a [wv]	G
L06-B	Wintershall	L06a [wv]	G
L08-A-West	Wintershall	L08b, L08d & L08e [wv]	G

Accumulation	Company	Licence name [Type] ***	Gas/Oil
L08-D	ONE-Dyas	L08a & L08c [wv], L08b, L08d & L08e [wv], L11b [wv]	G
L08-P	Wintershall	L05c [wv], L08b, L08d & L08e [wv]	G
L09-FA	NAM	L09 [wv]	G
L09-FB	NAM	L09 [wv]	G
L09-FD	NAM	L09 [wv]	G
L09-FF	NAM	L09 [wv]	G
L09-FG	NAM	L09 [wv]	G
L09-FH	NAM	L09 [wv]	G
L09-FI	NAM	L09 [wv]	G
L09-FK	NAM	L09 [wv]	G
L09-FL	NAM	L09 [wv]	G
L10-CDA	Neptune	L10 & L11a [wv]	G
L10-M	Neptune	L10 & L11a [wv]	G
L10-N	Neptune	L10 & L11a [wv]	G
L10-O	Neptune	K12a [wv], L10 & L11a [wv]	G
L10-P	Neptune	L10 & L11a [wv]	G
L11-Gillian	ONE-Dyas	L11b [wv], L11c [wv]	G
L11b-A	ONE-Dyas	L11b [wv]	G
L12a-B	Neptune	L12a [wv], L12b & L15b [wv], L15c [wv]	G
L12b-C	Neptune	L12a [wv], L12b & L15b [wv]	G
L13-FC	NAM	L13 [wv]	G
L13-FD	NAM	L13 [wv]	G
L13-FE	NAM	L13 [wv]	G
L13-FF	NAM	L13 [wv]	G
L13-FG	NAM	L13 [wv]	G
L13-FI	NAM	L13 [wv]	G
L15b-A	Neptune	L12b & L15b [wv]	G
M07-A	ONE-Dyas	M07a [wv]	G
M07-B	ONE-Dyas	M07a [wv]	G
Markham	Spirit	J03a [wv], J03b & J06a [wv]	G
N07-FA	NAM	N07a [wv], Noord-Friesland [wv]	G
P10a-De Ruyter	Dana	P10a [wv]	G
Western Extension	Petroleum		
P11b-Van Ghent East	Dana	P11b [wv]	G
	Petroleum		
P11b-Witte de With	Dana	P11b [wv]	G
	Petroleum		
P15-19	TAQA	P15a, P15b, P15d, P15e & P15f [wv]	G
P18-2	TAQA	P18a [wv], P18c [wv]	G
P18-4	TAQA	P18a [wv]	G
P18-6	TAQA	P15c, P15g, P15h, P15i & P15j [wv], P18a [wv]	G
Q01-B	Wintershall	Q01c-diep [wv], Q04a [wv]	G
Q01-D	Wintershall	Q01c-diep [wv]	G
Q10-A	KISTOS NL2	Q07 & Q10a [wv]	G
Q16-FA	ONE-Dyas	Q16a [wv]	G
Q16-Maasmond (Charlie-North)	ONE-Dyas	Q16c-diep [wv]	G

b. Gas storage

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

Undeveloped accumulations

a. Production start expected within 5 years

Accumulation	Company	Licence name [Type]***	Gas/Oil
Assen-Zuid	NAM	Drenthe IIb [wv]	G
Blesdijke-East	Vermilion	Gorredijk [wv], Steenwijk [wv]	G
Marumerlage	NAM	Groningen [wv]	G
Nieuwehorne	Vermilion	Gorredijk [wv]	G
Oppenhuizen	Vermilion	Zuid-Friesland III [wv]	G
Papekop	Vermilion	Papekop [wv]	G&O
Rodewolt	NAM	Groningen [wv]	G
Ternaard	NAM	Noord-Friesland [wv]	G
Usquert	NAM	Groningen [wv]	G
A15-A	Petrogas	A12a [wv], A12d [wv], A15a [wv]	G
B10-FA	Petrogas	A12b & B10a [opv]	G
B16-FA	Petrogas	B10c & B13a [wv], B16a [opv]	G
D15 Tourmaline	Neptune	D15a [wv]	G
F16-P	Wintershall	F16a & F16b [wv]	G
K09c-B	Neptune	K09c & K09d [wv]	G
L10-19	Neptune	L10 & L11a [wv]	G
L11-7	Neptune	L10 & L11a [wv]	G
L12a-A	Neptune	L12a [wv], L12b & L15b [wv]	G
M09-FA	NAM	M09a [wv], Noord-Friesland [wv]	G
M10-FA	KISTOS NL1	M10a & M11 [opv]	G
M11-FA	KISTOS NL1	M10a & M11 [opv], Noord-Friesland [wv]	G
N04-A	ONE-Dyas	N04, N05 & N08 [wv]	G
N05-A	ONE-Dyas	N04, N05 & N08 [wv]	G
P18-7	ONE-Dyas	P18b [wv], P18c [wv], Q16a [wv]	G
Q10-Beta	KISTOS NL2	Q08, Q10b & Q11 [opv]	G
Q11-Beta	KISTOS NL2	Q08, Q10b & Q11 [opv]	G

b. Production start unknown

Accumulation	Company	Licence name [Type]***	Gas/Oil
Allardsoog	NAM	Drenthe IIb [wv], Groningen [wv], Oosterwolde [opv]	G
Beerta	NAM	Groningen [wv]	G
Boskoop		Open	G
Buma	NAM	Drenthe IIb [wv]	G
Burum	NAM	Tietjerksteradeel III [wv]	G
Deurningen	NAM	Twenthe [wv]	G

Accumulation	Company	Licence name [Type]***	Gas/Oil
Egmond-Binnen	NAM	Middelie [wv]	G
Exloo	NAM	Drenthe IIb [wv]	G
Ezumazijl-South	NAM	Noord-Friesland [wv]	G
Haakswold	NAM	Schoonebeek [wv]	G
Heiloo	TAQA	Bergen II [wv]	G
Hollum-Ameland	NAM	Noord-Friesland [wv]	G
Kerkwijk	NAM	Andel Vb [wv], UTRECHT [opv]	G
Kijkduin-Zee	NAM	Rijswijk [wv]	G
Langebrug	NAM	Groningen [wv]	G
Lankhorst	NAM	Schoonebeek [wv]	G
Maasgeul	NAM	Botlek MAASMOND [wv], Q16c-diep [wv]	G
Marknesse	Vermilion	Marknesse [wv]	G
Midlaren	NAM	Drenthe IIb [wv], Groningen [wv]	G&O
Molenaarsgraaf		Andel Vb [wv]	G
Nes-Noord	NAM	Noord-Friesland [wv]	G
Nieuweschans	NAM	Groningen [wv]	G
Oosterwolde		Open	G
Oude Leede	NAM	Rijswijk [wv]	G
Rammelbeek	NAM	Twenthe [wv]	G
Schiermonnikoog-Wad	NAM	Noord-Friesland [wv]	G
Terschelling-Noord		Open	G
Terschelling-West		Open	G
Valthermond	NAM	Drenthe IIb [wv]	G
Vlagtwedde	NAM	Groningen [wv]	G
Wassenaar-Diep	NAM	Rijswijk [wv]	G
Werkendam-Diep		Open	G
Witten	NAM	Drenthe IIb [wv]	G
Woudsend	Vermilion	Zuid-Friesland III [wv]	G
Zevenhuizen-West	NAM	Groningen [wv]	G
Zuidwijk	TAQA	Bergen II [wv], Middelie [wv]	G
B17-A		B16b, B17, E03a, E06a, F01 & F02b [opv]	G
D12 Ilmenite	Wintershall	D12a [wv]	G
E11-Vincent		Open	G
E12 Lelie		Open	G
E12 Tulp East		Open	G
E13 Epidoot		Open	G
E17-3	Neptune	E17a & E17b [wv], K02b [wv]	G
J09 Alpha North	NAM	J09 [opv], K07 [wv]	G
K08-FB	NAM	K08 & K11a [wv]	G
K08-FD	NAM	K04b & K05a [wv], K08 & K11a [wv]	G
K08-FE	NAM	K08 & K11a [wv]	G
K08-FF	NAM	K08 & K11a [wv]	G
K14-FC	NAM	K14a [wv]	G
K15-FF	NAM	K15 [wv]	G
K16-5		Open	G
K17-FB	NAM	K17a [wv]	G
K17-Zechstein	NAM	K17a [wv]	G

Accumulation	Company	Licence name [Type]***	Gas/Oil
K18-FB	Wintershall	K18b [wv]	G
K6-GT4	TotalEnergies	K06a, K06b, L07a, L07b & L07c [wv]	G
L02-FC	NAM	L01c [wv], L02 [wv]	G
L05b-A	Wintershall	L05b [wv]	G
L07-D		Open	G
L07-F		Open	G
L08-I		Open	G
L10-11	Neptune	L10 & L11a [wv]	G
L10-21	Neptune	L10 & L11a [wv]	G
L10-6	Neptune	L10 & L11a [wv]	G
L11-1	Neptune	L10 & L11a [wv]	G
L11a-B	Neptune	L10 & L11a [wv]	G
L12-FD		Open	G
L13-FA	NAM	L13 [wv]	G
L13-FJ	NAM	L13 [wv]	G
L13-FK	NAM	L13 [wv]	G
L14-FB	Neptune	L13 [wv]	G
L16-Alpha	Wintershall	L16a [wv]	G
L16-Bravo	Wintershall	L16a [wv]	G
L16-FA	Wintershall	K18b [wv], L16a [wv]	G
M01-A		M01a & M01c [wv]	G
M09-FB	NAM	M09a [wv], N07a [wv], Noord-Friesland [wv]	G
N07-B	ONE-Dyas	N04, N05 & N08 [wv], N07c [wv]	G
P01-FA		Open	G
P01-FB		Open	G
P02-Delta		Open	G
P02-E		Open	G
P06-Northwest	Wintershall	P06a [wv]	G
P10b-Van Brakel	Dana Petroleum	P10b [wv]	G
P12-F (P12-14)	Wintershall	P12a [wv]	G
P15-20	TAQA	P15a, P15b, P15d, P15e & P15f [wv]	G
Q02-A		Open	G
Q13-FC		Open	G
Q14-A		Q08, Q10b & Q11 [opv]	G

Production (temporary) ceased

Accumulation	Status **	Company	Licence name [Type]***	Gas/Oil
Akkrum 1	A	CHEVRON USA	Akkrum [opv], Leeuwarden [wv]	G
Akkrum 13	A	CHEVRON USA	Akkrum [opv], Gorredijk [wv]	G
Akkrum 3	A	CHEVRON USA	Akkrum [opv]	G
Akkrum 9	A	CHEVRON USA	Akkrum [opv]	G
Ameland-Noord	T	NAM	M09a [wv], Noord-Friesland [wv]	G
Andel-6 (Wijk & Aalburg)	T	Vermilion	Andel Va [wv]	G
Annerveen	U	NAM	Drenthe IIb [wv], Groningen [wv]	G&O
Appelscha	U	NAM	Drenthe IIb [wv]	G
Barendrecht	T	NAM	Rijswijk [wv]	G&O

Accumulation	Status **	Company	Licence name [Type]***	Gas/Oil
Barendrecht-Ziedewij	U	NAM	Rijswijk [wv]	G
Boekel	U	TAQA	Bergen II [wv]	G
Bozum	U	Vermilion	Oosterend [wv]	G
Burum-Oost	U	NAM	Tietjerksteradeel III [wv]	G
Castricum-Zee	A	Wintershall	Middelie [wv]	G
Collendoornerveen	U	NAM	Schoonebeek [wv]	G
Dalen	T	NAM	Drenthe IIb [wv], Drenthe V [wv], Schoonebeek [wv]	G
De Hoeve	T	Vermilion	Gorredijk [wv]	G
De Klem	U	NAM	Beijerland [wv]	G
De Lutte	U	NAM	Rossum-De Lutte [wv], Twenthe [wv]	G
Donkerbroek-Main	T	KISTOS NL1	Donkerbroek [wv], Donkerbroek-West [wv]	G
Donkerbroek-West	U	KISTOS NL1	Donkerbroek [wv], Donkerbroek-West [wv]	G
Emmen	A	NAM	Drenthe IIb [wv]	G
Emmen-Nieuw Amsterdam	T	NAM	Drenthe IIb [wv], Schoonebeek [wv]	G
Emshoern	A	NAM	Groningen [wv]	G
Engwierum	U	NAM	Noord-Friesland [wv]	G
Franeker	U	Vermilion	Leeuwarden [wv]	G
Gasselternijveen	U	NAM	Drenthe IIb [wv]	G
Geestvaartpolder	U	NAM	Rijswijk [wv]	G
Groet-Oost	U	TAQA	Middelie [wv]	G
Grouw-Rauwerd	T	Vermilion	Leeuwarden [wv], Oosterend [wv]	G
Harlingen Lower Cretaceous	U	Vermilion	Leeuwarden [wv]	G
Harlingen Upper Cretaceous	U	Vermilion	Leeuwarden [wv]	G
Hemrik (Akkrum 11)	T	KISTOS NL1	Akkrum 11 [wv]	G
Hoogenweg	A	NAM	Hardenberg [wv]	G
Houwerzijl	U	NAM	Groningen [wv]	G
Kiel-Windeweer	U	NAM	Drenthe IIb [wv], Groningen [wv]	G
Kollumerland	U	NAM	Tietjerksteradeel III [wv]	G
Leeuwarden 101 Rotliegend	A	Vermilion	Leeuwarden [wv]	G
Leidschendam	A	NAM	Rijswijk [wv]	G
Metslawier	T	NAM	Noord-Friesland [wv]	G
Middenmeer	U	Vermilion	Slootdorp [wv]	G
Nijensleek	U	Vermilion	Drenthe IIa [wv], Steenwijk [wv]	G
Noorderdam	U	NAM	Rijswijk [wv]	G
Norg-Zuid	U	NAM	Drenthe IIb [wv]	G
Oldelamer	U	Vermilion	Gorredijk [wv], LEMSTERLAND [opv]	G
Oldenzaal	U	NAM	Rossum-De Lutte [wv], Twenthe [wv]	G
Oudendijk	T	NAM	Beijerland [wv]	G
Pasop	U	NAM	Drenthe IIb [wv], Groningen [wv]	G
Roden	T	NAM	Drenthe IIb [wv], Groningen [wv]	G
Rossum-Weerselo	U	NAM	Rossum-De Lutte [wv], Twenthe [wv]	G
Roswinkel	A	NAM	Drenthe IIb [wv], Groningen [wv]	G
Sebaldeburen	T	NAM	Groningen [wv]	G

Accumulation	Status **	Company	Licence name [Type]***	Gas/Oil
Sleen	A	NAM	Drenthe IIb [wv]	G
Slootdorp	U	Vermilion	Slootdorp [wv]	G
Spijkenisse-West	T	NAM	Beijerland [wv], Botlek III [wv]	G
Starnmeer	U	TAQA	Bergen II [wv]	G
Suawoude	U	Vermilion	Leeuwarden [wv], Tietjerksteradeel II [wv]	G
Tubbergen	U	NAM	Tubbergen [wv]	G
Tubbergen-Mander	U	NAM	Tubbergen [wv]	G
Vierhuizen	T	NAM	De Marne [wv], Groningen [wv], Noord-Friesland [wv]	G
Wimmenum-Egmond	A	NAM	Middelie [wv]	G
Witterdiep	U	NAM	Drenthe IIb [wv]	G
Zevenhuizen	U	NAM	Groningen [wv]	G
Zuid-Schermer	U	TAQA	Bergen II [wv]	G
Zuidwal	U	Vermilion	ZUIDWAL [wv]	G
D12-A	U	Wintershall	D12a [wv], D15a [wv]	G
D12-C	T	Wintershall	D12a [wv]	G
D15a-A	T	Neptune	D12a [wv], D15a [wv]	G
D15a-A104	U	Neptune	D15a [wv]	G
D18a-A	U	Neptune	D18a [wv]	G
E18-A	A	Wintershall	Open	G
F03-FA	A	Spirit	Open	G
F16-E	U	Wintershall	E18a [wv], F16a & F16b [wv]	G
G14-C	U	Neptune	G14 & G17b [wv]	G
Halfweg	A	Petrogas	Q01a-ondiep & Q01b-ondiep [wv], Q02c [wv]	G
K05-F	T	TotalEnergies	K04b & K05a [wv], K05b & K05c [wv], K06a, K06b, L07a, L07b & L07c [wv]	G
K05-G	U	TotalEnergies	K04b & K05a [wv]	G
K05a-Es	U	TotalEnergies	K04b & K05a [wv]	G
K06-N	U	TotalEnergies	K06a, K06b, L07a, L07b & L07c [wv]	G
K06-T	U	TotalEnergies	K06a, K06b, L07a, L07b & L07c [wv]	G
K07-FD	T	NAM	K07 [wv]	G
K09ab-A	U	Neptune	K06a, K06b, K09a & K09b [wv], K09c & K09d [wv], L07a, L07b & L07c [wv], L10 & L11a [wv]	G
K09ab-C	T	Neptune	K09a & K09b [wv], K09c & K09d [wv]	G
K09ab-D	T	Neptune	K09a & K09b [wv]	G
K09c-A	U	Neptune	K06a, K06b, K09c & K09d [wv], L07a, L07b & L07c [wv]	G
K09c-C	U	Neptune	K09c & K09d [wv]	G
K10-B (gas)	A	Wintershall	Open	G
K10-C	A	Wintershall	Open	G
K10-V	A	Wintershall	K07 [wv]	G
K11-FA	A	NAM	Open	G
K11-FB	A	GDFP	Open	G
K11-FC	A	GDFP	Open	G
K12-A	A	GDFP	K12a [wv]	G
K12-C	U	Neptune	K12a [wv]	G
K12-E	A	GDFP	K12a [wv], L10 & L11a [wv]	G

Accumulation	Status **	Company	Licence name [Type]***	Gas/Oil
K12-H (K12-S2 & K12-D5)	U	Neptune	K12a [wv]	G
K12-K	U	Neptune	K12a [wv]	G
K12-L	U	Neptune	K09c & K09d [wv], K12a [wv]	G
K12-M	U	Neptune	K12a [wv]	G
K12-S1	A	GDFP	K12a [wv]	G
K13-A	A	Wintershall	Open	G
K13-B	A	Wintershall	Open	G
K13-CF	A	Wintershall	Open	G
K13-DE	A	Wintershall	Open	G
K15-FH	T	NAM	K15 [wv]	G
K15-FJ	T	NAM	K15 [wv]	G
K15-FQ	T	NAM	K15 [wv], L13 [wv]	G
L04-B	A	Total	K06a, K06b, K09c & K09d [wv], L04a & L04b [wv], L07a, L07b & L07c [wv]	G
L04-D	U	TotalEnergies	L04a & L04b [wv]	G
L06d-S1	A	ONE	Open	G
L07-A	A	Total	K06a, K06b, L07a, L07b & L07c [wv]	G
L07-B	U	TotalEnergies	K06a, K06b, L07a, L07b & L07c [wv]	G
L07-C	U	TotalEnergies	K06a, K06b, L07a, L07b & L07c [wv]	G
L07-G	U	TotalEnergies	K06a, K06b, L07a, L07b & L07c [wv]	G
L07-H	U	TotalEnergies	K06a, K06b, L07a, L07b & L07c [wv]	G
L07-H South-East	U	TotalEnergies	K06a, K06b, L07a, L07b & L07c [wv]	G
L07-N	A	Total	K06a, K06b, L07a, L07b & L07c [wv]	G
L08-A	U	Wintershall	L08a & L08c [wv], L08b, L08d & L08e [wv]	G
L08-G	U	Wintershall	L08a & L08c [wv]	G
L08-H	U	Wintershall	L08a & L08c [wv]	G
L09-FC	U	NAM	L09 [wv]	G
L09-FE	T	NAM	L09 [wv]	G
L09-FJ	U	NAM	L09 [wv]	G
L09-FM	T	NAM	L09 [wv]	G
L10-G	A	Neptune	L10 & L11a [wv]	G
L10-K	A	GDFP	L10 & L11a [wv]	G
L10-Q	T	Neptune	L10 & L11a [wv]	G
L10-S1	A	PLACID	L10 & L11a [wv]	G
L10-S2	U	Neptune	L10 & L11a [wv]	G
L10-S3	A	GDFP	L10 & L11a [wv]	G
L10-S4	U	Neptune	L10 & L11a [wv]	G
L11-Lark	A	GDFP	L10 & L11a [wv]	G
L11a-A	A	GDFP	L10 & L11a [wv]	G
L13-FB	T	NAM	L13 [wv]	G
L13-FH	A	NAM	L13 [wv]	G
L14-FA	A	Transcanada Int.	Open	G
P02-NE	A	Wintershall	Open	G
P02-SE	A	Wintershall	Open	G
P06-D	U	Wintershall	P06a [wv]	G
P06-Main	U	Wintershall	P06a [wv]	G

Accumulation	Status **	Company	Licence name [Type]***	Gas/Oil
P06-South	A	Wintershall	Open	G
P09-A	A	Wintershall	Open	G
P09-B	A	Wintershall	Open	G
P11-12	A	ONE-Dyas	P11a [wv]	G
P11a-E	A	ONE-Dyas	P11a [wv]	G
P11b-Van Nes	U	Dana Petroleum	P11b [wv]	G
P12-C	A	Wintershall	P12a [wv]	G
P12-SW	U	Wintershall	P12a [wv]	G
P14-A	A	Wintershall	Open	G
P15-09	T	TAQA	P15a, P15b, P15c, P15d, P15e & P15f [wv], P15g, P15h, P15i & P15j [wv], P18a [wv]	G
P15-10	A	TAQA	P15c, P15g, P15h, P15i & P15j [wv]	G
P15-11	T	TAQA	P15a, P15b, P15d, P15e & P15f [wv]	G
P15-12	A	TAQA	P15a, P15b, P15d, P15e & P15f [wv]	G
P15-13	T	TAQA	P15a, P15b, P15d, P15e & P15f [wv]	G
P15-14	A	TAQA	Open	G
P15-15	U	TAQA	P15a, P15b, P15d, P15e & P15f [wv]	G
P15-16	U	TAQA	P15a, P15b, P15d, P15e & P15f [wv]	G
P15-17	U	TAQA	P15a, P15b, P15d, P15e & P15f [wv]	G
Q04-A	A	Wintershall	Q04a [wv]	G
Q04-B	U	Wintershall	Q04a [wv]	G
Q05-A	A	Wintershall	Open	G
Q08-A	A	Wintershall	Middelie [wv], Q08, Q10b & Q11 [opv]	G
Q08-B	A	Wintershall	Q08, Q10b & Q11 [opv]	G
Q16-Maas	U	ONE-Dyas	Botlek-Maas [wv], P18d [wv], Q16b & Q16c-Diep [wv], S03a [wv], T01 [wv]	G

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

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

A.2 Oil accumulations

Developed accumulations

a. In production

Accumulation	Company	Licence name [Type]***	Gas/Oil
Oud-Beijerland Noord	NAM	Botlek III [wv]	O
Rotterdam	NAM	Rijswijk [wv]	O
Schoonebeek Olie	NAM	Schoonebeek [wv]	O
F02a-Hanze	Dana Petroleum	F02a [wv]	O
Haven	Petrogas	Q01a-ondiep & Q01b-ondiep [wv]	O
Helder	Petrogas	Q01a-ondiep & Q01b-ondiep [wv]	O
Horizon	Petrogas	P09a [wv], P09c [wv]	O
P11b-De Ruyter	Dana Petroleum	P10a [wv], P11b [wv]	O
P15 Rijn	TAQA	P15a, P15b, P15c, P15d, P15e & P15f [wv], P15g, P15h, P15i & P15j [wv]	O
Q13a-Amstel	Neptune	Q13a [wv]	O

Undeveloped accumulations

a. Production start (expected) within 5 years

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

b. Productions start unknown

Accumulation	Company	Licence name [Type]***	Gas/Oil
Alblasserdam		Open	O
Denekamp	NAM	Tubbergen [wv]	O
Gieterveen	NAM	Drenthe IIb [wv], Groningen [wv]	O
Lekkerkerk/blg		Open	O
Noordwijk	NAM	Rijswijk [wv]	O
Ottoland	Vermilion	ANDEL Va [wv]	O
Stadskanaal	NAM	Groningen [wv]	O&G
Wassenaar-Zee	NAM	Rijswijk [wv]	O
Woubrugge		Open	O
Zweelo	NAM	Drenthe IIb [wv]	O
B18-FA		Open	O
F03-FC		Open	O
F06b-Snellius	Dana Petroleum	F06b [opv]	O
F06b-Zulu North	Dana Petroleum	F03c [wv], F06b [opv]	O
F14-FA		Open	O
F17-FA (Korvet)		Open	O
F17-FB (Brigantijn)		Open	O
F18-FA (Fregat)		Open	O
K10-B (oil)		Open	O

Accumulation	Company	Licence name [Type]**	Gas/Oil
L01-FB		Open	O
L05a-E	Neptune	L01c [wv], L02 [wv], L04c [wv], L05a [wv]	O
P08-A Horizon-West		P09a [wv]	O
P12-West (P12-3)	Wintershall	P12a [wv]	O&G
Q01-Northwest		Open	O
Q13-FB	NAM	Rijswijk [wv]	O

Production (temporary) ceased

Accumulation	Status **	Company	Licence name [Type]**	Gas/Oil
Berkel	A	NAM	Rijswijk [wv]	O&G
IJsselmonde	A	NAM	Rijswijk [wv]	O&G
Moerkapelle	A	NAM	Rijswijk [wv]	O
Pijnacker	A	NAM	Rijswijk [wv]	O
Rijswijk	A	NAM	Rijswijk [wv]	O&G
Wassenaar	A	NAM	Rijswijk [wv]	O
Werkendam	A	NAM	Open	O
Zoetermeer	A	NAM	Rijswijk [wv]	O
Helm	U	Petrogas	Q01a-ondiep & Q01b-ondiep [wv]	O
Hoorn	U	Petrogas	Q01a-ondiep & Q01b-ondiep [wv]	O
Kotter	A	Wintershall	K18b [wv]	O
Logger	A	Wintershall	L16a [wv]	O
P11b-Van Ghent	U	Dana Petroleum	P11b [wv]	O

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

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

B. Production of natural gas in million Nm³

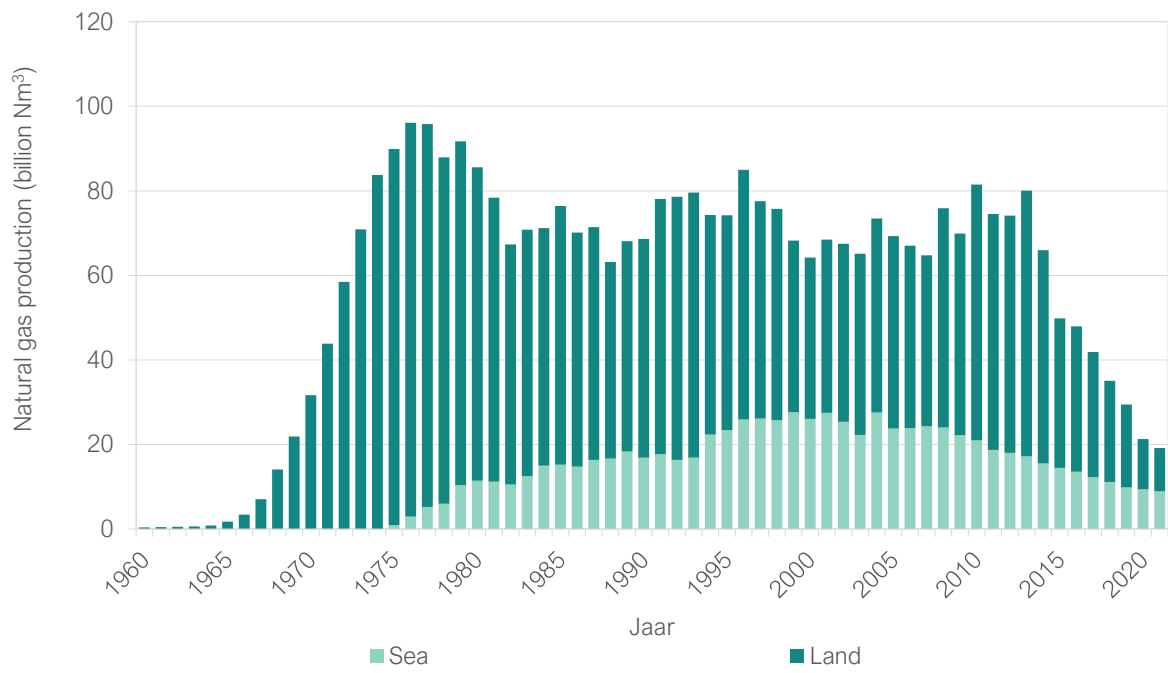
In the table below, corrections have been made this year for the period between 2003-2020 compared to previous annual reports.

Year	Land *	Sea	Total
1960	363.8	-	363.8
1961	451.0	-	451.0
1962	509.8	-	509.8
1963	571.3	-	571.3
1964	830.0	-	830.0
1965	1,722.6	-	1,722.6
1966	3,376.9	-	3,376.9
1967	7,033.3	-	7,033.3
1968	14,107.3	-	14,107.3
1969	21,884.4	-	21,884.4
1970	31,663.6	7.5	31,671.1
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

Year	Land *	Sea	Total
1991	60,378.5	17,705.3	78,083.8
1992	62,252.6	16,371.9	78,624.5
1993	62,680.9	16,914.2	79,595.1
1994	51,982.7	22,301.2	74,283.9
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
Total	2,786,350.7	803,182.4	3,589,533.3

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

Production of natural gas 1960 – 2021



C. Natural gas reserves and cumulative production in billion Nm³

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

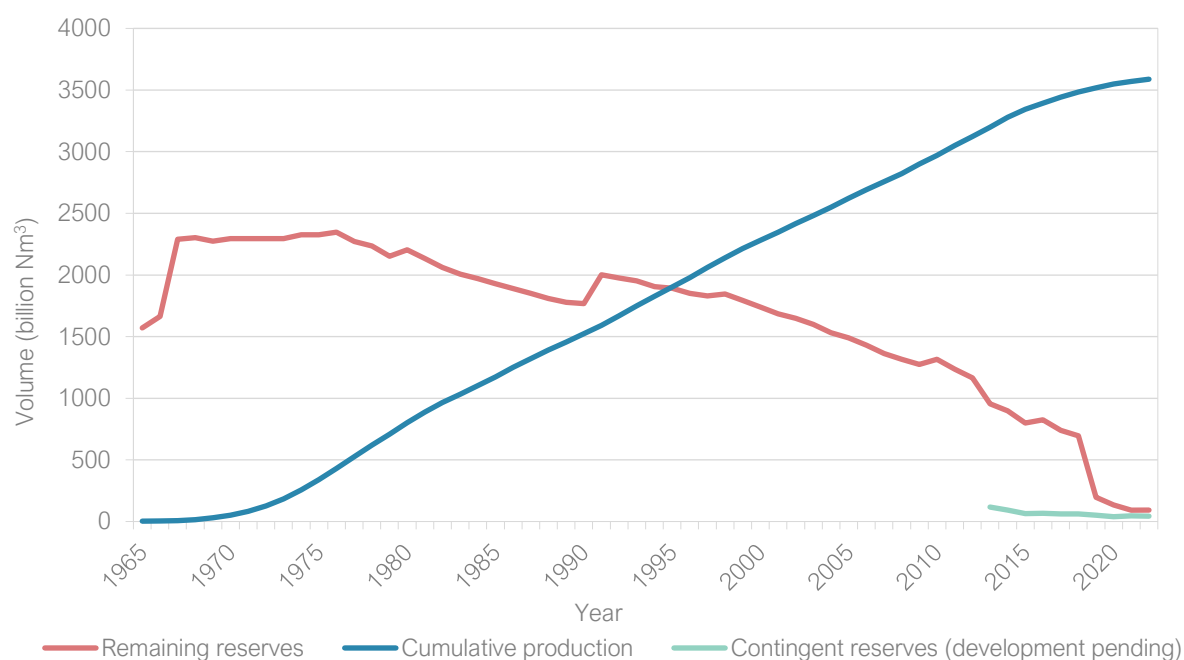
Year as at 1 Jan.	On land		At sea		Total	
	Expected reserves	Cumulative production	Expected reserves	Cumulative production	Expected reserves	Cumulative production
2006	1,218	2,152	213	539	1,431	2,691
2007	1,168	2,196	195	563	1,363	2,758
2008	1,129	2,236	188	587	1,317	2,823
2009	1,101	2,288	173	611	1,274	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.	On land			At 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

Natural gas reserves and cumulative production (1 January 2022), 1965 – 2022



Past production for the period 2011 – 2021 and supply of natural gas from the small fields for the period 2022 – 2046, 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
2011	30.7	-	-	-	-	-	-
2012	29.3	-	-	-	-	-	-
2013	28.7	-	-	-	-	-	-
2014	26.4	-	-	-	-	-	-
2015	23.9	-	-	-	-	-	-
2016	22.6	-	-	-	-	-	-
2017	20.2	-	-	-	-	-	-
2018	17.9	-	-	-	-	-	-
2019	15.3	-	-	-	-	-	-
2020	14.9	-	-	-	-	-	-
2021	14.2	-	-	-	-	-	-
2022	-	3.8	9.2	0	0.1	0.0	0.0
2023	-	3	8.1	0.2	0.3	0.0	0.0
2024	-	2.6	7.5	0.5	0.9	0.1	0.0
2025	-	2	6.2	0.7	1.6	0.2	0.5
2026	-	1.6	5.2	1.1	1.5	0.3	0.9

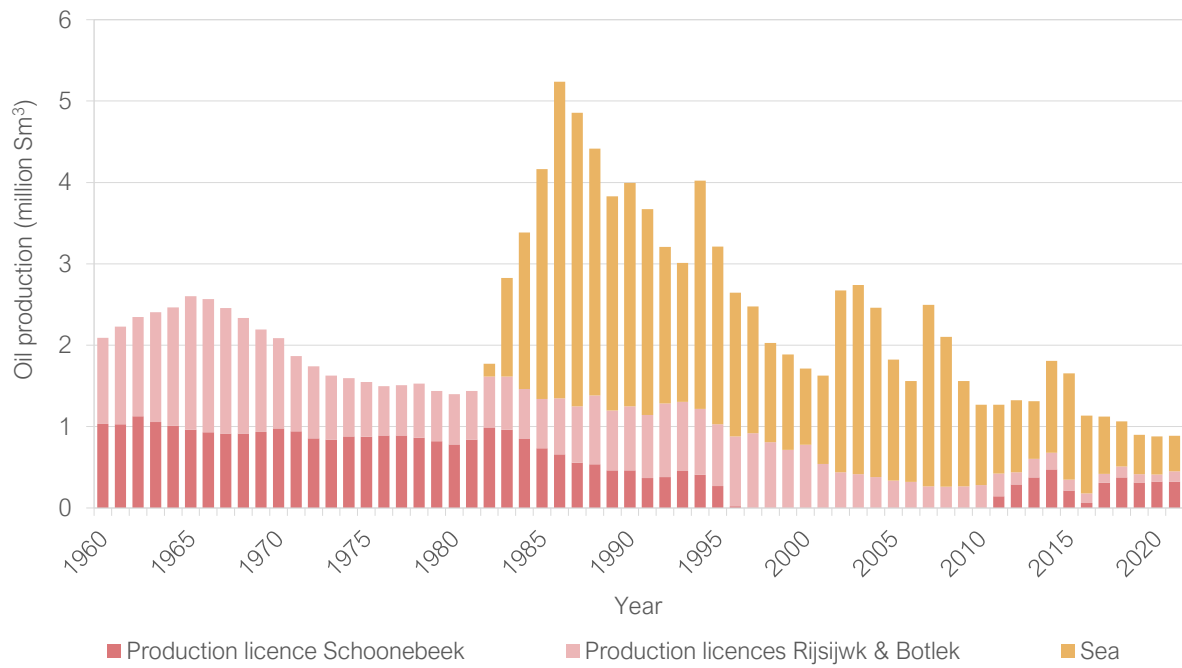
Year	Past production	Expected supply from reserves onshore	Expected supply from reserves offshore	Expected supply from contingent resources onshore	Expected supply from contingent resources offshore	Expected supply from undiscovered accumulations onshore	Expected supply from undiscovered accumulations offshore
2027	-	1.2	4.6	1.2	1.2	0.3	1.8
2028	-	1.1	3.8	1	0.9	0.4	2.4
2029	-	0.9	3.2	0.6	0.7	0.4	2.7
2030	-	0.8	2.7	0.5	0.6	0.4	2.9
2031	-	0.7	2.4	0.4	0.5	0.4	2.9
2032	-	0.7	1.9	0.2	0.4	0.4	2.9
2033	-	0.6	1.6	0.2	0.3	0.5	2.7
2034	-	0.6	1.2	0.2	0.3	0.5	2.6
2035	-	0.5	0.6	0.1	0.7	0.5	2.6
2036	-	0.1	0.5	<0.1	0.5	0.5	2.6
2037	-	0.1	0.5	<0.1	<0.1	0.5	2.7
2038	-	0.1	0.4	<0.1	<0.1	0.5	2.7
2039	-	<0.1	0.4	<0.1	<0.1	0.5	2.8
2040	-	<0.1	0.4	<0.1	<0.1	0.5	3.0
2041	-	<0.1	0.3	<0.1	<0.1	0.5	3.1
2042	-	<0.1	0.3	<0.1	<0.1	0.5	3.1
2043	-	<0.1	0.2	<0.1	<0.1	0.5	2.9
2044	-	<0.1	0.2	<0.1	<0.1	0.6	2.8
2045	-	<0.1	0.2	<0.1	<0.1	0.6	2.7
2046	-	<0.1	0.2	<0.1	<0.1	0.6	2.6
Total	-	20.6	61.5	6.8	10.5	10.2	56.1

D. Oil production in million Sm³

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

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	-	0.918	1.557	2.474
1998	-	0.810	1.219	2.029
1999	-	0.715	1.173	1.888
2000	-	0.776	0.936	1.713
2001	-	0.542	1.085	1.628
2002	-	0.439	2.236	2.675
2003	-	0.416	2.325	2.741
2004	-	0.381	2.082	2.463
2005	-	0.335	1.490	1.825
2006	-	0.322	1.238	1.561
2007	-	0.264	2.233	2.497
2008	-	0.261	1.841	2.102
2009	-	0.264	1.296	1.560
2010	-	0.281	0.982	1.262
2011	0.144	0.277	0.848	1.270
2012	0.149	0.290	0.884	1.323
2013	0.374	0.230	0.710	1.314
2014	0.473	0.204	1.133	1.809
2015	0.214	0.135	1.307	1.656
2016	0.063	0.116	0.957	1.136
2017	0.310	0.109	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
Total	43.418	42.194	65.129	150.739

Oil production 1960 – 2021



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

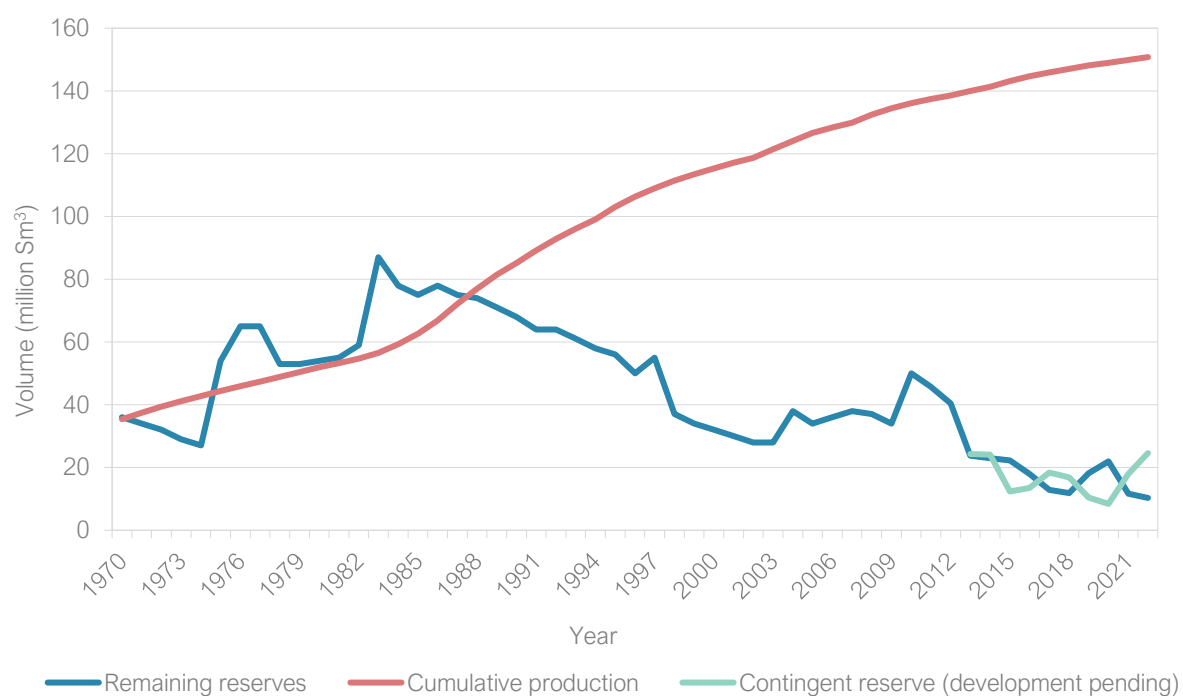
Year as at 1 January	Land		Sea		Total	
	Expected reserves	Cumulative production	Expected reserves	Cumulative production	Expected reserves	Cumulative production
2000	7.0	76.5	25.0	38.9	32.0	115.3
2001	6.0	77.2	24.0	39.8	30.0	117.1
2002	5.0	77.8	23.0	40.9	28.0	118.7
2003	5.0	78.2	23.0	43.1	28.0	121.4
2004	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

Oil reserves and cumulative production in million Sm³ (1 January 2022), 1970 – 2022



Past production and supply of oil from reserves from small fields until 2046, 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	-	0.8	0.0
2023	-	0.8	0.1
2024	-	0.8	0.7
2025	-	0.8	0.8
2026	-	0.7	0.8
2027	-	0.7	1.3
2028	-	0.6	1.1
2029	-	0.5	1.1

Year	Past production	Expected supply from reserves	Expected supply from contingent resources
2030	-	0.5	1.0
2031	-	0.5	0.9
2032	-	0.5	0.9
2033	-	0.4	0.8
2034	-	0.4	0.7
2035	-	0.4	0.7
2036	-	0.4	0.6
2037	-	0.4	0.6
2038	-	0.4	0.5
2039	-	0.1	0.4
2040	-	<0.1	0.4
2041	-	<0.1	0.4
2042	-	<0.1	0.4
2043	-	<0.1	0.4
2044	-	<0.1	0.4
2045	-	<0.1	0.3
2046	-	<0.1	0.3
Total		10.1	15.5

F. Natural gas revenues

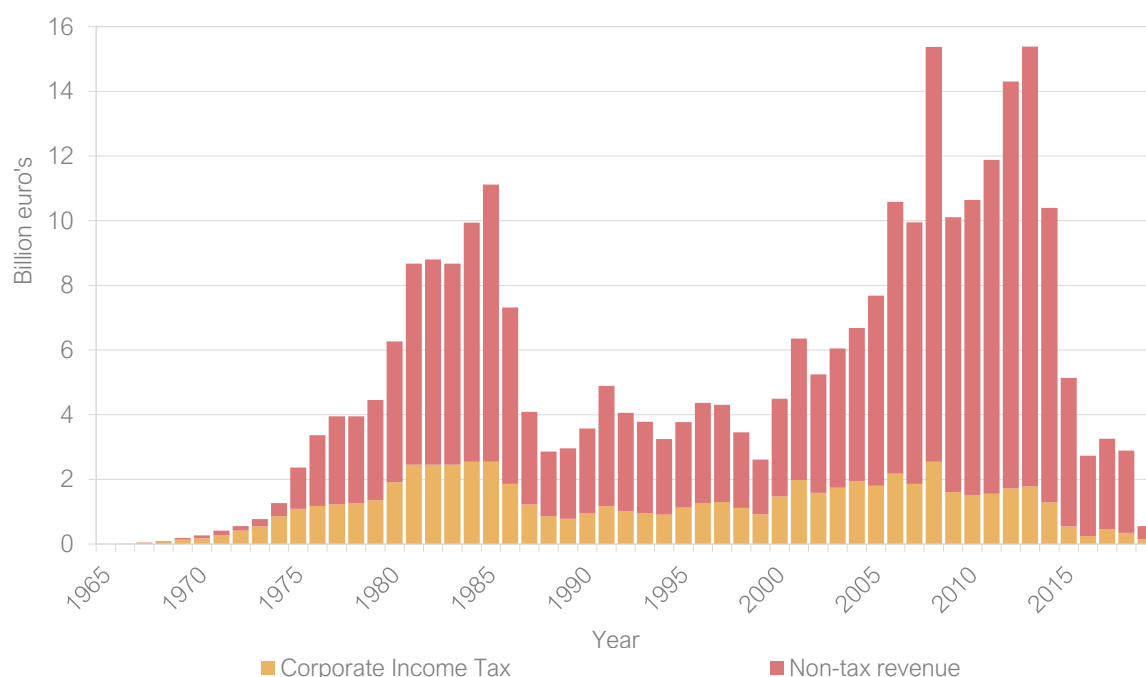
Year	Non-tax revenue (10 ⁹ €)	Corporation tax (10 ⁹ €)	Total (10 ⁹ €)
1965	-	-	-
1966	-	0.01	0.01
1967	0.01	0.04	0.05
1968	0.02	0.07	0.09
1969	0.05	0.14	0.19
1970	0.09	0.18	0.27
1971	0.14	0.27	0.41
1972	0.14	0.41	0.55
1973	0.23	0.54	0.77
1974	0.41	0.86	1.27
1975	1.27	1.09	2.36
1976	2.18	1.18	3.36
1977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

Year	Non-tax revenue (10 ⁹ €)	Corporation tax (10 ⁹ €)	Total (10 ⁹ €)
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
2005	5.88	1.80	7.68
2006	8.40	2.18	10.58
2007	8.09	1.86	9.95
2008	12.83	2.54	15.37
2009	8.51	1.60	10.11
2010	9.14	1.50	10.64
2011	10.33	1.55	11.88
2012	12.58	1.72	14.30
2013	13.60	1.78	15.38
2014	9.10	1.29	10.39
2015	4.60	0.54	5.14
2016	2.48	0.25	2.73
2017	2.80	0.46	3.26
2018	2.65	0.35	3.00
2019	0.40	0.15	0.55

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).

Natural gas revenues, 1965 – 2019



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 and 2021 and an estimate for the years 2022 to 2027 in million euros.

Non-tax revenue (in 10⁶ €) , 2019 – 2027 (based on estimates from February 2022)

Non-tax revenue	2019	2020	2021	2022	2023	2024	2025	2026	2027
Dividend EBN	141.8	35.9	2.8	2813	2636	1198	200	0	100
Dividend GasTerra	3.6	3.6	3.6	4	4	4	4	0	0
Mining Act	432.4	34.8	25.8	2202.5	1255.5	298	100	100	100
Total	557.8	74.3	32.2	5019.5	3895.5	1500	304	100	200

Tax income estimates for the years 2022 to 2027 are based, among other things, on price forecasts at gas trading hubs such as TTF. A price on TTF of 80 euro cents per cubic meter (Geg.) for 2022 and decreasing to 20 euro cents per cubic meter (Geg.) from 2024 onwards has been estimated. The current market conditions due to, among other things, the situation in Ukraine, result in high and very volatile gas prices.

G. Exploration licences for hydrocarbons, Land

As at 1 January 2022

	Licence holder	Licence	km ²	Effective from	Effective till	Staatscourant
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	31-01-2023	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.	Schagen	355	20-06-2009	31-08-2022	118
10	Vermilion Energy Netherlands B.V.	Utrecht	1,144	26-04-2007	31-12-2025	85
		Total	3,173			

* Applied for production licence.

H. Production licences for hydrocarbons, Land

As at 1 January 2022

	Licence holder	Licence	km ²	Effective from	Effective till	Staatscourant
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 III	228	10-07-2019	19-07-2026	39 438
6	Nederlandse Aardolie Maatschappij B.V. ExxonMobil Producing Netherlands B.V.	De Marne	7	04-10-1994	04-10-2034	189
7	Nederlandse Aardolie Maatschappij B.V.	Drenthe IIb	1,881	17-03-2012		6 883
8	Nederlandse Aardolie Maatschappij B.V.	Groningen	2,970	30-05-1963		126
9	Nederlandse Aardolie Maatschappij B.V.	Hardenberg	161	22-10-1990	22-10-2035	149
10	Nederlandse Aardolie Maatschappij B.V.	Middelie	946	12-05-1969		94
11	Nederlandse Aardolie Maatschappij B.V. ExxonMobil Producing Netherlands B.V.	Noord-Friesland	1,593	27-02-1969		47
12	Nederlandse Aardolie Maatschappij B.V.	Rijswijk	1,094	03-01-1955		21
13	Nederlandse Aardolie Maatschappij B.V.	Rossum-De Lutte	46	12-05-1961		116
14	Nederlandse Aardolie Maatschappij B.V.	Schoonebeek	930	03-05-1948		110
15	Nederlandse Aardolie Maatschappij B.V.	Tietjerksteradeel III	168	25-01-2018		5 149
16	Nederlandse Aardolie Maatschappij B.V.	Tubbergen	177	11-03-1953		80
17	Nederlandse Aardolie Maatschappij B.V.	Twenthe	276	01-04-1977		26
18	ONE-Dyas B.V. TAQA Offshore B.V.	Botlek-Maas	3	04-03-2014	19-07-2026	7 445
19	ONE-Dyas B.V.	Botlek Maasmond	3	10-07-2019	19-07-2026	39 438
20	TAQA Onshore B.V. Dana Petroleum Netherlands B.V. RockRose (NL) CS1 B.V.	Bergen II	221	23-12-2006		232
21	TAQA Onshore B.V.	Bergermeer	19	23-12-2006		232
22	TAQA Piek Gas B.V. Dana Petroleum Netherlands B.V. RockRose (NL) CS1 B.V.	Alkmaar	12	23-12-2006		232
23	Vermillion Energy Netherlands B.V. Parkmead (E&P) Ltd.	Andel Va	61	05-08-2015	29-12-2038	29 954
24	Vermillion Energy Netherlands B.V. Parkmead (E&P) Ltd.	Andel Vb	142	05-08-2015	29-12-2038	29 954
25	Vermillion Energy Netherlands B.V.	Drenthe IIa	7	17-03-2012		6 883
26	Vermillion Energy Netherlands B.V.	Drenthe IIIa	1	17-03-2012		6 885

	Licence holder	Licence	km ²	Effective from	Effective till	Staatscourant
27	Vermilion Energy Netherlands B.V. Parkmead (E&P) Ltd.	Drenthe IV	7	18-07-2007		140
28	Vermilion Energy Netherlands B.V. Parkmead (E&P) Ltd.	Drenthe V	25	20-06-2015		18 037
29	Vermilion Energy Netherlands B.V. Parkmead (E&P) Ltd.	Drenthe VI	363	20-06-2015		18 037
30	Vermilion Energy Netherlands B.V.	Gorredijk	629	29-07-1989	31-12-2039	145
31	Vermilion Energy Netherlands B.V.	Leeuwarden	276	27-02-1969		46
32	Vermilion Energy Netherlands B.V.	Marknesse	19	26-01-2010	9-03-2030	1 446
33	Vermilion Energy Netherlands B.V.	Oosterend	69	05-09-1985		84
34	Vermilion Energy Netherlands B.V. Parkmead (E&P) Ltd.	Papekop	35	08-06-2006	19-07-2031	113
35	Vermilion Energy Netherlands B.V.	Slootdorp	99	01-05-1969		94
36	Vermilion Energy Netherlands B.V.	Steenwijk	99	16-09-1994	16-09-2029	177
37	Vermilion Energy Netherlands B.V.	Tietjerksteradeel II	251	25-01-2018		5 149
38	Vermilion Energy Netherlands B.V.	Waalwijk	101	17-08-1989	31-12-2035	154
39	Vermilion Energy Netherlands B.V.	Zuid-Friesland III	105	09-03-2010	19-04-2030	4 016
40	Vermilion Energy Netherlands B.V.	Zuidwal	74	07-11-1984		190
		Total	13,267			

I. Subsurface storage licences, Land

As at 1 January 2022

	Licence holder	Licence	km ²	Effective from	Effective till	Staatscourant	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	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			176	

J. Exploration licences for geothermal energy, Land

As at 1 January 2022

	Licence holder	Licence	km ²	Effective from	Effective till	Staatscourant
1	A-ware Production B.V.	Heerenveen *	46	28-10-2014	20-05-2021	31 141
2	DDGeothermie Sneek B.V.	Sneek	53	16-01-2019	28-02-2023	3 279
3	DDH Energy B.V.	Drachten 3	28	27-10-2021	02-06-2024	45 234
4	Eavor Europe B.V.	Leiden 2	96	18-08-2021	28-09-2024	39 080
5	Eavor Europe B.V.	Purmerend 2	49	09-11-2021	20-12-2024	46 524
6	ECW Geoholding B.V.	Middenmeer 2 * ²	14	13-10-2009		15 999
7	ECW Geoholding B.V.	Middenmeer 4 * ²	59	17-02-2018		12 045
8	Energie Transitie Partners B.V.	Den Hoorn	8	21-01-2020	02-03-2024	4 906
9	Energie Transitie Partners B.V.	Kwintsheul 2 *	3	19-07-2019	31-12-2021	41 655
10	Energie Transitie Partners B.V.	Maasdijk 2	4	25-10-2019	05-12-2024	59 321
11	Energie Transitie Partners B.V.	Maasdijk 3	5	21-10-2021	30-11-2023	47 926
12	Energie Transitie Partners B.V.	Monster 2	9	26-10-2018	06-12-2022	65 345
	J.C.P. van den Ende					
	M.G.W. van den Ende					
	S.P.C. van den Ende					
	T.J.M. van den Ende					
13	Energie Transitie Partners B.V.	Wateringen 1	1	04-02-2021	12-11-2023	6 428
14	Energie Transitie Partners B.V.	Wateringen 2	< 1	04-02-2021	30-10-2023	6 426
15	Energie Transitie Partners B.V.	Westland-Zuidwest 1a	51	27-01-2021	11-04-2023	4 791
16	EnergieWende B.V.	De Lier 8	10	10-04-2019	03-09-2023	21 093
	De Bruijn Geothermie B.V.					
17	EnergieWende B.V.	De Lier VI	10	05-09-2019	16-10-2023	49 901
	De Bruijn Geothermie B.V.					
18	ENGIE Energy Solutions B.V.	Haarlem-Schalkwijk	100	17-05-2019	27-06-2024	28 683
	Gemeente Haarlem					
19	ENGIE Energy Solutions B.V.	Rotterdam Prins Alexander	20	15-02-2021	26-03-2024	8 459
20	ENGIE Energy Solutions B.V.	Rotterdam-Bar	222	21-01-2021	03-03-2024	3 725
	Shell Geothermal B.V.					
21	ENGIE Energy Solutions B.V.	Utrecht	263	30-10-2019	10-12-2023	59 865
22	ENGIE Energy Solutions B.V.	Wellerlooi	20	20-05-2021	30-06-2024	33 270
23	Ennatuurlijk B.V.	Eindhoven 2	66	19-10-2021	29-11-2024	44 559
24	FrieslandCampina Consumer Products International B.V.	Leeuwarden 5	158	14-03-2018	24-04-2023	15 509
25	Gedeputeerde Staten van Overijssel	Koekoekspolder Ila	28	21-03-2014	31-12-2023	9 051
26	Gemeente Zwolle	Zwolle	74	23-12-2017	02-02-2022	2018/202
27	GeoPower Exploitatie B.V.	Maasland 2	5	15-10-2010	31-12-2022	16 611

	Licence holder	Licence	km ²	Effective from	Effective till	Staatscourant
28	GeoPower Exploitatie B.V.	Maasland 6	7	18-04-2020	29-05-2023	23 010
29	GeoPower Exploitatie B.V.	Maasland 7	7	27-11-2020	28-02-2023	63 842
30	GeoPower Exploitatie B.V.	Maasland 9	1	21-10-2021	30-11-2023	47 926
31	Hoogweg Aardwarmte B.V.	Luttelgeest II *2	53	08-04-2017		25 792
32	N.V. HVC	Alkmaar	192	17-10-2018	27-11-2022	65 375
33	N.V. HVC	Den Helder	100	14-11-2018	27-12-2022	65 384
34	N.V. HVC	Drechtsteden	220	05-02-2019	18-03-2023	11 074
35	N.V. HVC	Hoorn	75	08-07-2021	18-08-2026	35 518
36	N.V. HVC	Lelystad	102	14-11-2018	27-12-2022	67 020
37	N.V. HVC	Velsen	40	18-12-2018	28-01-2023	73 447
38	Hydreco GeoMEC B.V.	Bommelerwaard 2	53	13-03-2021	23-04-2025	13 788
39	Hydreco GeoMEC B.V.	Brielle 2 *	25	13-10-2009	30-12-2021	15 990
	GeoMEC-4P Realisatie & Exploitatie B.V.					
40	Hydreco GeoMEC B.V.	Delft-Abtswoude	12	10-06-2021	21-07-2025	33 918
41	Hydreco GeoMEC B.V.	Den Haag 4a	59	04-02-2021	12-11-2023	6 428
	Haagse Aardwarmte Leyweg B.V.					
42	Hydreco GeoMEC B.V.	Den Haag 6a	23	04-02-2021	30-10-2023	6 426
	Haagse Aardwarmte Leyweg B.V.					
43	Hydreco GeoMEC B.V.	Nootdorp-Oost 2	6	13-02-2020	16-10-2023	11 275
	Haagse Aardwarmte Leyweg B.V.					
	Eneco Warmte & Koude B.V.					
44	Hydreco GeoMEC B.V.	Pijnacker-Noordorp 6a *2	9	26-08-2015	29-06-2023	30 241
45	Hydreco GeoMEC B.V.	Rotterdam 4	20	18-12-2012	06-11-2024	2013/208
46	Hydreco GeoMEC B.V.	Rotterdam-Stad	69	26-09-2020	06-11-2024	50 991
	Gemeente Rotterdam					
	Shell Geothermal B.V.					
47	Hydreco GeoMEC B.V.	Someren	105	18-07-2020	28-08-2024	39 740
	Geothermie Brabant B.V.					
48	Hydreco GeoMEC B.V.	Terheijden 2	23	12-01-2021	22-2-2025	2 223
	Izzy Projects B.V.					
49	Hydreco GeoMEC B.V.	Tilburg-Geertruidenberg	213	10-07-2015	19-08-2025	21 858
	Ennatuurlijk B.V.					
50	Hydreco GeoMEC B.V.	Vierpolders *	5	10-02-2010	30-12-2021	2 211
	GeoMEC-4P Realisatie & Exploitatie B.V.					
51	Hydreco GeoMEC B.V.	West-Brabant	405	13-12-2019	23-01-2024	69 491
	Geothermie Brabant B.V.					
52	Hydreco GeoMEC B.V.	Ypenburg	32	05-09-2019	16-10-2023	49 897
	Haagse Aardwarmte Leyweg B.V.					
	Eneco Warmte & Koude B.V.					
53	IPS Geothermal Energy B.V.	Zoetermeer 2	15	30-10-2021	10-12-2025	45 551
54	Aardwarmte Klazienaveen B.V.	Klazienaveen	61	27-10-2010	31-12-2023	17 245
55	Aardwarmte Klazienaveen B.V.	Klazienaveen 2	15	01-20-2021	31-12-2023	5 543

	Licence holder	Licence	km ²	Effective from	Effective till	Staatscourant
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. Eneco Warmte & Koude B.V.	Capelle aan den IJssel	40	09-02-2021	22-03-2026	7 578
61	Shell Geothermal B.V. D4 B.V.	Rijnland	235	25-08-2021	05-10-2027	39 442
62	Shell Geothermal B.V. ENGIE Energy Solutions B.V.	Rotterdam 7	70	21-01-2021	03-03-2024	3 720
63	Shell Geothermal B.V. Havenbedrijf Rotterdam N.V.	Rotterdam-Haven	245	10-01-2020	20-02-2024	2 717
64	Tellus Nijmegen B.V.	Nijmegen	193	14-04-2021	25-05-2026	19 746
65	Tellus Renkum B.V.	Renkum	615	14-07-2020	24-08-2025	38 613
66	Trias Westland B.V.	De Lier V	< 1	01-03-2019	31-12-2022	12 586
67	Trias Westland B.V.	Naaldwijk 3	7	15-04-2016	31-12-2022	20 814
68	Tulip Energy Exploration & Development B.V. Duurzaam Opwekken Amersfoort B.V.	Amersfoort	33	11-09-2020	23-10-2023	48 119
69	Tulip Energy Exploration & Development B.V. MPD Groene Energie B.V.	Ede	40	05-06-2020	16-07-2024	31 394
70	Vermilion Energy Netherlands B.V.	Middenmeer 3	98	24-02-2018	06-04-2022	12 042
71	Visser & Smit Hanab B.V. ENGIE Energy Solutions B.V.	Brakel-Zuidoost	27	13-03-2021	23-04-2024	13 789
72	Aardwarmte Vogelaer B.V.	Poeldijk 2	3	19-09-2019	30-10-2022	52 379
73	Duurzaam Voorne Holding B.V.	Nissewaard 2	76	16-10-2021	26-11-2025	44 345
74	WarmteStad B.V.	Groningen 2 *	18	16-04-2011	30-07-2020	7 134
75	Wayland Energy B.V.	Bleiswijk 6	11	08-01-2019	18-02-2023	1 507
76	Wayland Energy B.V.	Leiden 3	31	18-08-2021	28-09-2025	39 081
77	Wayland Energy B.V.	Nootdorp-Oost 3 * ²	14	13-02-2020		11 275
78	Wayland Energy B.V.	Zoetermeer	23	30-10-2021	10-12-2025	45 549
79	Wayland Energy B.V.	Zuidplas 2	53	25-08-2021	21-08-2022	39 440
80	Yeager Energy B.V.	Nissewaard	68	16-10-2021	26-11-2025	44 344
81	Yeager Energy B.V.	Oude Rijn	89	18-08-2021	28-09-2025	39 083
82	Yeager Energy B.V.	Purmerend 3	55	09-11-2021	20-12-2025	46 526
			Total	5,742		

* Applied for extension.

*² Applied for a production licence.

K. Production licences for geothermal energy, Land

As at 1 January 2022

	Licence holder	Licence	km ²	Effective from	Effective till	Staatscourant
1	Ammerlaan Geothermie B.V.	Pijnacker-Nootdorp 4	4	24-12-2016	03-02-2052	3 132
2	Ce-Ren Beheer B.V.	Heemskerk	3	15-04-2016	26-05-2046	20 802
3	Gebroeders Duijvestijn Energie B.V.	Pijnacker-Nootdorp 5	5	24-12-2016	03-02-2052	3 136
4	ECW Geo Andijk B.V.	Andijk	5	24-05-2019	04-07-2054	30 715
5	ECW Geo Middenmeer B.V.	Middenmeer I	5	05-02-2019	18-03-2054	11 105
6	ECW Geo Middenmeer B.V.	Middenmeer II	3	05-02-2019	18-03-2054	13 570
7	EnergieWende B.V. De Bruijn Geothermie B.V.	De Lier	6	14-07-2016	24-08-2051	38 394
8	GeoPower Exploitatie B.V.	Maasland	5	08-01-2019	18-02-2054	1 501
9	Green Well Westland B.V.	Honselersdijk	3	02-07-2019	12-08-2049	41 236
10	Hoogweg Aardwarmte B.V.	Luttelgeest	6	24-05-2019	04-07-2052	30 998
11	Hydreco GeoMEC B.V. Haagse Aardwarmte Leyweg B.V.	Den Haag	10	16-04-2020	27-05-2022	22 460
12	Hydreco GeoMEC B.V. Duurzaam Voorne Holding B.V.	Oostvoorne	17	03-12-2020	13-01-2023	64 446
13	Hydreco GeoMEC B.V. GeoMEC-4P Realisatie & Exploitatie B.V.	Vierpolders	6	21-06-2017	01-08-2052	36 194
14	IPS Geothermal Energy B.V. 85 Degrees Renewables 1 & 2 B.V.	Bleiswijk	4	28-11-2008	08-01-2039	237
15	IPS Geothermal Energy B.V. Fānqié Noordeinde Vastgoed B.V.	Bleiswijk 1b	2	20-03-2015	30-04-2032	8 784
16	Aardwarmtecluster I KKP B.V.	Kampen	5	27-09-2014	07-11-2044	28 239
17	Geocombinatie Leeuwarden B.V.	Leeuwarden I	3	21-04-2021	01-06-2023	21 237
18	Californië Lipzig Gielen Geothermie B.V.	Californië V	5	06-07-2017	16-08-2052	39 833
19	Aardwarmte Combinatie Luttelgeest B.V.	Luttelgeest II	25	03-12-2020	13-01-2023	64 901
20	Mijnwater Energy B.V.	Heerlen	41	13-10-2009	23-11-2044	15 963
21	Nature's Heat B.V.	Kwintsheul	3	19-07-2019	29-08-2054	41 655
22	Trias Westland B.V.	Naaldwijk	5	20-12-2019	30-01-2050	70 986
23	Trias Westland B.V.	Naaldwijk II	5	05-03-2021	15-04-2023	12 014-n1
24	Visser & Smit Hanab B.V. GeoBrothers B.V.	Zevenbergen	3	18-12-2019	28-01-2053	70 528
25	Aardwarmte Vogelaer B.V.	Poeldijk	5	31-08-2017	11-10-2052	52 090
26	Wayland Energy B.V.	Lansingerland II	7	14-09-2021	25-10-2023	41 276
27	Wayland Energy Bergschenhoek B.V.	Lansingerland	5	08-01-2019	18-02-2054	3 389
28	Californië Wijnen Geothermie B.V. GeoWeb B.V.	Californië IV	4	06-07-2017	16-08-2052	39 843
			Total	200		

L. Exploration licences for rock salt, Land

As at 1 January 2022

No ongoing exploration licences as at 1 January 2022.

M. Production licences for rock salt, Land

As at 1 January 2022

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

N. Production licence for coal, Land

As at 1 January 2022

	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 2022

	Licence holder	Licence	km ²	Effective from	Effective till	Staatscourant
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 NL1 B.V.	M10a & M11	110	28-07-2007	30-06-2022	152
4	Kistos NL2 B.V.	Q08, Q10b & Q11	758	29-09-2018	09-11-2022	56 679
5	Nederlandse Aardolie Maatschappij B.V.	B16b, B17, E03a, E06a, F01 & F02b	1.366	23-07-2020	02-09-2025	40 590
6	Nederlandse Aardolie Maatschappij B.V.	F04a	243	23-07-2020	02-09-2025	40 590
	Neptune Energy Netherlands B.V.					
	RockRose (NL) CS5 B.V.					
7	Nederlandse Aardolie Maatschappij B.V.	J09	18	11-04-2014	31-12-2022	10 508
	ONE-Dyas B.V.					
	RockRose (NL) CS5 B.V.					
	Wintershall Noordzee B.V.					
8	Neptune Energy Netherlands B.V.	E07	400	04-09-2015	16-10-2023	27 592
9	Neptune Energy Netherlands B.V.	E15c	113	22-04-2008	31-12-2023	78
	Gas Plus Netherlands B.V.					
	RockRose (NL) CS5 B.V.					
10	Neptune Energy Netherlands B.V.	F05	398	25-09-2019	05-11-2023	53 350
	Nederlandse Aardolie Maatschappij B.V.					
	RockRose (NL) CS5 B.V.					
11	Neptune Energy Netherlands B.V.	G13b	16	03-07-2019	13-08-2022	36 563n
12	Neptune Energy Netherlands B.V.	K01c	274	22-11-2011	30-12-2022	21 372
13	Neptune Energy Netherlands B.V.	L03	406	13-05-2016	30-06-2024	24 426
	Nederlandse Aardolie Maatschappij B.V.					
14	ONE-Dyas B.V.	F06b	260	07-04-2009	30-12-2024	70
	Dana Petroleum Netherlands B.V.					
15	ONE-Dyas B.V.	F06c & F06d	129	18-10-2019	28-11-2023	56 147
16	ONE-Dyas B.V.	H16	73	18-09-2012	31-12-2022	23 463
	Hansa Hydrocarbons Limited					
17	ONE-Dyas B.V.	M02a & M02b	63	22-11-2011	02-01-2023	1 486
18	ONE-Dyas B.V.	M03b	49	18-09-2012	31-12-2022	23 462
	Hansa Hydrocarbons Limited					
19	ONE-Dyas B.V.	M04a	121	21-09-2010	02-01-2023	14 900
20	ONE-Dyas B.V.	N01	217	18-09-2012	31-12-2022	23 460
	Hansa Hydrocarbons Limited					
21	Petrogas E&P Netherlands B.V.	A12b & B10a *	79	16-04-2005		77
	RockRose (NL) CS1 B.V.					
	TAQA Offshore B.V.					

	Licence holder	Licence	km ²	Effective from	Effective till	Staatscourant
22	Petrogas E&P Netherlands B.V. RockRose (NL) CS1 B.V. TAQA Offshore B.V.	B16a *	67	11-05-1987		70
23	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
24	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
25	Wintershall Noordzee B.V. Neptune Energy Netherlands B.V. Rosewood Exploration Ltd.	F18b-diep	31	30-12-2009	30-12-2023	152
			Total	6,006		

* Applied for a production licence.

P. Production licences for hydrocarbons, Sea

As at 1 January 2022

	Licence holder	Licence	km ²	Effective from	Effective till	Staatscourant
1	Dana Petroleum Netherlands B.V. ONE-Dyas B.V. RockRose (NL) CS1 B.V. TAQA Offshore B.V.	F02a	307	24-08-1982	24-08-2022	139
2	Dana Petroleum Netherlands B.V. Neptune Energy Netherlands B.V. TAQA Offshore B.V.	F03c	291	15-04-2020	09-09-2022	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	Staatscourant
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	09-09-2022	22 283-n1
24	Neptune Energy Netherlands B.V. Nederlandse Aardolie Maatschappij B.V. TAQA Offshore B.V.	G14 & G17b	441	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	Staatscourant
	Wintershall Noordzee B.V.					
40	Neptune Energy Netherlands B.V. Mercuria Hydrocarbons B.V. Wintershall Noordzee B.V.	L12b & L15b	92	06-08-2008	12-03-2030	155
41	Neptune Energy Netherlands B.V.	L15c	4	07-09-1990	07-09-2030	172
42	Neptune Energy Netherlands B.V. Rosewood Exploration Ltd. XTO Netherlands Ltd.	N07b	87	14-02-2015	09-03-2034	5 845
43	Neptune Energy Netherlands B.V. Aceiro Energy B.V. TAQA Offshore B.V.	Q13a	30	28-11-2006	31-12-2034	231
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. Neptune Energy Netherlands B.V.	L11d	172	21-12-2018	24-08-2031	143
47	ONE-Dyas B.V.	M01a & M01c	54	28-06-2007	08-08-2022	128
48	ONE-Dyas B.V. TAQA Offshore B.V.	M07a	64	22-03-2001	31-12-2035	19
49	ONE-Dyas B.V. Hansa Hydrocarbons Limited	N04, N05 & N08	430	25-07-2019	04-09-2049	42 716
50	ONE-Dyas B.V. Hansa Hydrocarbons Limited	N07c	87	14-02-2015	09-03-2034	5 845
51	ONE-Dyas B.V. TAQA Offshore B.V.	P11a	6	23-09-2015	03-11-2025	45 676
52	ONE-Dyas B.V. TAQA Offshore B.V.	P18b	37	14-07-2017	24-08-2030	41 916
53	ONE-Dyas B.V. TAQA Offshore B.V.	P18d	2	20-09-2012	31-10-2027	23 457
54	ONE-Dyas B.V. TotalEnergies EP Nederland B.V. Vermilion Energy Netherlands B.V.	Q16a	28	29-12-1992	29-12-2032	227
55	ONE-Dyas B.V. TAQA Offshore B.V.	Q16c-diep	21	20-09-2012	31-10-2027	23 465
56	ONE-Dyas B.V. TAQA Offshore B.V.	S03a	2	20-09-2012	31-10-2027	23 466
57	ONE-Dyas B.V. TAQA Offshore B.V.	T01	1	20-09-2012	31-10-2027	23 467
58	Petrogas E&P Netherlands B.V. RockRose (NL) CS1 B.V. TAQA Offshore B.V.	A12a	195	01-07-2005	11-08-2025	129
59	Petrogas E&P Netherlands B.V. RockRose (NL) CS1 B.V. TAQA Offshore B.V.	A12d	33	01-07-2005	11-08-2025	129

	Licence holder	Licence	km ²	Effective from	Effective till	Staatscourant
60	Petrogas E&P Netherlands B.V. RockRose (NL) CS1 B.V.	A15a	67	27-12-2011	03-02-2027	746
61	Petrogas E&P Netherlands B.V. RockRose (NL) CS1 B.V. TAQA Offshore B.V.	A18a	229	01-07-2005	11-08-2025	129
62	Petrogas E&P Netherlands B.V. RockRose (NL) CS1 B.V.	A18c	47	01-07-2005	11-08-2025	125
63	Petrogas E&P Netherlands B.V. RockRose (NL) CS1 B.V. TAQA Offshore B.V.	B10c & B13a	252	01-07-2005	11-08-2025	129
64	Petrogas E&P Netherlands B.V. Aceiro Energy B.V. RockRose (NL) CS1 B.V. Wintershall Noordzee B.V.	P09a	17	16-08-1993	16-08-2033	127
65	Petrogas E&P Netherlands B.V. RockRose (NL) CS1 B.V. Wintershall Noordzee B.V.	P09c	18	16-08-1993	16-08-2033	126
66	Petrogas E&P Netherlands B.V.	Q01a-ondiep & Q01b-ondiep	43	23-12-2017	31-12-2023	193
67	Petrogas E&P Netherlands B.V. RockRose (NL) CS1 B.V.	Q02c	32	14-07-1994	14-07-2034	18
68	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
69	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
70	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
71	TAQA Offshore B.V.	P18a	105	30-04-1992	30-04-2032	99
72	TAQA Offshore B.V. Dana Petroleum Netherlands B.V. RockRose (NL) CS1 B.V.	P18c	6	02-06-1992	02-06-2032	99
73	TotalEnergies EP Nederland B.V. TAQA Offshore B.V. Vermilion Energy Netherlands B.V.	F06a	8	09-09-1982	09-09-2022	139
74	TotalEnergies EP Nederland B.V. RockRose (NL) CS1 B.V.	F15a	53	06-05-1991	06-05-2031	52

	Licence holder	Licence	km ²	Effective from	Effective till	Staatscourant
	Vermilion Energy Netherlands B.V.					
75	TotalEnergies EP Nederland B.V.	J03a	30	12-01-1996	12-01-2036	22
	Nederlandse Aardolie Maatschappij B.V.					
76	TotalEnergies EP Nederland B.V.	K01a *	40	10-02-1997	10-02-2022	46
	Nederlandse Aardolie Maatschappij B.V.					
77	TotalEnergies EP Nederland B.V.	K02c	42	21-01-2004	31-12-2036	16
78	TotalEnergies EP Nederland B.V.	K03b	7	30-01-2001	20-06-2033	19
	Vermilion Energy Netherlands B.V.					
79	TotalEnergies EP Nederland B.V.	K04a	209	29-12-1993	29-12-2033	220
80	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.					
81	TotalEnergies EP Nederland B.V.	K05b & K05c	136	07-11-1996	31-12-2023	207
82	TotalEnergies EP Nederland B.V.	K06a, K06b, L07a, L07b & L07c	415	17-02-2021	20-06-2033	8 975
	Vermilion Energy Netherlands B.V.					
83	TotalEnergies EP Nederland B.V.	L01a	31	12-09-1996	31-12-2023	135
	SGPO Van Dyke B.V.					
84	TotalEnergies EP Nederland B.V.	L01d	7	13-11-1996	31-12-2023	207
85	TotalEnergies EP Nederland B.V.	L01e	12	13-11-1996	31-12-2027	207
	Vermilion Energy Netherlands B.V.					
86	TotalEnergies EP Nederland B.V.	L01f	17	14-01-2003	14-01-2033	235
	Vermilion Energy Netherlands B.V.					
87	TotalEnergies EP Nederland B.V.	L04a & L04b	141	30-12-1981	20-06-2033	230
	Vermilion Energy Netherlands B.V.					
88	Wintershall Noordzee B.V.	D12a	214	06-09-1996	31-12-2031	138
	Neptune Energy Participation Netherlands B.V.					
89	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.					
90	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.					
91	Wintershall Noordzee B.V.	F16a & F16b	18	04-10-2002	21-10-2032	175
	Neptune Energy Netherlands B.V.					
92	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.					
93	Wintershall Noordzee B.V.	K18b	155	15-03-2007	09-05-2023	57
	Nederlandse Aardolie Maatschappij B.V.					
	RockRose (NL) CS1 B.V.					

	Licence holder	Licence	km ²	Effective from	Effective till	Staatscourant
94	Wintershall Noordzee B.V. Dana Petroleum Netherlands B.V.	L05b	237	28-06-2003	09-08-2038	134
95	Wintershall Noordzee B.V. Dana Petroleum Netherlands B.V.	L05c	8	03-12-1996	31-12-2028	209
96	Wintershall Noordzee B.V. Dana Petroleum Netherlands B.V.	L06a	332	24-11-2010	04-01-2031	18 910
97	Wintershall Noordzee B.V. Dana Petroleum Netherlands B.V.	L06b	60	01-07-2003	11-08-2038	134
98	Wintershall Noordzee B.V. ONE-Dyas B.V.	L08a & L08c	44	18-08-1988	18-08-2028	146
99	Wintershall Noordzee B.V. Dana Petroleum Netherlands B.V. ONE-Dyas B.V.	L08b, L08d & L08e	69	17-05-1993	17-05-2033	78
100	Wintershall Noordzee B.V. Nederlandse Aardolie Maatschappij B.V. RockRose (NL) CS1 B.V.	L16a	238	12-06-1984	12-06-2024	84
101	Wintershall Noordzee B.V. RockRose (NL) CS1 B.V.	P06a	21	14-04-1982	31-12-2024	54
102	Wintershall Noordzee B.V. RockRose (NL) CS1 B.V. Vermilion Energy Netherlands B.V.	P12a	96	08-03-1990	08-03-2030	27
103	Wintershall Noordzee B.V. TAQA Offshore B.V.	Q01c-diep	140	23-12-2017	31-12-2030	193
104	Wintershall Noordzee B.V. Mercuria Hydrocarbons B.V. RockRose (NL) CS1 B.V.	Q04a	42	02-12-1999	02-12-2030	228
			Total	13,095		

* Applied for extension.

Q. Subsurface storage licences, Sea

As at 1 January 2022

	Licence holder	Licence	km ²	Effective from	Effective till	Staatscourant	Substance
1	TAQA Offshore B.V.	P18-4 *	11	01-01-2020	31-12-2028	21 233	Carbon dioxide

* Storage not yet started in 2021.

R. Blocks and operators, Sea

As at 1 January 2022

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		195
A12b		Petrogas	31	
A12c	130			
A12d		Petrogas		33
A13	211			
A14	393			
A15a		Petrogas		67
A15b	326			
A16	293			
A17	395			
A18a		Petrogas		229
A18b	119			
A18c		Petrogas		47
B10a		Petrogas	48	
B10b	85			
B10c		Petrogas		46
B13a		Petrogas		206
B13b	187			
B14	198			
B15	0			
B16a		Petrogas	67	
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		307
F02b		NAM	89	
F03a	62			
F03b		Neptune		44
F03c		Dana NL		291
F04a		NAM	243	

Block(part)	Open area (km ²)	Operator	Licence (km ²)	
			Exploration	Production
F04b	155			
F05		Neptune	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	
G14		Neptune		403
G15	226			
G16a		Neptune		133
G16b	272			
G17a		Neptune		48
G17b		Neptune		38
G17c		Neptune		34
G17d		Neptune		96
G17e	189			
G18	405			
H13	1			

Block(part)	Open area (km ²)	Operator	Licence (km ²)	
			Exploration	Production
H16		ONE-Dyas	73	
J03a		Total		30
J03b		Spirit		14
J03c	100			
J06a		Spirit		32
J06b	51			
J09		NAM	18	
K01a		Total		40
K01b	50			
K01c		Neptune	274	
K01d	43			
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	224			
L08a		Wintershall		34
L08b		Wintershall		42
L08c		Wintershall		10
L08d		Wintershall		16

Block(part)	Open area (km ²)	Operator	Licence (km ²)	
			Exploration	Production
L08e		Wintershall		10
L08f	133			
L08g	164			
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			
M10a		Tulip	82	
M10b	113			

Block(part)	Open area (km ²)	Operator	Licence (km ²)	
			Exploration	Production
M11		Tulip	28	
N01		ONE-Dyas	217	
N04		ONE-Dyas		381
N05		ONE-Dyas		14
N07a		NAM		141
N07b		Neptune		87
N07c		ONE-Dyas		87
N08		ONE-Dyas		34
O12	2			
O15	142			
O17	3			
O18	367			
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		96
P12b	325			
P13	422			
P14	422			
P15a		TAQA		51
P15b		TAQA		3
P15c		TAQA		2
P15d		TAQA		29

Block(part)	Open area (km ²)	Operator	Licence (km ²)	
			Exploration	Production
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		42
Q04b	355			
Q04c	19			
Q05	298			
Q07		Tulip		419
Q08		Tulip	244	
Q10a		Tulip		53
Q10b		Tulip	367	
Q11		Tulip	147	
Q13a		Neptune		30
Q13b	367			
Q14	24			
Q16a		ONE-Dyas		28
Q16b	119			
Q16c	(ondiep) 7	ONE-Dyas		(diep) 21

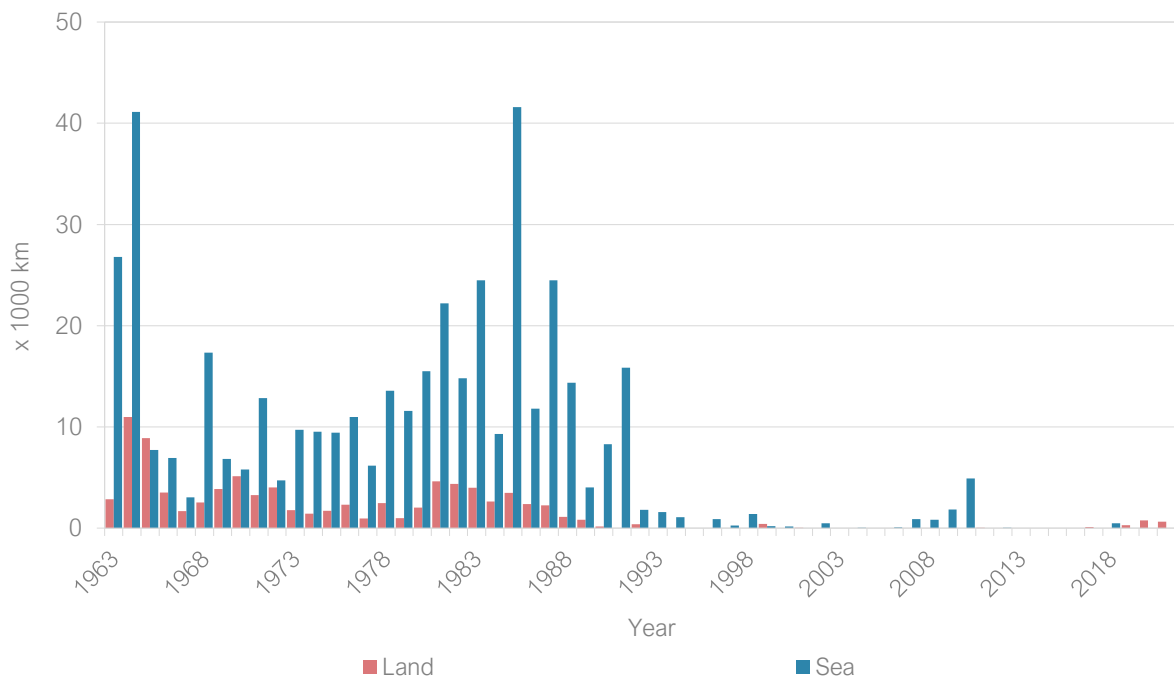
Block(part)	Open area (km ²)	Operator	Licence (km ²)	
			Exploration	Production
R02	103			
R03	425			
R05	7			
R06	311			
R09	28			
S01	425			
S02	425			
S03	224			
S03a		ONE-Dyas		2
S03c	220			
S04	427			
S05	349			
S06	10			
S07	360			
S08	95			
S10	36			
S11	0			
T01		ONE-Dyas		1
Total	38,163		6,006	13,095

S. Seismic surveys

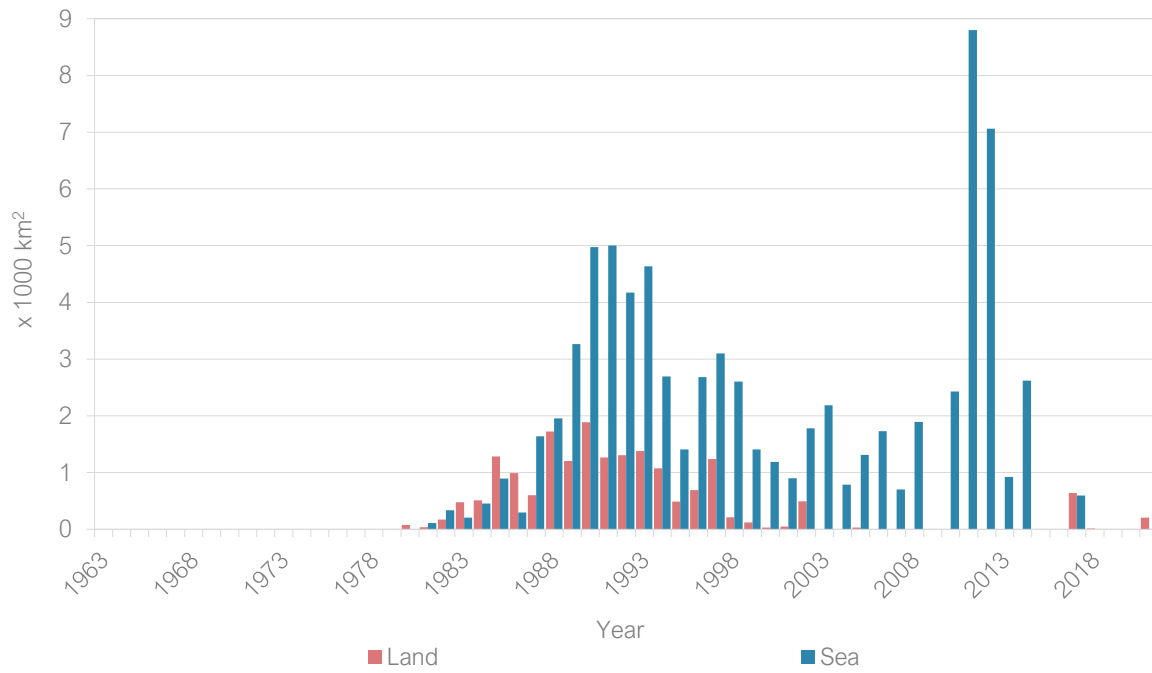
Year	Land		Sea	
	2D (km)	3D (km ²)	2D (km)	3D (km ²)
1963	2,860	-	26,778	-
1964	10,992	-	41,136	-
1965	8,885	-	7,707	-
1966	3,510	-	6,939	-
1967	1,673	-	3,034	-
1968	2,541	-	17,349	-
1969	3,857	-	6,846	-
1970	5,113	-	5,780	-
1971	3,252	-	12,849	-
1972	4,034	-	4,716	-
1973	1,783	-	9,708	-
1974	1,422	-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

2D seismic surveys 1963 – 2021



3D seismic surveys 1963 – 2021



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
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

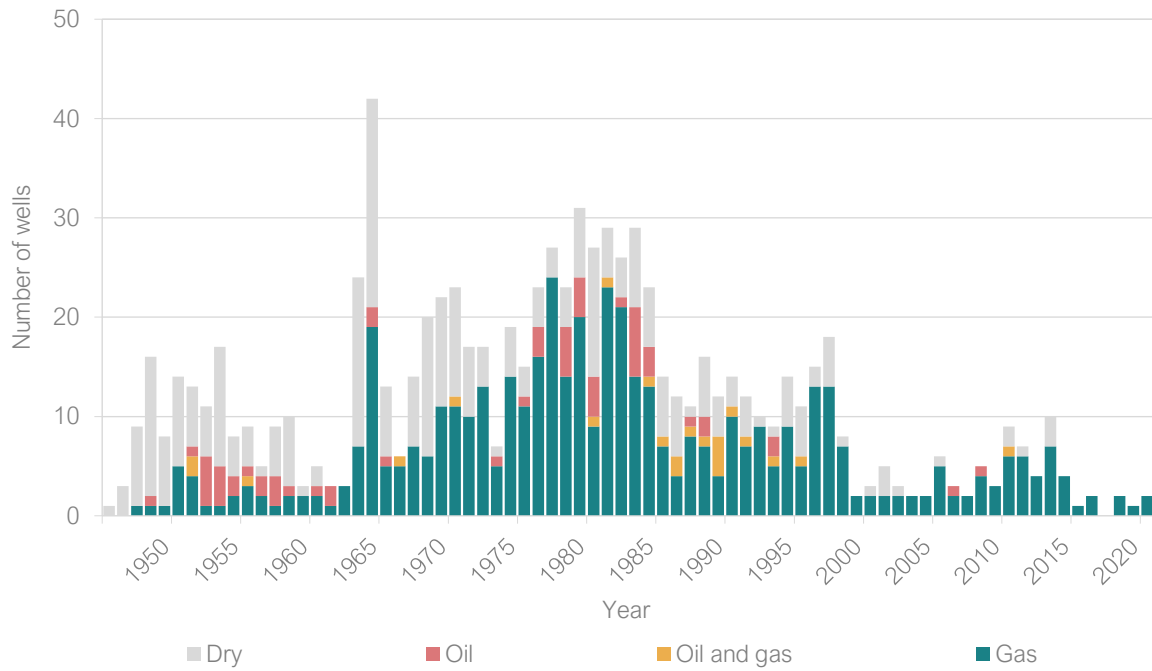
Year	Exploration					Appraisal					Production
	O	G	O&G	D	Σ	O	G	O&G	D	Σ	Σ
1962	-	1	1	1	3	-	-	-	-	-	-
1963	-	-	-	-	-	-	-	-	-	-	-
1964	-	-	-	1	1	-	-	-	-	-	-
1965	-	-	-	-	-	-	-	-	-	-	-
1966	-	-	-	-	-	-	-	-	-	-	-
1967	-	-	-	-	-	-	-	-	-	-	-
1968	-	2	-	5	7	-	-	-	-	-	-
1969	1	8	-	8	17	-	-	-	-	-	-
1970	1	7	-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

Year	Exploration					Appraisal					Production
	O	G	O&G	D	Σ	O	G	O&G	D	Σ	Σ
1994	1	3	-	3	7	1	1	-	-	2	9
1995	-	3	-	4	7	-	2	-	-	2	17
1996	1	14	1	8	24	-	5	-	-	5	6
1997	1	11	1	7	20	1	7	-	-	8	11
1998	1	11	-	7	19	-	-	-	1	1	11
1999	-	7	-	4	11	-	2	-	2	4	7
2000	-	4	-	2	6	-	3	-	-	3	9
2001	-	10	-	4	14	-	3	-	-	3	13
2002	-	9	-	8	17	-	1	-	1	2	13
2003	-	6	-	1	7	-	3	-	-	3	16
2004	-	8	-	3	11	-	1	-	1	2	6
2005	-	4	-	1	5	-	-	-	-	-	10
2006	-	3	-	6	9	1	2	-	-	3	15
2007	-	3	-	2	5	-	2	-	-	2	12
2008	-	7	1	2	10	-	1	-	-	1	14
2009	-	5	-	2	7	-	4	-	-	4	10
2010	-	6	-	1	7	-	2	-	-	2	12
2011	1	2	1	2	6	1	2	-	-	3	14
2012	1	5	-	1	7	1	1	-	-	2	11
2013	1	-	2	2	5	2	-	-	-	2	10
2014	3	3	1	3	10	2	3	-	-	5	12
2015	-	6	-	3	9	1	2	-	-	3	11
2016	-	2	-	1	3	-	1	-	-	1	9
2017	-	3	-	1	4	-	1	-	-	1	6
2018	-	3	1	1	5	-	-	-	-	-	6
2019	-	2	-	-	2	-	2	1	-	3	7
2020	-	2	-	-	2	-	-	-	-	-	6
2021	-	1	1	-	2	1	-	-	-	1	6
Total	53	351	25	371	800	33	116	4	28	181	605

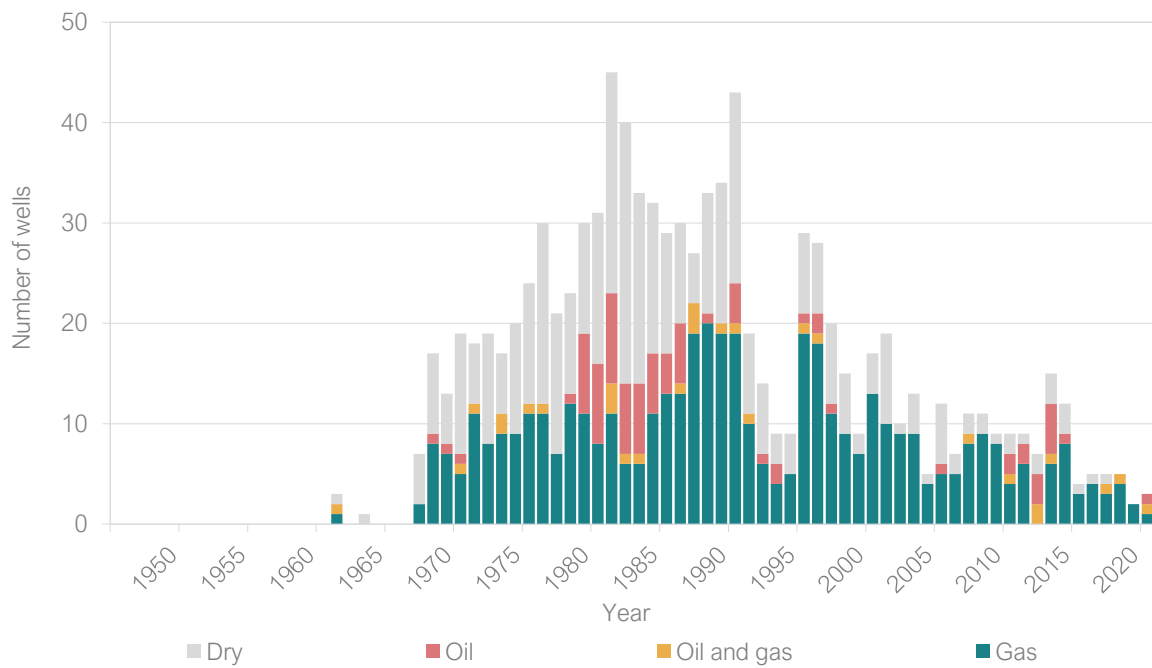
O = Oil; G = Gas; O&G = Oil and gas; D = Dry; Σ = Total.

V. Number of wells, Land and Sea since 1946

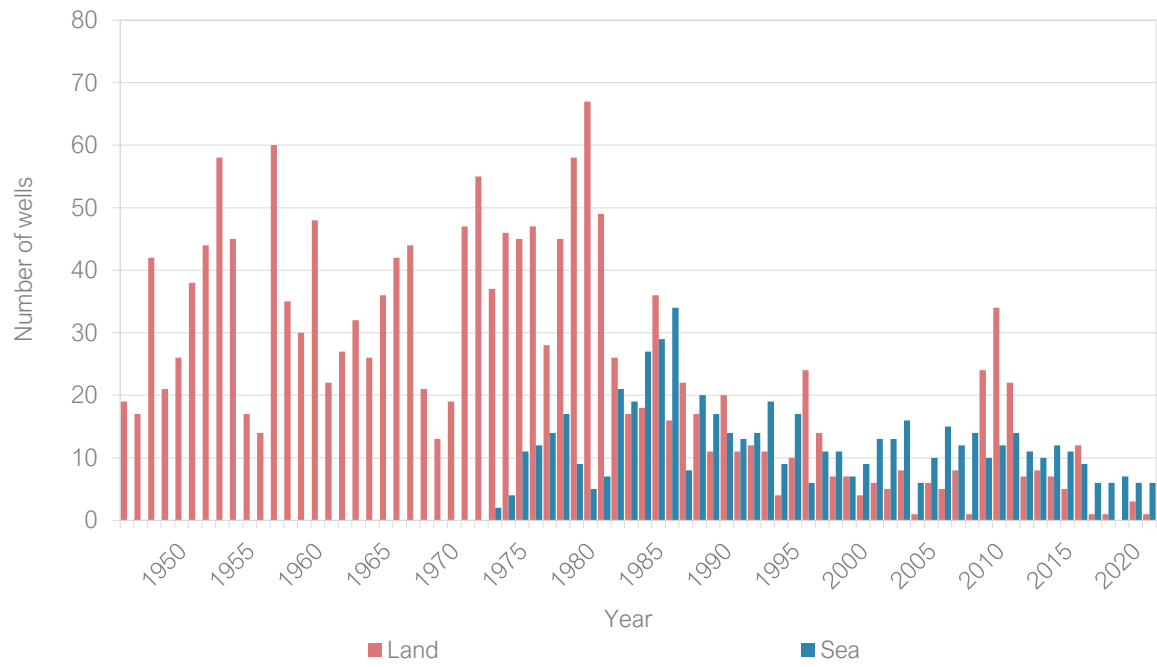
Exploration and appraisal wells, Land



Exploration and appraisal wells, Sea



Production wells



W. Platforms, Sea

As at 1 January 2022

Platforms

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

Platform	Operator	Status	Carries	Installed	Decom.	Function	Number of legs
D18a-A	Neptune	Decommissioning in progress	Gas	2013		Processing	4
E17a-A	Neptune	Operational	Gas	2009		Processing	4
F03-FB OLT	Neptune	Operational	Oil	1993		Offloading	1
F03-FB-A	Neptune	Operational	Oil	1992		Accommodation or Office	3
F03-FB-F1	Neptune	Operational	Oil	1992		Processing	3
G14-A	Neptune	Operational	Gas	2005		Processing	4
G14-B	Neptune	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

Platform	Operator	Status	Carries	Installed	Decom.	Function	Number of legs
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
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. Prog.	Gas	1999		Processing	4
Q04-B	Wintershall	Decom. Prog.	Gas	2002		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

Platform	Operator	Status	Carries	Installed	Decom.	Function	Number of legs
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
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	Operational	Gas	1993		Wellheads	4
P15-F	TAQA	Operational	Gas	1993		Wellheads	4
P15-G	TAQA	Operational	Gas	1993		Wellheads	4
P18-A	TAQA	Operational	Gas	1993		Wellheads	4
A12-CPP	Petrogas	Operational	Gas	2007		Processing	4
A18	Petrogas	Operational	Gas	2015		Production	4
B13-A	Petrogas	Operational	Gas	2011		Production	4

Platform	Operator	Status	Carries	Installed	Decom.	Function	Number of legs
P09-Horizon	Petrogas	Operational	Oil	1993		Processing	4
Q01-Halfweg	Petrogas	Decom. Prog.	Gas	1995		Production	4
Q01-Haven-A	Petrogas	Operational	Oil	1989		Production	1
Q01-Helder-AP	Petrogas	Operational	Oil	1982		Processing	4
Q01-Helder-AW	Petrogas	Operational	Oil	1982		Production	6
Q01-Helder-B	Petrogas	Decom.	Oil	1986	1988	Wellheads	1
Q01-Helm-AP	Petrogas	Permanently suspended	Oil	1982		Processing	4
Q01-Helm-AW	Petrogas	Permanently suspended	Oil	1981		Production	4
Q01-Hoorn-AP	Petrogas	Temporarily suspended	Oil	1983		Processing	4
Q01-Hoorn-AW	Petrogas	Operational	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: Nextstep, National Platform for Re-use & Decommissioning, www.nextstep.nl.

Subsea production installations

Subsea production installation	Operator	Status	Gas/Oil	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

Subsea production installation	Operator	Status	Gas/Oil	Installation	Decom.	Function
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
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	Operational	Oil	2000		Offloading
P11-B-De Ruyter TMLS	Dana	Operational	Oil	2006		Offloading
P11b-Van Ghent	Dana	Operational	Oil	2011		Wellheads
P11b-Van Nes	Dana	Operational	Gas	2012		Wellheads
P11-B-WYE Manifold	Dana	Operational	Oil	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 2022

Pipeline	Operator	Status	Carries	Installation	Decom.	From	To	Length (km)	Diameter (inch)
NP001	NAM	Operational	Gas	1977		K08-FA-1PP	K14-FA-1P	31	24
NP002	NAM	Operational	Gas	1977		K14-FA-1C	WGT Sidetap K14-FA	0.2	24
NP003	NAM	Operational	Gas	1978		K08-FA-2	K08-FA-1PP	4	11
NP004	NAM	Permanently suspended	Chemicals	1978		K11-FA-1	K08-FA-1PP	6	6
NP005	NAM	Temporarily suspended	Gas	1978		K15-FA-1	WGT Sidetap K15-FA	1.3	24
NP006	NAM	Operational	Gas	1982		K07-FA-1P	K08-FA-1PP	9	18
NP007	NAM	Operational	Gas	1983		K15-FB-1	LoCal Sidetap onshore Callantsoog AWG-1R	84	24
NP008	NAM	Operational	Gas	1985		Ameland-Oost-1		4	20
NP009	NAM	Operational	Gas	1985		AWG-1R	NP-001-ST-KP-118.9-36-24	7	20
NP010	NAM	Operational	Gas	1986		L13-FC-1P	K15-FA-1	15	18
NP011	NAM	Operational	Gas	1986		K08-FA-3	K07-FA-1P	9	12
NP012	NAM	Operational	Gas	1987		K15-FA-1	K14-FA-1C	24	18
NP013	NAM	Operational	Gas	1989		L13-FD-1	L13-FC-1P	4	7
NP015	NAM	Operational	Gas	1989		K08-FA-2	K08-FA-1PP	4	10
NP016	NAM	Operational	Gas	1990		K15-FC-1	K15-FB-1	8	10
NP017	NAM	Operational	Gas	2013		L13-FE-1	L13-FC-1P	4	10
NP017B	NAM	Permanently suspended	Gas	1990		L13-FE-1	L13-FC-1P	1.1	10
NP017C	NAM	Permanently suspended	Gas	1990		L13-FE-1	L13-FC-1P	4	10
NP020	NAM	Operational	Gas	1990		K15-FG-1	K15-FA-1	7	11
NP022	NAM	Operational	Gas	1991		AME-2	AWG-1R	5	11
NP031	NAM	Temporarily suspended	Gas	1995		L13-FH-1	K15-FA-1	9	6
NP033	NAM	Operational	Gas	1997		K14-FB-1	K14-FA-1P	9	10
NP035	NAM	Temporarily suspended	Gas	1997		K14-FA-1P	K15-FB-1	17	16
NP036	NAM	Operational	Gas	1997		L09-FF-1P	L09-FF-1P Sidetap	19	24
NP037	NAM	Operational	Gas	1998		K07-FD-1	K08-FA-1PP	9	13
NP038	NAM	Operational	Gas	1998		K08-FA-1PP	K14-FA-1C	31	24
NP050	NAM	Operational	Gas	2003		K15-FK-1	K15-FB-1	8	10
NP051	NAM	Operational	Gas	2005		K17-FA-1	K14-FB-1	15	16
NP053	NAM	Operational	Gas	2003		K07-FB-1	K07-FD-1	17	12
NP057	NAM	Operational	Chemicals	2005		K14-FB-1	K17-FA-1	15	2
NP058	NAM	Operational	Gas	2008		L09-FA-1	L09-FF-1P	20	16
NP059	NAM	Operational	Gas	2008		L09-FB-1	Sidetap leiding L09-FA naar L09-FB	0.9	16

Pipeline	Operator	Status	Carries	Installation	Decom.	From	To	Length (km)	Diameter (inch)
NP060	NAM	Operational	Chemicals	2008		L09-FF-1P	L09-FA-1	20	2
NP061	NAM	Operational	Chemicals	2008		Sidetap leiding L09-FA naar L09-FB	L09-FB-1	0.9	2
NP062	NAM	Operational	Chemicals	2008		L09-FF-1P	L09-FA-1	20	2
NP063	NAM	Operational	Water	2008		Sidetap leiding L09-FA naar L09-FB	L09-FB-1	0.9	2
NP064	NAM	Operational	Gas	2019		L13-FI	K15-FA-1	6.5	20
NP065	NAM	Operational	Chemicals	2018		L13-FI	K15-FA-1	6.6	2
NU014	NAM	Operational	Chemicals	1989		L13-FC-1P	L13-FD-1	4	4
NU018	NAM	Operational	Chemicals	1991		L13-FC-1P	L13-FE-1	4	4
NU019	NAM	Operational	Chemicals	1991		K15-FB-1	K15-FC-1	8	4
NU021	NAM	Operational	Chemicals	1991		K15-FA-1	K15-FG-1	7	4
NU023	NAM	Operational	Chemicals	1991		AWG-1R	AME-2	5	4
NU032	NAM	Temporarily suspended	Chemicals	1995		K15-FA-1	L13-FH-1	9	3
NU034	NAM	Operational	Chemicals	1997		K14-FA-1P	K14-FB-1	9	4
NU040	NAM	Operational	Chemicals	1997		K08-FA-1PP	K07-FD-1	9	3
NU054	NAM	Operational	Chemicals	2002		K08-FA-1PP	K08-FA-2	4	4
NU055	NAM	Operational	Chemicals	2003		K08-FA-1PP	K07-FB-1	26	4
NU056	NAM	Operational	Chemicals	2003		K15-FB-1	K15-FK-1	9	4
GP-001	Neptune	Operational	Gas	1984		L10-B	L10-AP	6.8	14
GP-002	Neptune	Operational	Gas	1983		K12-A	L10-AP	29.2	14
GP-003	Neptune	Operational	Gas	2001		K12-G	L10-AP	15.6	14
GP-004	Neptune	Operational	Gas	2007		K12-K	K12-BP	10.3	14
GP-005	Neptune	Operational	Gas	2005		G16a-A	G17d-AP	17.6	10
GP-006	Neptune	Operational	Gas	2005		K02b-A	NP-002-ST-KP-61.88-36	2.8	12
GP-007	Neptune	Operational	Gas	2005		G14-A	G17d-AP	19.8	12
GP-008	Neptune	Decom. Prog.	Gas	2007		G14-B	G17d-AP	13.4	12
GP-009	Neptune	Operational	Gas	2010		E17a-A	E17a-A to Side Tap D15-FA to L10-AC KP 35.73	2	12
GP-010	Neptune	Decom. Prog.	Water	1974		L10-B	L10-AD	7.3	10
GP-011	Neptune	Decom.	Gas	1974	2016	L10-C	L10-AP	1.1	10
GP-012	Neptune	Decom.	Gas	1977	2016	L10-D	L10-AP	1	10
GP-013	Neptune	Operational	Gas	1977		L10-E	L10-AP	4	10
GP-014	Neptune	Operational	Gas	1984		L10-E	L10-E to Side Tap L10-B to L10-AP KP 3.86	0.1	10
GP-015	Neptune	Operational	Gas	1980		L10-F	L10-AP	4.3	10
GP-016	Neptune	Decom.	Gas	1984	2016	L10-G	L10-G to Side Tap L10-B to L10-AP KP 6.44	4.7	10
GP-017	Neptune	Operational	Gas	1988		L10-L	L10-AP	2.2	10
GP-020	Neptune	Operational	Gas	1985		K12-D	K12-C	4.4	10
GP-021	Neptune	Operational	Gas	1984		K12-C	K12-C to Side Tap K12-A to L10-AP KP 8.6	0.4	10

Pipeline	Operator	Status	Carries	Installation	Decom.	From	To	Length (km)	Diameter (inch)
GP-022	Neptune	Operational	Gas	2000		L10-M	L10-AP	12	10
GP-023	Neptune	Operational	Gas	1999		K09ab-B	K09ab-B to Side Tap D15-FA to L10-AC KP 106.76	0.1	10
GP-024	Neptune	Operational	Gas	2011		G16a-B	G17d-AP	13.9	14
GP-026	Neptune	Decom. Prog.	Gas	1997		L10-S2	L10-AP	6.6	6
GP-028	Neptune	Operational	Water	1997		L10-S4	L10-AP	8.2	6
GP-029	Neptune	Decom. Prog.	Gas	2002		K12-S2	K12-C	6.9	6
GP-030	Neptune	Operational	Gas	2004		K12-S3	K12-BP	3.4	6
GP-031	Neptune	Operational	Gas	2005		G17a-S1	G17d-AP	5.7	6
GP-032	Neptune	Operational	Control & Power	2002		K12-S2	K12-C	7	5
GP-034	Neptune	Operational	Control & Power	1997		L10-S2	L10-AP	6.8	4
GP-035	Neptune	Operational	Control & Power	1997		L10-S4	L10-AP	8.4	4
GP-036	Neptune	Operational	Control & Power	2005		G17a-S1	G17d-AP	5.8	3
GP-037	Neptune	Decom. Prog.	Water	1974		L10-B	L10-AD	7.3	2
GP-038	Neptune	Decom.	Chemicals	1974	2016	L10-C	L10-AP	1.1	2
GP-039	Neptune	Decom.	Chemicals	1977	2016	L10-D	L10-AP	1	2
GP-040	Neptune	Permanently suspended	Water	1977		L10-E	L10-AP	4	2
GP-041	Neptune	Operational	Water	1980		L10-F	L10-AP	4.3	2
GP-042	Neptune	Decom.	Chemicals	1984	2016	L10-G	L10-G to Side Tap L10-B to L10-AP KP 6.44	4.7	2
GP-043	Neptune	Operational	Water	1988		L10-L	L10-AP	2.2	2
GP-044	Neptune	Operational	Chemicals	1983		K12-A	L10-AP	29.2	2
GP-045	Neptune	Operational	Chemicals	1985		K12-D	K12-C	4.1	2
GP-046	Neptune	Operational	Chemicals	1984		K12-C	K12-C to Side Tap K12-A to L10-AP KP 8.6	0.4	2
GP-047	Neptune	Decom. Prog.	Chemicals	1997		L10-S2	L10-AP	6.6	2
GP-048	Neptune	Operational	Water	1997		L10-S4	L10-AP	8.2	2
GP-049	Neptune	Permanently suspended	Chemicals	2000		L10-M	L10-AP	12	2
GP-050	Neptune	Permanently suspended	Chemicals	2001		K12-G	L10-AP	15.6	2
GP-051	Neptune	Operational	Condensate	2005		G16a-A	G17d-AP	17.6	2
GP-052	Neptune	Operational	Chemicals	2005		G14-A	G17d-AP	19.8	2
GP-053	Neptune	Operational	Chemicals	2007		K12-K	K12-BP	10.3	2
GP-054	Neptune	Decom. Prog.	Chemicals	2007		G14-B	G17d-AP	13.4	2
GP-055	Neptune	Operational	Chemicals	2011		G16a-B	G17d-AP	13.9	2
GP-056	Neptune	Operational	Chemicals	2004		K12-S3	K12-BP	3.5	3
GP-069	Neptune	Decom. Prog.	Gas	2013		D18a-A	D15-FA-1	21.5	8
GP-070	Neptune	Decom. Prog.	Chemicals	2013		D18a-A	D15-FA-1	21.5	2
GP-071	Neptune	Operational	Gas	2013		L05a-D	L05-FA-1	10.6	10
GP-072	Neptune	Operational	Chemicals	2013		L05a-D	L05-FA-1	10.6	2
GP-073	Neptune	Operational	Oil	2013		Q13a-A	P15-C	24.4	8

Pipeline	Operator	Status	Carries	Installation	Decom.	From	To	Length (km)	Diameter (inch)
GP-074	Neptune	Operational	Control & Power	2013		Scheveningen	Q13a-A	13.7	3.5
TP-006	Neptune	Operational	Oil	1992		F03-FB-F1	F03-FB OLT	2	16
TP-008	Neptune	Operational	Control & Power	1992		F03-FB-F1	F03-FB OLT	2	3
1@K05A	Wintershall	Decom.	Gas	1994	2012	K05-A	WGT EXT Sidetap K05-A	0.3	16
1@K10B	Wintershall	Decom.	Gas	1992	2004	K10-B	K13-AP	16.8	20
1@K10C	Wintershall	Decom.	Gas	1982	1994	K10-C	K13-B	19.2	20
1@K10V	Wintershall	Decom.	Gas	1993	2003	K10-V	K10-BP	14.2	10
1@K13B	Wintershall	Decom.	Gas	1977	1991	K13-B	K13-AP	9.2	10
1@K13C	Wintershall	Decom.	Gas	1977	1992	K13-CP	K13-AP	10.3	20
1@K13D	Wintershall	Decom.	Gas	1978	1987	K13-D	K13-CP	3.2	8
1@L08-H	Wintershall	Decom.	SaltWater	1988	2020	L08-H	L8-H Sidetap	0.2	8
1@P02NE	Wintershall	Decom.	Gas	1996	2002	P02-NE	P06-A	38.1	10
1@P06S	Wintershall	Decom.	Gas	1996	2012	P06-S	P06-B	6.6	6
1@P12C	Wintershall	Decom.	Gas	1990	2001	P12-C	P12-SW	6.9	8
1@P14-A	Wintershall	Decom.	Gas	1993	2007	P14-A	P15-D	12.6	10
1@Q05A	Wintershall	Decom.	Gas	2004	2011	Q05-A	Q08-B	13.5	8
1@Q08B	Wintershall	Decom.	Gas	1994	2011	Q08-B	Q08-A	8.3	8
2@K10B	Wintershall	Decom.	Gas	1978	1993	K10-BP	K13-CP	6.4	8
2@P12C	Wintershall	Decom.	Gas	1990	2002	P12-C	P12-SW	6.9	8
2@P14A	Wintershall	Decom.	Chemicals	1993	2007	P14-A	P15-D	12.5	2
2@Q05A	Wintershall	Decom.	Control & Power	2004	2011	Q05-A	Q08-B	13.7	3
NOGAT EXT Nld Gas	Wintershall	Operational	Gas	2000		NOGAT EXT Border Crossing	F03-FB-F1	86.8	20
NOGAT EXT Nld Oil	Wintershall	Permanently suspended	SaltWater	2000		NOGAT EXT Border Crossing	F03-FB-F1	86.8	4
W09	Wintershall	Operational	Gas	1975		K13-AP	Afsluiter WGT zeeleiding K13-AP	120.5	36
W10	Wintershall	Operational	Gas	1992		J06-A- Markham		85.8	24
W11	Wintershall	Decom.	SaltWater	1984	2019	K18-Kotter-P	Q01-Helder-AP	20.2	12
W12	Wintershall	Operational	Gas	2003		L05-B	L08-P4	6.4	10
W13	Wintershall	Operational	Control & Power	2003		L05-B	L08-P4	6.4	3
W14	Wintershall	Operational	Gas	2006		L05-C	L08-P4	8	10
W15	Wintershall	Operational	Control & Power	2006		L05-C	L08-P4	8	10
W16	Wintershall	Decom.	SaltWater	1988	2020	L08-A	L08-G	10	8
W17	Wintershall	Decom.	SaltWater	1994	2020	L08-G	L08-P	7.4	8
W18	Wintershall	Decom.	SaltWater	1994	2020	L08-P	L08-G	7.4	2
W19	Wintershall	Operational	Gas	2000		L08-P	L08-P4	3	12
W20	Wintershall	Operational	Gas	2000		L08-P4	NP-001-ST-KP- 20.4-36	27.8	16
W21	Wintershall	Operational	Gas	2000		L08-A-West	L08-P4	10.3	6
W22	Wintershall	Operational	Control & Power	2000		L08-A-West	L08-P4	10.3	4
W23	Wintershall	Decom.	SaltWater	1984	2019	L16-Logger-P	K18-Kotter-P	18.8	8
W24	Wintershall	Decom.	Water	1985	2019	L16-Logger-P	K18-Kotter-P	18.8	6
W25	Wintershall	Decom.	Chemicals	1983	2021	P06-A	L10-AR	78.6	20

Pipeline	Operator	Status	Carries	Installation	Decom.	From	To	Length (km)	Diameter (inch)
W27	Wintershall	Decom.	SaltWater	1985	2021	P06-B	P06-A	3.9	12
W29	Wintershall	Decom.	SaltWater	2001	2021	P06-D	P06-B	6.7	10
W31	Wintershall	Decom.	SaltWater	2009	2021	P09-B	P06-D	16.6	8
W32	Wintershall	Decom.	Control & Power	2009	2021	P09-B	P06-D	16.6	3
W33	Wintershall	Decom.	SaltWater	1990	2021	P12-SW	P06-A	42	12
W36	Wintershall	Permanently suspended	Chemicals	2000		Q04-A	P06-A	35.3	14
W37	Wintershall	Decom.	SaltWater	2001	2021	Q04-B	Q04-A	7.3	10
W38	Wintershall	Operational	Gas	2002		Q04-C	Q01-Hoorn-AP	14.2	16
W41	Wintershall	Operational	Gas	1986		Subsea aansluiting Q08	Wijk aan Zee	13.7	10
W41A	Wintershall	Operational	Gas	2011		Q04-C	Subsea aansluiting Q08	30.6	10
W45	Wintershall	Decom. Prog.	SaltWater	2004		D12-A	D15-FA-1	4.9	10
W46	Wintershall	Decom. Prog.	Control & Power	2004		D12-A	D15-FA-1	5.1	3
W47	Wintershall	Decom.	SaltWater	2009	2019	E18-A	F16-A	5.3	10
W48	Wintershall	Decom.	SaltWater	2004	2020	F16-A	NP-002-ST-KP-61.88-36	32	24
W49	Wintershall	Operational	Gas	2011		K18-G1	K15-FA-1R	10	8
W50	Wintershall	Operational	Gas	2011		Wingate	D15-FA-1	20.5	12
W51	Wintershall	Operational	Gas	2012		K05-A	WGT EXT Sidetap K05-A	0.3	14
W52	Wintershall	Operational	Gas	2014		L06-B	L08-P4	19.2	8
W53	Wintershall	Operational	Control & Power	2014		L06-B	L08-P4	19.2	3
W54	Wintershall	Operational	Gas	2013		Q01-D	Q1-D Side tap	2	8
W55	Wintershall	Decom.	Control & Power	2009	2019	E18-A	F16-A	5.5	3
W56	Wintershall	Operational	Control & Power	1992		J06-A-Markham	Subsea Isolation Valve	0.3	3
W57	Wintershall	Operational	Control & Power	2011		K18-G1	K15-FA-1R	10	3
W60	Wintershall	Operational	Gas	2014		K18-G2	K18-G1	0.1	4
W61	Wintershall	Operational	Control & Power	2014		K18-G2	K18-G1	0.1	4
W63	Wintershall	Decom.	SaltWater	1990	2021	P12-SW	P06-A	42	3
W65	Wintershall	Decom.	SaltWater	1985	2021	P06-B	P06-A	3.9	3
W67	Wintershall	Operational	Chemicals	2002		Q01-Hoorn-AP	Q1-D Side tap	7	2
W67X	Wintershall	Temporarily suspended	SaltWater	2002		Q1-D Side tap	Q04-C	7.3	2
W72	Wintershall	Operational	Chemicals	2011		D15-FA-1	Wingate	20.5	2
W74	Wintershall	Operational	Gas	2019		D12-B	D15-FA-1	11.8	10
W76	Wintershall	Operational	Chemicals	2019		D12-B	D15-FA-1	11.8	3
1@Zuidwal-PA	Vermilion	Operational	Gas	1987		Zuidwal	Harlingen Treatment Center	20.3	20
01-GAS-20-ZW	Vermilion	Temporarily suspended	Gas	1986		Zuidwal	Harlingen Treatment Center	19.8	20
02-GLYCOL-3-ZW	Vermilion	Operational	Chemicals	1986		Harlingen Treatment Center	Zuidwal	19.8	3
03-20kV POWER CABLE	Vermilion	Operational	Control & Power	1985		Harlingen Treatment Center	Zuidwal		

Pipeline	Operator	Status	Carries	Installation	Decom.	From	To	Length (km)	Diameter (inch)
(L07A)-L04B-K06GT	Total	Decom.	Chemicals	1999	2005	L04-B	K06-GT	10.3	3
J06A-K01A	Total	Operational	Chemicals	2002		J06-A-Markham	K01-A	9.1	3
J06A-K04aD	Total	Operational	Control & Power	1997		J06-A-Markham	K04a-D	7.4	2.5
K01A-J06A	Total	Operational	Gas	2002		K01-A	J06-A-Markham	9.1	14
K04aD-J06A	Total	Operational	Gas	1997		K04a-D	J06-A-Markham	7.3	4
K04A-K04BE	Total	Operational	Chemicals	2001		K04-A	K04-BE	8.1	2.5
K04A-K05A	Total	Operational	Gas	1998		K04-A	K05-A	6.7	12
K04BE-K04A_1	Total	Decom.	Gas	2001	2003	K04-BE	K04-A	8	9.5
K04BE-K04A_2	Total	Operational	Gas	2004		K04-BE	K04-A	8	10
K04Z-K05A	Total	Operational	Gas	2014		K04-Z	K05-A	17.1	6
K05A-K04A_1	Total	Operational	Chemicals	1998		K05-A	K04-A	6.7	3
K05A-K04A_2	Total	Operational	Control & Power	1998		K05-A	K04-A	6.9	2.5
K05A-K04Z	Total	Operational	Control & Power	2014		K05-A	K04-Z	17.6	3.17
K05A-K05B	Total	Operational	Control & Power	1995		K05-A	K05-B	6.5	3.5
K05A-K05CU	Total	Operational	Chemicals	2011		K05-A	K05-CU	15.2	3
K05A-K05D	Total	Operational	Chemicals	1994		K05-A	K05-D	10.6	3
K05B-K05A_1	Total	Decom.	Gas	1995	2010	K05-B	K05-A	6.5	8
K05B-K05A_2	Total	Operational	Gas	2012		K05-B	K05-A	6.7	8
K05B-K05EN/C	Total	Operational	Control & Power	1997		K05-B	K05-EN/C	6.2	3.5
K05CU-K05A	Total	Operational	Gas	2011		K05-CU	K05-A	15.2	10
K05D-K05A	Total	Operational	Gas	1994		K05-D	K05-A	10.6	12
K05D-K05EN/C	Total	Operational	Chemicals	1997		K05-D	K05-EN/C	2.8	2.5
K05EN/C-K05D_1	Total	Decom.	Gas	1997	2001	K05-EN/C	K05-D	2.7	10
K05EN/C-K05D_2	Total	Operational	Gas	2001		K05-EN/C	K05-D	2.7	10
K05F-K06N	Total	Operational	Gas	2008		K05-F	K06-N	9.8	8
K06C-K05F	Total	Operational	Control & Power	2008		K06-C	K05-F	18.3	4.13
K06C-K06D	Total	Operational	Chemicals	1992		K06-C	K06-D	3.8	3
K06C-K06DN	Total	Operational	Chemicals	1992		K06-C	K06-DN	5.3	3
K06C-K06GT	Total	Operational	Chemicals	2005		K06-C	K06-GT	6.9	3
K06C-K06N	Total	Operational	Chemicals	1993		K06-C	K06-N	8.5	3
K06D-K06C	Total	Operational	Gas	1992		K06-D	K06-C	3.8	10
K06DN-K06C	Total	Operational	Gas	1992		K06-DN	K06-C	5.3	12
K06GT-K06C	Total	Operational	Gas	2005		K06-GT	K06-C	6.9	10
K06GT-L04B-(L07A)	Total	Decom.	Gas	1999	2005	K06-GT	L04-B	10.3	10
K06N-K06C	Total	Operational	Gas	1993		K06-N	K06-C	8.5	12
L04A-K06GT	Total	Operational	Gas	2017		L04-A	K06-GT	13.1	10

Pipeline	Operator	Status	Carries	Installation	Decom.	From	To	Length (km)	Diameter (inch)
L04A-L04G	Total	Operational	Control & Power	2005		L04-A	L04-G	10.4	4.5
L04A-L04PN	Total	Operational	Chemicals	1999		L04-A	L04-PN	11.5	3
L04A-L07P	Total	Permanently suspended	Gas	1982		L04-A	L07-P	22.8	12
L04B-L07A	Total	Permanently suspended	Gas	1985		L04-B	L07-A	10.1	10
L04G-L04A	Total	Operational	Gas	2005		L04-G	L04-A	10.4	6
L04PN-L04A_1	Total	Decom.	Gas	1999	2007	L04-PN	L04-A	11.5	10
L04PN-L04A_2	Total	Operational	Gas	1999		L04-PN	L04-A	11.5	10
L07A-L04B	Total	Permanently suspended	Chemicals	1985		L07-A	L04-B	10.1	3
L07A-L07P	Total	Permanently suspended	Gas	1985		L07-A	L07-P	10.4	10
L07B-L07P	Total	Permanently suspended	Gas	1977		L07-B	L07-P	8	12
L07B-L07P_W	Total	Permanently suspended	Water	1977		L07-B	L07-P	8	4
L07H-L07N	Total	Permanently suspended	Gas	1989		L07-H	L07-N	6.4	10
L07N-L07H	Total	Permanently suspended	Chemicals	1989		L07-N	L07-H	6.4	3
L07N-L07P	Total	Permanently suspended	Gas	1988		L07-N	L07-P	4.1	10
L07P - L10A	Total	Permanently suspended	Gas	1977		L07-P	L10-AP	15.8	16
L07P-L04A	Total	Permanently suspended	Chemicals	1982		L07-P	L04-A	22.8	3
L07P-L07A	Total	Permanently suspended	Chemicals	1985		L07-P	L07-A	10.1	3
L07P-L07B	Total	Permanently suspended	Chemicals	1977		L07-P	L07-B	8	3
L07P-L07N	Total	Permanently suspended	Chemicals	1988		L07-P	L07-N	4.1	3
DPL-15B2	TAQA	Decom.	Water	1985	2003	P15-B	P15-C	3.4	6
DPL-15B3	TAQA	Decom.	Chemicals	1985	2003	P15-B	P15-C	3.4	4
DPL-15B4	TAQA	Decom.	Gas	1985	2003	P15-C	P15-B	3.4	6
DPL-15C1	TAQA	Operational	Oil	1985		P15-C	P15 Hoek van Holland Metering station	42.6	10
DPL-15D1	TAQA	Operational	Gas	1993		P15-D	Maasvlakte onshore (gas)	40.1	26
DPL-15E1	TAQA	Operational	Gas	1993		P15-E	P15-D	13.9	10
DPL-15E2	TAQA	Operational	Chemicals	1993		P15-D	P15-E	13.9	2
DPL-15F1	TAQA	Operational	Gas	1993		P15-F	P15-D	9.1	12
DPL-15F2	TAQA	Operational	Chemicals	1993		P15-D	P15-F	9.1	3
DPL-15G1	TAQA	Permanently suspended	Gas	1993		P15-G	P15-D	9.1	12
DPL-15G2	TAQA	Permanently suspended	Chemicals	1993		P15-D	P15-G	9.1	3
DPL-15S101	TAQA	Decom.	Gas	1993	2018	P15-10S	P15-D	3.9	4
DPL-15S102	TAQA	Decom.	Chemicals	1993	2018	P15-D	P15-10S	3.9	2
DPL-15S121	TAQA	Decom.	Gas	1993	2018	P15-12S	P15-D	6.1	4
DPL-15S122	TAQA	Decom.	Chemicals	1993	2018	P15-D	P15-12S	6.1	2
DPL-15S141	TAQA	Decom.	Gas	1993	2018	P15-14S	P15-G	3.7	4
DPL-15S142	TAQA	Decom.	Chemicals	1993	2018	P15-G	P15-14S	3.7	2

Pipeline	Operator	Status	Carries	Installation	Decom.	From	To	Length (km)	Diameter (inch)
DPL-18A1	TAQA	Operational	Gas	1993		P18-A	P15-D	20.8	16
DPL-18A2	TAQA	Operational	Chemicals	1993		P15-D	P18-A	20.8	3
DPL-1B1	TAQA	Decom.	Oil	1985	2003	P15-B	P15-C	3.4	10
A12CPP to NOGAT P/L	Petrogas	Operational	Gas	2007		A12-CPP	NOGAT EXT	16.5	16
A18 to A12CPP P/L	Petrogas	Operational	Gas	2014		A18	Sidetap A12 A12-CPP	32	12
B13 to A12CPP P/L	Petrogas	Operational	Gas	2011		B13-A	A12-CPP	20.3	16
Halfweg to Hoorn P/L	Petrogas	Decom.	Gas	1995	2019	Q01-Halfweg	Q01-Hoorn-AP	12.4	12
Haven to Helder former P/L	Petrogas	Decom.	Oil	1989	1995	Q01-Haven-A	Q01-Helder-AW	5.8	8
Haven to Helder P/L	Petrogas	Operational	Oil	1995		Q01-Haven-A	Q01-Helder-AW	5.8	8
Helder B to Helder P/L	Petrogas	Decom.	Oil	1986	1989	Q01-Helder-B	Q01-Helder-AW	1.9	8
Helder to Haven cable	Petrogas	Operational	Control & Power	1989		Q01-Haven-A	Q01-Helder-AW	5.8	3
Helder to Helm P/L	Petrogas	Operational	Oil	1982		Q01-Helder-AW	Q01-Helm-AP	6	20
Helm to IJmuiden P/L	Petrogas	Operational	Oil	1982		Q01-Helm-AP	Sidetap onshore IJmuiden (olie)	56.7	20
Hoorn to Halfweg cable	Petrogas	Decom.	Control & Power	1995	2019	Q01-Halfweg	Q01-Hoorn-AP	12.4	3
Hoorn to Helder P/L	Petrogas	Operational	Gas	1983		Q01-Hoorn-AP	Q01-Helder-AW	3.6	10
Hoorn to WGT P/L	Petrogas	Temporarily suspended	Gas	1995		Q01-Hoorn-AP	WGT Sidetap Hoorn	17.5	12
Horizon to Helder P/L	Petrogas	Operational	Oil	1993		P09-Horizon	Q01-Helder-AW	47.5	10
NLP001	ONE-Dyas	Operational	Gas	1998		Q16-FA-1	P18-A	10.3	8
NLP002	ONE-Dyas	Temporarily suspended	Chemicals	1998		Q16-FA-1	P18-A	10.3	2
NLP004	ONE-Dyas	Operational	Gas	2009		M07-A	L09-FF-1P	12	6
NLP005	ONE-Dyas	Operational	Chemicals	2009		M07-A	L09-FF-1P	12	2
NLP006	ONE-Dyas	Permanently suspended	Gas	2006		L06d-S1	G17d-AP	40	6
NLP008	ONE-Dyas	Operational	Gas	2016		L11b-PA	NP-007-ST-KP-14.4	0.1	8
NLP009	ONE-Dyas	Permanently suspended	Gas	2015		P11-E	P15-F	9.8	8
NLP010	ONE-Dyas	Permanently suspended	Chemicals	2015		P11-E	P15-F	9.8	2
NLU003	ONE-Dyas	Operational	Control & Power	1998		Q16-FA-1	P18-A	10.3	3
NLU007	ONE-Dyas	Permanently suspended	Control & Power	2006		G17d-AP	L06d-S1	40	3
Gas export line	Dana	Decom.	Gas	2005	2019	P11-B-De Ruyter	Tie-in leiding P11-B-De Ruyter naar P12-SW	20	8
Gas export line P12-SW	Dana	Decom.	Gas	2005	2019	Tie-in leiding P11-B-De Ruyter naar P12-SW	P12-SW	9	8
Gas export line P15-C	Dana	Decom.	Gas	2019	2019	Tie-in leiding P11-B-De Ruyter naar P12-SW	P15-C	17	8
Gas export line P15-D	Dana	Operational	Gas	2019		P11-B-De Ruyter	P15-D	38	8

Pipeline	Operator	Status	Carries	Installation	Decom.	From	To	Length (km)	Diameter (inch)
Gas export line to NOGAT	Dana	Operational	Gas	2001		F02-A-Hanze	NOGAT EXT Sidetap F02-Hanze	1.5	4
SSIV control in Sidetap	Dana	Operational	Control & Power	2001		F02-A-Hanze	NOGAT EXT Sidetap F02-Hanze	1.5	3
SSIV umbilical (gas export) to WYE	Dana	Operational	Control & Power	2011		P11-B-WYE Manifold	P11-B-De Ruyter	0.1	
TMLS control umbilical	Dana	Operational	Control & Power	2000		F02-A-Hanze	F02-A-Hanze TMLS	1.5	3
TMLS De Ruyter	Dana	Operational	Oil	2005		P11-B-De Ruyter	P11-B-De Ruyter TMLS	1.5	16
TMLS Hanze	Dana	Operational	Oil	2000		F02-A-Hanze	F02-A-Hanze TMLS	1.5	16
Unity flowline	Dana	Operational	Gas	2021		P11-Unity	P11-B-WYE Manifold	8	8
Unity umbilical	Dana	Operational	Control & Power	2021		P11-B-De Ruyter	P11-Unity	8	
Van Ghent control umbilical	Dana	Permanently suspended	Control & Power	2011		P11-B-WYE Manifold	P11b-Van Ghent	4.5	5
Van Ghent flowline	Dana	Permanently suspended	Gas	2011		P11b-Van Ghent	P11-B-De Ruyter	4.9	8
Van Nes control umbilical	Dana	Permanently suspended	Control & Power	2011		P11-B-WYE Manifold	P11b-Van Nes	8	5
Van Nes flowline (@ P11-B)	Dana	Permanently suspended	Gas	2011		P11-B-WYE Manifold	P11-B-De Ruyter	0.1	10.9
Van Nes flowline (@ WHPS)	Dana	Permanently suspended	Gas	2011		P11b-Van Nes	P11-B-WYE Manifold	8	8
VG, VN, SSIV umbilical	Dana	Operational	Control & Power	2011		P11-B-De Ruyter	P11-B-WYE Manifold	0.1	
WYE to P11-B-De Ruyter	Kistos	Operational	Chemicals	2018		P15-D	Q10-A	42.5	2
P15-D to Q10-A	Kistos	Operational	Gas	2018		Q10-A	P15-D	42.5	14
P15-D to P15-D	Spirit	Decom.	Gas	2010	2019	F03-FA	NOGAT EXT Sidetap F02-Hanze	23	10
1@F03-FA	Spirit	Operational	Gas	2006		J06-C-Markham	J06-A-Markham	0	14
1@J06-C-Markham	Spirit	Decom.	Gas	1994	2019	ST-1-Markham	J06-A-Markham	5.5	12
1@ST-1-Markham	Spirit	Decom.	Control & Power	2010	2019	F03-FA	NOGAT EXT Sidetap F02-Hanze	23	3
2@F03-FA	Spirit	Decom.	Chemicals	1994	2019	J06-A-Markham	ST-1-Markham	5.5	2
2@ST-1-Markham	NOGAT	Operational	Gas	1991		L02-FA-1	Sidetap onshore NOGAT Callantsoog	144.2	36
TP-001	NOGAT	Operational	Gas	1992		F03-FB-F1	L02-FA-1	108.1	24
TP-003	NOGAT	Operational	Gas	1992		L05-FA-1	TP-001-ST-KP-19.665	0.4	16
TP-004	NOGAT	Operational	Gas	1992		L15-FA-1	TP-001-ST-KP-82.753	0.4	16
TP-005	NOGAT	Operational	Gas	1993		F15-A	TP-003-ST-KP-71.52	0.3	16
TP-007	NOGAT	Operational	Gas	1993					

Pipeline	Operator	Status	Carries	Installation	Decom.	From	To	Length (km)	Diameter (inch)
NP-001	NGT	Operational	Gas	1974		L10-AR	Uithuizen Gasbehandeling NGT	177.6	36
NP-002	NGT	Operational	Gas	1999		D15-FA-1	L10-AR	140.6	36
NP-003	NGT	Operational	Gas	1987		K12-BP	L10-AR	21.5	18
NP-004	NGT	Operational	Gas	2001		G17d-AP	NP-001-ST-KP- 118.9-36-24	64.5	18
NP-005	NGT	Operational	Gas	1987		K09c-A	L10-AR	36.6	16
NP-006	NGT	Operational	Gas	1991		K06-C	K09c-A	5.2	16
NP-007	NGT	Decom.	Gas	1988	2021	L08-G	NP-001-ST-KP- 20.4-36	21.3	14
NP-007B	NGT	Operational	Gas	2021		NP-007-ST- KP-14.4	NP-001-ST-KP- 20.4-36	6.9	14
NP-010	NGT	Operational	Gas	1987		K09ab-A	NGT Sidetap K09c-A	16.7	8

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

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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).

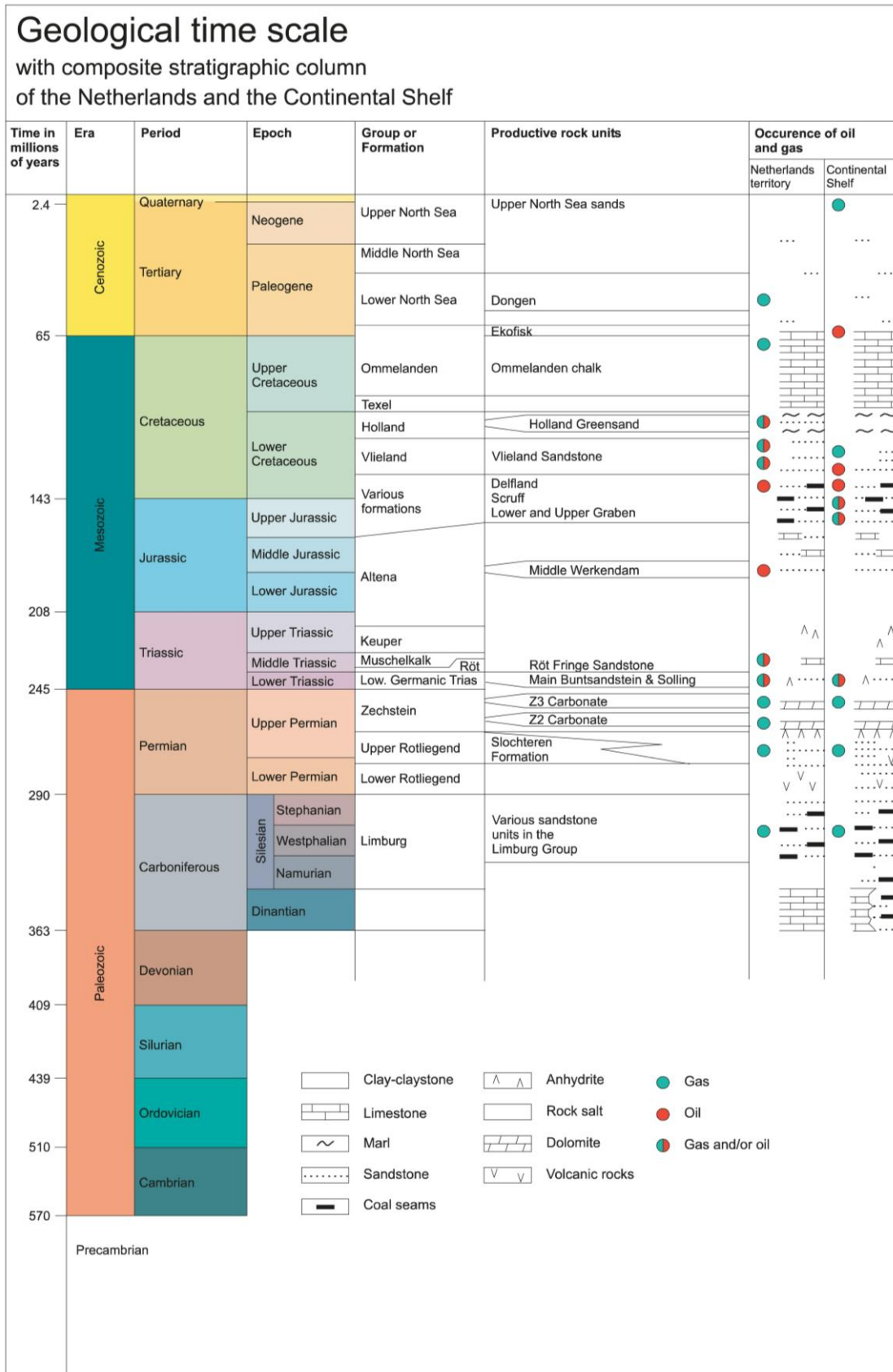
One Nm³ gas with a calorific value of 36.5 MJ is equivalent to 36.5/35.17 Nm³ Geq.

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).

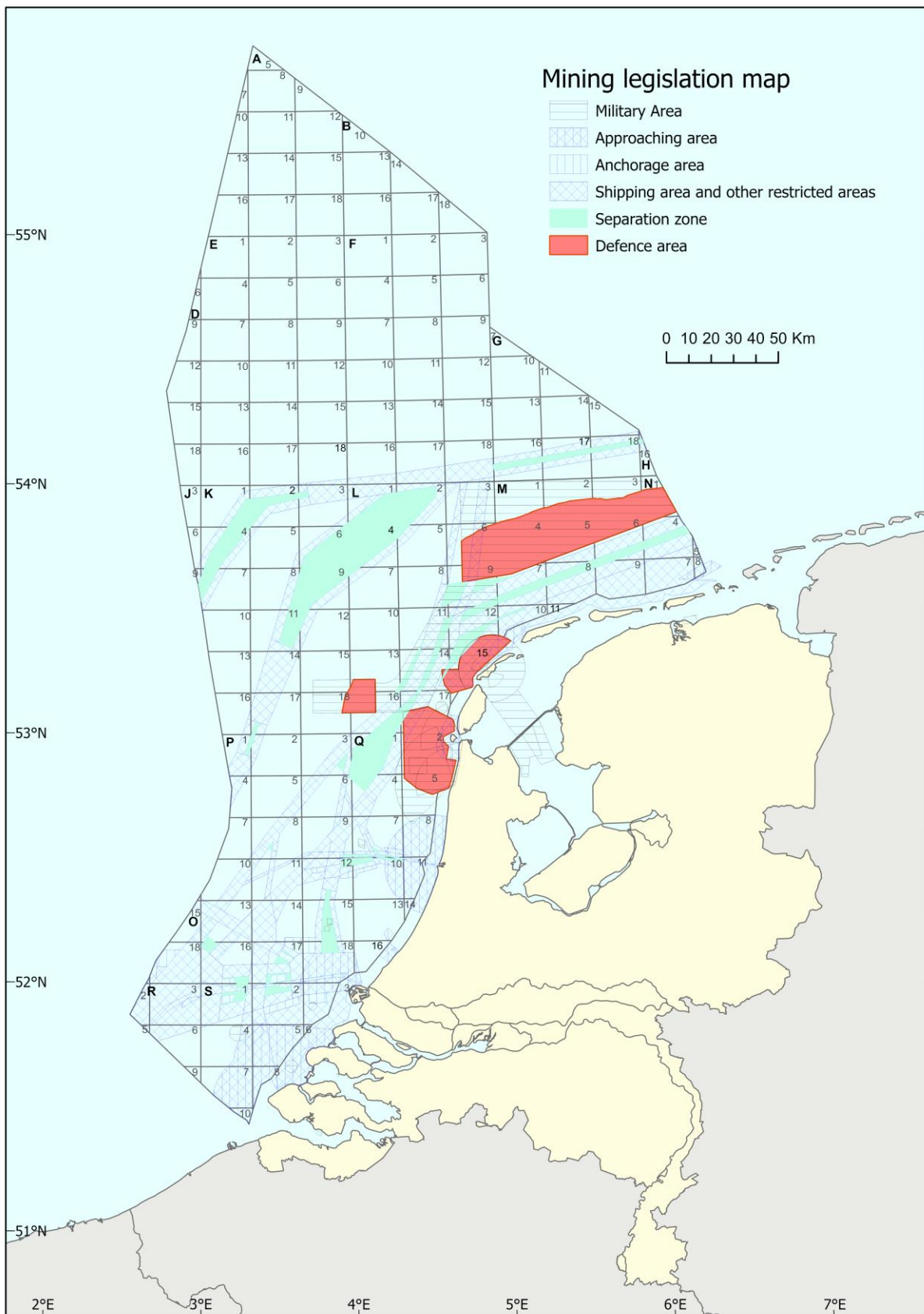
Fuel	Unit	Giga joule	Giga calorie	Oil equiv. tonnes	Oil equiv. barrels	Coal equiv. tonnes	Gas equiv. 1000 m ³
Fuelwood (dry)	tonnes	13.51	3.23	0.32	2.36	0.46	0.43
Coal	tonnes	29.30	7.00	0.70	5.11	1.00	0.93
Lignite	tonnes	17.00	4.06	0.41	2.96	0.58	0.54
Coke	tonnes	28.50	6.81	0.68	4.97	0.97	0.90
Coke-oven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

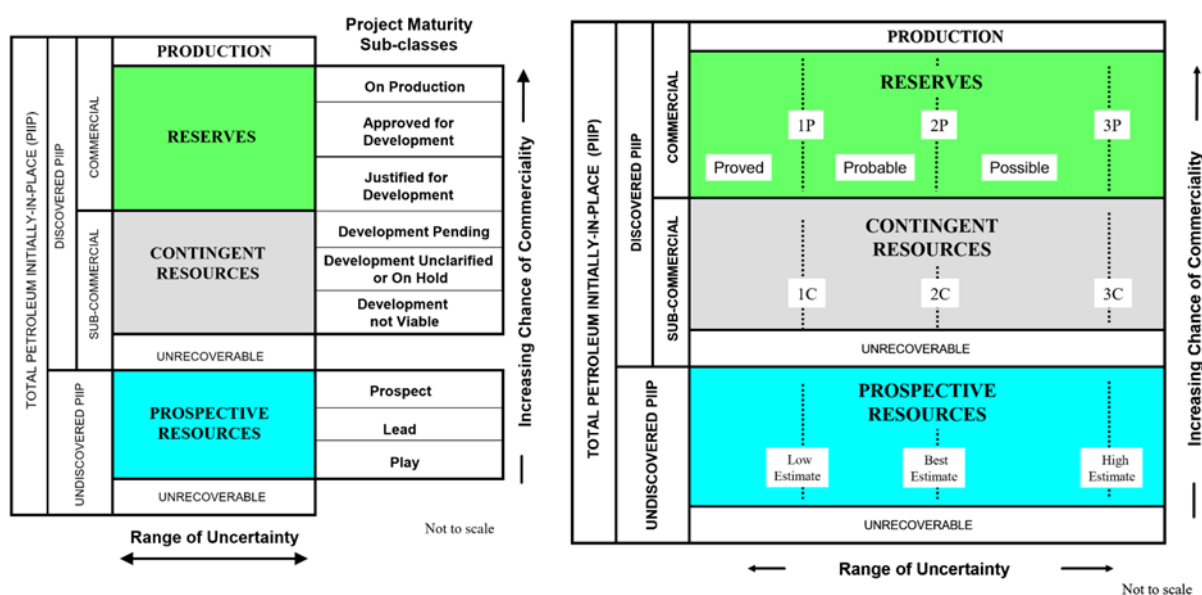


Figure Appendix 3.1 Schematic representation of the PRMS classification.

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

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

