

Natural resources and geothermal energy in the Netherlands

NATURAL RESOURCES AND GEOTHERMAL ENERGY IN THE NETHERLANDS

2020 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 onshore Netherlands and offshore Netherlands that fall under the Mining Act.

The first section of this annual review deals with developments during the year 2020. The second part of this report comprises annexes giving an overview of the situation as at 1 January 2021, and the developments during preceding decades.

Chapters 1 and 2 review the changes in the estimates of natural gas and oil resources in 2020 and the resulting situation as at 1 January 2021.

These chapters also present a prognosis for the gas (small fields) and oil production for the next 25 years. The remaining volumes of natural gas and oil are reported in accordance with the Petroleum Resource Management System (PRMS). For the Groningen gas field production profiles are reported as per the latest communication of the Minister of Economic Affairs and Climate Policy to the House of Representatives. The small fields are discussed in more detail.

Chapter 3 provides an overview of the produced natural gas, oil and condensate. Chapter 4 reports on the developments regarding subsurface storage. Chapters 5, 6 and 7 give an overview of the developments regarding geothermal energy, rock salt and coal respectively. Chapters 8, 9 and 10 contain information on developments relating to offshore and onshore licensing and company changes. Chapters 11, 12 and 13 report respectively on seismic surveys, (hydrocarbon) drilling activities, and changes regarding mining installations (e.g. platforms and pipelines) for the year 2020.

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

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

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The Hague, August 2021.

Contents

Preface.....	2
Key figures.....	7
1. Natural gas resources and future domestic production.....	9
1.1 Introduction.....	9
Figures.....	9
Restriction to conventional accumulations of gas.....	10
1.2 Resources.....	11
1.3 Resource estimates.....	12
Gas resources as at 1 January 2021.....	12
Reserves and contingent resources.....	12
Re-evaluation.....	13
1.4 Expected production of natural gas.....	15
Policy.....	15
Groningen gas field.....	15
The small fields.....	16
Expected gas production from small fields on land.....	18
Expected gas production from small fields at sea.....	19
Expected total gas production from the small fields.....	20
2. Oil resources.....	21
Oil resources as at 1 January 2021.....	21
Revised estimates of the oil resources compared to 1 January 2020.....	22
3. Production of natural gas, oil and condensate.....	23
3.1 Natural gas production on land in 2020.....	24
Production on land per stratigraphic reservoir.....	25
3.2 Natural gas production at sea in 2020.....	27
Production at sea per stratigraphic reservoir.....	29
3.3 Oil and condensate production in 2020.....	30
4. Subsurface storage.....	32
4.1 Introduction subsurface storage.....	32
4.2 Overview licences.....	32
4.3 Subsurface storage in 2020.....	34
5. Geothermal Energy.....	36

5.1	Preface geothermal energy.....	36
5.2	Geothermal wells and production installations as at 1 January 2021.....	37
5.3	Production of geothermal energy in 2020.....	39
6.	Salt.....	43
7.	Coal.....	46
8.	Licences, changes in 2020, land.....	47
8.1	Exploration licences hydrocarbons.....	47
8.2	Production licences hydrocarbons.....	47
8.3	Subsurface storage licences.....	48
8.4	Exploration, production and storage licences for hydrocarbons.....	49
8.5	Exploration licences geothermal energy.....	51
8.6	Production licences geothermal energy.....	53
8.7	Exploration and production licences for geothermal energy.....	54
8.8	Production licences rock salt.....	56
8.9	Production licences coal.....	56
9.	Licences, changes in 2020, sea.....	57
9.1	Exploration licences hydrocarbons.....	57
9.2	Production licences hydrocarbons.....	58
9.3	Storage licences.....	62
10.	Licences, company- and name changes in 2020.....	63
10.1	Hydrocarbons.....	63
10.2	Storage.....	63
10.3	Geothermal energy.....	64
10.4	Rock salt.....	64
10.5	Coal.....	64
11.	Seismic surveys.....	65
12.	Oil and gas wells completed in 2020.....	67
12.1	Onshore.....	67
12.2	Offshore.....	67
12.3	Summary.....	68
13.	Platforms en pipelines, at sea.....	70

Annexes	72
A. Natural gas and oil accumulations	73
A.1 Natural gas accumulations	73
A.2 Oil accumulations	86
B. Production of natural gas in million Nm ³	88
C. Natural gas reserves and cumulative production in billion Nm ³	91
D. Oil production in million Sm ³	95
E. Oil reserves and cumulative production in million Sm ³	98
F. Natural gas revenues	102
G. Exploration licences for hydrocarbons, Land	105
H. Production licences for hydrocarbons, Land	106
I. Subsurface storage licences, Land	108
J. Exploration licences for geothermal energy, Land	109
K. Production licences for geothermal energy, Land	112
L. Exploration licences for rock salt, Land	113
M. Production licences for rock salt, Land	114
N. Production licence for coal, Land	115
O. Exploration licences for hydrocarbons, Sea	116
P. Production licences for hydrocarbons, Sea	118
Q. Subsurface storage licences, Sea	125
R. Blocks and operators, Sea	126
S. Seismic surveys	137
T. Number of oil and gas wells, Land	140
U. Number of oil and gas wells, Sea	143
V. Number of wells, Land and Sea since 1946	145
W. Platforms, Sea	147
X. Pipelines, Sea	154
Y. Authorities involved in mining	165
Z. Definition of selected terms	166
Appendix 1. Geological time scale	171
Appendix 2. Mining legislation map	172
Appendix 3. Petroleum Resource Management System (PRMS)	173

Note:

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

In a few instances, the volumes of natural gas are given in Groningen gas equivalents (m³ Geq) of 35.17 megajoules gross calorific value per m³ at 0 °C and 101.325 kPa.

This is explicitly indicated in the text.

Volumes of oil and condensate are given in standard cubic metres (Sm³). 'Standard' relates to the reference conditions 15 °C and 101.325 kPa.

Key figures

Natural gas and oil resources

The natural gas resources as at 1 January 2021 are estimated at 138.2 billion Nm³, of which 6.6 billion Nm³ are in the Groningen gas field. This significant reduction compared to 1 January 2020 is due to the write-down of the Groningen reserves (3 billion Nm³), production (21 billion Nm³) and re-evaluations in the small fields (9 billion Nm³). The small fields onshore Netherlands contain 28.4 billion Nm³ natural gas; those on the Netherlands part of the North Sea contain 57.4 billion Nm³ natural gas.

Oil resources at 1 January 2021 were 29.6 million Sm³, of which 9.2 million Sm³ are reserves in onshore oilfields and 2.5 million Sm³ reserves in offshore fields.

Natural gas production

In 2020 the volume of natural gas produced from Dutch fields was 21.3 billion Nm³. Onshore gas fields accounted for 11.9 billion Nm³. 3.9 billion Nm³ came from small fields and 8.0 billion Nm³ from the Groningen gas field. The offshore gas fields produced 9.4 billion Nm³. As a result, total production in 2020 dropped by 27.6 % compared to 2019. For details, see Chapter 3.

Oil production

In 2020 a total of 0.88 million Sm³ oil was produced, this is 2.3 % less than in 2019. Onshore fields accounted for 0.41 million Sm³, which is a small decrease of 0.4 % compared with 2019. Production at sea was 0.47 million Sm³, a decrease of 4.0 %. Average daily oil production in 2020 was 2,410 Sm³. For details, see Chapter 3.

Subsurface storage

In 2020 no new application for storage licence were granted. Two licence applications for salt filter residue and for filler submitted previously were withdrawn. See chapter 4 for details.

Geothermal energy

In 2020 seven geothermal wells were realised which contributed to the installation of three geothermal installations. As at 1 January 2021 there are 28 production installations, of which 20 are currently producing. The cumulative reported annual production in 2020 was 6.2 PJ. For details, see Chapter 5.

Rock salt

As at 1 January 2021 there were 16 production licences and no exploration licences in force. One application for a production licence submitted previously is in procedure. In 2020 eight new salt production wells were drilled. The production of rock salt in 2020 was 5.7 million tonnes. For details, see Chapter 6.

Coal

There are no developments to report for 2020. There are still five coal production licences in force. For details, see Chapter 7.

Hydrocarbon licences

Five exploration licences and 2 production licences are pending for the Netherlands onshore. In 2020, 3 exploration licence extensions are pending. Six production licences were reduced in size.

6 exploration licences and 3 production licences at sea are pending. In 2020 12 exploration licences and five production licences were prolonged offshore.

In 2020 three exploration licences and were awarded offshore and one production licence; L1c for Neptune Energy Netherlands. Five production licences were extended and 33 reduced in size. For details, see Chapters 8 and 9.

Geothermal licences

In 2020 18 new applications for geothermal exploration licences were submitted. 10 exploration licences were awarded. 11 exploration licences were prolonged, and five exploration licences were relinquished or withdrawn.

In 2020 3 applications for production licences were submitted. Three new production licences for geothermal energy were awarded in 2020. 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 2020, 2 less than in 2019. Three exploration wells were drilled. Of these, two found gas and one found gas shows. In addition, nine 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 North Sea. First, it presents estimates of the natural gas resources as at 1 January 2021 and the changes compared to the resources as at 1 January 2020. Prognoses are then given for the annual production of Dutch natural gas during the next 25 years (2021–2045).

Figures

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

The gas resources pictured along the vertical axis are split into three main classes: reserves, contingent resources and prospective resources (Figure 1.1). Each of the main classes is subdivided into three subclasses. This annual review reports on the reserves (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'.

¹ [Guidelines for application of the PRMS](#), Society of Petroleum Engineers, 2011.

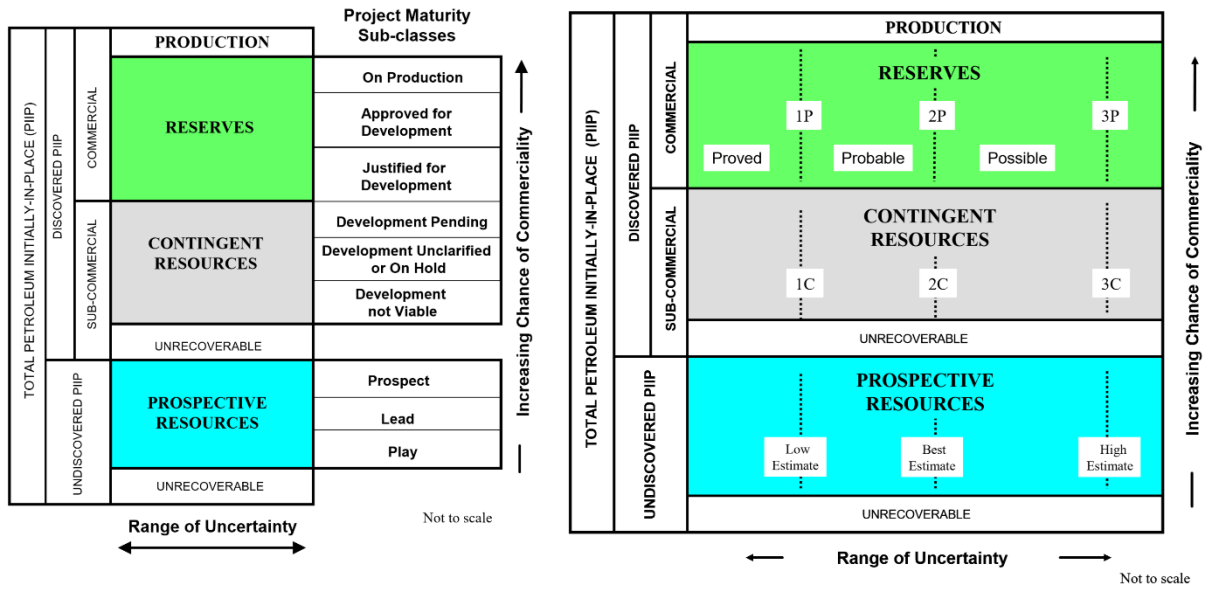


Figure 1.1 Schematic representation of the PRMS classification (Appendix 3).

Restriction to conventional accumulations of gas

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

1.2 Resources

As at 1 January 2021, there were 495 proven accumulations of natural gas in the Netherlands (see Table 1.1) and almost half (221) were in production. A further four gas fields were being used to store gas (in addition to the one gas storage facility in salt caverns). The remaining 111 accumulations were not developed, but it is expected that 25 of them will be brought into production in the next five years (2021–2025). Development of the remaining 86 remains uncertain. 158 of the accumulations that were not producing at the time, had been producing previously but their exploitation had been (temporarily) ceased. The total number of fields increased by 3 compared to 1 January 2020. This includes 2 new discoveries and 1 accumulation which was re-evaluated and is now assumed to have economical potential. In 2020, a total of 3 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 2021, classified according to their status.

Status of gas accumulation	On land	At sea	Total
I. Developed			
a. Producing	91	130	221
b. Natural gas storage*	5	0	5
II. Undeveloped			
a. Production to start 2021-2025	8	17	25
b. Other	35	51	86
III. Production ceased			
a. Temporarily ceased	20	14	34
b. Ceased	48	76	124
Total	207	288	495

*Including gas storage in caverns.

1.3 Resource estimates

Gas resources as at 1 January 2021

On 1 January 2021 the total gas resource in developed and undeveloped accumulations was 138.2 billion Nm³ (Table 1.2).

Reserves and contingent resources

The remaining reserves totalled 92.4 billion Nm³ of which 6.6 billion Nm³ reserves in the Groningen field and 85.8 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 32.9 billion Nm³ on land and 12.9 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 2021, in billion Nm³.

Area	Reserves	Contingent resources (development pending)	Total
Groningen	6.6	-	6.6
On land	28.4	32.9	61.3
At sea	57.4	12.9	70.3
Total	92.4	45.8	138.2

In order to incorporate volumes of natural gas of different qualities in calculations, they have been converted to Groningen gas equivalents (Geq) based on their calorific value (Table 1.3). The Groningen gas equivalent used to be calculated relative to a calorific value of 35.17 MJ/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 2021, in billion m³ Geq.

Accumulations	Reserves	Contingent resources (development pending)	Total
Groningen	6.6	-	6.6
On land	31.0	35.8	66.8
At sea	65.5	14.4	79.9
Total	103.1	50.2	153.3

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 2020.

Table 1.4 Revised estimates of expected natural gas resources compared to 1 January 2020, in billion Nm³. Cumulative for reserves and contingent resources.

Area	Re-evaluation	Production	Total
Groningen	-2.9	-8.0	-10.9
On land	-4.0	-3.9	-7.9
At sea	-5.2	-9.4	-14.6
Total	-12.1	-21.3	-33.4

The net result is a decrease of the resource by 33.4 billion Nm³ compared to 1 January 2020. Production in 2020 is described in detail in Chapter 3.

Re-evaluation

Operators periodically evaluate the gas fields in technical and economic terms. New developments and insights may lead to revised estimates of the resources. As a result of such re-evaluations of producing and non-producing fields, the estimates of resources were adjusted downward by 12.1 billion Nm³ in 2020. The resources have been adjusted on the basis of production performance and the implementation of technical modifications. The latter include the drilling of new wells and the application of techniques to prolong production.

Two exploration wells have found gas: D12-B-03 and SPKO-04 (Table 1.5). The locations of the new discoveries are indicated by the gas well locations (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 2020.

Accumulation	Discovery well	Licence [Type]	Operator
D12-D	D12-B-03	D12a [pl]	Wintershall Noordzee B.V.
Spijkernisse-Intra	SPKO-04	Botlek III [pl]	Nederlandse Aardolie Maatschappij B.V.

pl: production licence

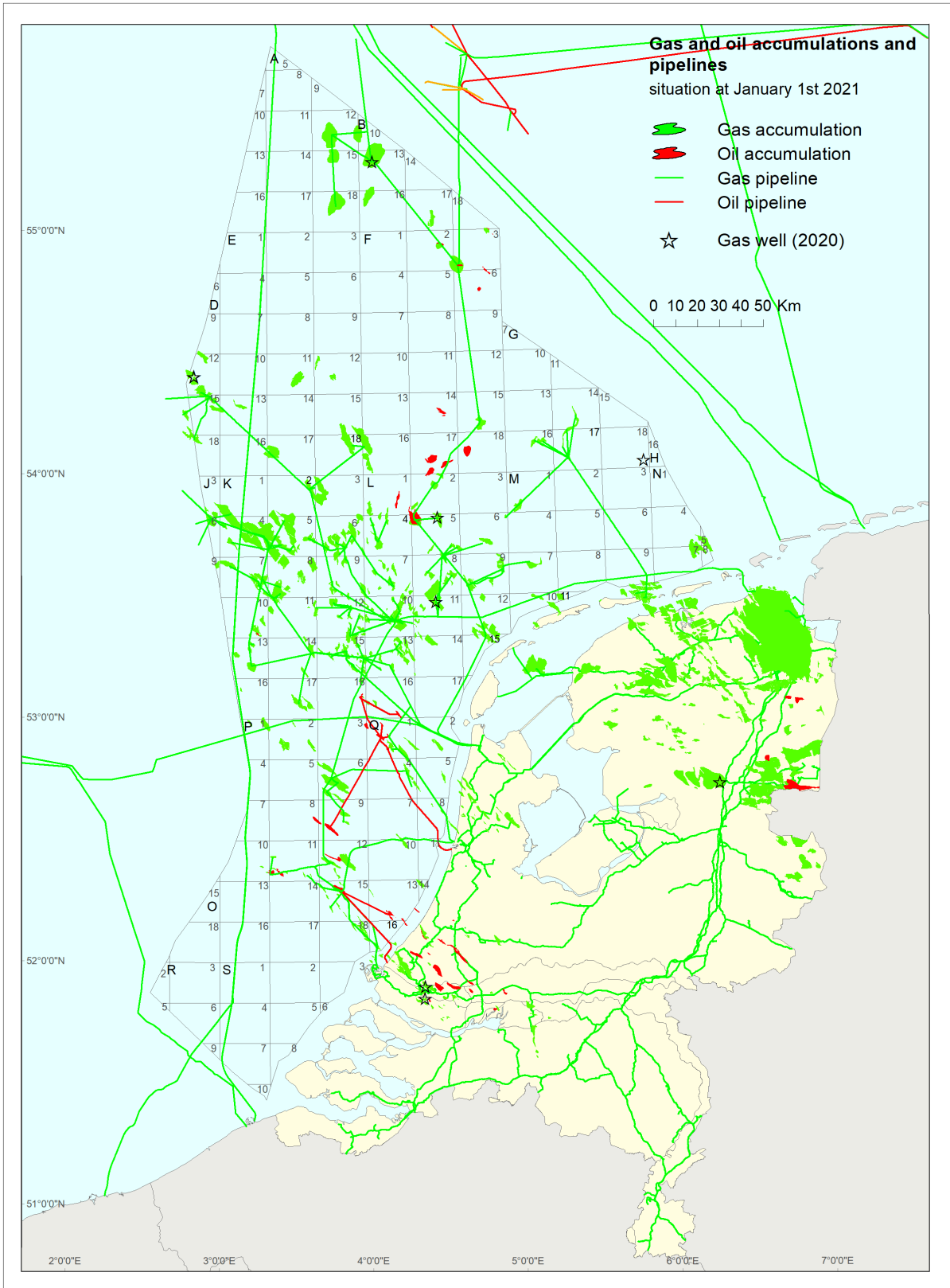


Figure 1.2 Map showing oil and gas accumulations in the Netherlands as at 1 January 2021. All gas wells, including the production wells, are assigned with an asterisk.

1.4 Expected production of natural gas

Policy

Current Dutch government policy is aimed at maintaining domestic gas production, especially in the North Sea. This is in view of the rapid decrease in production from the Groningen field and (for the time being) still high domestic gas demand. Natural gas from the Netherlands has a lower carbon dioxide footprint than imported gas and it contributes substantially to the Dutch economy. Moreover, gas produced from the North Sea has less impact on society than gas extraction on land. At sea, on the other hand, the time pressure caused by the dismantling or conversion of the infrastructure must be taken into account. Due to the depletion of an increasing number of gas fields, the existing infrastructure is gradually abandoned and removed or possibly reused for transport of CO₂ to underground storages in empty gas fields. In addition, there may be future developments such as the transport of hydrogen from wind farms to the coast. The lack of an available gas infrastructure that can be shared makes it more difficult and economically less attractive to develop new gas fields.

In order to improve the financial investment climate for gas development, the tax deduction for investments in gas in the North Sea has been extended to 40%, which applies to all investments. This is a significant change from the previous 25% investment deduction which applied for a limited number of marginal gas accumulations. This measure is expected to have a stimulating effect on exploration and production efforts.

The next sections will successively deal with the gas production from the Groningen gas field and the production from the other (small) gas fields, divided into land and sea. This subdivision stems from the specific dynamics that characterise these areas.

The plans for production from the Groningen gas field are based on the cabinet's intention of 29 March 2018 (letter to the House of Representatives, DGETM-EI / 18057375). The reporting on the small fields is largely composed of data from the operators. The reference date for the report is 1 January 2020.

The expected developments in the supply of Dutch natural gas (domestic production) concern the next 25 years (2021 to 2045).

Groningen gas field

Because the consequences of gas production in Groningen were no longer socially acceptable, in 2018 the Cabinet decided to phase out gas extraction as soon as possible. Hereby eliminating the cause of the earthquake risks. To this end, the Mining Act has been amended, so that no more gas will be produced from the Groningen field than necessary.

Due to the reduction in demand for the low calorific Groningen gas and the availability of alternatives, the required quantity of Groningen gas is further reduced yearly. The amount of gas production will be issued by decree annually and started in 2019.

End of production in 2022

The Minister of Economic Affairs and Climate Policy has indicated (letter to the House of Representatives, DGKE-PGG / 20164742, June 19, 2020) that gas extraction from the Groningen field will no longer be necessary from mid-2022. In addition, a further reduction in extraction in the current gas year (2020/2021) is possible from 13.6 to 8.1 billion Nm³ due to the warm winter. In the estimate for the coming gas year (2021/2022) (letter to the House of Representatives, Parliamentary Paper 33529, no. 848, 11 February 2021), GTS indicates that if the phase-out goes according to plan, the field can be definitively closed between

approximately 2025 and 2028. This can be accelerated by two years by converting the Grijpskerk gas storage to low-calorific gas. In the coming gas year 2021/2022, the Groningen production required for security of supply will decrease further to 3.9 billion Nm³. This is approximately half of the production for the current gas year.

Necessary preconditions for phasing out production in Groningen

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

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

The production from the Groningen field is given per 'gas years' that run from October to October. For gas year 21/22, an average gas production of 3.9 billion Nm³ is expected. From the summer of 2022 onwards, there will only be production to keep production locations operational in order to be able to guarantee sufficient capacity in the winter. The annual productions mentioned are based on an average year, which may be higher or lower in the case of a cold or warm year, respectively.

The small fields

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

Technical and economic subdivision

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

- a. Reserves; the part of which production is ongoing or where the (investment) decision to start production has been taken.

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. Recently, these factors have resulted in an increase in expected gas production:

- a. The current higher (expected) gas price.
- b. The expansion of the investment deduction leads in combination with a) to a considerably larger net portfolio of economically attractive potential gas resources.
- c. The embargo on new onshore exploration licenses limits the prospective stock.
- d. The image of fossil fuels among investing parties leads to a limitation of investment scope for the operator.
- e. Local population resistance 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 at sea, 1 on land).
4. Long-term gas price at 15 ct per Nm³.
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.

Expected gas production from small fields on land

In 2021, the production of the reserves from the currently producing small fields on land (green) is expected to be 4.2 billion m³ Geq per year. A cumulative production from reserves of 23 billion m³ Geq from the small fields on land will be realised until 2041.

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 4 billion m³ Geq. However, the annual production from the contingent resources also shows a gradual decline from 2027. From 2041, onshore gas production should even come entirely from gas fields that are not yet in production or have yet to be discovered (yellow and white). Ultimately, up to and including 2045, 13 billion m³ Geq will be produced from the contingent resources.

In view of the previously described influencing factors such as the current economic conditions and social acceptance, it is questionable whether the known prospective resources will actually be tapped. 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 10 billion m³ Geq from prospective resources can be achieved. After 2030, 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.

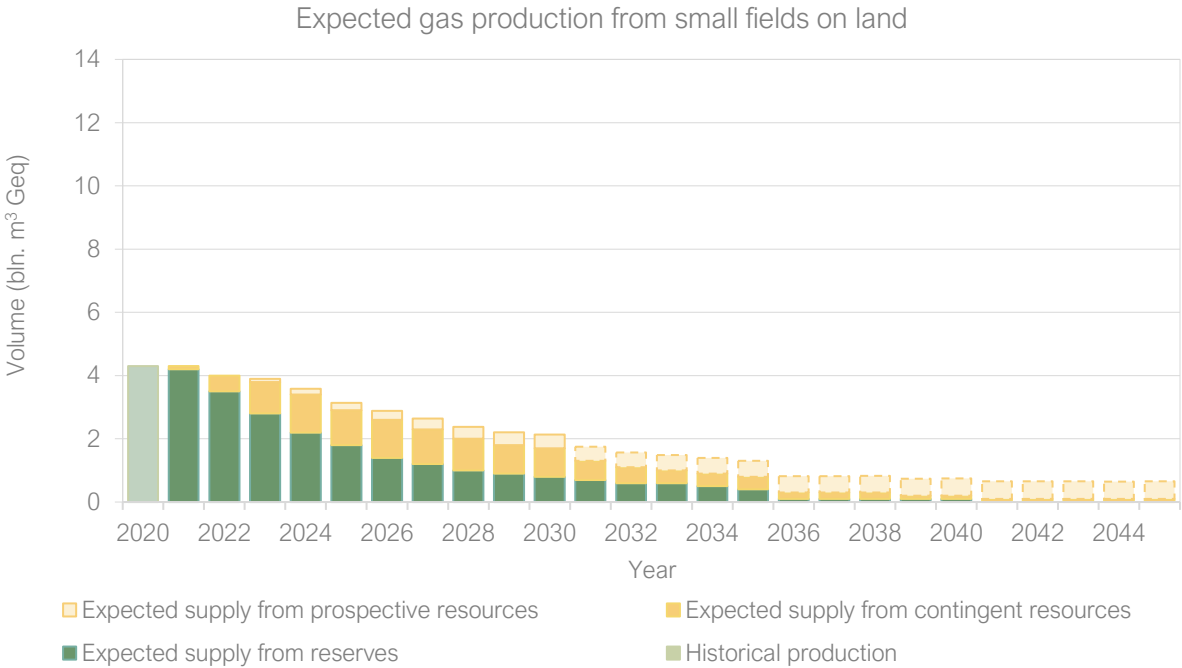


Figure 1.3 Actual production in 2020 and expected production of natural gas from the small fields on land from 2021 to 2045. Production from the Groningen field is excluded. The data underlying this profile are given in Annex B.

Compared to the previous year, the expected production from most sources has remained largely unchanged.

Expected gas production from small fields at sea

In 2021 the annual production of reserves from the producing small fields at sea (green) is estimated to be 10 billion m³ Geq decreasing to one billion m³ Geq in 2033. In total, 65 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 2026 onwards. In total, the contingent resources amount to 14 billion m³ Geq.

Consequently, from 2030 onwards, gas production at sea will have to come mainly from gas fields that have not yet been discovered (light yellow). In total, in the known prospective resources, there is a potential of economically attractive resources of 80 billion m³ Geq. Based on a scenario with four exploration wells per year and subsequent field development, a total production of 64 billion m³ Geq may be realised in the next 25 years. After 2030, 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.

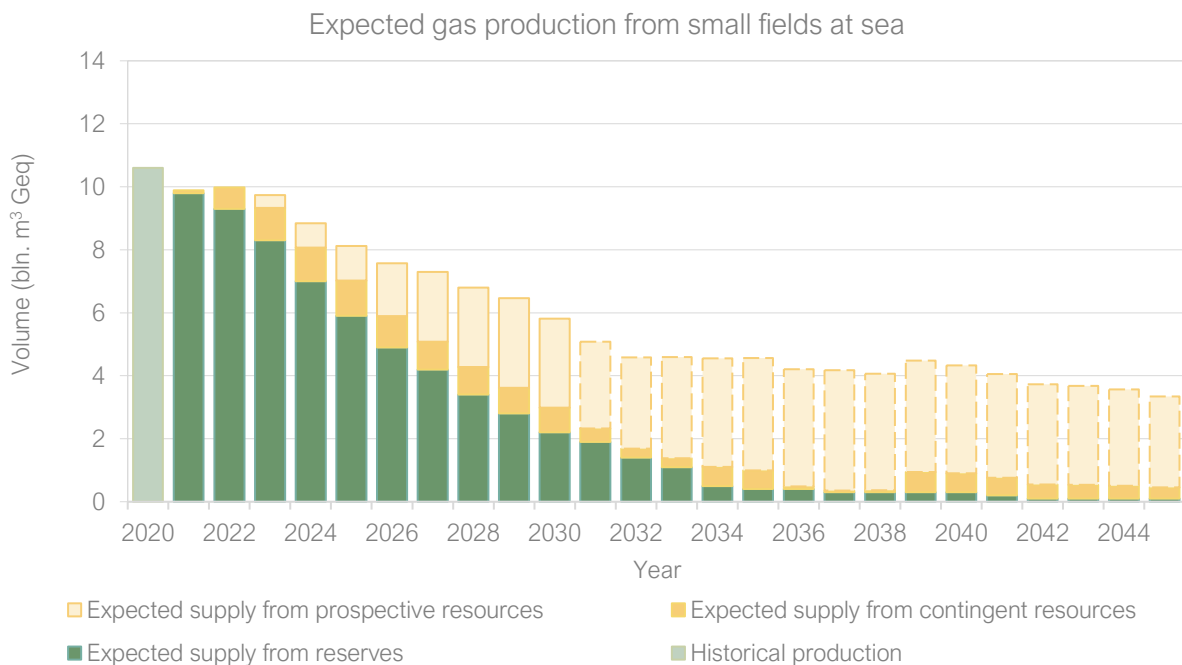


Figure 1.4 Actual production in 2020 and expected production of natural gas from the small fields at sea from 2021 to 2045. The data underlying this profile are given in Annex B.

Compared to last year, the potential production from prospective resources at sea has increased in the long term, in particular due to:

- Higher gas price from 12 to 15 cents.
- Extension of the investment deduction.

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 2039, 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 the gas production from the small fields for both land and sea (addition of production profiles shown in Figures 1.3 and 1.4).

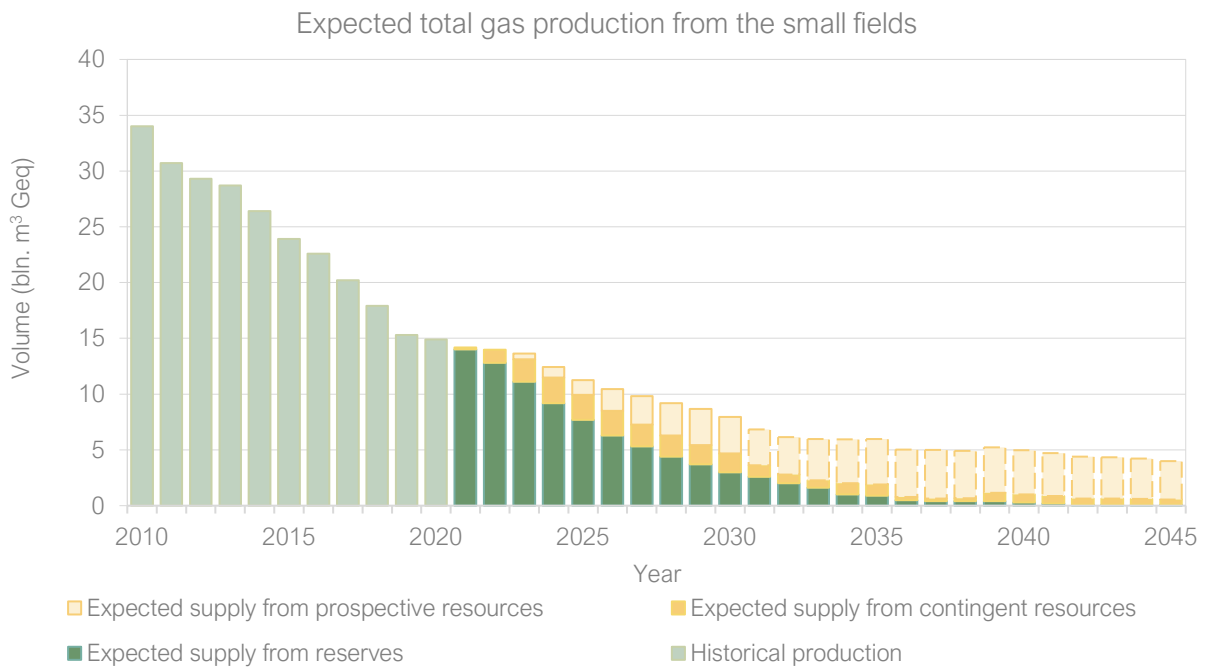


Figure 1.5 Actual production (2010 – 2020) and expected production of natural gas from the small fields (excluding the Groningen field) from 2021 to 2045. For the conversion from volume unit to energy unit 1 billion m³ Gec equals approximately to 10 TWh or 35 PJ. The data underlying this profile are given in Annex B.

2. Oil resources

On 1 January 2021 53 proven oil accumulations were known in the Netherlands (see Table 2.1). Eleven of these oil accumulations were in production and it is expected that 4 new oil accumulations will start with production in the next 5 years. No new accumulations were discovered in 2020. All oil fields are listed in Annex A.2. They are classified by status and reported with their current or last operator and licence name.

Table 2.1 Number of proven oil accumulations as at 1 January 2021.

Status of oil accumulation	Land	Sea	Total
I. Developed			
Producing	3	8	11
II. Undeveloped			
a. Production start 2020 - 2024	0	4	4
b. Other	10	16	26
III. Production ceased			
a. Temporarily ceased	0	0	0
b. Ceased	8	4	12
Total	21	32	53

Oil resources as at 1 January 2021

The resource estimates are based on data and information submitted by the operators in accordance with the Mining Act. The estimates follow the Petroleum Resource Management System (PRMS, SPE, 2011). Table 2.2 shows the reserves (i.e. part of the resources that can be produced commercially and have been qualified as such by the operators) and the subclass 'production pending' of the contingent resources, for which it may be reasonable to consider as commercially recoverable, but do not yet meet all the criteria. The remaining subclasses of the contingent resources that have a greater uncertainty regarding the eventual realisation (i.e. on hold, unclarified or unviable) are not included in Table 2.2. Because the PRMS is a project-based resource classification, both reserves and contingent resources may be present in one accumulation. The total oil resources as at 1 January 2021 amounts to 29.6 million Sm³, made up of 11.6 million Sm³ in reserves and 18.0 million Sm³ in contingent resources (development pending).

Table 2.2 Oil resources in million Sm³ as at 1 January 2021.

Area	Reserves	Contingent resources (development pending)	Total
Land	9.2	5.0	14.1
Sea	2.5	13.0	15.5
Total	11.6	18.0	29.6

Revised estimates of the oil resources compared to 1 January 2020

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

- Re-evaluation of previously proven accumulations
- Production during 2020

The total re-evaluation is 0.2 million Sm³ oil. However, production in 2020 has been higher, reducing the total oil resources compared to 1 January 2020 by 0.7 million Sm³. The total oil stock at sea has increased again this year.

Table 2.3 Revised estimates of oil reserves compared to 1 January 2020, in million Sm³.

Area	Re-evaluation	Production	Total
Land	-0.5	-0.4	-0.9
Sea	0.7	-0.5	0.2
Total	0.2	-0.9	-0.7

Figure 2.1 and Annex D show the realised oil production from 2010 to 2020 and the expected oil production for the next 25 years. The forecast is based on the operators' annual reports. Relative to the expected production for 2020 (1.2 million Sm³) the realised production fell short by -20 %. As some oil fields are downgraded with respect to last year, the corresponding reserves are now classified as contingent resources. In the profiling, this is reflected in an increase in expected supply from contingent resources from 2024 onwards. The abrupt decrease in production in 2041 is due to the fact that production forecast of a number of fields is limited to the year 2040. The profile has a certain degree of uncertainty as the number of producing oil fields is small, any changes in forecast will have a noticeable effect on the cumulative profile.

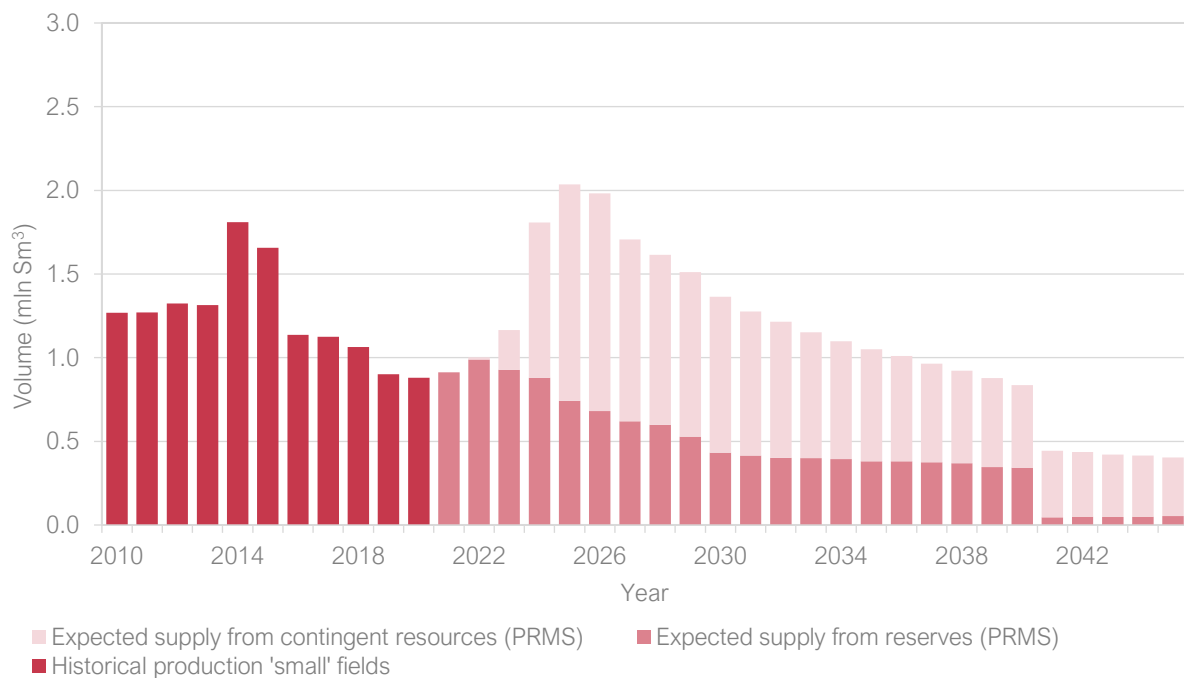


Figure 2.1 Historical oil production and prognosis for production until 2045 (in million Sm³).

3. Production of natural gas, oil and condensate

During the year 2020, the fields below were put into production or taken out of production.

Table 3.1 Fields put into production in 2020

Field name	In production	Discovery year	Mineral
D12-B	February	2015	Gas
Spijkenisse-Intra	May	2020	Gas
Q16-Maasmond (Charlie-North)	September	2019	Gas
D12-D	December	2020	Gas

Table 3.2 Fields taken out of production in 2020

Field name	Out of production	Discovery year	Mineral
F16-E	June	2001	Gas
P11a-E	June	2014	Gas
G14-C	July	2005	Gas
D18a-A	September	1997	Gas

The tables below show the aggregated production figures for natural gas, oil and condensate in 2020. Condensate is considered a by-product of oil or gas production. The changes compared to 2019 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 2019 (-27.6 %) is again largely due to the reduction in gas production from the Groningen field (-48.9 %). Excluding the Groningen field, the decrease in gas production from the small fields is -2.1 % on land and -4.5 % at sea (Table 3.3). The decline in oil production is similar to the decline in gas production. The decrease in oil production is -0.4 % on land and -4.0 % at sea (Table 3.4).

Overview of production in 2020 and changes compared to 2019.

Table 3.3 Natural gas production in 2020 and changes compared to 2019

Field	Production 2019	Production 2020	Changes compared to 2019	
	(10 ⁹ Nm ³)	(10 ⁹ Nm ³)	(10 ⁹ Nm ³)	%
Groningen	15.6	8.0	-7.6	-48.9
Other, on land	4.0	3.9	-0.1	-2.1
On land (subtotal)	19.6	11.9	-7.7	-39.3
At sea	9.8	9.4	-0.4	-4.5
Total	29.4	21.3	-8.1	-27.6

Table 3.4 Oil production in 2020 and changes compared to 2019

Field	Production 2019	Production 2020	Changes compared to 2019	
	(10 ³ Sm ³)	(10 ³ Sm ³)	(10 ³ Sm ³)	%
On land	413.5	412.0	-1.5	-0.4
At sea	487.2	467.6	-19.7	-4.0
Total	900.7	879.5	-21.2	-2.3
Production per day*	2.468	2.410	-0.058	-2.3

* Total annual production of oil, divided by 365 days

Table 3.5 Condensate production in 2020 and changes compared to 2019

Field	Production 2019	Production 2020	Changes compared to 2019	
	(10 ³ Sm ³)	(10 ³ Sm ³)	(10 ³ Sm ³)	%
On land	85.7*	73.7	-12.0	-14.0
At sea	85.0*	72.1	-12.9	-15.2
Total	170.7	145.8	-24.9	-14.6

* Corrections compared to 2019

3.1 Natural gas production on land in 2020

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 2020, per licence (in million Nm³)

Licence *	Operator	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
Alkmaar	TAQA	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	1.7	1.4	1.3	1.2	1.3	0.9	1.1	1.5	1.2	1.2	1.2	1.1	14.9
Beijerland	NAM	1.4	1.6	1.2	0.4	1.1	0.9	0.2	0.0	0.3	0.0	0.0	0.0	7.2
Bergen II	TAQA	2.1	2.9	4.2	3.8	3.6	1.0	3.4	3.9	3.5	3.4	3.3	3.5	38.6
Botlek III	NAM	18.6	18.2	15.3	10.6	12.0	11.2	9.4	3.7	15.4	9.6	18.1	17.1	159.3
Botlek-Maas	ONE-Dyas	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	n.a.	n.a.	n.a.	n.a.	0.0
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	14.9	13.4	16.1	15.8	14.9	16.0	16.6	15.5	14.6	12.7	11.9	15.9	178.4
Drenthe IV	Vermilion	0.5	0.5	0.4	0.4	0.4	0.3	0.2	0.0	0.0	0.0	0.0	0.7	3.3
Drenthe V	Vermilion	1.4	2.0	2.1	1.5	0.8	1.1	1.1	1.3	1.1	1.2	1.2	1.0	15.8
Drenthe VI	Vermilion	29.4	26.3	27.9	26.2	26.4	24.4	25.4	24.6	23.6	24.0	22.4	23.3	303.9

Licence *	Operator	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
Gorredijk	Vermilion	1.5	0.8	0.7	0.7	0.8	0.7	2.4	2.4	2.1	2.3	2.1	2.0	18.4
Groningen	NAM	1,206.3	934.1	671.9	850.9	1,208.4	519.1	280.7	174.7	439.4	804.1	653.5	889.1	8,632.3
Hardenberg	NAM	2.8	2.3	2.8	2.3	1.7	2.2	2.1	2.2	2.2	2.1	1.9	1.9	26.5
Leeuwarden	Vermilion	3.8	3.3	3.8	3.4	4.4	3.1	4.1	3.9	3.7	4.0	3.4	3.4	44.5
Middelie	NAM	28.4	27.3	27.3	24.8	24.9	12.2	26.2	22.7	22.1	27.4	25.3	25.9	294.4
Noord-Friesland	NAM	121.3	113.2	127.5	123.5	121.7	121.8	136.2	115.0	49.6	113.7	127.5	141.0	1,412.2
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	10.0	12.6	13.6	13.6	10.6	3.5	11.3	7.9	6.8	3.7	4.4	7.3	105.3
Schoonebeek	NAM	35.4	29.9	33.7	29.5	21.5	30.0	34.9	37.2	32.1	33.1	32.1	34.7	384.1
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	12.4	11.4	11.6	13.2	16.3	14.8	14.9	14.1	13.3	13.4	12.1	12.3	159.9
Tietjerksteradeel II	Vermilion	6.7	6.3	6.9	7.1	6.7	7.5	6.7	6.8	6.7	6.7	5.9	5.9	80.0
Tietjerksteradeel III	NAM	3.8	4.4	4.6	4.4	4.1	4.3	5.0	4.8	4.7	3.4	3.9	4.5	52.0
Waalwijk	Vermilion	2.1	1.7	2.2	1.6	1.8	1.9	1.4	0.9	1.1	1.5	1.1	1.4	18.6
Zuidwal	Vermilion	0.8	1.6	0.7	0.1	1.3	1.7	1.7	1.7	1.5	1.3	0.8	0.7	13.8
Total		1,505.1	1,215.3	976.0	1,135.0	1,484.8	778.7	585.2	444.7	645.0	1,068.8	932.2	1,192.8	11,963.5

* Co-produced gas from production licences for geothermal energy is excluded

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, but less strong (-2.1 %).

The Rotliegend and Triassic reservoirs are not included in Figure 3.2, to emphasise the contribution of the natural gas production of the Cretaceous, Zechstein and Carboniferous reservoirs. Note that there is no production from any Jurassic reservoir onshore. The production from the largest groups of reservoirs generally show a downward trend, except for the period between 2012 to about 2016 when production remained stable. The increase in production in the Rotliegend/Zechstein group of reservoirs in 2016 was caused by an increase in production from the field Middelie from 29 to 161 million Nm³ and the reclassification of the Slootdorp field due to the start of production from the Rotliegend (in the past, production was allocated only to the Zechstein reservoir). Since 2017, natural gas production again shows a rapid continuous decline due to the advanced degree of pressure depletion of many of the existing fields.

An increase in production from the Zechstein, Carboniferous/Zechstein and Carboniferous/Zechstein/Triassic reservoirs reverses the downward trend in 2020.



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

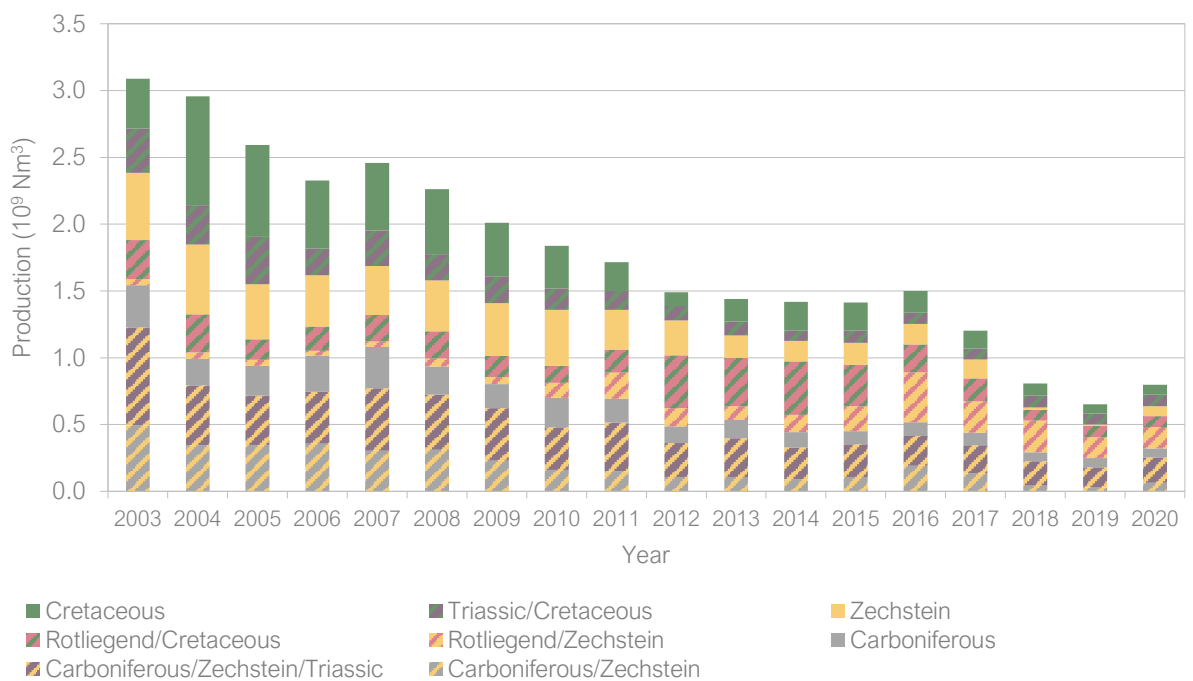


Figure 3.2 Gas production on land, per reservoir (excluding gas field Groningen, Rotliegend and Triassic reservoirs).

3.2 Natural gas production at sea in 2020

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 2020 (in million Nm³)

Licence	Operator	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
A12a	Petrogas	27.4	25.5	25.9	24.3	24.5	23.5	22.4	22.0	14.3	20.3	21.8	12.7	264.7
A18a	Petrogas	56.9	54.5	57.8	55.1	55.4	53.8	54.2	50.8	30.9	47.0	51.0	29.0	596.4
B10c & B13a	Petrogas	17.3	15.6	14.3	12.8	13.1	12.4	12.9	13.2	8.3	12.4	11.2	10.2	153.7
D12a	Wintershall	1.7	15.5	32.8	30.1	15.5	56.2	65.3	56.3	51.1	50.0	64.2	70.5	509.2
D15a & D15b	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	0.7	1.3	1.0	1.0	0.7	1.5	0.8	1.2	0.0	0.0	0.0	0.0	8.2
E17a & E17b	Neptune	60.6	53.3	62.8	57.1	54.4	51.3	32.9	34.5	36.8	45.8	40.6	40.5	570.6
F02a	Dana	1.4	1.3	1.5	1.4	1.3	1.3	1.5	1.4	0.2	1.5	1.5	1.3	15.5
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	14.4	14.2	14.9	9.8	14.9	8.3	11.8	14.0	11.3	0.2	11.3	12.9	137.9
F15a	Total	8.1	11.0	12.1	10.3	7.4	3.0	2.3	2.5	3.5	12.3	13.1	12.0	97.6
F16a & F16b	Wintershall	6.2	5.7	6.0	5.8	5.1	5.8	0.0	0.0	0.0	0.0	0.0	0.0	34.6
G14 & G17b	Neptune	25.8	10.5	6.3	27.1	1.9	0.1	9.9	24.1	22.6	21.4	22.8	23.3	195.8
G16a	Neptune	19.5	7.2	4.3	24.8	25.7	1.6	9.2	26.2	22.7	21.5	22.0	22.3	207.1
G17c & G17d	Neptune	7.8	2.7	0.9	6.6	7.2	0.5	2.1	6.9	6.8	6.4	7.0	7.2	62.1
J03b & J06a	Spirit	6.5	7.4	6.6	6.4	5.8	5.2	7.2	5.8	1.2	0.3	5.5	6.8	64.6
K01a	Total	14.7	14.5	15.3	15.2	14.8	13.0	2.9	10.5	2.0	0.0	11.9	12.8	127.6
K02b	Neptune	13.5	12.1	12.6	10.0	11.1	7.1	10.9	6.9	6.4	10.3	11.5	11.0	123.5
K04a	Total	28.0	26.3	28.1	26.4	29.5	29.9	26.2	29.4	13.2	28.0	28.7	28.9	322.5
K04b & K05a	Total	56.1	52.8	55.5	52.6	54.7	52.2	45.1	49.3	23.7	53.4	52.0	53.2	600.5
K05b & K05c	Total	4.7	4.3	4.4	4.3	4.5	4.1	4.6	2.8	2.4	4.2	4.5	4.8	49.6
K06a, K06b, L07a, L07b & L07c	Total	23.7	18.9	20.9	21.6	16.0	22.3	20.4	18.8	19.7	18.1	19.1	20.4	240.0
K07	NAM	7.3	8.3	6.2	7.6	6.8	6.7	2.7	5.2	1.7	3.6	3.6	5.2	64.9
K08 & K11a	NAM	27.8	23.7	23.2	22.5	22.3	18.5	5.1	19.0	12.8	23.8	23.0	21.8	243.5
K09a & K09b	Neptune	0.0	1.1	2.0	1.4	1.7	0.1	0.0	0.1	0.0	0.3	1.2	0.0	7.8
K09c & K09d	Neptune	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	1.6	1.3	1.2	5.4
K12a	Neptune	29.1	22.7	6.9	29.0	28.3	25.6	39.7	26.6	27.8	39.7	33.9	40.3	349.7
K14a	NAM	7.4	7.9	6.2	3.4	3.8	3.7	1.6	1.6	1.2	1.8	2.5	1.5	42.7

Licence	Operator	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
K15	NAM	40.1	38.2	40.0	45.4	44.1	36.6	34.9	34.5	28.9	34.6	40.5	43.7	461.6
K17a	NAM	6.1	5.2	4.4	5.3	5.2	4.4	4.1	4.5	1.9	5.3	6.1	7.2	59.8
K18b	Wintershall	21.7	20.0	21.1	21.4	20.0	18.0	22.3	18.5	3.3	18.2	19.6	6.0	210.0
L02	NAM	24.7	22.8	24.0	23.1	24.9	22.7	19.2	22.1	21.9	19.4	21.2	20.8	266.9
L04a & L04b	Total	17.2	13.7	15.6	12.6	12.7	14.7	16.5	15.3	14.7	14.2	13.3	13.8	174.4
L05a	Neptune	23.6	16.5	16.2	34.3	54.0	44.8	7.5	35.4	31.3	44.6	34.4	25.4	368.0
L05b	Wintershall	5.1	2.4	7.3	6.8	7.6	7.0	6.8	6.8	5.9	3.0	5.8	5.2	69.7
L06a	Wintershall	6.1	5.7	4.9	5.2	5.5	5.0	5.2	4.8	4.6	2.9	4.7	4.2	58.7
L08b, L08d & L08e	Wintershall	6.3	6.0	7.3	7.3	7.3	7.0	7.2	6.9	7.0	3.7	7.0	6.1	79.2
L09	NAM	24.2	20.7	23.7	22.8	24.4	21.7	22.1	23.1	20.4	27.2	28.4	31.3	290.3
L10 & L11a	Neptune	23.7	18.6	3.6	17.8	18.4	12.0	19.2	14.5	12.0	20.3	15.0	19.7	194.7
L11b	ONE-Dyas	9.4	15.1	23.9	15.8	11.5	1.7	0.0	0.0	0.0	1.3	22.3	20.2	121.4
L12b & L15b	Neptune	22.7	20.7	19.7	20.0	20.7	19.7	20.3	18.4	18.6	15.8	12.1	19.4	228.2
L13	NAM	28.4	23.9	25.3	22.0	26.0	32.2	26.3	25.4	5.6	32.0	27.7	29.3	304.0
M07a	ONE-Dyas	14.9	13.3	14.3	13.4	13.4	13.2	12.6	12.4	7.9	11.5	13.1	12.2	151.9
P06a	Wintershall	8.0	7.5	8.1	7.8	7.7	7.6	7.1	7.7	7.1	7.3	6.3	7.4	89.8
P09a, P09b & P09d	Petrogas	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
P09c, P09e & P09f	Petrogas	0.2	0.1	0.1	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	1.6
P11a	ONE-Dyas	4.9	3.6	3.1	2.5	0.2	0.0	0.0	0.0	-	-	-	-	14.3
P11b	Dana	16.7	15.5	15.4	8.6	5.3	5.2	4.5	7.6	0.9	0.8	1.3	1.0	82.9
P15a, P15b, P15d, P15e & P15f	TAQA	2.9	1.7	1.3	0.8	1.9	0.8	1.1	1.2	0.0	0.1	1.0	0.8	13.7
P15c, P15g, P15h, P15i & P15j	TAQA	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	10.3	12.1	13.1	9.9	6.1	5.8	5.4	7.0	0.0	3.3	8.1	7.0	88.3
Q01a-ondiep & Q01b-ondiep	Petrogas	0.2	0.1	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	2.1
Q01c-diep	Wintershall	19.3	15.0	18.7	13.5	15.4	14.6	18.1	16.8	14.9	17.1	14.8	15.0	193.3
Q04a	Wintershall	15.0	13.1	15.3	14.1	12.6	13.1	14.4	14.0	12.9	14.8	13.8	14.4	167.5
Q07 & Q10a	Tulip	70.5	61.4	55.7	53.8	29.9	29.4	25.4	30.4	0.0	32.0	52.5	57.4	498.5
Q13a	Neptune	1.3	1.2	1.1	1.0	0.5	0.6	0.6	0.7	0.0	0.2	0.8	0.9	8.9
Q16a	ONE-Dyas	5.0	1.6	1.1	0.0	1.3	2.6	2.9	3.7	0.0	1.8	4.1	4.6	28.9
Q16c-diep	ONE-Dyas	-	-	-	-	-	-	-	-	8.1	0.0	5.7	0.0	13.8
Total		895.3	794.3	813.3	852.1	803.6	748.3	695.8	761.3	550.2	755.5	845.0	823.4	9,338.3

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 Trias 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 3.4 does not include the contributions from the Rotliegend and Trias reservoirs, making the contributions from other reservoirs to the total gas production more visible. Over the period 2005 - 2007, the contribution from fields with combined Carboniferous/Rotliegend reservoir almost tripled. However, since 2008 production from this reservoir has gradually decreased again. Notable is the start of production from the so-called "shallow gas" (Tertiary) deposits in the northern offshore area in 2008. Their natural gas production still remains reasonably stable thanks to the production start of field B13-A in 2015. The production start of Q10-A (Rotliegend/Zechstein) in 2019 and D12-B (Carboniferous) in 2020 have reversed the downward trend over the period 2016 to 2018.

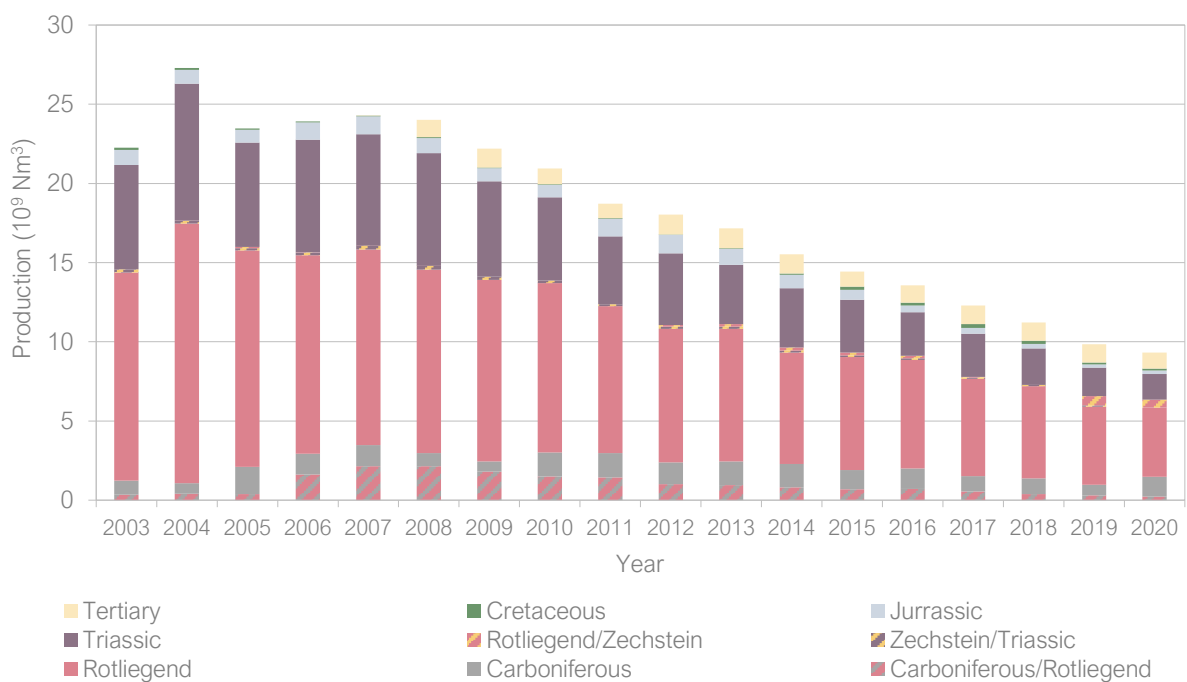


Figure 3.3 Gas production at sea, per reservoir.

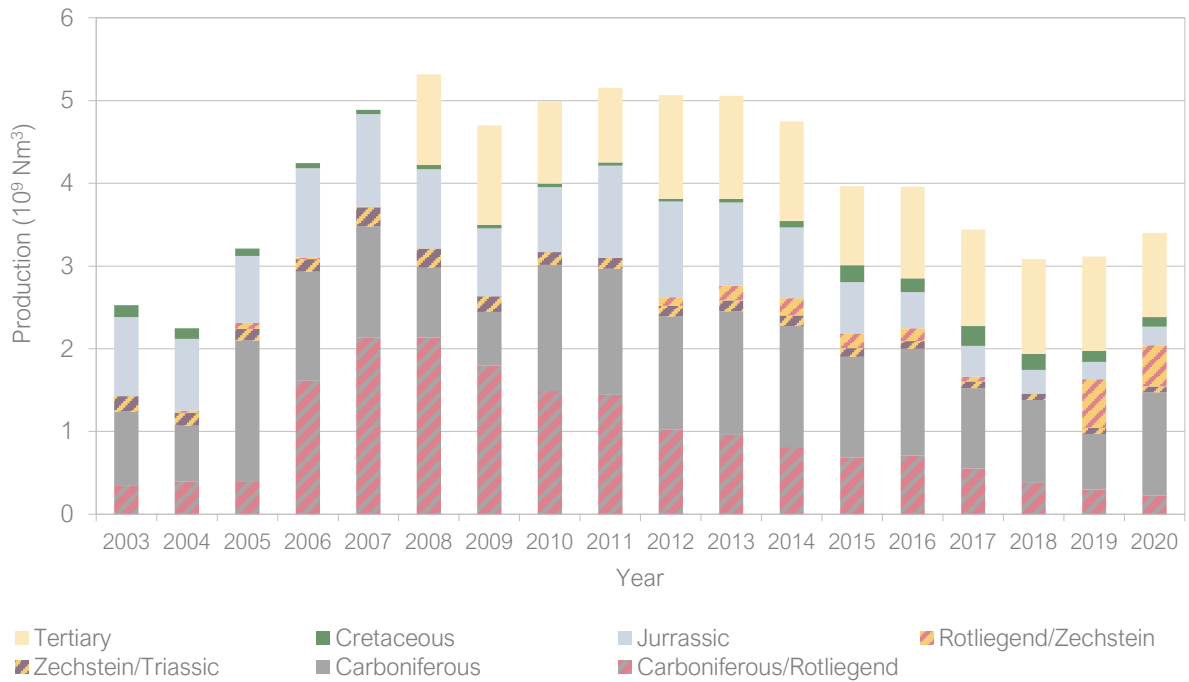


Figure 3.4 Gas production at sea, per reservoir (excluding Rotliegend and Trias reservoirs).

3.3 Oil and condensate production in 2020

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 2020, per licence (in 1000 Sm³)

Licence *	Operator	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
Rijswijk	NAM	3.1	9.1	4.3	6.2	7.3	7.2	6.6	4.8	7.9	7.6	8.8	12.6	85.5
Schoonebeek	NAM	23.9	19.4	25.1	20.8	22.5	21.7	26.6	28.2	34.0	33.1	34.4	36.6	326.5
F02a	Dana	11.9	11.2	11.7	11.0	10.2	9.6	11.1	9.8	1.4	12.1	12.3	11.5	123.8
F03b	Neptune	3.7	3.6	3.8	2.4	3.7	2.0	2.9	3.4	3.4	0.0	2.8	3.0	34.7
P09c, P09e & P09f	Petrogas	0.9	0.9	0.9	3.3	2.1	1.7	1.6	1.7	1.5	1.5	1.5	1.5	19.0
P11b	Dana	6.9	6.5	6.7	6.3	6.5	5.8	6.2	6.4	5.5	4.2	6.0	2.8	70.0
P15a, P15b, P15d, P15e & P15f	TAQA	4.1	3.9	4.4	4.1	3.7	3.5	3.5	3.3	0.0	1.4	3.7	2.8	38.7
Q01a-ondiep & Q01b-ondiep	Petrogas	5.2	4.7	4.4	4.7	4.5	4.4	4.6	4.4	4.4	4.0	3.6	3.4	52.2
Q13a	Neptune	17.1	15.0	14.4	13.7	7.0	8.4	10.2	10.1	0.0	3.4	10.0	11.2	120.5
Q16c-diep	ONE-Dyas	-	-	-	-	-	-	-	-	5.4	0.0	2.4	0.7	8.6
Total		76.9	74.3	75.8	72.5	67.6	64.5	73.4	72.1	63.5	67.3	85.5	86.2	879.5

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

Table 3.9 Condensate* production in 2020, per licence (in 1000 Sm³)

Licence **	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
On land ***	8.6	7.8	7.8	6.5	5.5	5.4	6.1	4.7	5.4	4.3	5.8	5.8	73.7
At sea	7.8	6.8	7.4	6.3	6.5	5.5	4.9	6.0	3.1	5.0	6.3	6.4	72.1
Total	16.4	14.6	15.2	12.9	12.0	10.9	11.1	10.7	8.5	9.4	12.1	12.2	145.8

* 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 a particularly 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 (e.g. the space between sand grains) of depleted gas fields and in aquifers or in constructed cavities, such as caverns in rock salt or mine galleries in coal seams.

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

A storage licence is required to store substances in the subsurface 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 or the storage of substances into the subsurface is subject to a different legal regime than the Mining Act: for example, injecting nitrogen to prevent subsidence (De Wijk gas field) is part of the production plan. The injection of formation/process water as undesired co-produced substances reside under the environmental legislation.

In addition to the present storage facilities, the Dutch subsurface provides space for various new forms of sustainable energy storage. Future energy scenarios foresee an increasing demand for large-scale subsurface storages to buffer energy to match supply and demand. Energy carriers could be clean gasses obtained from electricity surplus from renewable sources or sustainable heat. The most concrete developments are hydrogen storage, compressed air storage (CAES), underground pumped accumulation (O-PAC) and high temperature heat storage (HT-ATES).

4.2 Overview licences

In 2020 there were no new applications for storage licences. As of January 1, 2021, nine storage licenses were in force. The storage licence P18-4 for CO₂ that has been granted is not yet in force. In 2020 the operator requested to postpone the start date to January 1, 2026.

An overview of all storage licenses can be found in Table 4.1, Overview I and Overview Q.

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 pressure in the Groningen field decreased over time the flexibility of the Groningen field gradually declined accordingly. In order to maintain sufficient flexibility to be able to balance the fluctuation in gas demand and thus guarantee the security of gas supply, four underground gas storage facilities have successively been put into operation since 1997.

The storage facilities of Norg and Grijpskerk have served as a buffer for the Dutch gas system to cope with seasonal fluctuations in demand since 1997. With increased demand, particularly in the winter, extra natural gas is supplied from Norg and Grijpskerk. The storage facilities in Alkmaar and in Zuidwending are primarily to accommodate peak demands of one or more days. Together with the Bergermeer storage facility, which is primarily aimed at trading gas and operates on the gas market on its own initiative, five natural gas storage facilities (UGS – Underground Gas Storage) 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	Nouryon Salt B.V.	Oil	Effective
Winschoten II	15-11-2010	Gasunie (GTS)	Nitrogen	Effective
Winschoten III	15-11-2010	Nouryon Salt B.V.	Nitrogen	Effective
Andijk	12-12-2019	PWN	Saline water	Effective
P18-4	20-07-2013	TAQA	Carbon dioxide	Awarded

Figure 4.1 shows the volume of natural gas discharged from the 5 underground storage facilities from 2003 to 2020. From 2015 the used capacity of the storage in Norg has risen sharply after the production and swing capacity of Groningen was reduced.

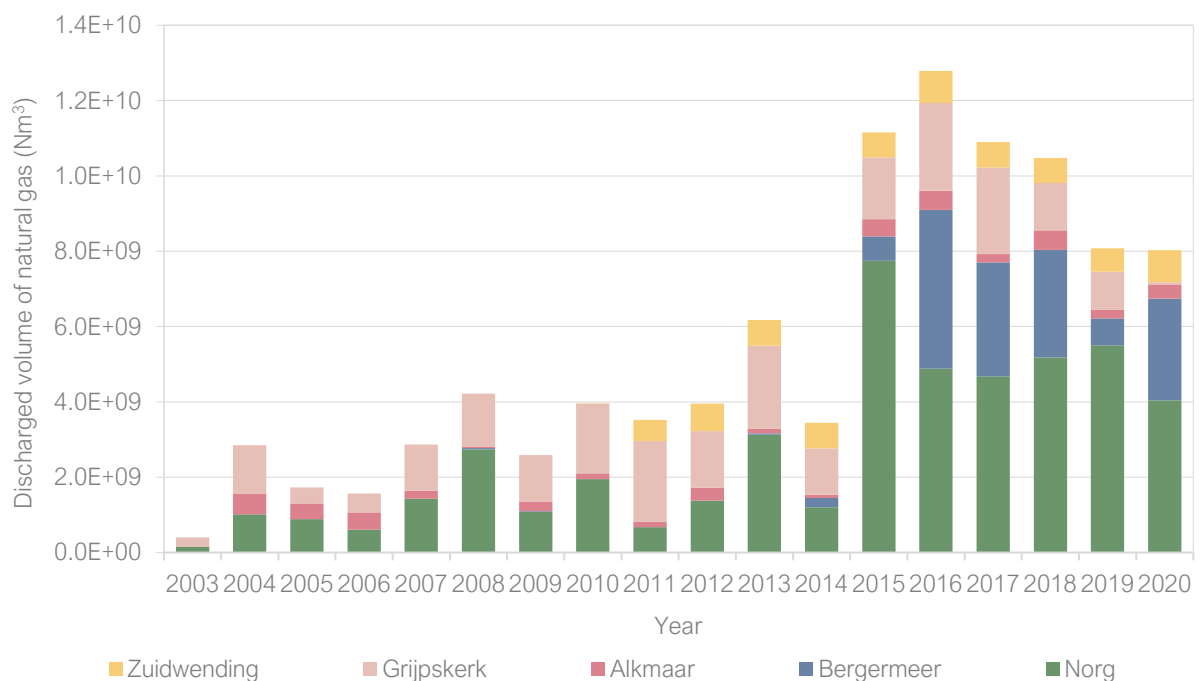


Figure 4.1 Discharged volume of natural gas per UGS from 2003 to 2020.

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

In the Netherlands, the subsurface is used for the storage of other substances as well. This concerns, for example, the salt caverns that are used for the storage of nitrogen and oil. 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.

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. A storage licence has already been granted for the depleted gas field P18-4, which is located just off the coast of South-Holland, but it is not yet in force. The licence for P18-2 is applied for in 2021.

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

Two previous licence applications, one for the storage of salt filter residue and one for filler in an abandoned salt cavern, were withdrawn in 2020.

4.3 Subsurface storage in 2020

The monthly quantities of natural gas and nitrogen that were stored in the subsurface and consequently discharged in 2020, are listed per licence in Table 4.2 to Table 4.5. The information has been provided by the license 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	479	0	0	0	103	131	14	116	114	0	0	0	0
Bergermeer	TAQA	1,939	0	5	6	338	397	465	90	26	300	229	83	0
Grijpskerk	NAM	280	0	0	0	0	0	0	0	0	280	0	0	0
Norg	NAM	4,831	0	0	0	581	938	848	872	814	778	0	0	0
Zuidwending	Gasunie	933	16	32	62	118	59	72	69	87	124	112	101	83
Total		8,462	16	37	68	1,139	1,525	1,399	1,147	1,042	1,482	341	184	83

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	372	0	0	331	0	0	0	0	0	0	0	29	13
Bergermeer	TAQA	2,704	1	208	456	0	0	0	258	272	27	200	235	1,047
Grijpskerk	NAM	64	2	0	0	0	0	0	0	6	0	11	17	29
Norg	NAM	4,039	1,020	1,131	533	47	0	0	0	0	2	383	255	666
Zuidwending	Gasunie	845	109	128	44	23	61	46	43	60	84	77	84	85
Total		8,023	1,132	1,467	1,364	70	61	46	302	338	114	670	620	1,840

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	59.3	11.6	2.1	0.8	3.6	4.7	6.3	7.7	2.8	2.8	2.4	6.6	7.9

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	48.2	0.0	0.9	8.8	7.6	7.6	1.2	0.0	2.3	2.3	5.8	6.6	5.1

5. Geothermal Energy

5.1 Preface geothermal energy

In 2020 18 new applications for exploration licences for geothermal energy were filed. As at 1st of January 2021 a total of 31 geothermal energy exploration licences were in the process of application. In 2020 10 geothermal exploration licences were awarded and one application for an exploration licence was rejected. One exploration licence was split and one was spatially restricted. Two exploration licences were merged into one exploration licence. Further, for 11 geothermal exploration licences the licence period was extended and 5 licences were expired, withdrawn or relinquished. Three exploration licences have lapsed due to the granting of a production licence for geothermal energy. As at 1 January 2021 60 geothermal energy exploration licences were in force (see Figure 5.1).

In 2020 3 new applications for a production licence for geothermal energy were submitted. One of the four pre-2020 applications was withdrawn in 2020 and three production licences were awarded, resulting in a total of 3 standing applications. On the first of January 2021 25 geothermal production licences were in force (see Figure 5.1).

Changes in the licence position in 2020 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 of year 2020 the number of licence applications is presented as well.

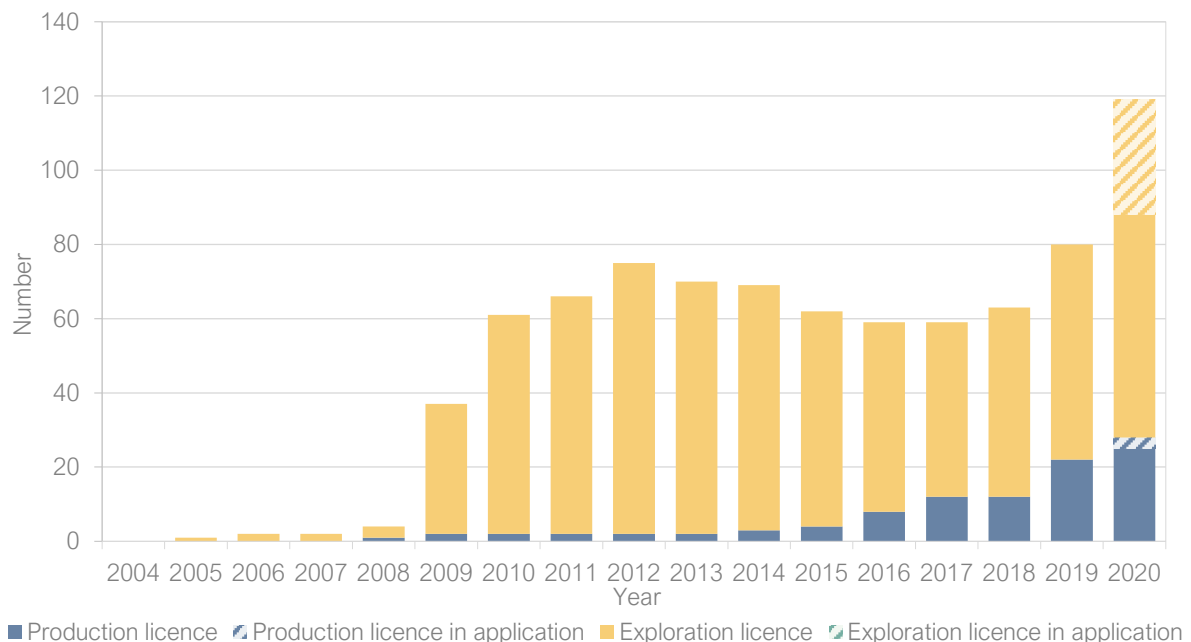


Figure 5.1 Number of licences for geothermal energy in force per year. For the year 2020 the number of applications is presented as well.

5.2 Geothermal wells and production installations as at 1 January 2021

In 2020 7 geothermal wells were completed (see Table 5.1 and Figure 5.2). These concern wells within the licences Oostvoorne, Naaldwijk II and Luttelgeest II. Realising these wells increased the number of geothermal production installations in the Netherlands by three.

As at 1 January 2021 there were a total of 28 geothermal production installations, 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 27 geothermal installations (will) produce heat from the deep subsurface. In general, these installations are named doublets as they consist of two wells. One well produces warm water from the aquifer and after extracting the heat, the second well injects the cooled water back down into the same aquifer. Twenty of these 27 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 2021). At the end of 2020 all not yet producing operators owned a formal production licence or had applied for one.

Table 5.1 Geothermal wells completed in 2020.

	Name of well	Geothermal energy licence	Operator
1	LTG-GT-04	Luttelgeest II	Aardwarmte Combinatie Luttelgeest B.V.
2	LTG-GT-05	Luttelgeest II	Aardwarmte Combinatie Luttelgeest B.V.
3	LTG-GT-06	Luttelgeest II	Aardwarmte Combinatie Luttelgeest B.V.
4	TNT-GT-01	Oostvoorne	Hydreco Geomec B.V.
5	TNT-GT-02	Oostvoorne	Hydreco Geomec B.V.
6	NLW-GT-03	Naaldwijk II	Trias Westland B.V.
7	NLW-GT-04	Naaldwijk II	Trias Westland B.V.

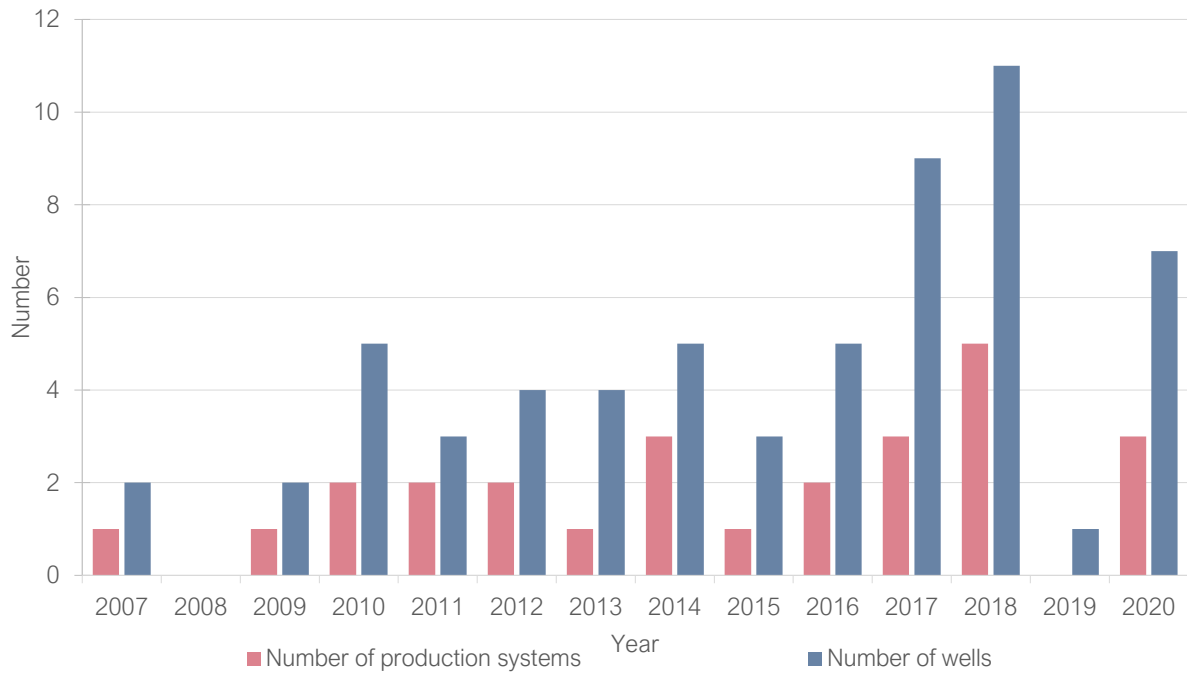
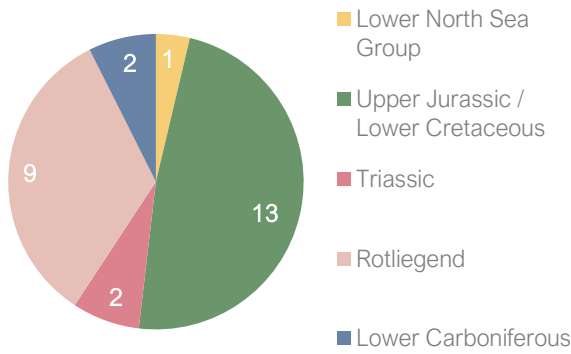


Figure 5.2 Number of geothermal wells completed (side-tracks excluded) per calendar year and number of installations completed since 2007.

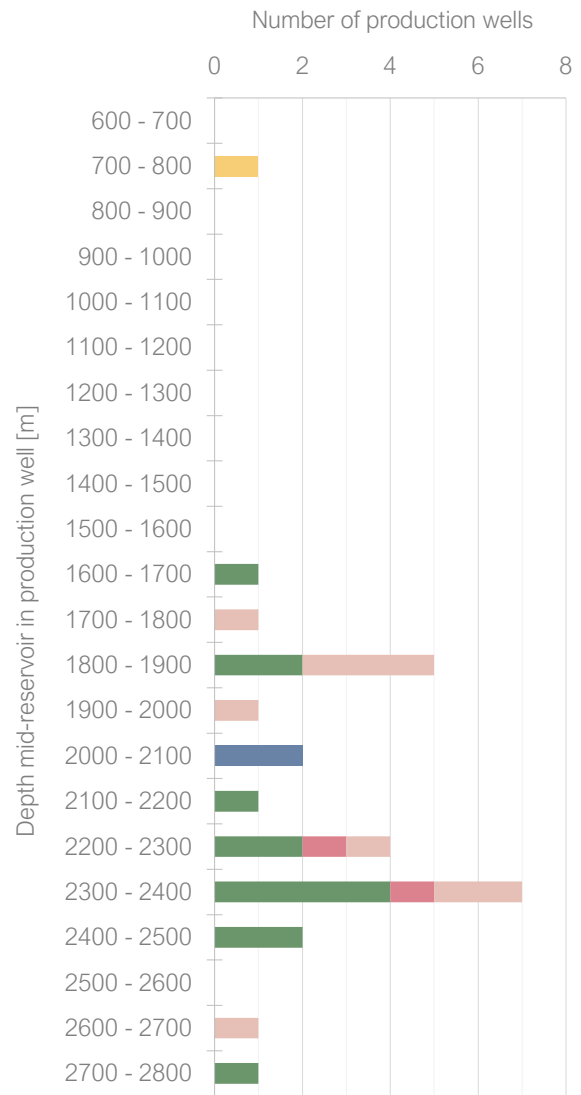
The heat is produced from depth intervals between 700 and 2800 meter and from various geological units (Figure 5.3a and b). The depth of the mid of the producing zone is displayed in Figure 5.3 b. Most of the geothermal energy is produced from rocks from the Upper-Jurassic and Lower-Cretaceous strata in the southwest of the Netherlands. Two installations in the southwest of the Netherlands produce from strata of Triassic age. The eight 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. One project also supplies heat to a public utility facility and several buildings. Another project will 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

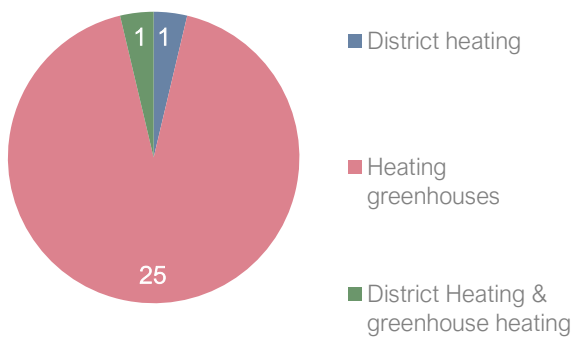


Figure 5.3. a) Stratigraphy of the productive interval, b) Depth to mid of aquifer, c) Uses of the heat produced.

5.3 Production of geothermal energy in 2020

Of the 27 geothermal installations (Mijnwater Energiecentrale Heerlen excluded) 20 were operational in 2020 (Table 5.2). This is one less than in 2019 because one system is temporarily closed in the course of 2019 and did not re-start in 2020. The operational installations have submitted the obligatory monthly production figures. Of the 7 remaining non-operational installations 2 were temporarily closed in and 3 were in the start-up phase. The other 2 non-operational geothermal energy production installations were shut down in 2018 as a consequence of agreements and safety policy in force. Further research into induced seismicity has to show whether future production of these two geothermal installations can continue or can be utilised for other purposes within the set safety standards.

Table 5.2 Geothermal installations.

	Name geothermal energy installation	Wells	Geothermal energy licence	Operational in 2020
1	Californië Geothermie	CAL-GT-1,2&3	Californië IV	No, shut down in May-18
2	De Lier Geothermie	LIR-GT-1&2	De Lier	Yes
3	Honselersdijk Geothermie	HON-GT-1&2	Honselersdijk	Yes
4	Installation Berkel en Rodenrijs	VDB-GT-3&4	Bleiswijk-1b	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, shut down in aug-18
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	Naaldwijk	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
28	-	NLW-GT-3&4	Naaldwijk II	No

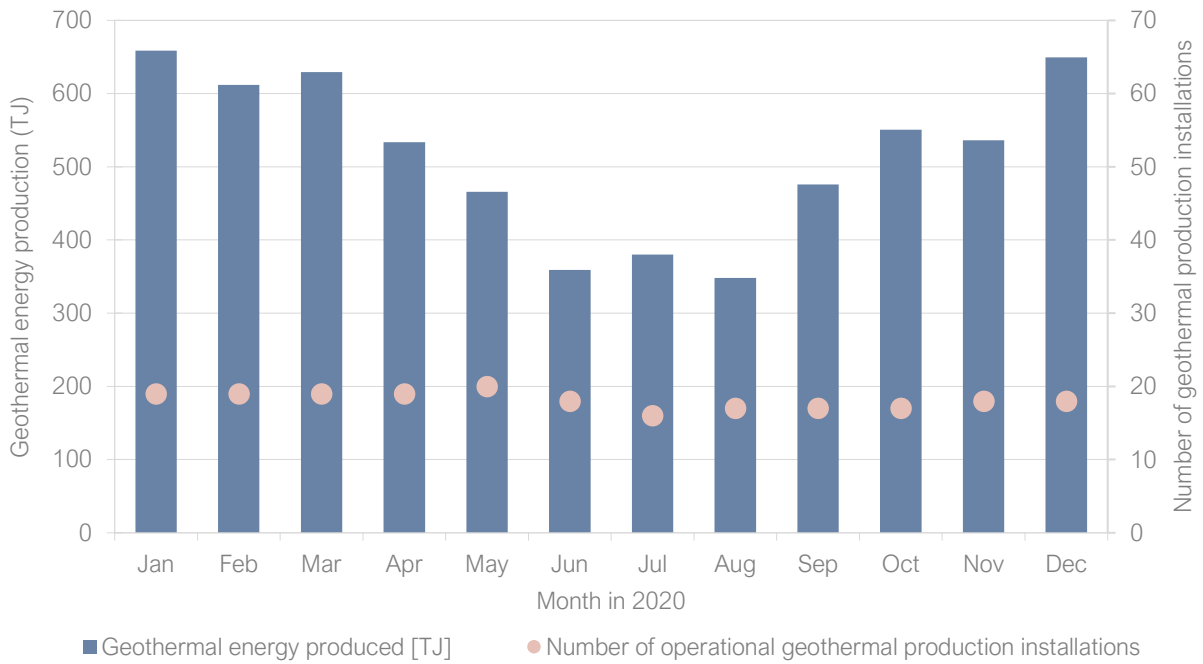


Figure 5.4 Monthly production of geothermal energy in terajoules and the number of geothermal energy production installations contributing to the reported production (Mijnwater Energiecentrale Heerlen excluded).

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 6.20 PJ (1 PJ = 10^{15} J) in 2020 (Figure 5.5).

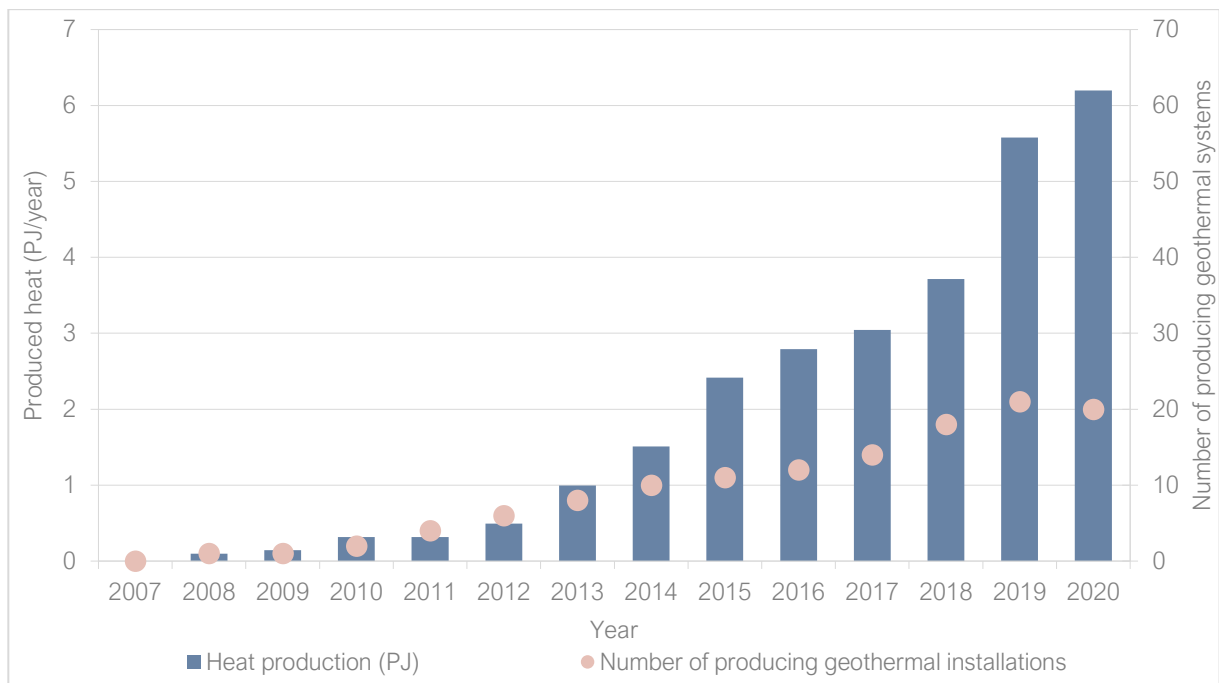


Figure 5.5 Annual production of geothermal energy (PJ/year) and number of operating geothermal systems.

Small amounts of natural gas are co-produced with the geothermal energy (Figure 5.6). Under subsurface reservoir conditions (elevated pressure and temperature) the 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 5.3 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.

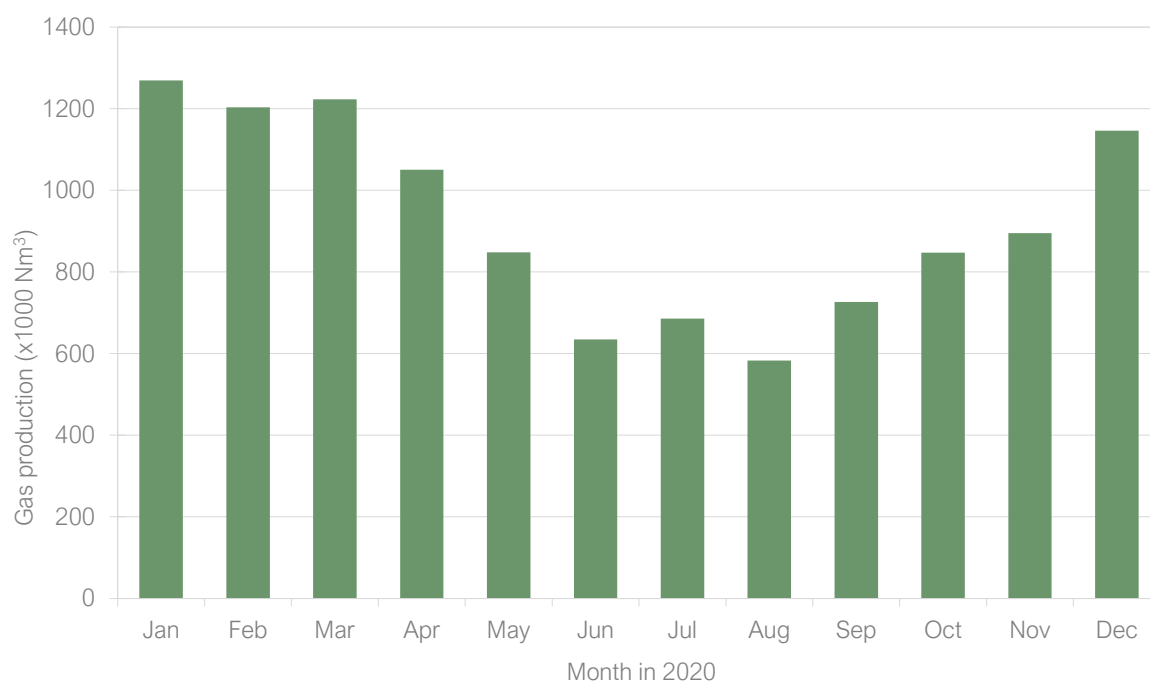


Figure 5.6 Volumes of hydrocarbons co-produced with geothermal energy. Gas in 1000 Nm³.

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

Year	Produced geothermal energy (TJ)	Co-produced gas (x1000 Nm ³)	Co-produced oil (Sm ³)
2008	* 96	-	-
2009	* 142	-	-
2010	* 318	-	-
2011	* 316	-	-
2012	* 495	-	-
2013	* 993	-	-
2014	1,509	3,267	429
2015	2,417	4,378	186
2016	** 2,792	7,670	130
2017	3,042	8,100	31
2018	3,714	10,676	0
2019	5,578	12,772	0
2020	6,199	11,115	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.

6. Salt

On 1 January 2021 sixteen production and no exploration licences were in force. In 2020 no new licence applications were submitted. However, one application for a production licence from a previous year is still pending (see Figure 6.2). A complete list of all production licences is to be found in Annex M.

The licence areas for rock salt are all located in the north and east of the country because in this area salts from Zechstein and Triassic age are present in the underground.

In 2020 eight salt production wells were drilled. One well was drilled by Frisia in the production licence Havenmond. Seven wells were drilled by Nouryon in the western part of the production area Ganzebos (production licence Twente-Rijn). See table below and Figure 6.2.

Salt production wells drilled in 2020

	Name of well	Licence	Operator	Function
1	Havenmond-02	Havenmond	Frisia Zout B.V.	Production
2	Twente-Rijn-548	Twente-Rijn	Nouryon Salt B.V.	Production
3	Twente-Rijn-552	Twente-Rijn	Nouryon Salt B.V.	Production
4	Twente-Rijn-553	Twente-Rijn	Nouryon Salt B.V.	Production
5	Twente-Rijn-554	Twente-Rijn	Nouryon Salt B.V.	Production
6	Twente-Rijn-555	Twente-Rijn	Nouryon Salt B.V.	Production
7	Twente-Rijn-556	Twente-Rijn	Nouryon Salt B.V.	Production
8	Twente-Rijn-557	Twente-Rijn	Nouryon Salt B.V.	Production

The table below shows the production data of salt per licence during 2020. Monthly production during 2020 varied between 391 and 544 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 2020 (in 1000 ton)

Licence	Operator	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Adolf van Nassau III	Nouryon	118	105	112	102	99	101	76	56	45	48	65	103	1,028
Barradeel	Frisia	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.1	0.1	0.0	0.0	1.5
Barradeel II	Frisia	15	14	9	8	5	3	8	18	8	23	24	21	156
Havenmond	Frisia	-	-	-	-	-	-	-	-	8	11	17	29	65
Twente-Rijn	Nouryon	158	156	168	152	149	149	161	139	123	135	140	157	1,787
Tw-Rijn Helmerzijde	Nouryon	20	18	17	10	14	17	18	14	8	11	11	12	168
Tw-Rijn Oude Maten	Nouryon	20	15	18	18	23	17	0	0	0	12	3	11	137
Uitbreiding AvN III	Nouryon	150	134	129	124	132	136	139	121	140	117	120	130	1,572
Uitbreiding Tw-Rijn	Nouryon	41	35	43	33	45	45	48	46	41	58	62	54	551
Veendam	Nedmag	23	21	22	21	21	20	21	20	19	20	20	20	246
	Total	544	498	518	467	487	486	470	413	391	434	460	533	5,701

Figure 6.1 shows the production of rock salt from 2007 to 2020. During this period, the salt production is constant, on average between 6 and 7 million tons per year. Just like in 2019 total salt production in 2020 is slightly below 6 million tons. This is mainly because production from the Barradeel production licences has decreased compared to previous years. Frisia finished drilling the first well for the production licence Havenmond in 2020 and started with production in September.

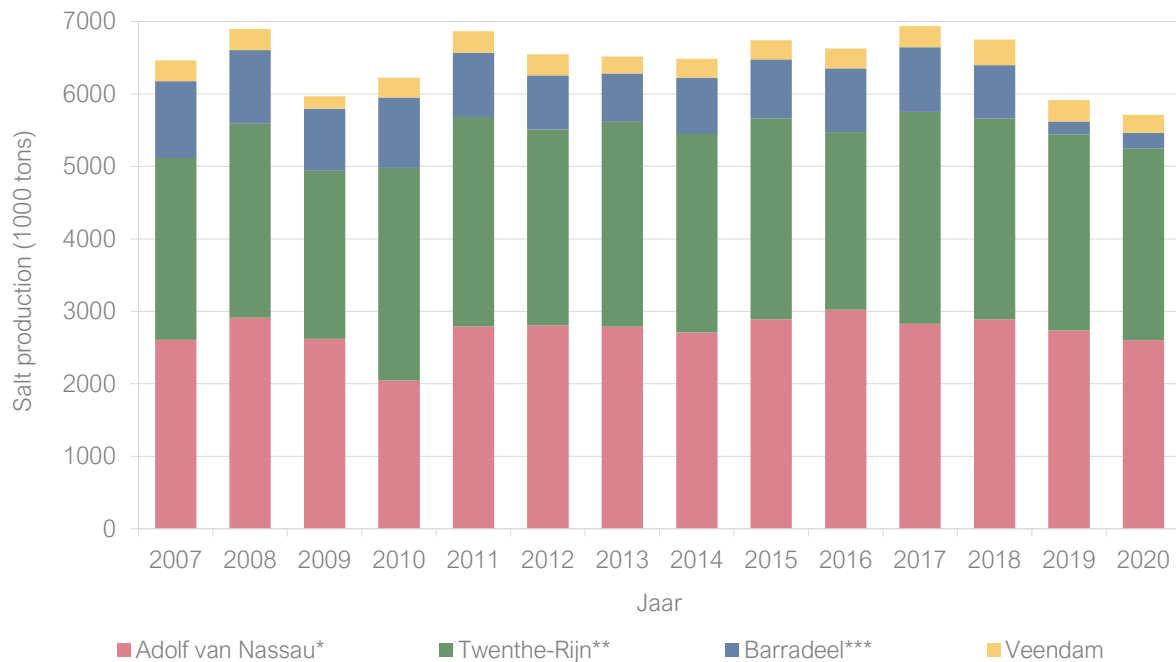


Figure 6.1 Salt production 2007 – 2020, the production data is based on information supplied by the operators.

* Including Adolf van Nassau III.

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

*** Including Uitbreiding Barradeel II and Havenmond.

Storage caverns 'Aardgasbuffer Zuidwending'

Since 2007 Nouryon (former Akzo Nobel) 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. In the period from 2007 to 2020 a total of approximately 39 million m³ brine has been produced from these caverns. After development by Nouryon the caverns are handed over to the storage licence Zuidwending owned by EnergyStock. For more information about storage see Chapter 4.

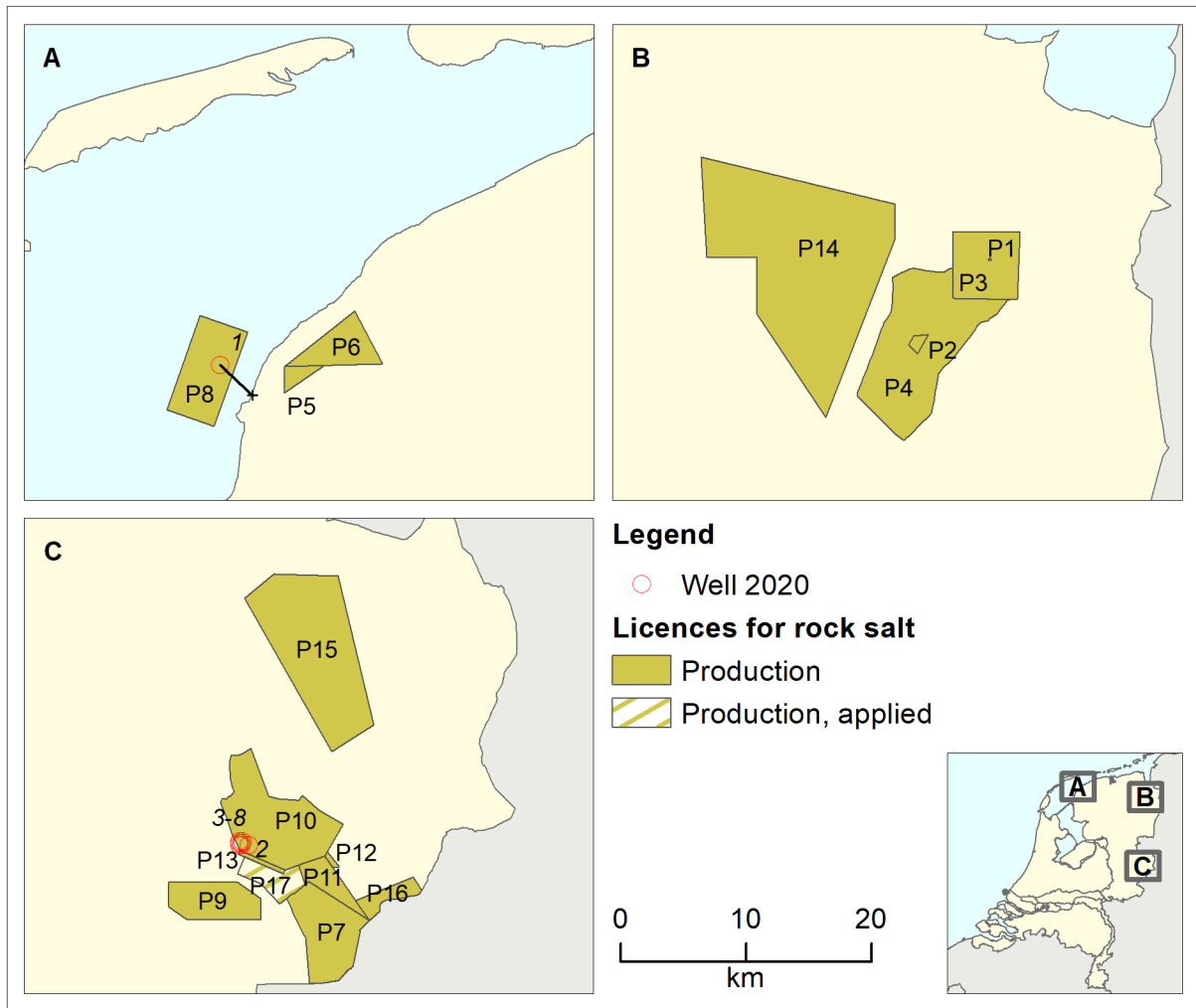


Figure 6.2 Licence for salt production as at 1 January 2021.

Names of salt production licences on land, as indicated on the map in Figure 6.2.

Production licence for 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 salt			
P17	Twenthe-Rijn Welen Mos		

7. Coal

As at 1 January 2021 there were five production licences for coal in force. In 2020 there were no mining activities in the licence areas.

Production licences as at 1 January 2021, 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

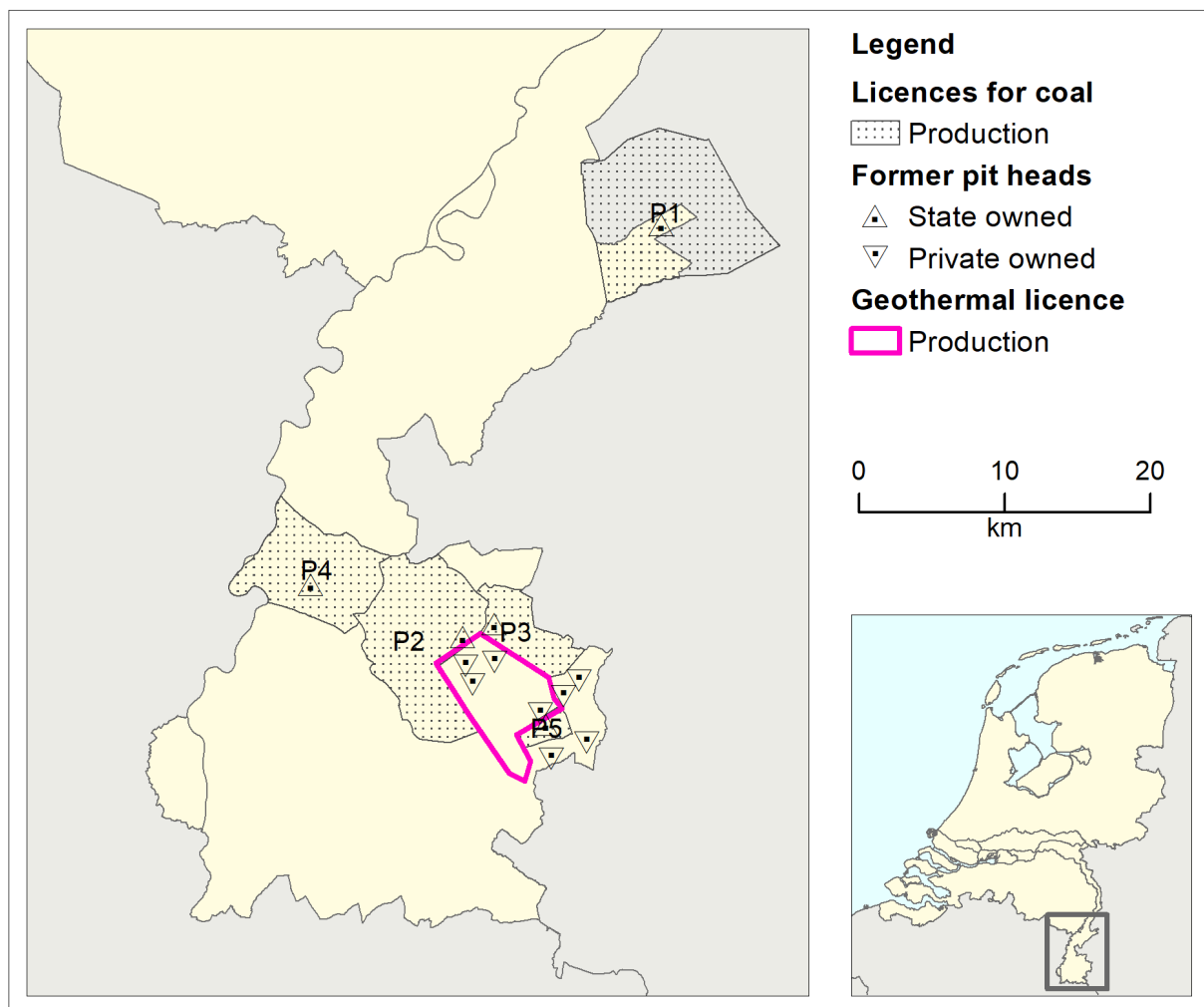


Figure 7.1 Licences for coal as at 1 January 2021.

8. Licences, changes in 2020, land

Changes in the onshore licences for hydrocarbon exploration and production, which took place during 2020, are listed in the tables below. This also includes all pending applications for permits.

8.1 Exploration licences hydrocarbons

Applied for

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

* Application ongoing, published in an earlier annual review.

Prolonged

Licence holder	Licence	Effective from	Effective till
Vermilion Energy Netherlands B.V.	Engelen	24-11-2018	In application
Vermilion Energy Netherlands B.V.	Oosterwolde	24-11-2018	In application
Vermilion Energy Netherlands B.V.	Utrecht	24-11-2018	In application

8.2 Production licences hydrocarbons

Applied for

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

* Application ongoing, published in an earlier annual review.

Reduced

Licence holder	Licence	Effective from	km ²
Vermilion Energy Netherlands B.V. cs	Andel Vb	30-12-2020	142
Vermilion Energy Netherlands B.V. cs	Pepekop	30-12-2020	35
Vermilion Energy Netherlands B.V.	Waalwijk	30-12-2020	101
Vermilion Energy Netherlands B.V.	Slootdorp	30-12-2020	120
Vermilion Energy Netherlands B.V.	Oosterend	30-12-2020	69

Licence holder	Licence	Effective from	km ²
Vermilion Energy Netherlands B.V.	Leeuwarden	30-12-2020	430

Area

Total area land	Under licence for hydrocarbons
42,203 km ²	16,633 km ² (39.4 %)

8.3 Subsurface storage licences

Applied for

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

* Application withdrawn as at 18 November 2020.

** Application withdrawn as at 10 November 2020.

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	E7	Oosterwolde
E2	Engelen	E8	Opmeer
E3	Follega	E9	Schagen
E4	Hemelum	E10	Terschelling-Noord
E5	IJsselmuiden	E11	Utrecht
E6	Lemsterland		
Exploration licence as applied for			
E12	Breda-Maas	E15	Slootdorp-Oost
E13	Brielle	E16	Waskemeer
E14	De Kempen		
Production licence			
P1	Akkrum 11	P21	Groningen
P2	Alkmaar	P22	Hardenberg
P3	Andel Va	P23	Leeuwarden
P4	Andel Vb	P24	Marknesse
P5	Beijerland	P25	Middelie
P6	Bergen II	P26	Noord-Friesland
P7	Bergermeer	P27	Oosterend
P8	Botlek III	P28	Papekop
P9	Botlek Maasmond	P29	Rijswijk
P10	Botlek-Maas	P30	Rossum-De Lutte
P11	De Marne	P31	Schoonebeek
P12	Donkerbroek	P32	Slootdorp
P13	Donkerbroek-West	P33	Steenwijk
P14	Drenthe IIa	P34	Tietjerksteradeel II
P15	Drenthe IIb	P35	Tietjerksteradeel III
P16	Drenthe IIIa	P36	Tubbergen
P17	Drenthe IV	P37	Twenthe
P18	Drenthe V	P38	Waalwijk
P19	Drenthe VI	P39	Zuid-Friesland III
P20	Gorredijk	P40	Zuidwal
Production licence as applied for			
P41	Akkrum	P42	Terschelling-Noord
Storage licence			
S1	Alkmaar	S5	Twenthe-Rijn De Marssteden
S2	Bergermeer	S6	Winschoten II
S3	Grijpskerk	S7	Winschoten III
S4	Norg	S8	Zuidwending

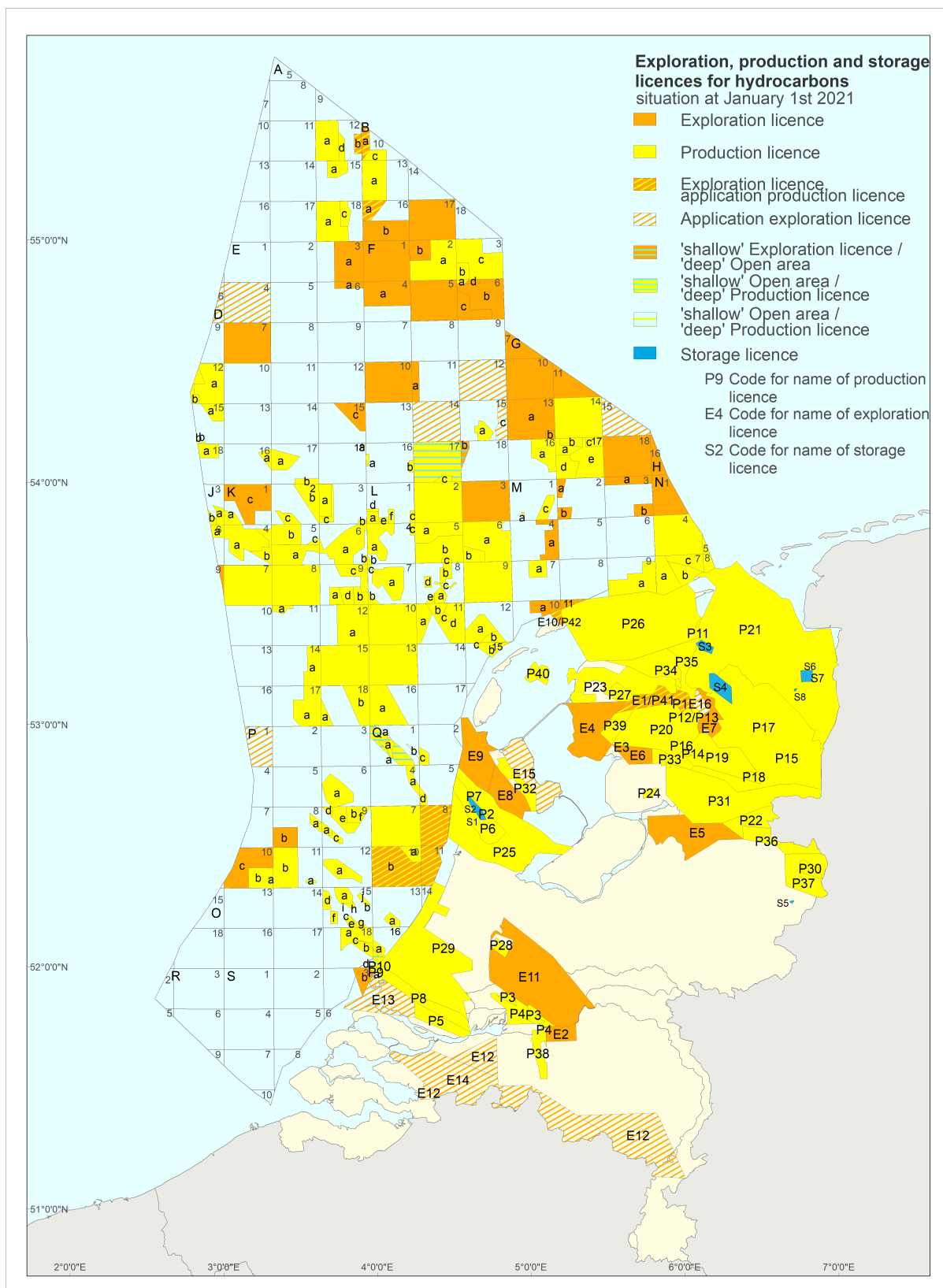


Figure 8.1 Exploration, production and storage licences for hydrocarbons as at 1 January 2021.

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.
Hoorn *	10 906	28-02-2018	30-05-2018	N.V. HVC
Noord-Holland Noord *	28 807	28-05-2018	27-08-2018	Vermilion Energy Netherlands B.V.
Friesland-Midden *	51 804	17-09-2018	17-12-2018	Vermilion Energy Netherlands B.V.
Rotterdam 7 *	54002-1	27-09-2018	27-12-2018	Shell Geothermal B.V., ENGIE Energy Solutions B.V.
Rotterdam Bar *	54 014	27-09-2018	27-12-2018	ENGIE Energy Solutions B.V., Shell Geothermal B.V.
Delft-Tanthon *	22 419	24-04-2019	24-07-2019	Stichting Buurtenergie Haaglanden, Energie Coöperatie Wateringse Veld U.A.
Rotterdam Prins Alexander *	27 117	16-05-2019	15-08-2019	ENGIE Energy Solutions B.V.
Zuidwesthoek *	31 919	12-06-2019	11-09-2019	Vermilion Energy Netherlands B.V.
Bommelerwaard 2 *	32 354	14-06-2019	13-09-2019	Hydreco Geomec B.V.
Nijmegen *	55 336	11-10-2019	10-01-2020	Tellus Nijmegen B.V.
Nissewaard *	56 437	17-10-2019	16-01-2020	Yeager Energy B.V.
Brakel-Zuidoost *	60 136	06-11-2019	05-02-2020	Visser & Smit Hanab B.V., ENGIE Energy Solutions B.V.
Zoetermeer	12 938	06-03-2020	05-06-2020	Wayland Energy B.V.
Terheijden 2	20 142	08-04-2020	08-07-2020	Hydreco GeoMEC B.V. & Izzy Projects B.V.
Leiden 2	24 796	07-05-2020	06-08-2020	Eavor Europe B.V.
Leiden 3	24 797	07-05-2020	06-08-2020	Wayland Energy B.V.
Klazienaveen 2	24 939	08-05-2020	07-08-2020	Aardwarmte Klazienaveen B.V.
Rijnland	28 039	27-05-2020	26-08-2020	D4 B.V. & Shell Geothermal B.V.
Purmerend 2	33 128	24-06-2020	23-09-2020	Eavor Europe B.V.
Almere	33 131	24-06-2020	23-09-2020	Eavor Europe B.V.
Wellerlooi	35 799	07-07-2020	06-10-2020	ENGIE Energy Solutions B.V.
Gooi en Vechtstreek	41 195	04-08-2020	03-11-2020	Larderel Energy B.V.
Oude Rijn 1	44 135	25-08-2020	24-11-2020	Yeager Energy B.V.
Purmerend 3	51 106	05-10-2020	04-01-2021	
Eindhoven 2	52 815	14-10-2020	13-01-2021	
Oss 1	53 666	19-10-2020	18-01-2021	
Zoeterwoude	54 710	23-10-2020	22-01-2021	
Almere-Diemen 1	56 925	04-11-2020	03-02-2021	
Westeinder 1	61 990	30-11-2020	01-03-2021	
Amstelveen- Haarlemmermeer 1	69 035	31-12-2020	01-04-2021	

* Application ongoing, published in an earlier annual review.

Denied

Applicant	Area	As at	km ²
Energiecoöperatie Harnaspolder U.A. cs	Wassenaar	05-06-2020	78

Awarded

Licence holder	Licence	Effective from	km ²
Shell Geothermal B.V. cs	Rotterdam-Haven	10-01-2020	245
Energie Transitie Partners B.V.	Den Hoorn	21-01-2020	8
GeoPower Exploitatie B.V.	Maasland 6	18-04-2020	7
Tullip Energy Exploration & Development B.V. cs	Ede	05-06-2020	40
Tellus Renkum B.V.	Renkum	14-07-2020	615
Hydreco GeoMEC B.V. cs	Someren	18-07-2020	105
Tullip Energy Exploration & Development B.V. cs	Amersfoort	11-09-2020	33
Larderel Energy B.V.	Eemland	11-09-2020	196
Hydreco GeoMEC B.V. cs	Rotterdam-Stad	26-09-2020	69
GeoPower Exploitatie B.V.	Maasland 5	27-11-2020	2
		Total	1,320

Split

Licence holder	Licence	Effective from	km ²
<i>Original</i>			
Vattenfall N.V.	Nootdorp-Oost	-	21
<i>After split</i>			
Vattenfall N.V.	Nootdorp-Oost 2	13-02-2020	6
Vattenfall N.V.	Nootdorp-Oost 3	13-02-2020	14

Merged

Licence holder	Licence	Effective from	km ²
<i>Original</i>			
GeoPower Exploitatie B.V.	Maasland 5	-	2
GeoPower Exploitatie B.V.	Maasland 4	-	5
<i>After merge</i>			
GeoPower Exploitatie B.V.	Maasland 7	27-11-2020	7

Prolonged

Licence holder	Licence	Effective from	Effective till
WarmteStad B.V.	Groningen 2	25-02-2020	30-07-2020

Licence holder	Licence	Effective from	Effective till
Ekowarmte B.V.	Velden	21-04-2020	21-03-2021
Energie Transitie Partners B.V.	Maasdijk	05-06-2020	30-11-2023
Wayland Developments B.V.	Waddinxveen 2	28-08-2020	02-10-2022
Wayland Energy B.V.	Lansingerland 4	16-09-2020	30-09-2022
Hydreco GeoMEC B.V.	Rotterdam 4	30-09-2020	06-11-2024
Provincie Drenthe cs	Erica	08-12-2020	06-12-2021
Provincie Drenthe cs	Klazienaveen	01-12-2020	In aanvraag
WarmteStad B.V.	Groningen 2	31-07-2020	In aanvraag
Geedeputeerde Staten van Overijssel	Koekoekspolder Ila	31-12-2020	In aanvraag
Vereniging van Eigenaren Oude Campspolder	Maasland 2	01-01-2021	In aanvraag

Reduced

Licence holder	Licence	Effective from	km ²
N.V. HVC	Drechteden	20-02-2020	220

Expired

Licence holder	Licence	Effective from	km ²
AC Hartman Beheer B.V.	Sexbierum	01-03-2020	11
Gipmans Verhuur B.V.	Venlo	22-03-2020	24
Geothermie De Kievit B.V.	Peel en Maas	01-08-2020	48
Grondexploitiemaatschappij Californië B.V.	Californië VI	31-12-2020	63
Californië Wijnen Geothermie B.V.	Californië IV	31-12-2020	6
Total			152

8.6 Production licences geothermal energy

Applied for

Licence	Publication	Date	Closing date	Applicant(s)
Middenmeer III*	-	28-02-2019	-	Vermilion Energy Netherlands B.V.
Naaldwijk II	-	13-02-2020	-	Trias Westland B.V.
Leeuwarden	-	17-07-2020	-	Geocombinatie Leeuwarden B.V.
Lansingerland II	-	30-07-2020	-	Wayland Energy B.V.

* Application withdrawn as at 31 March 2020.

Awarded

Licence holder	Licence	Effective from	km ²
Hydreco GeoMEC B.V. cs	Den Haag	16-04-2020	10
Hydreco GeoMEC B.V. cs	Oostvoorne	03-12-2020	17
Aardwarmte Combinatie Luttelgeest B.V.	Luttelgeest II	03-12-2020	25
Total			52

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

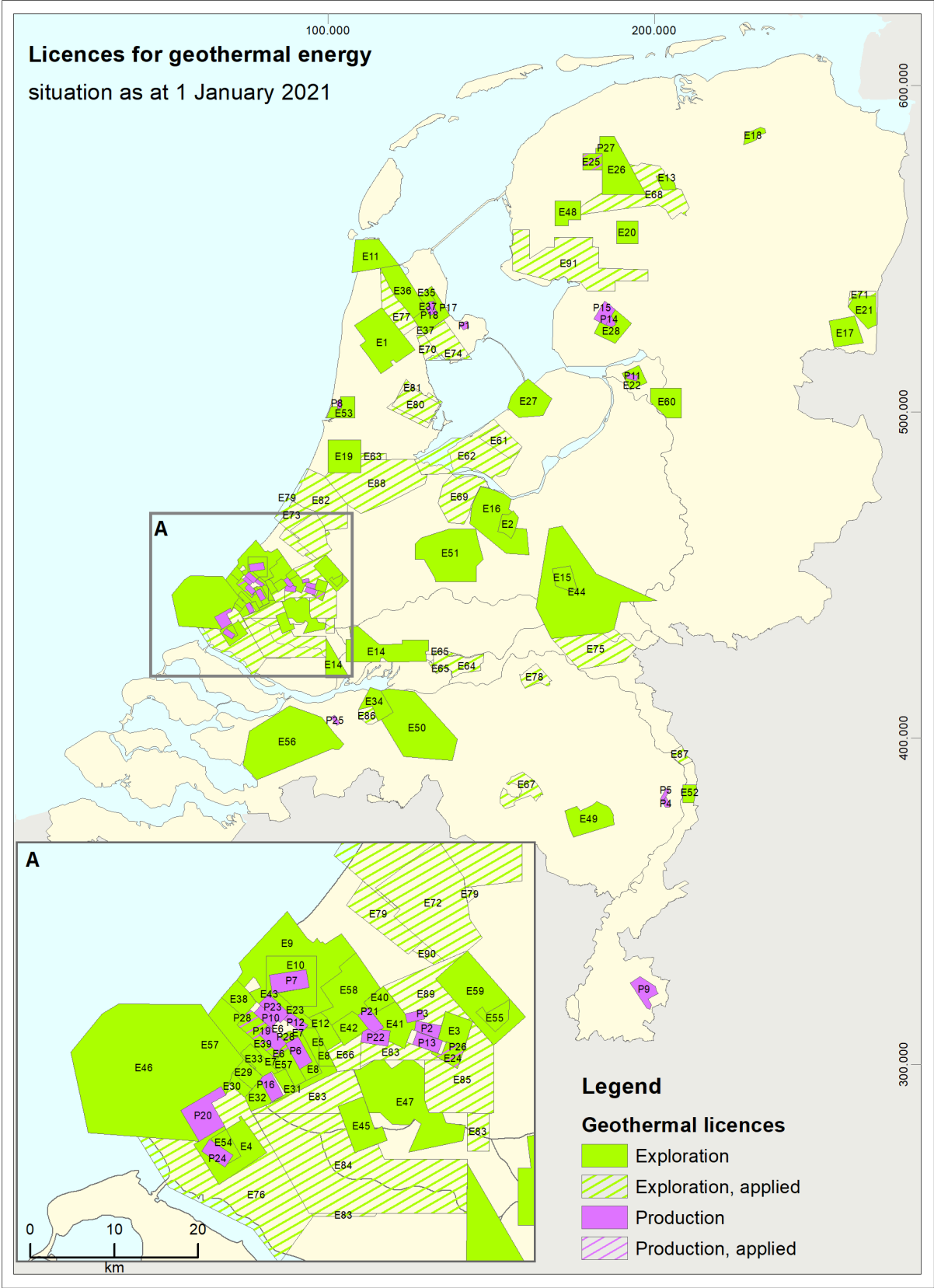


Figure 8.2 Licences for geothermal energy as at 1 January 2021.

8.8 Production licences rock salt

Applied for

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

* Application ongoing, published in an earlier annual review.

8.9 Production licences coal

No changes.

9. Licences, changes in 2020, sea

Changes in the offshore licences for hydrocarbon exploration and production, which took place during 2020, are listed in the tables below. Also, all current licence applications are included.

9.1 Exploration licences hydrocarbons

Applied for

Licence	Official Journal of the EU	Date	Closing date	Staatscourant	Applicant(s)
D6 *	C 342	17-09-2016	19-12-2016	52 953	Simwell
E4 *	C 342	17-09-2016	19-12-2016	52 953	Simwell
P1 **	C 444	23-12-2017	26-03-2018	6 265	Swift
F12 *	C 425	26-11-2018	25-02-2019	69 746	HALO; NAM
F14 *	C 269	12-08-2019	11-11-2019	46 542	HALO
F15c	C 51/3	14-02-2020	15-05-2020	13 156	NAM

* Application ongoing, published in an earlier annual review.

** Republished application 03-12-2016.

Awarded

Licence holder	Licence	Effective from	km ²
ONE-Dyas B.V.	G16c & M1b *	06-03-2020	369
ONE-Dyas B.V.	G15 & H13 **	17-11-2020	227
Nederlandse Aardolie Maatschappij B.V. cs	F4a	23-07-2020	243
Nederlandse Aardolie Maatschappij B.V.	B16b, B17, E3a, E6a, F1 & F2b	23-07-2020	1,366
		Total	1,609

* Application withdrawn as at 14 October 2020

** Draft decision from 16 November 2020

Prolonged

Licence holder	Licence	Effective from	Effective till
ONE-Dyas B.V.	M2a	05-03-2020	02-01-2023
ONE-Dyas B.V.	M4a	17-04-2020	02-01-2023
Dana Petroleum Netherlands B.V. cs	F6b	10-06-2020	30-12-2024
ONE-Dyas B.V. cs	S3b	07-08-2020	30-12-2023
Neptune Energy Netherlands B.V.	E7	14-10-2020	16-10-2023
Jetex Petroleum Ltd	P10c	15-10-2020	31-12-2024
Jetex Petroleum Ltd	P8b	15-10-2020	31-12-2024
Wintershall Noordzee B.V. cs	F10	19-11-2020	30-12-2023
Wintershall Noordzee B.V. cs	F18b-diep	19-11-2020	30-12-2023
Wintershall Noordzee B.V. cs	F11a	19-11-2020	30-12-2023
Neptune Energy Netherlands B.V. cs	E15c	28-12-2020	31-12-2023
Neptune Energy Netherlands B.V.	K1c	01-07-2021	In aanvraag

Reduced

Licence holder	Licence	Effective from	km ²
ONE-Dyas B.V.	M4a	17-04-2020	121
ONE-Dyas B.V. cs	S3b	07-08-2020	65
Neptune Energy Netherlands B.V.	E7	14-10-2020	400
Jetex Petroleum Ltd	P8b	15-10-2020	105
ONE-Dyas B.V. cs	M3a & M3b	17-12-2020	130
Neptune Energy Netherlands B.V. cs	E15c	28-12-2020	113
ONE-Dyas B.V.	M2a & M2b	29-12-2020	63

Expired/Relinquished

Licence holder	Licence	Effective from	km ²
Neptune Energy Netherlands B.V. cs	E10	28-08-2020	401
Neptune Energy Netherlands B.V. cs	E11	28-08-2020	401
ONE-Dyas Energie Resources B.V. cs	F17a-ondiep	01-01-2021	386
		Total	1,188

9.2 Production licences hydrocarbons

Applied for

Licence	Staatscourant	Date	Closing date	Applicant(s)
B16a *	105	06-05-1993	-	Petrogas cs
F6b * ²	-	11-05-2016	-	Dana cs
Q8, Q10b & Q11	-	20-12-2019	-	Tulip Oil
A12b & B10a * ³	22	30-12-1999	-	Petrogas cs

* Application ongoing, published in an earlier annual review.

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

*³ Renewed application as at 21-10-2020.

Awarded

Licence holder	Licence	Effective from	km ²
Neptune Energy Netherlands B.V.	L1c	17-01-2020	12

Split

Licence holder	Licence	Effective from	km ²
<i>Original</i>			
Neptune Energy Netherlands B.V. cs	F3b		335
Neptune Energy Netherlands B.V.	G17a		237
<i>After split</i>			
Neptune Energy Netherlands B.V. cs	F3b	15-04-2020	44
Neptune Energy Netherlands B.V. cs	F3c	15-04-2020	291
Neptune Energy Netherlands B.V.	G17a	28-12-2020	48
Neptune Energy Netherlands B.V.	G17e	28-12-2020	189

Prolonged

Licence holder	Licence	Effective from	Effective till
Neptune Energy Netherlands B.V.	K3c	17-12-2020	31-12-2025
Wintershall Noordzee B.V. cs	Q5d	28-12-2020	31-12-2021
Total E&P Nederland B.V. cs	K6a, K6b, L7a, L7b & L7c	30-12-2020	20-06-2033
Petrogas E&P Netherlands B.V.	Q1a-ondiep & Q1b-ondiep	12-07-2020	In aanvraag
ONE-Dyas B.V. cs	M7a	23-03-2021	In aanvraag

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.
G17c & G17d	www.nlog.nl	10-05-2019	09-08-2019	ONE-Dyas B.V.

Reduced

Licence holder	Licence	Effective from	km ²
Nederlandse Aardolie Maatschappij B.V.	K17a	04-08-2020	200
ONE-Dyas B.V. cs	P18b	26-08-2020	37
Nederlandse Aardolie Maatschappij B.V.	K14a	09-10-2020	125
Nederlandse Aardolie Maatschappij B.V. cs	K8 & K11a	12-11-2020	435
Neptune Energy Netherlands B.V.	G16a	17-12-2020	133
Wintershall Noordzee B.V. cs	Q1c-diep	17-12-2020	140
Total E&P Nederland B.V.	K2c	19-12-2020	42
Neptune Energy Netherlands B.V. cs	K9c & K9d	19-12-2020	147
Neptune Energy Netherlands B.V. cs	K9a & K9b	22-12-2020	90
Total E&P Nederland B.V. cs	J3a	22-12-2020	30
Total E&P Nederland B.V. cs	F15a	24-12-2020	53
Wintershall Noordzee B.V. cs	E18a	28-12-2020	1
Total E&P Nederland B.V.	K5b & K5c	29-12-2020	136
Total E&P Nederland B.V. cs	L4a & L4b	29-12-2020	141
Neptune Energy Netherlands B.V. cs	L10 & L11a	29-12-2020	499
ONE-Dyas B.V.	M1a & M1c	29-12-2020	54
ONE-Dyas B.V. cs	M7a	29-12-2020	64
ONE-Dyas B.V. cs	Q16a	29-12-2020	28
Wintershall Noordzee B.V. cs	L8a & L8c	29-12-2020	44
Total E&P Nederland B.V.	K4a	29-12-2020	209
Neptune Energy Netherlands B.V. cs	D15a & D15b	30-12-2020	67
Wintershall Noordzee B.V. cs	F16a & F16b	30-12-2020	18
Total E&P Nederland B.V. cs	K4b & K5a	30-12-2020	229
Total E&P Nederland B.V. cs	K6a, K6b, L7a, L7b & L7c	30-12-2020	421
Neptune Energy Netherlands B.V. cs	K12a	30-12-2020	267
Wintershall Noordzee B.V. cs	P6a	30-12-2020	143
TAQA Offshore B.V. cs	P15a, P15b, P15d, P15e & P15f	30-12-2020	119
TAQA Offshore B.V. cs	P15c, P15g, P15h, P15i & P15j	30-12-2020	34
Total E&P Nederland B.V. cs	K1a	31-12-2020	40

Licence holder	Licence	Effective from	km ²
Wintershall Noordzee B.V. cs	L8b, L8d & L8e	31-12-2020	69
ONE-Dyas B.V. cs	P11a	31-12-2020	6
ONE-Dyas B.V. cs	Q16c-diep	31-12-2020	21
Wintershall Noordzee B.V. cs	Q4a	01-01-2021	42

Relinquished

Licence holder	Licence	Effective from	km ²
ONE-Dyas B.V. cs	L12c	30-06-2020	30
ONE-Dyas B.V. cs	L15d	30-06-2020	62
Neptune Energy Netherlands B.V.	G16b	10-12-2020	5
ONE-Dyas B.V. cs	L12d	22-12-2020	225
Total E&P Nederland B.V. cs	F15d	24-12-2020	4
Total E&P Nederland B.V. cs	K3d	24-12-2020	26
Total E&P Nederland B.V.	K1b & K2a	24-12-2020	75
Spirit Energy Nederland B.V.	B18a	29-12-2020	8
Spirit Energy Nederland B.V.	F3a	29-12-2020	18
Wintershall Noordzee B.V. cs	F13a	29-12-2020	4
Wintershall Noordzee B.V. cs	E15a	29-12-2020	39
		Total	496

Area

Total area sea	In licence for hydrocarbons
56,396 km ²	21,205 km ² (37.6 %)

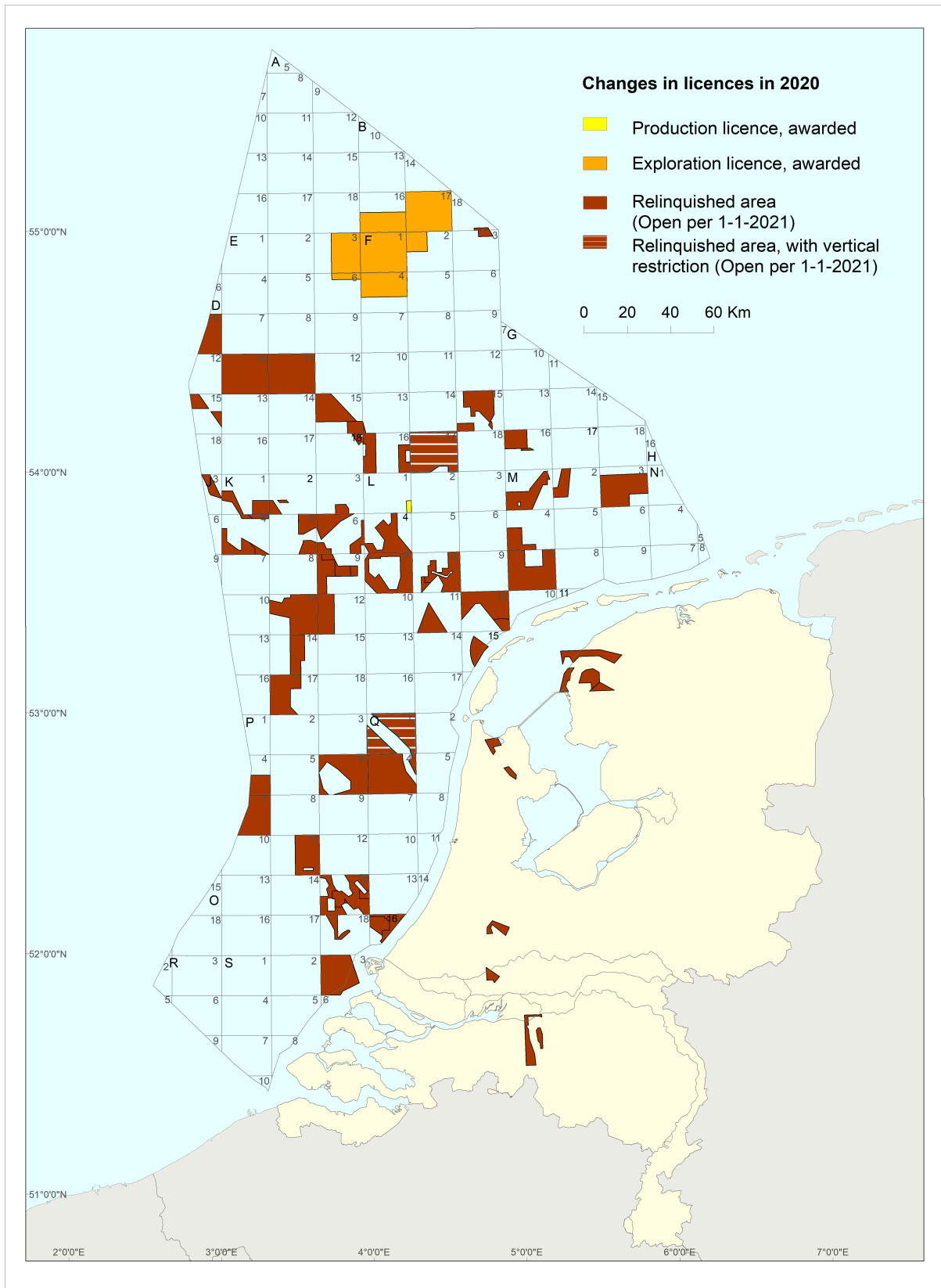


Figure 9.1 Changes in hydrocarbon licences during the year 2020.

9.3 Storage licences

Changes regarding storage licences during 2020 are listed in the table below.

Started

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

10. Licences, company- and name changes in 2020

The tables below list changes in chronological order which took place during 2020, 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
F5	Hague and London Oil Plc.	HALO Exploration & Production Netherlands B.V., Nederlandse Aardolie Maatschappij B.V.	05-03-2020	14 642
F6b	-	-	10-06-2020	33 108
Schagen	Tulip Oil Netherlands B.V., Petrogas E&P UK Ltd.	Vermilion Energy Netherlands B.V. *	09-07-2020	37 697

* New operator

Company changes in production licences

Licence	Relinquishing company	Acquiring company	Effective from	Staatscourant
D12b	ONE-Dyas B.V.	HALO Exploration & Production Netherlands B.V.	21-02-2020	11 908
L12a	Delta Hydrocarbons B.V.	Mercuria Hydrocarbons B.V.	27-03-2020	20 094
L12b & L15b	Delta Hydrocarbons B.V.	Mercuria Hydrocarbons B.V.	27-03-2020	20 094
L12c ^{*3}	Delta Hydrocarbons B.V.	Mercuria Hydrocarbons B.V.	28-03-2020	20 078
L12d ^{*3}	Delta Hydrocarbons B.V.	Mercuria Hydrocarbons B.V.	28-03-2020	20 078
L15d ^{*3}	Delta Hydrocarbons B.V.	Mercuria Hydrocarbons B.V.	28-03-2020	20 078
Q4	Delta Hydrocarbons B.V.	Mercuria Hydrocarbons B.V.	27-03-2020	20 093
Q5d	Delta Hydrocarbons B.V.	Mercuria Hydrocarbons B.V.	27-03-2020	20 093
F3c	-	Dana Petroleum Netherlands B.V.*	15-04-2020	22 283
P8a ^{*2}	-	Aceiro Energy B.V.	20-12-2019	31 161
Marknesse	Tulip Oil Netherlands B.V.	Vermilion Energy Netherlands B.V.*	09-07-2020	37 699
G17e	Neptune Energy Netherlands B.V.	ONE-Dyas B.V. * Hansa Hydrocarbons Limited	28-12-2020	1 763

* New operator.

^{*2} Delayed message.

^{*3} Transfer did not actually take place.

10.2 Storage

No changes.

10.3 Geothermal energy

Company changes in exploration licences

Licence	Relinquishing company	Acquiring company	Effective from	Staatscourant
Nootdorp-Oost 2	Vattenfall N.V.	Hydreco GeoMEC B.V. * Haagse Aardwarmte Leyweg B.V. Eneco Warmte & Koude B.V.	13-02-2020	11 275
Nootdorp-Oost 3	Vattenfall N.V.	Wayland Energy B.V. *	13-02-2020	11 275
Leeuwarden	Ennatuurlijk B.V.	-	11-06-2020	32 121
Waddinxveen 2	Wayland Developments B.V.	Wayland Energy B.V. *	28-08-2020	45 826

* New operator.

10.4 Rock salt

No changes.

10.5 Coal

No changes.

11. Seismic surveys

In 2020, no 3D seismic surveys were acquired onshore and offshore the Netherlands. Also, no 2D seismic data was acquired offshore during 2020. On land 24 2D seismic lines were acquired in 2020 with a cumulative length of approximately 770 km (see figure 11.1). Of these lines, 23 were acquired as part of the Netherlands Seismic Campaign for Geothermal Energy programme (SCAN) led by EBN. One 2D seismic line was acquired by VITO (Flemish Institute for Technological Research) from Belgium into the Netherlands. This line crosses the border at the municipality of Reusel and continues approximately 7.5 km into the Netherlands.

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

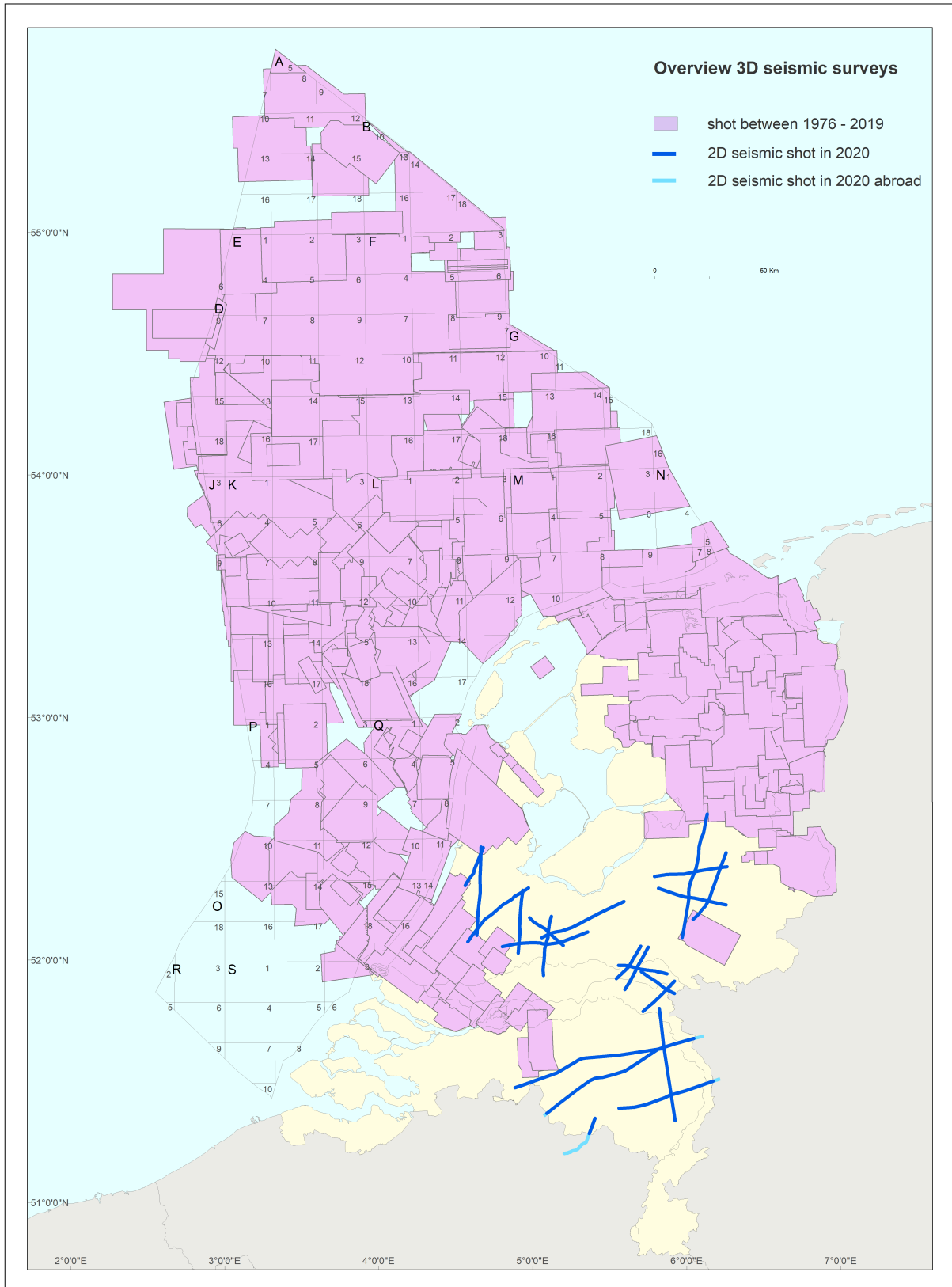


Figure 11.1 Overview of 3D seismic surveys as at 1 January 2021 and 2D seismic lines acquired in 2020.

12. Oil and gas wells completed in 2020

The wells completed in 2020 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 2020.

This year 3 exploration wells have been drilled, of which 1 onshore that encountered gas, and 2 offshore, of which 1 encountered gas and 1 only had gas shows. Together this means a success-ratio of 66 %. The number of exploration wells has decreased by 1 when compared with last year.

No appraisal wells were drilled in 2020, thus 3 less than last year. In total 9 – successful – production wells were drilled in 2020, an increase of 2 compared with 2019.

All wells, with the exception of G18-02, were drilled in a production license. G18-02 was drilled in an exploration license.

12.1 Onshore

Exploration wells

	Name	License	Operator	Result
1	SPKO-04	Botlek III	NAM	Gas

Production wells

	Name	License	Operator	Result
1	PRW-06-S1	Rijswijk	NAM	Gas
2	RTD-08-S1	Rijswijk	NAM	Oil
3	WYK-102	Schoonebeek	NAM	Gas

12.2 Offshore

Exploration wells

	Name	License	Operator	Result
1	D12-08	D12a	Wintershall	Gas
2	G18-02	G18	ONE-Dyas	Gas*

* Gas shows

Production wells

	Name	License	Operator	Result
1	B13-A-02-S1	B10c & B13a	Petrogas	Gas
2	D12-08-S1 (D12-B-03)	D12a	Wintershall	Gas
3	D12-B-01	D12a	Wintershall	Gas
4	D12-B-02	D12a	Wintershall	Gas
5	L05-D-04	L05a	Neptune	Gas
6	L11B-A-06-S1	L11b	ONE-Dyas	Gas

12.3 Summary

Oil- and gas wells completed in 2020

Area	Type	Result							Total
		Gas	Gas shows	Oil	Oil shows	Oil&Gas	Dry	Other	
Onshore	Exploration	1	-	-	-	-	-	-	1
	Appraisal	-	-	-	-	-	-	-	-
	Production	2	-	1	-	-	-	-	3
	Other	-	-	-	-	-	-	-	-
Offshore	Exploration	1	1	-	-	-	-	-	2
	Appraisal	-	-	-	-	-	-	-	-
	Production	6	-	-	-	-	-	-	6
	Total	10	1	1	-	-	-	-	12

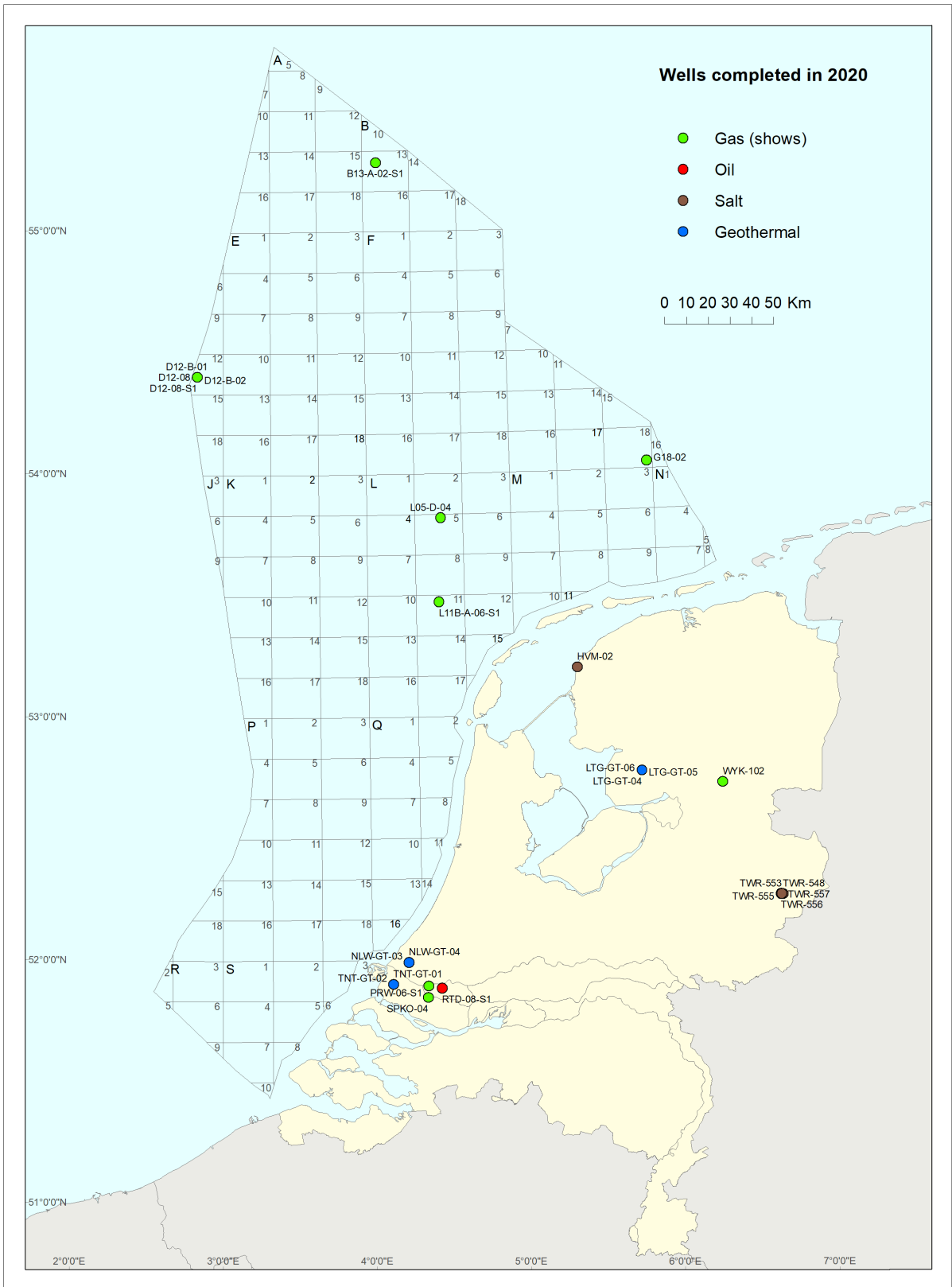


Figure 12.1 Wells completed in 2020.

13. Platforms en pipelines, at sea

No offshore platform or pipeline was installed in 2020. However, three platforms were decommissioned and four pipelines were removed.

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

Platforms, decommissioned in 2020

Platform	Operator	Decommissioned	No. legs	Gas/Oil	Function
L10-C	Neptune Energy	2020	4	Gas	Satellite
L10-D	Neptune Energy	2020	4	Gas	Satellite
L10-G	Neptune Energy	2020	4	Gas	Satellite

Pipelines, removed in 2020

Operator	From	To	Diameter(inches)	Constructed	Length(km)	Carries *
Wintershall	L8-H	L8-H sidetap	8	1988	0.2	sw
Wintershall	L8-A	L8-G	8	1988	10.0	sw
Wintershall	L8-G	L8-P	8	1994	7.4	sw
Wintershall	L8-P	L8-G	2	1994	7.4	sw

g = gas, c = condensate, m = methanol, o = oil, sw = salt water.

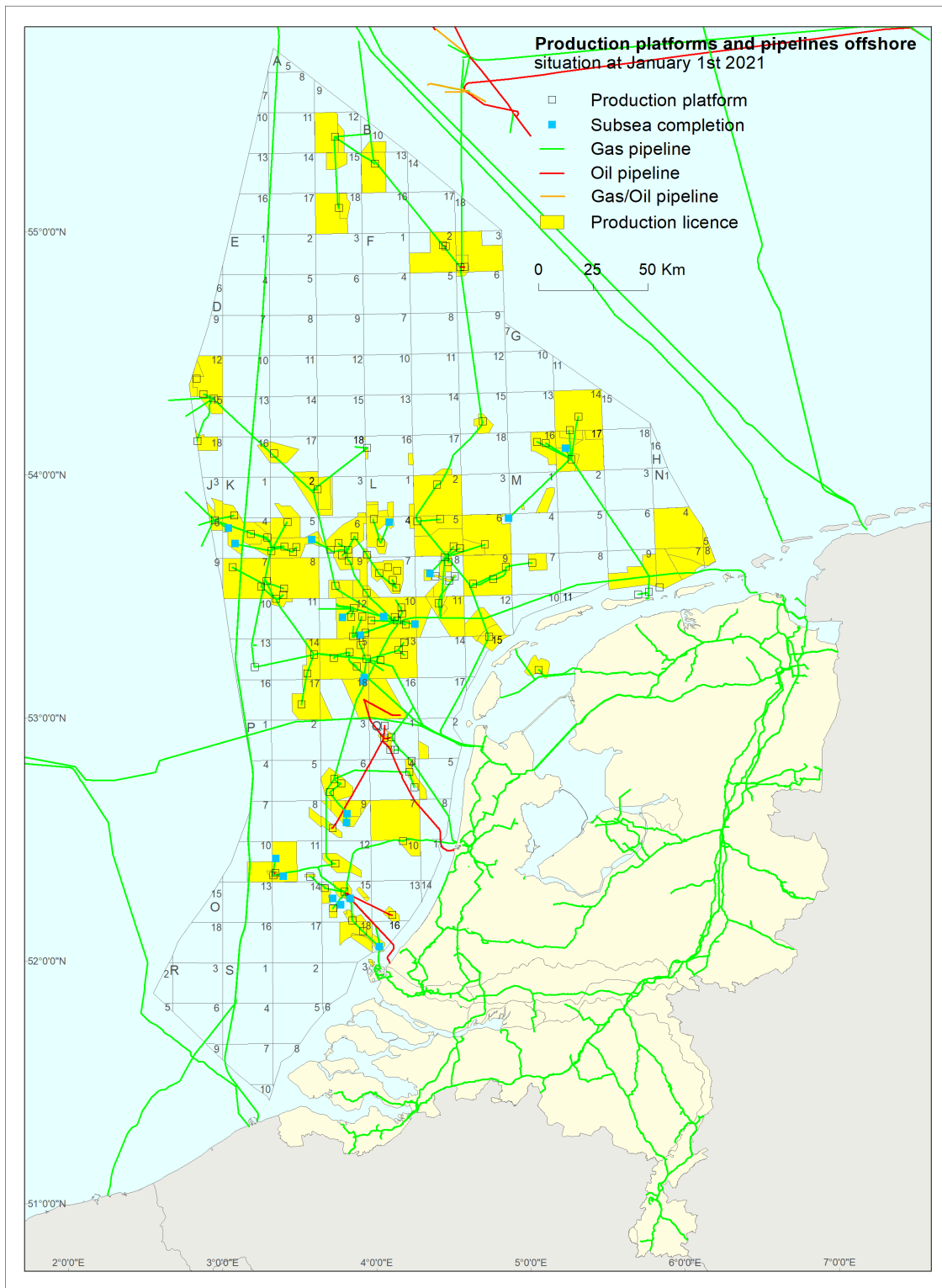


Figure 13.1 Offshore production platforms and pipelines as at 1 January 2021 (Source: <https://data.overheid.nl/dataset/49129-pjpleidingen-op-de-Noordzee>).

Annexes

A. Natural gas and oil accumulations

By status as at 1 January 2021

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
Annerveen	NAM	Drenthe IIb [wv], Groningen [wv]	G&O
Bedum	NAM	Groningen [wv]	G
Bergen	TAQA	Bergen II [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
Dalen	NAM	Drenthe IIb [wv], Drenthe V [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
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], Bergermeer [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
Hekelingen	NAM	Beijerland [wv], Botlek III [wv]	G
Kiel-Windeweer	NAM	Drenthe IIb [wv], Groningen [wv]	G
Kollum	NAM	Noord-Friesland [wv], 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	Akkrum [opv], 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], Drenthe V [wv], Drenthe VI [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
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

Accumulation	Company	Licence name [Type] ***	Gas/Oil
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
Tietjerksteradeel	Vermilion	Tietjerksteradeel II [wv]	G
Ureterp	NAM	Tietjerksteradeel II [wv], Tietjerksteradeel III [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
Zuidwal	Vermilion	Zuidwal [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-A	Wintershall	D12a [wv], D15a & D15b [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	Total	F15a [wv]	G
F15a-B	Total	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	Total	J03a [wv], J03b & J06a [wv], K01a [wv], K04a [wv]	G
K01-A Unit	Total	J03a [wv], K01a [wv], K04a [wv]	G
K02b-A	Neptune	K02b [wv], K03a [wv], K03c [wv]	G
K04-A	Total	K04a [wv], K04b & K05a [wv], K05b & K05c [wv]	G
K04-E	Total	K04a [wv], K04b & K05a [wv]	G
K04-N	Total	K04a [wv], K04b & K05a [wv]	G
K04a-B	Total	K04a [wv], K04b & K05a [wv]	G

Accumulation	Company	Licence name [Type] ***	Gas/Oil
K04a-D	Total	J03b & J06a [wv], K04a [wv]	G
K04a-Z	Total	K04a [wv]	G
K05-C North	Total	K05b & K05c [wv]	G
K05-C Unit	Total	K04b & K05a [wv], K05b & K05c [wv]	G
K05-U	Total	K02c [wv], K05b & K05c [wv]	G
K05a-A	Total	K04a [wv], K04b & K05a [wv], K08 & K11a [wv]	G
K05a-B	Total	K04b & K05a [wv], K05b & K05c [wv]	G
K05a-D	Total	K04b & K05a [wv]	G
K05a-En	Total	K04b & K05a [wv], K05b & K05c [wv]	G
K06-A	Total	K03b [wv], K06a, K06b, L07a, L07b & L07c [wv]	G
K06-C	Total	K06a, K06b, L07a, L07b & L07c [wv]	G
K06-D	Total	K06a, K06b, K09c & K09d [wv], L07a, L07b & L07c [wv]	G
K06-DN	Total	K06a, K06b, L07a, L07b & L07c [wv]	G
K06-G	Total	K06a, K06b, L07a, L07b & L07c [wv]	G
K07-FA	NAM	K07 [wv], K08 & K11a [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
K09c-A	Neptune	K06a, K06b, K09c & K09d [wv], L07a, L07b & L07c [wv]	G
K09c-C	Neptune	K09c & K09d [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-FH	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

Accumulation	Company	Licence name [Type] ***	Gas/Oil
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	Total	L01a [wv], L01d [wv], L04a & L04b [wv]	G
L02-FA	NAM	L02 [wv]	G
L02-FB	NAM	F17c [wv], L02 [wv]	G
L04-A	Total	L04a & L04b [wv]	G
L04-F	Total	L01e [wv], L04a & L04b [wv]	G
L04-G	Total	L01f [wv], L04a & L04b [wv]	G
L04-I	Total	L04a & L04b [wv]	G
L05-B	Wintershall	L05b [wv]	G
L05-C	Wintershall	L05b [wv], L06b [wv]	G
L05a-A	Neptune	L01c [wv], L02 [wv], L04c [wv], L05a [wv]	G
L05a-D	Neptune	L02 [wv], L05a [wv], L05b [wv]	G
L06-B	Wintershall	L06a [wv]	G
L08-A-West	Wintershall	L08b, L08d & L08e [wv]	G
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
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

Accumulation	Company	Licence name [Type] ***	Gas/Oil
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
P06-D	Wintershall	P06a [wv]	G
P06-Main	Wintershall	P06a [wv]	G
P10a-De Ruyter Western Extension	Dana Petroleum	P10a [wv]	G
P15-09	TAQA	P15a, P15b, P15c, P15d, P15e & P15f [wv], P15g, P15h, P15i & P15j [wv], P18a [wv]	G
P15-13	TAQA	P15a, P15b, P15d, P15e & P15f [wv]	G
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
Q04-A	Wintershall	Q04a [wv]	G
Q04-B	Wintershall	Q04a [wv], Q05d [wv]	G
Q10-A	Tulip	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	Gasunie	Zuidwending [sl]	G
Alkmaar	TAQA	Alkmaar [sl]	G
Bergermeer	TAQA	Bergermeer [sl]	G
Grijpskerk	NAM	Grijpskerk [sl]	G
Norg	NAM	Norg [sl]	G

Undeveloped accumulations

a. Production start expected between 2021 and 2025

Accumulation	Company	Licence name [Type]***	Gas/Oil
Assen-Zuid	NAM	Drenthe IIb [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

Accumulation	Company	Licence name [Type]***	Gas/Oil
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 & D15b [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
L12-FA	Neptune	L12a [wv], L12b & L15b [wv]	G
M01-A	ONE-Dyas	M01a & M01c [wv]	G
M09-FA	NAM	M09a [wv], Noord-Friesland [wv]	G
M10-FA	Tulip	M10a & M11 [opv]	G
M11-FA	Tulip	M10a & M11 [opv], Noord-Friesland [wv]	G
N05-A	ONE-Dyas	N04, N05 & N08 [wv]	G
P11b-Van Ghent East	Dana Petroleum	P11b [wv]	G
P11b-Witte de With	Dana Petroleum	P11b [wv]	G
P18-7	ONE-Dyas	P18b [wv], P18c [wv], Q16a [wv]	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
Egmond-Binnen	NAM	Middelie [wv]	G
Exloo	NAM	Drenthe IIb [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	Tulip	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

Accumulation	Company	Licence name [Type]***	Gas/Oil
Rammelbeek	NAM	Twenthe [wv]	G
Schiermonnikoog-Wad	NAM	Noord-Friesland [wv]	G
Terschelling-Noord	Tulip	M10a & M11 [opv], Terschelling-Noord [opv]	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]	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
K18-FB	Wintershall	K18b [wv]	G
K6-GT4	Total	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	Tulip	L09 [wv]	G
L13-FA	NAM	L13 [wv]	G
L13-FJ	NAM	L13 [wv]	G

Accumulation	Company	Licence name [Type]***	Gas/Oil
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
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
Q02-A		Open	G
Q10-Beta	Tulip	Q08, Q10b & Q11 [opv]	G
Q11-Beta	Tulip	Q08, Q10b & Q11 [opv]	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
Appelscha	U	NAM	Drenthe IIb [wv]	G
Assen	T	NAM	Drenthe IIb [wv]	G
Barendrecht	T	NAM	Rijswijk [wv]	G&O
Barendrecht-Ziedewij	U	NAM	Rijswijk [wv]	G
Blesdijke	T	Vermilion	Gorredijk [wv], Steenwijk [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
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	Tulip	Donkerbroek [wv], Donkerbroek-WEST [wv]	G

Accumulation	Status **	Company	Licence name [Type]***	Gas/Oil
Donkerbroek-West	U	Tulip	Donkerbroek [wv], Donkerbroek-WEST [wv]	G
Emmen	A	NAM	Drenthe IIb [wv], Groningen [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
Ezumazijl	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
Heinenoord	T	NAM	Botlek III [wv]	G
Hemrik (Akkrum 11)	T	Tulip	Akkrum 11 [wv]	G
Hoogenweg	A	NAM	Hardenberg [wv]	G
Houwerzijl	U	NAM	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
Oud-Beijerland Zuid	T	NAM	Beijerland [wv], Botlek III [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
Sleen	A	NAM	Drenthe IIb [wv]	G
Slootdorp	U	Vermilion	Slootdorp [wv]	G
Sonnega-Weststellingwerf	T	Vermilion	Gorredijk [wv], Steenwijk [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

Accumulation	Status **	Company	Licence name [Type]***	Gas/Oil
Vierhuizen	T	NAM	De Marne [wv], Groningen [wv], Noord-Friesland [wv]	G
Vinkega	T	Vermilion	Drenthe IIIa [wv], Drenthe IIa [wv], Gorredijk [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
D12-C	T	Wintershall	D12a [wv]	G
D15a-A	T	Neptune	D12a [wv], D15a & D15b [wv]	G
D15a-A104	U	Neptune	D15a & D15b [wv]	G
D18a-A	U	Neptune	D15a & D15b [wv], 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	Total	K04b & K05a [wv], K05b & K05c [wv], K06a, K06b, L07a, L07b & L07c [wv]	G
K05-G	U	Total	K04b & K05a [wv]	G
K05a-Es	U	Total	K04b & K05a [wv]	G
K06-N	U	Total	K06a, K06b, L07a, L07b & L07c [wv]	G
K06-T	U	Total	K06a, K06b, L07a, L07b & L07c [wv]	G
K07-FD	T	NAM	K07 [wv]	G
K09ab-A	T	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
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
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

Accumulation	Status **	Company	Licence name [Type]***	Gas/Oil
K13-CF	A	Wintershall	Open	G
K13-DE	A	Wintershall	Open	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	Total	L04a & L04b [wv]	G
L06d-S1	A	ONE	Open	G
L07-A	A	Total	K06a, K06b, L07a, L07b & L07c [wv]	G
L07-B	U	Total	K06a, K06b, L07a, L07b & L07c [wv]	G
L07-C	U	Total	K06a, K06b, L07a, L07b & L07c [wv]	G
L07-G	U	Total	K06a, K06b, L07a, L07b & L07c [wv]	G
L07-H	U	Total	K06a, K06b, L07a, L07b & L07c [wv]	G
L07-H South-East	U	Total	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
L11b-A	U	ONE-Dyas	L11b [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-South	A	Wintershall	P06a [wv], P09a, P09b & P09d [wv], P09c, P09e & P09f [wv]	G
P09-A	U	Wintershall	P09a, P09b & P09d [wv], P09c, P09e & P09f [wv]	G
P09-B	U	Wintershall	P09c, P09e & P09f [wv]	G
P11-12	U	ONE-Dyas	P11a [wv]	G
P11a-E	U	ONE-Dyas	P11a [wv]	G

Accumulation	Status **	Company	Licence name [Type]***	Gas/Oil
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
P15-10	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
P15-14	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
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], 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, P09b & P09d [wv], P09c, P09e & P09f [wv]	O
P11b-De Ruyter	Dana Petroleum	P10a [wv], P11b [wv]	O
P11b-Van Ghent	Dana Petroleum	P11b [wv]	O
P15 Rijn	TAQA	P15a, P15b, P15d, P15e & P15f [wv]	O
Q13a-Amstel	Neptune	Q13a [wv]	O

Undeveloped accumulations

a. Production start (expected) between 2021 and 2025

Accumulation	Company	Licence name [Type]***	Gas/Oil
F17-NE (Rembrandt)	Wintershall	F17a-diep [wv], F17c [wv]	O
F17-SW (Vermeer)	Wintershall	F17a-diep [wv], F17c [wv], L02 [wv]	O
P08-A Horizon-West	Petrogas	P08a [wv], P09a, P09b & P09d [wv]	O
Q07-A	Tulip	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

Accumulation	Company	Licence name [Type]***	Gas/Oil
F18-FA (Fregat)		Open	O
K10-B (oil)		Open	O
L01-FB		Open	O
L05a-E	Neptune	L01c [wv], L02 [wv], L04c [wv], L05a [wv]	O
P12-West (P12-3)	Wintershall	P12a [wv]	O&G
Q01-Northwest		Open	O
Q07-B	Tulip	Q07 & Q10a [wv]	O
Q07-C	Tulip	Q07 & Q10a [wv]	O&G
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

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

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

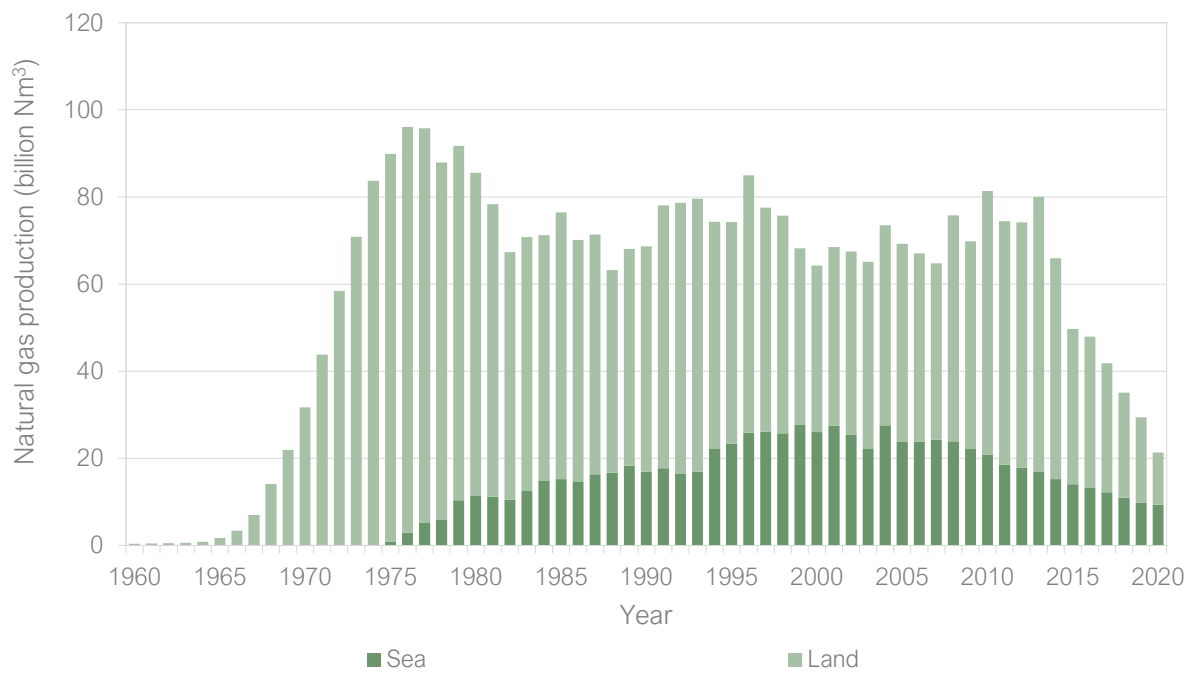
B. Production of natural gas in million Nm³

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

Year	* Land	Sea	Total
1995	50,826.7	23,409.8	74,236.5
1996	59,024.5	25,914.7	84,939.2
1997	51,412.3	26,133.0	77,545.3
1998	49,993.9	25,716.1	75,710.0
1999	40,574.8	27,673.6	68,248.4
2000	38,203.4	26,031.5	64,234.9
2001	40,951.7	27,518.3	68,470.0
2002	42,137.6	25,364.7	67,502.3
2003	42,881.1	22,273.8	65,154.9
2004	45,880.1	27,592.8	73,472.9
2005	45,498.2	23,779.6	69,277.8
2006	43,169.5	23,858.0	67,027.5
2007	40,464.5	24,259.0	64,723.5
2008	51,860.7	23,900.0	75,760.7
2009	47,696.4	22,165.0	69,861.4
2010	60,475.0	20,921.0	81,396.0
2011	55,881.7	18,551.2	74,432.9
2012	56,233.1	17,899.8	74,132.9
2013	63,043.5	17,004.1	80,047.5
2014	50,696.9	15,257.6	65,954.5
2015	35,640.0	14,049.0	49,689.0
2016	34,588.0	13,334.0	47,922.0
2017	29,661.0	12,179.0	41,840.0
2018	24,088.2	10,967.9	35,056.1
2019	19,663.1	9,775.9	29,439.0
2020	11,963.5	9,338.3	21,301.8
Total	2,777,510.6	792,321.6	3,569,832.1

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

Production of natural gas 1960 – 2020



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	664	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

Natural gas reserves and cumulative production (1 January 2021), 1965 – 2021.



Past production for the period 2010 – 2020 and supply of natural gas from the small fields for the period 2021 – 2045, 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
2010	34.0	-	-	-	-	-	-
2011	30.7	-	-	-	-	-	-
2012	29.3	-	-	-	-	-	-
2013	28.7	-	-	-	-	-	-
2014	26.4	-	-	-	-	-	-
2015	23.9	-	-	-	-	-	-
2016	22.6	-	-	-	-	-	-
2017	20.2	-	-	-	-	-	-
2018	17.9	-	-	-	-	-	-
2019	15.3	-	-	-	-	-	-
2020	14.9	-	-	-	-	-	-
2021	-	4.2	9.8	0.1	0.1	0.0	0.0
2022	-	3.5	9.3	0.5	0.7	0.0	0.0
2023	-	2.8	8.3	1.0	1.0	0.1	0.4
2024	-	2.2	7.0	1.2	1.1	0.2	0.8

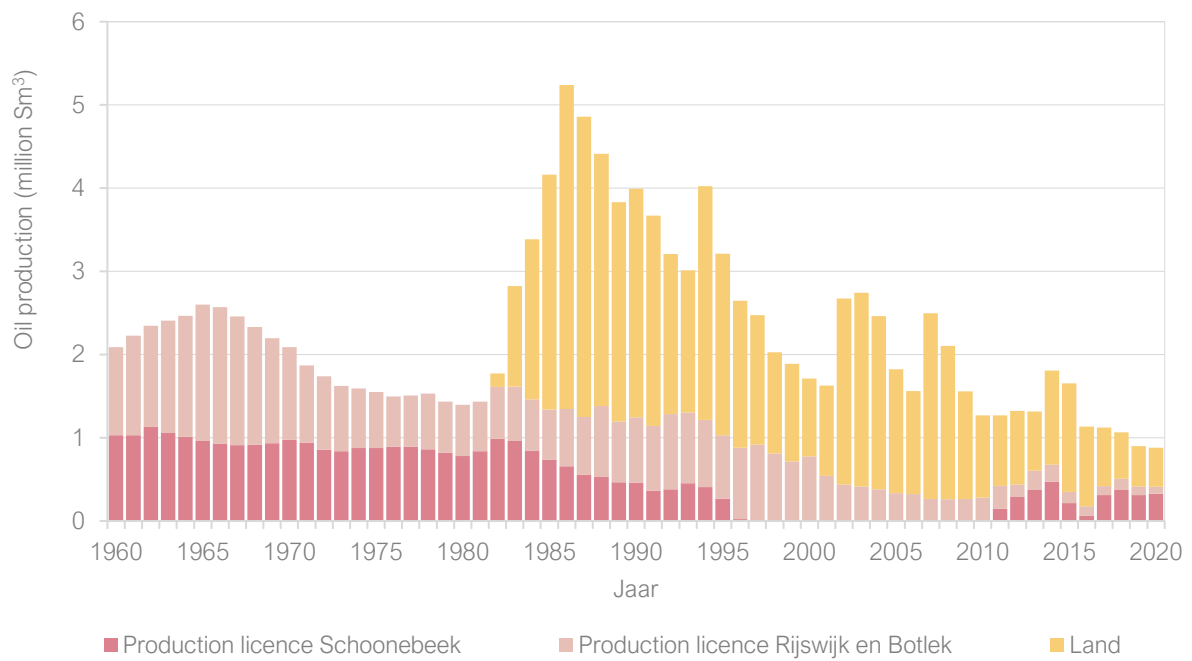
Year	Past production	Expected supply from reserves onshore	Expected supply from reserves offshore	Expected supply from contingent resources onshore	Expected supply from contingent resources offshore	Expected supply from undiscovered accumulations onshore	Expected supply from undiscovered accumulations offshore
2025	-	1.8	5.9	1.1	1.1	0.2	1.1
2026	-	1.4	4.9	1.2	1.0	0.3	1.7
2027	-	1.2	4.2	1.1	0.9	0.3	2.2
2028	-	1.0	3.4	1.0	0.9	0.4	2.5
2029	-	0.9	2.8	0.9	0.8	0.4	2.9
2030	-	0.8	2.2	0.9	0.8	0.4	2.8
2031	-	0.7	1.9	0.6	0.4	0.5	2.8
2032	-	0.6	1.4	0.5	0.3	0.5	2.9
2033	-	0.6	1.1	0.4	0.3	0.5	3.2
2034	-	0.5	0.5	0.4	0.6	0.5	3.4
2035	-	0.4	0.4	0.4	0.6	0.5	3.6
2036	-	0.1	0.4	0.2	0.1	0.5	3.7
2037	-	0.1	0.3	0.2	0.1	0.5	3.8
2038	-	0.1	0.3	0.2	0.1	0.5	3.7
2039	-	0.1	0.3	0.1	0.6	0.5	3.5
2040	-	0.1	0.3	0.1	0.6	0.5	3.4
2041	-	0.0	0.2	0.1	0.6	0.6	3.3
2042	-	0.0	0.1	0.1	0.4	0.6	3.2
2043	-	0.0	0.1	0.1	0.4	0.6	3.2
2044	-	0.0	0.1	0.1	0.4	0.6	3.1
2045	-	0.0	0.1	0.1	0.4	0.6	2.9
Total	-	23.1	65.3	12.6	14.2	10.2	64.0

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
1992	0.379	0.907	1.921	3.207

Year	Schoonebeek production licence	Rijswijk & Botlek production licence	Sea	Total
1993	0.454	0.849	1.710	3.013
1994	0.406	0.811	2.805	4.023
1995	0.268	0.761	2.182	3.211
1996	0.023	0.857	1.767	2.647
1997	-	0.918	1.557	2.474
1998	-	0.810	1.219	2.029
1999	-	0.715	1.173	1.888
2000	-	0.776	0.936	1.713
2001	-	0.542	1.085	1.628
2002	-	0.439	2.236	2.675
2003	-	0.416	2.325	2.741
2004	-	0.381	2.082	2.463
2005	-	0.335	1.490	1.825
2006	-	0.322	1.238	1.561
2007	-	0.264	2.233	2.497
2008	-	0.261	1.841	2.102
2009	-	0.264	1.296	1.560
2010	-	0.281	0.982	1.262
2011	0.144	0.277	0.848	1.270
2012	0.149	0.290	0.884	1.323
2013	0.374	0.230	0.710	1.314
2014	0.473	0.204	1.133	1.809
2015	0.214	0.135	1.307	1.656
2016	0.063	0.116	0.957	1.136
2017	0.310	0.099	0.705	1.114
2018	0.375	0.133	0.556	1.064
2019	0.311	0.102	0.487	0.901
2020	0.326	0.086	0.468	0.880
Total	43.096	42.067	64.692	149.854

Oil production 1960 – 2020



E. Oil reserves and cumulative production in million Sm³

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

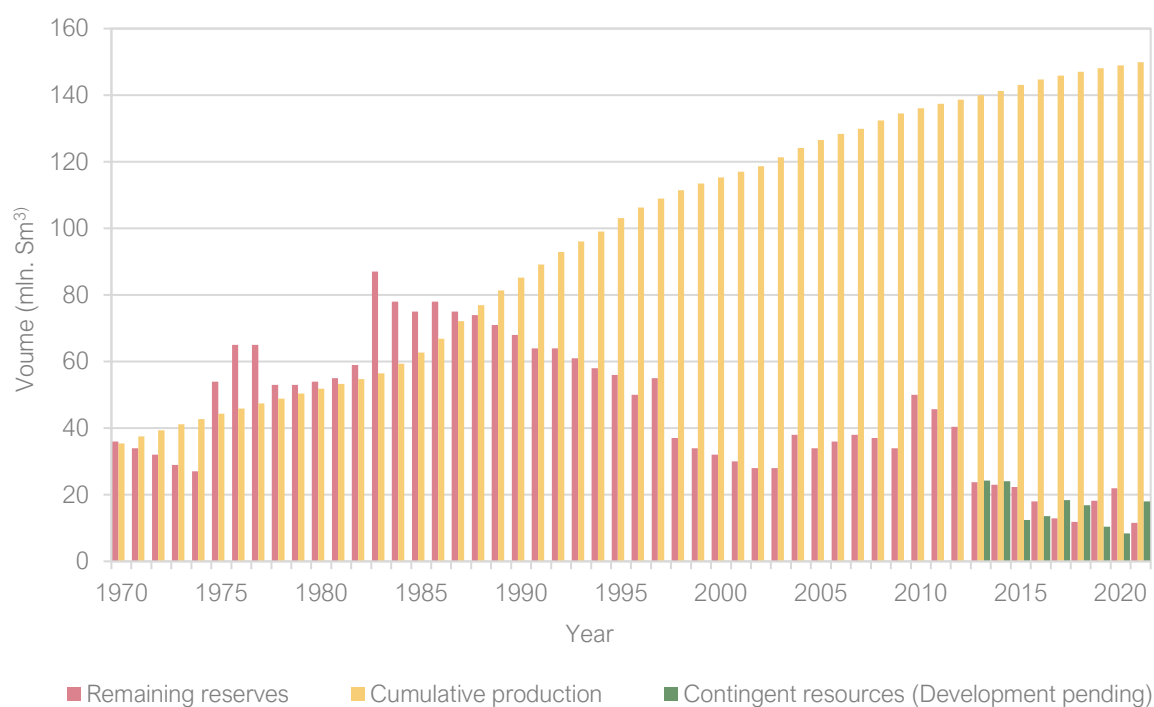
Year as at 1 January	Land		Sea		Total	
	Expected reserves	Cumulative production	Expected reserves	Cumulative production	Expected reserves	Cumulative production
2002	5.0	77.8	23.0	40.9	28.0	118.7
2003	5.0	78.2	23.0	43.1	28.0	121.4
2004	21.0	78.6	17.0	45.5	38.0	124.1
2005	19.0	79.0	15.0	47.6	34.0	126.6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

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

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

Year 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

Oil reserves and cumulative production in million Sm³ (1 January 2021), 1970 – 2021.



Past production and supply of oil from reserves from small fields until 2045, in million Sm³.

Year	Past production	Expected supply from reserves	Expected supply from contingent resources
2010	1.3	-	-
2011	1.3	-	-
2012	1.3	-	-
2013	1.3	-	-
2014	1.8	-	-
2015	1.7	-	-
2016	1.1	-	-
2017	1.1	-	-
2018	1.1	-	-
2019	0.9	-	-
2020	0.9	-	-
2021	-	0.9	0.0
2022	-	1.0	<0.1
2023	-	1.0	0.2
2024	-	0.9	0.9
2025	-	0.7	1.3
2026	-	0.7	1.3
2027	-	0.6	1.1

Year	Past production	Expected supply from reserves	Expected supply from contingent resources
2028	-	0.6	1.0
2029	-	0.5	1.0
2030	-	0.4	0.9
2031	-	0.4	0.9
2032	-	0.4	0.8
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	0.6
2039	-	0.3	0.5
2040	-	0.3	0.5
2041	-	<0.1	0.4
2042	-	0.1	0.4
2043	-	<0.1	0.4
2044	-	<0.1	0.4
2045	-	0.1	0.4
Total		11.4	8.3

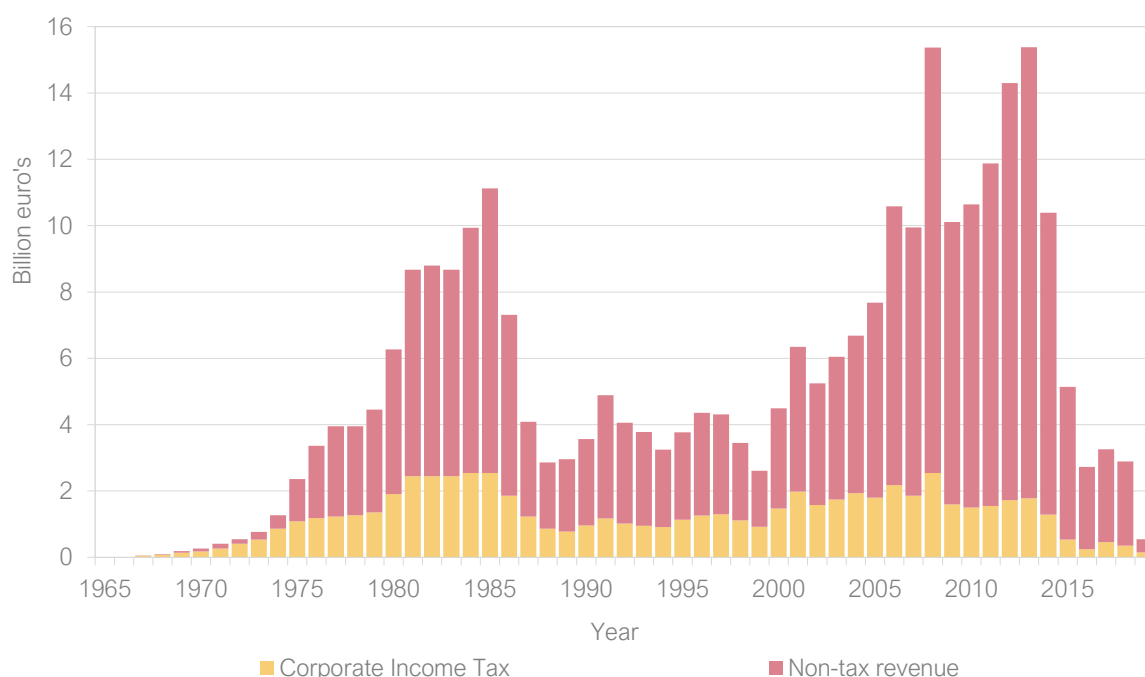
F. Natural gas revenues

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
1998	2.33	1.12	3.45
1999	1.69	0.92	2.61

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

The revenues as presented above are supplied by the Ministry of Economic Affairs and Climate Policy. The revenues presented here are transaction-based, i.e. they have been allocated to the year in which the production that yielded the revenue took place. By contrast, revenue recorded on a cash basis is recorded at the time the State actually receives the revenue, which is sometime later than the transaction-based revenue. Non-tax revenue comprises bonus, surface rights, royalties, the State profit shares, the special payments to the State on production from the Groningen field, 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, 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 forecasts are shown separately. The table below shows the gas revenues for 2019 and 2020 and an estimate for the years 2021 to 2025 in million euros.

Non-tax revenue (in 10⁶ €) , 2019 – 2025 (based on estimates from February 2021).

Non-tax revenue	2019	2020	2021	2022	2023	2024	2025
Dividend EBN	141.8	35.9	0	0	0	0	0
Dividend GasTerra	3.6	3.6	4	4	4	4	4
Mining Act	432.4	34.8	55	50	35	35	35
Total	557.8	74.3	59	54	39	39	39

Tax income for the years 2021 until the end of 2025 is anticipated based on the expected price at gas trading hubs such as TTF. The TTF price per cubic meter (Geg.) gas used to calculate the estimates is expected to be from 14 to 17 euro cents. The calculations take into account the expected phasing out of production from the Groningen field.

G. Exploration licences for hydrocarbons, Land

As at 1 January 2021

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

* Applied for extension.

H. Production licences for hydrocarbons, Land

As at 1 January 2021

	Licence holder	Licence	km ²	Effective from	Effective till	Staatscourant
1	Nederlandse Aardolie Maatschappij B.V.	Beijerland	140	14-02-1997	14-02-2027	243
2	Nederlandse Aardolie Maatschappij B.V.	Botlek III	228	10-07-2019	19-07-2026	39 438
3	Nederlandse Aardolie Maatschappij B.V. ExxonMobil Producing Netherlands B.V.	De Marne	7	04-10-1994	04-10-2034	189
4	Nederlandse Aardolie Maatschappij B.V.	Drenthe IIb	1,881	17-03-2012		6 883
5	Nederlandse Aardolie Maatschappij B.V.	Groningen	2,970	30-05-1963		126
6	Nederlandse Aardolie Maatschappij B.V.	Hardenberg	161	22-10-1990	22-10-2035	149
7	Nederlandse Aardolie Maatschappij B.V.	Middelie	946	12-05-1969		94
8	Nederlandse Aardolie Maatschappij B.V. ExxonMobil Producing Netherlands B.V.	Noord-Friesland	1,593	27-02-1969		47
9	Nederlandse Aardolie Maatschappij B.V.	Rijswijk	1,094	03-01-1955		21
10	Nederlandse Aardolie Maatschappij B.V.	Rossum-De Lutte	46	12-05-1961		116
11	Nederlandse Aardolie Maatschappij B.V.	Schoonebeek	930	03-05-1948		110
12	Nederlandse Aardolie Maatschappij B.V.	Tietjerksteradeel III	168	25-01-2018		5 149
13	Nederlandse Aardolie Maatschappij B.V.	Tubbergen	177	11-03-1953		80
14	Nederlandse Aardolie Maatschappij B.V.	Twenthe	276	01-04-1977		26
15	ONE-Dyas B.V. TAQA Offshore B.V.	Botlek-Maas	3	04-03-2014	19-07-2026	7 445
16	ONE-Dyas B.V.	Botlek Maasmond	3	10-07-2019	19-07-2026	39 438
17	TAQA Onshore B.V. Dana Petroleum Netherlands B.V. RockRose (NL) CS1 B.V.	Bergen II	221	23-12-2006		232
18	TAQA Onshore B.V.	Bergermeer	19	23-12-2006		232
19	TAQA Piek Gas B.V. Dana Petroleum Netherlands B.V. RockRose (NL) CS1 B.V.	Alkmaar	12	23-12-2006		232
20	Tulip Oil Netherlands B.V.	Akkrum 11	6	26-07-2012	04-04-2025	6 909
21	Tulip Oil Netherlands B.V.	Donkerbroek	22	04-04-1995	04-04-2025	66
22	Tulip Oil Netherlands B.V.	Donkerbroek-West	2	16-03-2011	04-04-2025	4 902
23	Vermilion Energy Netherlands B.V. Parkmead (E&P) Ltd.	Andel Va	61	05-08-2015	29-12-2038	29 954
24	Vermilion Energy Netherlands B.V.	Andel Vb	142	05-08-2015	29-12-2038	29 954

Licence holder	Licence	km ²	Effective from	Effective till	Staatscourant	
Parkmead (E&P) Ltd.						
25	Vermilion Energy Netherlands B.V.	Drenthe IIa	7	17-03-2012	6 883	
26	Vermilion Energy Netherlands B.V.	Drenthe IIIa	1	17-03-2012	6 885	
27	Vermilion Energy Netherlands B.V.	Drenthe IV	7	18-07-2007	140	
Parkmead (E&P) Ltd.						
28	Vermilion Energy Netherlands B.V.	Drenthe V	25	20-06-2015	18 037	
Parkmead (E&P) Ltd.						
29	Vermilion Energy Netherlands B.V.	Drenthe VI	363	20-06-2015	18 037	
Parkmead (E&P) Ltd.						
30	Vermilion Energy Netherlands B.V.	Gorredijk	629	29-07-1989	29-07-2024	145
31	Vermilion Energy Netherlands B.V.	Leeuwarden	430	27-02-1969		46
32	Vermilion Energy Netherlands B.V.	Marknesse	19	26-01-2010	09-03-2030	1 446
33	Vermilion Energy Netherlands B.V.	Oosterend	69	05-09-1985		84
34	Vermilion Energy Netherlands B.V.	Papekop	35	08-06-2006	19-07-2031	113
Parkmead (E&P) Ltd.						
35	Vermilion Energy Netherlands B.V.	Slootdorp	120	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	17-08-2024	154
39	Vermilion Energy Netherlands B.V.	Zuid-Friesland III	105	09-03-2010	19-04-2030	4 016
40	Vermilion Energy Netherlands B.V.	Zuidwal	74	07-11-1984		190
		Total	13,443			

I. Subsurface storage licences, Land

As at 1 January 2021

	Licence holder	Licence	km ²	Effective from	Effective till	Staatscourant	Substance
1	EnergyStock B.V. Nouryon 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	69014	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	Nouryon Salt B.V.	Twenthe-Rijn de Marssteden	2	02-10-2010	12-11-2040	15 650	Oil
7	Nouryon Salt B.V.	Winschoten III	28	15-11-2010	13-05-2079	18 321	Nitrogen
8	TAQA Onshore B.V.	Bergermeer	19	08-01-2007	30-06-2050	7	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 2021

	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	19	12-09-2017	23-10-2021	52 546
4	ECW Geoholding B.V.	Middenmeer 2	14	13-10-2009	30-12-2022	15 999
5	ECW Geoholding B.V.	Middenmeer 4	59	17-02-2018	30-03-2024	12 045
6	Ekowarmte B.V.	Velden	21	09-02-2016	21-03-2021	9 270
7	Energie Transitie Partners B.V.	Den Hoorn	8	21-01-2020	02-03-2024	4 906
8	Energie Transitie Partners B.V.	Kwintsheul 2	3	19-07-2019	31-12-2021	41 655
9	Energie Transitie Partners B.V.	Maasdijk	6	21-10-2009	30-11-2023	16 041
10	Energie Transitie Partners B.V.	Maasdijk 2	4	25-10-2019	05-12-2024	59 321
11	Energie Transitie Partners B.V.	Monster 2	9	26-10-2018	06-12-2022	65 345
	J.C.P. van den Ende					
	M.G.W. van den Ende					
	S.P.C. van den Ende					
	T.J.M. van den Ende					
12	Energie Transitie Partners B.V.	Westland-Zuidwest	52	01-03-2019	11-04-2023	12 581
13	EnergieWende B.V.	De Lier 8	10	10-04-2019	19-01-2021	21 093
	De Bruijn Geothermie B.V.					
14	EnergieWende B.V.	De Lier VI	10	05-09-2019	16-10-2023	49 901
	De Bruijn Geothermie B.V.					
15	ENGIE Energy Solutions B.V.	Haarlem-Schalkwijk	100	17-05-2019	27-06-2024	28 683
	Gemeente Haarlem					
16	ENGIE Energy Solutions B.V.	Utrecht	263	30-10-2019	10-12-2023	59 865
17	FrieslandCampina Consumer Products International B.V.	Leeuwarden 5	158	14-03-2018	24-04-2023	15 509
18	Gedeputeerde Staten van Overijssel	Koekoekspolder IIa **	28	21-03-2014	30-12-2020	9 051
19	Gemeente Zwolle	Zwolle	74	23-12-2017	02-02-2022	2018/202
20	GeoPower Exploitatie B.V.	Maasland 6	7	18-04-2020	29-05-2023	23 010
21	GeoPower Exploitatie B.V.	Maasland 7	7	27-11-2020	28-02-2023	63 842
22	Hoogweg Aardwarmte B.V.	Luttelgeest II	53	08-04-2017	19-05-2022	25 792
23	N.V. HVC	Alkmaar	192	17-10-2018	27-11-2022	65 375
24	N.V. HVC	Den Helder	100	14-11-2018	27-12-2022	65 384

	Licence holder	Licence	km ²	Effective from	Effective till	Staatscourant
25	N.V. HVC	Drechtsteden	220	05-02-2019	18-03-2023	11 074
26	N.V. HVC	Lelystad	102	14-11-2018	27-12-2022	67 020
27	N.V. HVC	Velsen	40	18-12-2018	28-01-2023	73 447
28	Hydreco GeoMEC B.V. GeoMEC-4P Realisatie & Exploitatie B.V.	Brielle 2	25	13-10-2009	30-12-2021	15 990
29	Hydreco GeoMEC B.V. Haagse Aardwarmte Leyweg B.V.	Den Haag 4	60	02-10-2019	12-11-2023	57 374
30	Hydreco GeoMEC B.V. Haagse Aardwarmte Leyweg B.V.	Den Haag 6	23	19-09-2019	30-10-2023	52 557
31	Hydreco GeoMEC B.V. Geothermie Brabant B.V.	Made 2	53	28-05-2019	08-07-2023	30 925
32	Hydreco GeoMEC B.V. Haagse Aardwarmte Leyweg B.V. Eneco Warmte & Koude B.V.	Nootdorp-Oost 2	6	13-02-2020	16-10-2023	11 275
33	Hydreco GeoMEC B.V.	Pijnacker-Nootdorp 6a	9	26-08-2015	29-06-2021	30 241
34	Hydreco GeoMEC B.V.	Rotterdam 4	20	18-12-2012	06-11-2024	2013/208
35	Hydreco GeoMEC B.V. Gemeente Rotterdam Shell Geothermal B.V.	Rotterdam-Stad	69	26-09-2020	06-11-2024	50 991
36	Hydreco GeoMEC B.V. Geothermie Brabant B.V.	Someren	105	18-07-2020	28-08-2024	39 740
37	Hydreco GeoMEC B.V.	Tilburg-Geertruidenberg	325	10-07-2015	19-08-2021	21 858
38	Hydreco GeoMEC B.V. Haagse Aardwarmte Leyweg B.V. Eneco Warmte & Koude B.V.	Ypenburg	32	05-09-2019	16-10-2023	49 897
39	Hydreco GeoMEC B.V. GeoMEC-4P Realisatie & Exploitatie B.V.	Vierpolders	5	10-02-2010	30-12-2021	2 211
40	Hydreco GeoMEC B.V. Geothermie Brabant B.V.	West-Brabant	405	13-12-2019	23-01-2024	69 491
41	Larderel Energy B.V.	Eemland	196	11-09-2020	23-10-2023	48 120
42	Geocombinatie Leeuwarden B.V.	Leeuwarden *	30	28-10-2014		31 137
43	Vereniging van Eigenaren Oude Campspolder	Maasland 2 **	5	15-10-2010	31-12-2020	16 611
44	Provincie Drenthe Gemeente Emmen	Erica	72	27-10-2010	06-12-2021	17 250

	Licence holder	Licence	km ²	Effective from	Effective till	Staatscourant
45	Provincie Drenthe Gemeente Emmen	Klazienaveen **	61	27-10-2010	30-11-2020	17 245
46	Shell Geothermal B.V. Havenbedrijf Rotterdam N.V.	Rotterdam-Haven	245	10-01-2020	20-02-2024	2 717
47	Tellus Renkum B.V.	Renkum	615	14-07-2020	24-08-2025	38 613
48	Trias Westland B.V.	De Lier IV *	< 1	01-07-2015		21 833
49	Trias Westland B.V.	De Lier V *	1	01-03-2019		12 586
50	Trias Westland B.V.	Naaldwijk 3 *	9	15-04-2016		20 814
51	Tullip Energy Exploration & Development B.V. Duurzaam Opwekken Amersfoort B.V.	Amersfoort	33	11-09-2020	23-10-2023	48 119
52	Tullip Energy Exploration & Development B.V. MPD Groene Energie B.V.	Ede	40	05-06-2020	16-07-2024	31 394
53	Vermillion Energy Netherlands B.V.	Middenmeer 3	98	24-02-2018	06-04-2022	12 042
54	Aardwarmte Vogelaer B.V.	Poeldijk 2	3	19-09-2019	30-10-2022	52 379
55	WarmteStad B.V.	Groningen 2 **	18	16-04-2011	30-07-2020	7 134
56	Wayland Energy B.V.	Waddinxveen 2	7	05-03-2010	02-10-2022	3 829
57	Wayland Energy B.V.	Bleiswijk 6	11	08-01-2019	18-02-2023	1 507
58	Wayland Energy B.V.	Lansingerland 4 *	6	27-09-2014		28 237
59	Wayland Energy B.V.	Nootdorp-Oost 3	14	13-02-2020	16-10-2023	11 275
60	Wayland Energy B.V.	Zuidplas	46	22-08-2018	02-10-2022	48 156
			Total	4,308		

* Applied for a production licence.

** Applied for extension.

K. Production licences for geothermal energy, Land

As at 1 January 2021

	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	A en G van den Bosch B.V.	Bleiswijk	4	28-11-2008	08-01-2039	237
3	A en G van den Bosch B.V.	Bleiswijk 1b	2	20-03-2015	30-04-2032	8 784
4	Ce-Ren Beheer B.V.	Heemskerk	3	15-04-2016	26-05-2046	20 802
5	Gebroeders Duijvestijn Energie B.V.	Pijnacker-Nootdorp 5	5	24-12-2016	03-02-2052	3 136
6	ECW Geo Andijk B.V.	Andijk	5	24-05-2019	04-07-2054	30 715
7	ECW Geowarmte I B.V.	Middenmeer I	5	05-02-2019	18-03-2054	11 105
8	ECW Geowarmte I B.V.	Middenmeer II	3	05-02-2019	18-03-2054	13 570
9	EnergieWende B.V.	De Lier	6	14-07-2016	24-08-2051	38 394
	De Bruijn Geothermie B.V.					
10	Gemeente Heerlen	Heerlen	41	13-10-2009	23-11-2044	15 963
11	GeoPower Exploitatie B.V.	Maasland	5	08-01-2019	18-02-2054	1 501
12	Green Well Westland B.V.	Honselersdijk	3	02-07-2019	12-08-2049	41 236
13	Hoogweg Aardwarmte B.V.	Luttelgeest	6	24-05-2019	04-07-2052	30 998
14	Hydreco GeoMEC B.V.	Den Haag	10	16-04-2020	27-05-2022	22 460
	Haagse Aardwarmte Leyweg B.V.					
15	Hydreco GeoMEC B.V.	Oostvoorne	17	03-12-2020	13-01-2023	64 446
	Duurzaam Voorne Holding B.V.					
16	Hydreco GeoMEC B.V.	Vierpolders	6	21-06-2017	01-08-2052	36 194
	GeoMEC-4P Realisatie & Exploitatie B.V.					
17	Aardwarmtecluster I KKP B.V.	Kampen	5	27-09-2014	07-11-2044	28 239
18	Californië Lipzig Gielen Geothermie B.V.	Californie 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	Nature's Heat B.V.	Kwintshoek	3	19-07-2019	29-08-2054	41 655
21	Trias Westland B.V.	Naaldwijk	5	20-12-2019	30-01-2050	70 986
22	Visser & Smit Hanab B.V.	Zevenbergen	3	18-12-2019	28-01-2053	70 528
	GeoBrothers B.V.					
23	Aardwarmte Vogelaer B.V.	Poeldijk	5	31-08-2017	11-10-2052	52 090
24	Wayland Energy Bergschenhoek B.V.	Lansingerland	5	08-01-2019	18-02-2054	3 389
25	Californië Wijnen Geothermie B.V.	Californie IV	4	06-07-2017	16-08-2052	39 843
	GeoWeb B.V.					
		Total	186			

L. Exploration licences for rock salt, Land

As at 1 January 2021

No ongoing exploration licences as at 1 January 2021.

M. Production licences for rock salt, Land

As at 1 January 2021

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.	Burse	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 2021

	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 2021

	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	Nederlandse Aardolie Maatschappij B.V.	B16b, B17, E03a, E06a, F01 & F02b	1,366	23-07-2020	02-09-2025	40 590
4	Nederlandse Aardolie Maatschappij B.V. Hague and London Oil Plc. Neptune Energy Netherlands B.V.	F04a	243	23-07-2020	02-09-2025	40 590
5	Nederlandse Aardolie Maatschappij B.V.	G07, G10, G11 & G13a	1,079	03-07-2019	13-08-2023	36 563
6	Nederlandse Aardolie Maatschappij B.V. ONE-Dyas B.V. HALO Exploration & Production Netherlands B.V. Wintershall Noordzee B.V.	J09	18	11-04-2014	31-12-2022	10 508
7	Neptune Energy Netherlands B.V.	E07	400	04-09-2015	16-10-2023	27 592
8	Neptune Energy Netherlands B.V. Gas Plus Netherlands B.V. HALO Exploration & Production Netherlands B.V.	E15c	113	22-04-2008	31-12-2023	78
9	Neptune Energy Netherlands B.V. HALO Exploration & Production Netherlands B.V. Nederlandse Aardolie Maatschappij B.V.	F05	398	03-10-2019	13-11-2023	53 350
10	Neptune Energy Netherlands B.V.	G13b	16	03-07-2019	13-08-2022	36 563n
11	Neptune Energy Netherlands B.V.	K01c **	274	22-11-2011	30-06-2021	21 372
12	Neptune Energy Netherlands B.V. Nederlandse Aardolie Maatschappij B.V.	L03	406	13-05-2016	23-06-2022	24 426
13	ONE-Dyas B.V. Dana Petroleum Netherlands B.V.	F06b	260	07-04-2009	30-12-2024	70
14	ONE-Dyas B.V.	F06c & F06d	129	18-10-2019	28-11-2023	56 147
15	ONE-Dyas B.V. Hansa Hydrocarbons Limited	G18	405	18-09-2012	31-12-2022	23 464
16	ONE-Dyas B.V. Hansa Hydrocarbons Limited	H16	73	18-09-2012	31-12-2022	23 463
17	ONE-Dyas B.V.	M02a & M02b	63	22-11-2011	02-01-2023	1 486
18	ONE-Dyas B.V. Hansa Hydrocarbons Limited	M03a & M03b	130	18-09-2012	31-12-2022	23 462

	Licence holder	Licence	km ²	Effective from	Effective till	Staatscourant
19	ONE-Dyas B.V.	M04a	121	21-09-2010	02-01-2023	14 900
20	ONE-Dyas B.V. Hansa Hydrocarbons Limited	N01	217	18-09-2012	31-12-2022	23 460
21	ONE-Dyas B.V. TAQA Offshore B.V.	S03b	65	07-09-2016	30-12-2023	46 557
22	Petrogas E&P Netherlands B.V. RockRose (NL) CS1 B.V. TAQA Offshore B.V.	A12b & B10a *	79	16-04-2005		77
23	Petrogas E&P Netherlands B.V. RockRose (NL) CS1 B.V. TAQA Offshore B.V.	B16a *	67	11-05-1987		70
24	Tulip Oil Netherlands B.V.	M10a & M11	110	28-07-2007	30-06-2022	152
25	Tulip Oil Netherlands Offshore B.V.	Q08, Q10b & Q11	758	29-09-2018	09-11-2022	56 679
26	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
27	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
28	Wintershall Noordzee B.V. Neptune Energy Netherlands B.V. Rosewood Exploration Ltd.	F18b-diep	31	30-12-2009	30-12-2023	152
			Total			7,636

* Applied for a production licence.

** Applied for extension.

P. Production licences for hydrocarbons, Sea

As at 1 January 2021

	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	Nederlandse Aardolie Maatschappij B.V.	F17c	18	04-12-1996	04-12-2024	207
7	Nederlandse Aardolie Maatschappij B.V.	K07	408	08-07-1981	31-12-2030	120
8	Nederlandse Aardolie Maatschappij B.V. HALO Exploration & Production Netherlands B.V. ONE-Dyas B.V. Wintershall Noordzee B.V.	K08 & K11a	435	26-10-1977	31-12-2030	197
9	Nederlandse Aardolie Maatschappij B.V.	K14a	125	16-01-1975	31-12-2030	6
10	Nederlandse Aardolie Maatschappij B.V.	K15	412	14-10-1977	31-12-2030	197
11	Nederlandse Aardolie Maatschappij B.V.	K17a	200	19-01-1989	19-01-2029	12
12	Nederlandse Aardolie Maatschappij B.V. Wintershall Noordzee B.V.	K18a	36	15-03-2007	09-05-2023	57
13	Nederlandse Aardolie Maatschappij B.V.	L02	406	15-03-1991	15-03-2031	55
14	Nederlandse Aardolie Maatschappij B.V.	L09	409	18-09-2010	09-05-2035	14 911
15	Nederlandse Aardolie Maatschappij B.V. HALO Exploration & Production Netherlands B.V. ONE-Dyas B.V. Wintershall Noordzee B.V.	L13	413	26-10-1977	31-12-2030	197
16	Nederlandse Aardolie Maatschappij B.V. ExxonMobil Producing Netherlands B.V.	M09a	213	10-04-1990	10-04-2030	56
17	Nederlandse Aardolie Maatschappij B.V.	N07a	141	23-12-2003	10-03-2034	252
18	Neptune Energy Netherlands B.V. DNO North Sea (U.K.) limited	D15a & D15b	67	06-09-1996	06-09-2021	138

	Licence holder	Licence	km ²	Effective from	Effective till	Staatscourant
	Wintershall Noordzee B.V.					
19	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
20	Neptune Energy Netherlands B.V. Total E&P Nederland B.V. Vermilion Energy Netherlands B.V.	E16a	29	29-06-2007	09-08-2021	128
21	Neptune Energy Netherlands B.V. Total E&P Nederland B.V. Vermilion Energy Netherlands B.V.	E17a & E17b	114	28-06-2007	08-08-2021	128
22	Neptune Energy Netherlands B.V. TAQA Offshore B.V.	F03b	44	15-04-2020	09-09-2022	22 283-n1
23	Neptune Energy Netherlands B.V. Nederlandse Aardolie Maatschappij B.V. TAQA Offshore B.V.	G14 & G17b	441	15-12-2006	31-12-2035	248
24	Neptune Energy Netherlands B.V.	G16a	133	06-01-1992	06-01-2032	245
25	Neptune Energy Netherlands B.V.	G17a	48	28-12-2020	14-12-2026	1 763
26	Neptune Energy Netherlands B.V. Wintershall Noordzee B.V.	G17c & G17d	130	10-11-2000	10-11-2025	188
27	Neptune Energy Netherlands B.V.	K02b	110	20-01-2004	24-08-2023	16
28	Neptune Energy Netherlands B.V.	K03a	83	24-08-1998	24-08-2023	122
29	Neptune Energy Netherlands B.V.	K03c	32	26-11-2005	31-12-2025	233
30	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
31	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
32	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
33	Neptune Energy Netherlands B.V.	L01c	12	17-01-2020	14-03-2031	16 108

	Licence holder	Licence	km ²	Effective from	Effective till	Staatscourant
34	Neptune Energy Netherlands B.V.	L04c	12	07-01-1994	07-01-2034	2
35	Neptune Energy Netherlands B.V.	L05a	163	15-03-1991	15-03-2031	55
36	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
37	Neptune Energy Netherlands B.V. Mercuria Hydrocarbons B.V. ONE-Dyas B.V. Wintershall Noordzee B.V.	L12a	119	25-09-2008	14-03-2030	189
38	Neptune Energy Netherlands B.V. Mercuria Hydrocarbons B.V. Wintershall Noordzee B.V.	L12b & L15b	92	06-08-2008	12-03-2030	155
39	Neptune Energy Netherlands B.V.	L15c	4	07-09-1990	07-09-2030	172
40	Neptune Energy Netherlands B.V. Rosewood Exploration Ltd. XTO Netherlands Ltd.	N07b	87	14-02-2015	09-03-2034	5 845
41	Neptune Energy Netherlands B.V. Aceiro Energy B.V. TAQA Offshore B.V.	Q13a	30	28-11-2006	28-12-2021	231
42	ONE-Dyas B.V. Hansa Hydrocarbons Limited	G17e	189	28-12-2020	14-12-2026	1 763
43	ONE-Dyas B.V.	L11b	47	15-06-1984	15-06-2024	110
44	ONE-Dyas B.V.	L11c	7	21-12-2018	24-08-2031	143
45	ONE-Dyas B.V. Neptune Energy Netherlands B.V.	L11d	172	21-12-2018	24-08-2031	143
46	ONE-Dyas B.V.	M01a & M01c	54	28-06-2007	08-08-2022	128
47	ONE-Dyas B.V. TAQA Offshore B.V.	M07a *	64	22-03-2001	22-03-2021	19
48	ONE-Dyas B.V. Hansa Hydrocarbons Limited	N04, N05 & N08	430	25-07-2019	04-09-2049	42 716
49	ONE-Dyas B.V. Hansa Hydrocarbons Limited	N07c	87	14-02-2015	09-03-2034	5 845
50	ONE-Dyas B.V. TAQA Offshore B.V.	P11a	6	23-09-2015	03-11-2025	45 676

	Licence holder	Licence	km ²	Effective from	Effective till	Staatscourant
51	ONE-Dyas B.V. TAQA Offshore B.V.	P18b	37	14-07-2017	24-08-2030	41 916
52	ONE-Dyas B.V. TAQA Offshore B.V.	P18d	2	20-09-2012	31-10-2027	23 457
53	ONE-Dyas B.V. Total E&P Nederland B.V. Vermilion Energy Netherlands B.V.	Q16a	28	29-12-1992	29-12-2032	227
54	ONE-Dyas B.V. TAQA Offshore B.V.	Q16c-diep	21	20-09-2012	31-10-2027	23 465
55	ONE-Dyas B.V. TAQA Offshore B.V.	S03a	2	20-09-2012	31-10-2027	23 466
56	ONE-Dyas B.V. TAQA Offshore B.V.	T01	1	20-09-2012	31-10-2027	23 467
57	Petrogas E&P Netherlands B.V. RockRose (NL) CS1 B.V. TAQA Offshore B.V.	A12a	195	01-07-2005	11-08-2025	129
58	Petrogas E&P Netherlands B.V. RockRose (NL) CS1 B.V. TAQA Offshore B.V.	A12d	33	01-07-2005	11-08-2025	129
59	Petrogas E&P Netherlands B.V. RockRose (NL) CS1 B.V.	A15a	67	27-12-2011	03-02-2027	746
60	Petrogas E&P Netherlands B.V. RockRose (NL) CS1 B.V. TAQA Offshore B.V.	A18a	229	01-07-2005	11-08-2025	129
61	Petrogas E&P Netherlands B.V. RockRose (NL) CS1 B.V.	A18c	47	01-07-2005	11-08-2025	125
62	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
63	Petrogas E&P Netherlands B.V. Aceiro Energy B.V.	P08a	26	07-12-2018	17-01-2027	70 806
64	Petrogas E&P Netherlands B.V. Aceiro Energy B.V. RockRose (NL) CS1 B.V. Wintershall Noordzee B.V.	P09a, P09b & P09d	90	16-08-1993	16-08-2033	127
65	Petrogas E&P Netherlands B.V.	P09c, P09e & P09f	101	16-08-1993	16-08-2033	126

	Licence holder	Licence	km ²	Effective from	Effective till	Staatscourant
	RockRose (NL) CS1 B.V.					
	Wintershall Noordzee B.V.					
66	Petrogas E&P Netherlands B.V.	Q01a-ondiep & Q01b-ondiep *	43	23-12-2017	11-07-2020	193
67	Petrogas E&P Netherlands B.V.	Q02c	32	14-07-1994	14-07-2034	18
	RockRose (NL) CS1 B.V.					
68	Spirit Energy Nederland B.V.	J03b & J06a	47	06-11-1992	06-11-2032	219
	RockRose (NL) CS1 B.V.					
	Total E&P Nederland B.V.					
69	TAQA Offshore B.V.	P15a, P15b, P15d, P15e & P15f	119	12-07-1984	12-07-2024	110
	Dana Petroleum Netherlands B.V.					
	ONE-Dyas B.V.					
	RockRose (NL) CS1 B.V.					
	Wintershall Noordzee B.V.					
70	TAQA Offshore B.V.	P15c, P15g, P15h, P15i & P15j	34	07-05-1992	07-05-2032	114
	Dana Petroleum Netherlands B.V.					
	ONE-Dyas B.V.					
	RockRose (NL) CS1 B.V.					
	Wintershall Noordzee B.V.					
71	TAQA Offshore B.V.	P18a	105	30-04-1992	30-04-2032	99
72	TAQA Offshore B.V.	P18c	6	02-06-1992	02-06-2032	99
	Dana Petroleum Netherlands B.V.					
	RockRose (NL) CS1 B.V.					
73	Total E&P Nederland B.V.	F06a	8	09-09-1982	9-09-2022	139
	TAQA Offshore B.V.					
	Vermilion Energy Netherlands B.V.					
74	Total E&P Nederland B.V.	F15a	53	06-05-1991	06-05-2031	52
	RockRose (NL) CS1 B.V.					
	Vermilion Energy Netherlands B.V.					
75	Total E&P Nederland B.V.	J03a	30	12-01-1996	12-01-2036	22
	Nederlandse Aardolie Maatschappij B.V.					
76	Total E&P Nederland B.V.	K01a	40	10-02-1997	10-02-2022	46
	Nederlandse Aardolie Maatschappij B.V.					
77	Total E&P Nederland B.V.	K02c	42	21-01-2004	07-11-2021	16
78	Total E&P Nederland B.V.	K03b	7	30-01-2001	30-01-2021	19
	Vermilion Energy Netherlands B.V.					
79	Total E&P Nederland B.V.	K04a	209	29-12-1993	29-12-2033	220

	Licence holder	Licence	km ²	Effective from	Effective till	Staatscourant
80	Total E&P Nederland B.V. RockRose (NL) CS1 B.V. Vermilion Energy Netherlands B.V.	K04b & K05a	229	01-06-1993	01-06-2033	87
81	Total E&P Nederland B.V.	K05b & K05c	136	07-11-1996	07-11-2021	207
82	Total E&P Nederland B.V. Vermilion Energy Netherlands B.V.	K06a, K06b, L07a, L07b & L07c	421	20-06-1975	20-06-2033	112
83	Total E&P Nederland B.V. SGPO Van Dyke B.V.	L01a	31	12-09-1996	31-12-2023	135
84	Total E&P Nederland B.V.	L01d	7	13-11-1996	31-12-2023	207
85	Total E&P Nederland B.V. Vermilion Energy Netherlands B.V.	L01e	12	13-11-1996	31-12-2027	207
86	Total E&P Nederland B.V. Vermilion Energy Netherlands B.V.	L01f	17	14-01-2003	14-01-2033	235
87	Total E&P Nederland B.V. Vermilion Energy Netherlands B.V.	L04a & L04b	141	30-12-1981	30-12-2021	230
88	Tulip Oil Netherlands Offshore B.V.	Q07 & Q10a	472	14-07-2017	24-08-2042	41 910
89	Wintershall Noordzee B.V. Neptune Energy Participation Netherlands B.V.	D12a	214	06-09-1996	06-09-2021	138
90	Wintershall Noordzee B.V. GAZPROM International UK Ltd. HALO Exploration & Production Netherlands B.V. Neptune Energy Netherlands B.V.	D12b	41	03-06-2017	14-07-2037	32 476
91	Wintershall Noordzee B.V. Dana Petroleum Netherlands B.V. HALO Exploration & Production Netherlands B.V. Neptune Energy Netherlands B.V.	E18a	1	04-10-2002	21-10-2032	175
92	Wintershall Noordzee B.V. Neptune Energy Netherlands B.V.	F16a & F16b	18	04-10-2002	21-10-2032	175
93	Wintershall Noordzee B.V. Neptune Energy Netherlands B.V. Rosewood Exploration Ltd. TAQA Offshore B.V.	F17a-diep	386	14-05-2016	24-06-2033	43 400
94	Wintershall Noordzee B.V. Nederlandse Aardolie Maatschappij B.V. RockRose (NL) CS1 B.V.	K18b	155	15-03-2007	09-05-2023	57
95	Wintershall Noordzee B.V.	L05b	237	28-06-2003	09-08-2038	134

	Licence holder	Licence	km ²	Effective from	Effective till	Staatscourant
	Dana Petroleum Netherlands B.V.					
96	Wintershall Noordzee B.V.	L05c	8	03-12-1996	31-12-2028	209
	Dana Petroleum Netherlands B.V.					
97	Wintershall Noordzee B.V.	L06a	332	24-11-2010	04-01-2031	18 910
	Dana Petroleum Netherlands B.V.					
98	Wintershall Noordzee B.V.	L06b	60	01-07-2003	11-08-2038	134
	Dana Petroleum Netherlands B.V.					
99	Wintershall Noordzee B.V.	L08a & L08c	44	18-08-1988	18-08-2028	146
	ONE-Dyas B.V.					
100	Wintershall Noordzee B.V.	L08b, L08d & L08e	69	17-05-1993	17-05-2033	78
	Dana Petroleum Netherlands B.V.					
	ONE-Dyas B.V.					
101	Wintershall Noordzee B.V.	L16a	238	12-06-1984	12-06-2024	84
	Nederlandse Aardolie Maatschappij B.V.					
	RockRose (NL) CS1 B.V.					
102	Wintershall Noordzee B.V.	P06a	143	14-04-1982	14-04-2022	54
	RockRose (NL) CS1 B.V.					
103	Wintershall Noordzee B.V.	P12a	96	08-03-1990	08-03-2030	27
	RockRose (NL) CS1 B.V.					
	Vermilion Energy Netherlands B.V.					
104	Wintershall Noordzee B.V.	Q01c-diep	140	23-12-2017	31-12-2030	193
	TAQA Offshore B.V.					
105	Wintershall Noordzee B.V.	Q04a	42	02-12-1999	02-12-2030	228
	Mercuria Hydrocarbons B.V.					
	RockRose (NL) CS1 B.V.					
106	Wintershall Noordzee B.V.	Q05d	20	15-02-2001	31-12-2021	19
	Mercuria Hydrocarbons B.V.					
	RockRose (NL) CS1 B.V.					
			Total			13,613

* Applied for extension.

Q. Subsurface storage licences, Sea

As at 1 January 2021

	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 2020.

R. Blocks and operators, Sea

As at 1 January 2021

Block (part of)	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	

Block (part of)	Open area (km ²)	Operator	Licence (km ²)	
			Exploration	Production
B16c	130			
B17		NAM	395	
B18	199			
D03	2			
D06	60			
D09	149			
D12a		Wintershall		214
D12b		Wintershall		41
D15a		Neptune		63
D15b		Neptune		4
D15c	180			
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			

Block (part of)	Open area (km ²)	Operator	Licence (km ²)	
			Exploration	Production
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	
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	262			
F15c	88			
F16a		Wintershall		7
F16b		Wintershall		12
F16c	386			
F17a	(ondiep) 386	Wintershall		(diep) 386

Block (part of)	Open area (km ²)	Operator	Licence (km ²)	
			Exploration	Production
F17c		NAM		18
F18a	373			
F18b	(ondiep) 31	Wintershall	31	
G07		NAM	122	
G10		NAM	397	
G11		NAM	174	
G13a		NAM	387	
G13b		Neptune	16	
G14		Neptune		403
G15	226			
G16a		Neptune		133
G16b	272			
G17a		Neptune		48
G17b		Neptune		38
G17c		Neptune		34
G17d		Neptune		96
G17e		ONE-Dyas		189
G18		ONE-Dyas	405	
H13	1			
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			

Block (part of)	Open area (km ²)	Operator	Licence (km ²)	
			Exploration	Production
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			
K11a		NAM		26
K11b	385			
K12a		Neptune		267
K12b	144			
K13	324			
K14a		NAM		125
K14b	287			

Block (part of)	Open area (km ²)	Operator	Licence (km ²)	
			Exploration	Production
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		17
L07c		Total		3
L07d	224			
L08a		Wintershall		34
L08b		Wintershall		42
L08c		Wintershall		10
L08d		Wintershall		16
L08e		Wintershall		10

Block (part of)	Open area (km ²)	Operator	Licence (km ²)	
			Exploration	Production
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		ONE-Dyas	81	
M03b		ONE-Dyas	49	
M03c	276			
M04a		ONE-Dyas	121	
M04b	287			
M05	408			
M06	408			

Block (part of)	Open area (km ²)	Operator	Licence (km ²)	
			Exploration	Production
M07a		ONE-Dyas		64
M07b	346			
M08	391			
M09a		NAM		213
M09b	158			
M10a		Tulip	82	
M10b	113			
M11		Tulip	28	
N01		ONE-Dyas	217	
N04		ONE-Dyas		381
N05		ONE-Dyas		14
N07a		NAM		141
N07b		Neptune		87
N07c		ONE-Dyas		87
N08		ONE-Dyas		34
O12	2			
O15	142			
O17	3			
O18	367			
P01	209			
P02	416			
P03	416			
P04	170			
P05	417			
P06a		Wintershall		143
P06b	259			
P06c	16			
P07	222			
P08a		Petrogas		26
P08b		Jetex	105	
P08c	288			
P09a		Petrogas		17

Block (part of)	Open area (km ²)	Operator	Licence (km ²)	
			Exploration	Production
P09b		Petrogas		62
P09c		Petrogas		18
P09d		Petrogas		11
P09e		Petrogas		80
P09f		Petrogas		3
P09g	228			
P10a		Dana NL		5
P10b		Dana NL		100
P10c		Jetex	249	
P11a		ONE-Dyas		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
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			

Block (part of)	Open area (km ²)	Operator	Licence (km ²)	
			Exploration	Production
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			
Q05a	0			
Q05b	277			
Q05d		Wintershall		20
Q07		Tulip		419
Q08		Tulip	244	
Q10a		Tulip		53
Q10b		Tulip	367	
Q11		Tulip	147	
Q13a		Neptune		30
Q13b	367			
Q14	24			
Q16a		ONE-Dyas		28
Q16b	119			
Q16c	(ondiep) 7	ONE-Dyas		(diep) 21
R02	103			
R03	425			
R05	7			
R06	311			
R09	28			

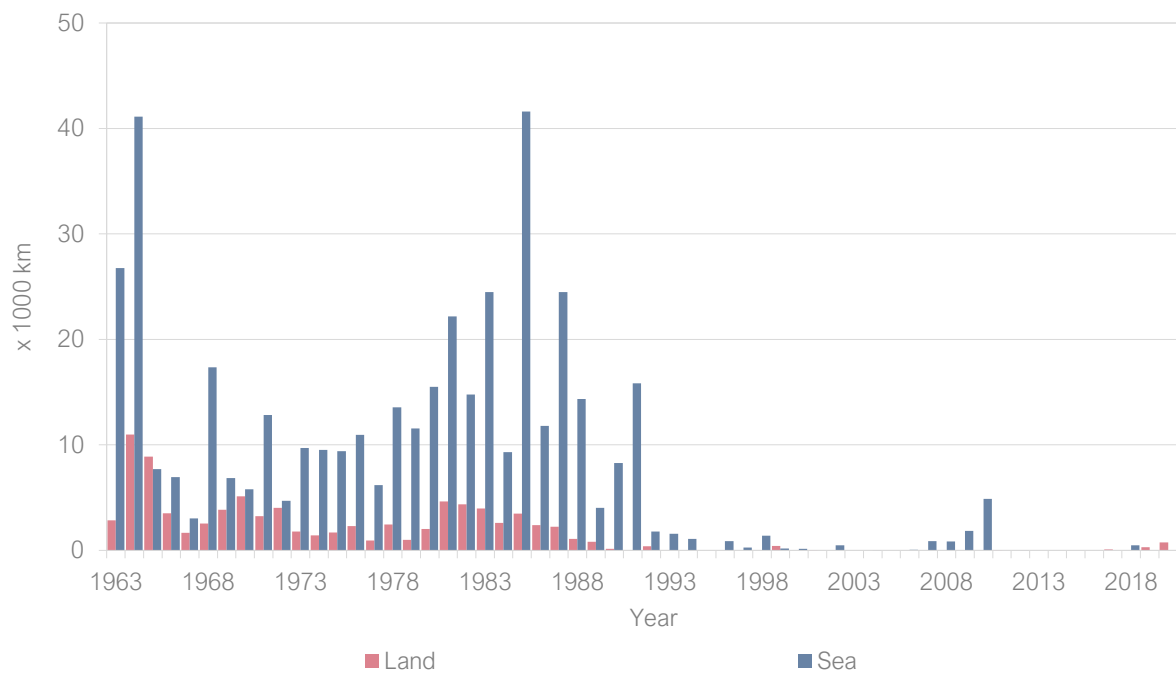
Block (part of)	Open area (km ²)	Operator	Licence (km ²)	
			Exploration	Production
S01	425			
S02	425			
S03a		ONE-Dyas		2
S03b		ONE-Dyas	65	
S03c	220			
S04	427			
S05	349			
S06	10			
S07	360			
S08	95			
S10	36			
S11	0			
T01		ONE-Dyas		1
Total	35,854		7,638	13,614

S. Seismic surveys

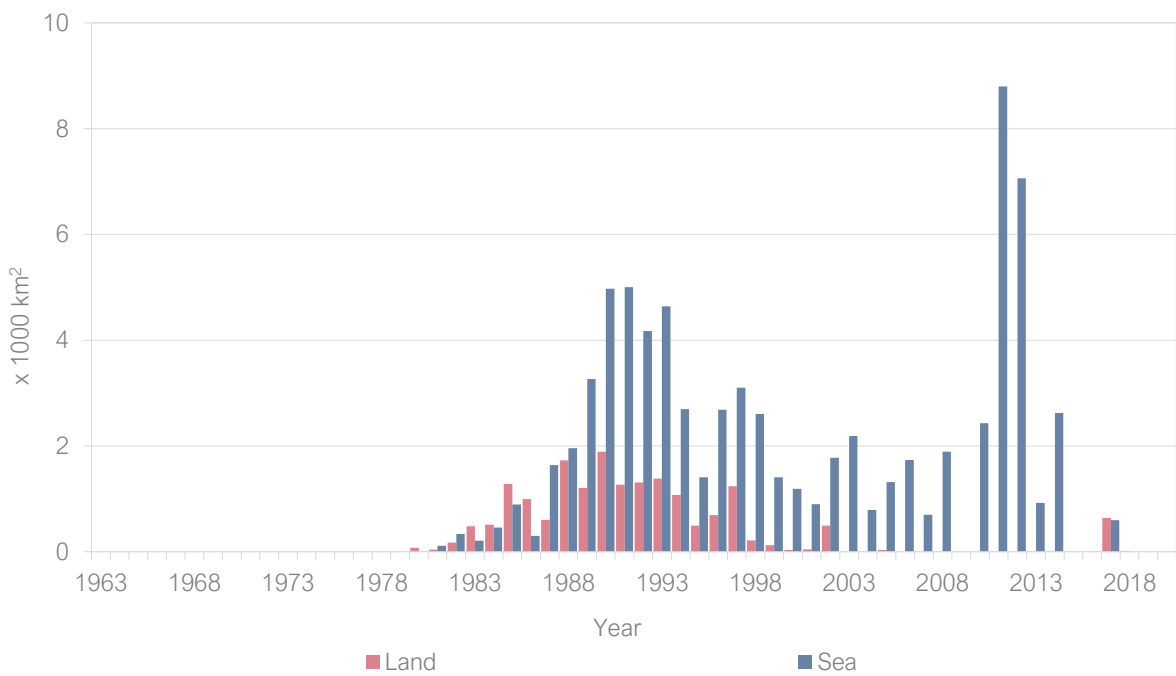
Year	Land		Sea	
	2D (km)	3D (km ²)	2D (km)	3D (km ²)
1963	2,860	-	26,778	-
1964	10,992	-	41,136	-
1965	8,885	-	7,707	-
1966	3,510	-	6,939	-
1967	1,673	-	3,034	-
1968	2,541	-	17,349	-
1969	3,857	-	6,846	-
1970	5,113	-	5,780	-
1971	3,252	-	12,849	-
1972	4,034	-	4,716	-
1973	1,783	-	9,708	-
1974	1,422	-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

Year	Land		Sea	
	2D (km)	3D (km ²)	2D (km)	3D (km ²)
1997	-	1,236	260	3,101
1998	-	214	1,380	2,603
1999	43	124	181	1,409
2000	-	33	160	1,189
2001	5	47	-	898
2002	-	495	490	1,778
2003	-	-	-	2,185
2004	-	-	34	790
2005	-	32	-	1,314
2006	-	-	53	1,732
2007	-	-	886	700
2008	-	-	838	1,893
2009	-	-	1,849	-
2010	-	-	4,898	2,431
2011	14	-	-	8,800
2012	-	-	37	7,060
2013	-	-	-	925
2014	-	-	-	2,624
2015	-	-	-	-
2016	-	-	-	-
2017	94	640	-	593
2018	-	15	480	-
2019	302	-	-	-
2020	770	-	-	-

2D seismic surveys 1963 – 2020



3D seismic surveys 1963 – 2020



T. Number of oil and gas wells, Land

Year	Exploration					Appraisal					Production
	O	G	G&O	D	Σ	O	G	G&O	D	Σ	Σ
t/m 1945	3	-	-	53	56	-	-	-	-	-	5
1946	-	-	-	1	1	-	-	-	-	-	19
1947	-	-	-	3	3	-	-	-	-	-	17
1948	-	1	-	8	9	-	-	-	-	-	42
1949	1	1	-	14	16	-	-	-	-	-	21
1950	-	1	-	7	8	-	-	-	-	-	26
1951	-	5	-	9	14	-	-	-	-	-	38
1952	1	2	2	6	11	-	2	-	-	2	44
1953	4	1	-	5	10	1	-	-	-	1	58
1954	4	1	-	12	17	-	-	-	-	-	45
1955	2	2	-	4	8	-	-	-	-	-	17
1956	1	3	1	3	8	-	-	-	1	1	14
1957	1	2	-	1	4	1	-	-	-	1	60
1958	3	1	-	4	8	-	-	-	1	1	35
1959	1	2	-	7	10	-	-	-	-	-	30
1960	-	1	-	1	2	-	1	-	-	1	48
1961	1	2	-	2	5	-	-	-	-	-	22
1962	2	-	-	-	2	-	1	-	-	1	27
1963	-	2	-	-	2	-	1	-	-	1	32
1964	-	6	-	17	23	-	1	-	-	1	26
1965	2	13	-	17	32	-	6	-	4	10	36
1966	1	1	-	6	8	-	4	-	1	5	42
1967	-	4	-	-	4	-	1	1	-	2	44
1968	-	6	-	6	12	-	1	-	1	2	21
1969	-	4	-	11	15	-	2	-	3	5	13
1970	-	5	-	10	15	-	6	-	1	7	19
1971	-	4	1	9	14	-	7	-	2	9	47
1972	-	5	-	6	11	-	5	-	1	6	55
1973	-	3	-	3	6	-	10	-	1	11	37
1974	-	1	-	1	2	1	4	-	-	5	46
1975	-	5	-	3	8	-	9	-	2	11	45
1976	1	2	-	2	5	-	9	-	1	10	47
1977	-	4	-	3	7	3	12	-	1	16	28
1978	-	2	-	3	5	-	22	-	-	22	45

Year	Exploration					Appraisal					Production
	O	G	G&O	D	Σ	O	G	G&O	D	Σ	Σ
1979	-	4	-	2	6	5	10	-	2	17	58
1980	1	2	-	3	6	3	18	-	4	25	67
1981	1	2	1	11	15	3	7	-	2	12	49
1982	-	6	1	5	12	-	17	-	-	17	26
1983	1	8	-	3	12	-	13	-	1	14	17
1984	2	6	-	6	14	5	8	-	2	15	18
1985	1	3	1	6	11	2	10	-	-	12	36
1986	-	4	1	6	11	-	3	-	-	3	16
1987	-	2	2	6	10	-	2	-	-	2	22
1988	-	5	1	1	7	1	3	-	-	4	17
1989	-	2	1	6	9	2	5	-	-	7	11
1990	-	1	3	3	7	-	3	1	1	5	20
1991	-	7	1	2	10	-	3	-	1	4	11
1992	-	6	1	4	11	-	1	-	-	1	12
1993	-	9	-	1	10	-	-	-	-	-	11
1994	-	4	-	1	5	2	1	1	-	4	4
1995	-	7	-	5	12	-	2	-	-	2	10
1996	-	2	1	2	5	-	3	-	3	6	24
1997	-	9	-	2	11	-	4	-	-	4	14
1998	-	6	-	4	10	-	7	-	1	8	7
1999	-	3	-	1	4	-	4	-	-	4	7
2000	-	2	-	-	2	-	-	-	-	-	4
2001	-	2	-	1	3	-	-	-	-	-	6
2002	-	2	-	3	5	-	-	-	-	-	5
2003	-	2	-	1	3	-	-	-	-	-	8
2004	-	1	-	-	1	-	1	-	-	1	1
2005	-	2	-	-	2	-	-	-	-	-	6
2006	-	3	-	1	4	-	2	-	-	2	5
2007	-	2	-	-	2	1	-	-	-	1	8
2008	-	1	-	-	1	-	1	-	-	1	1
2009	1	1	-	-	2	-	3	-	-	3	24
2010	-	3	-	-	3	-	-	-	-	-	34
2011	-	5	1	2	8	-	1	-	-	1	22
2012	-	3	-	1	4	-	3	-	-	3	7
2013	-	2	-	-	2	-	2	-	-	2	8

Year	Exploration					Appraisal					Production
	O	G	G&O	D	Σ	O	G	G&O	D	Σ	Σ
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
Total	35	234	19	329	617	30	245	3	37	315	1,776

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

U. Number of oil and gas wells, Sea

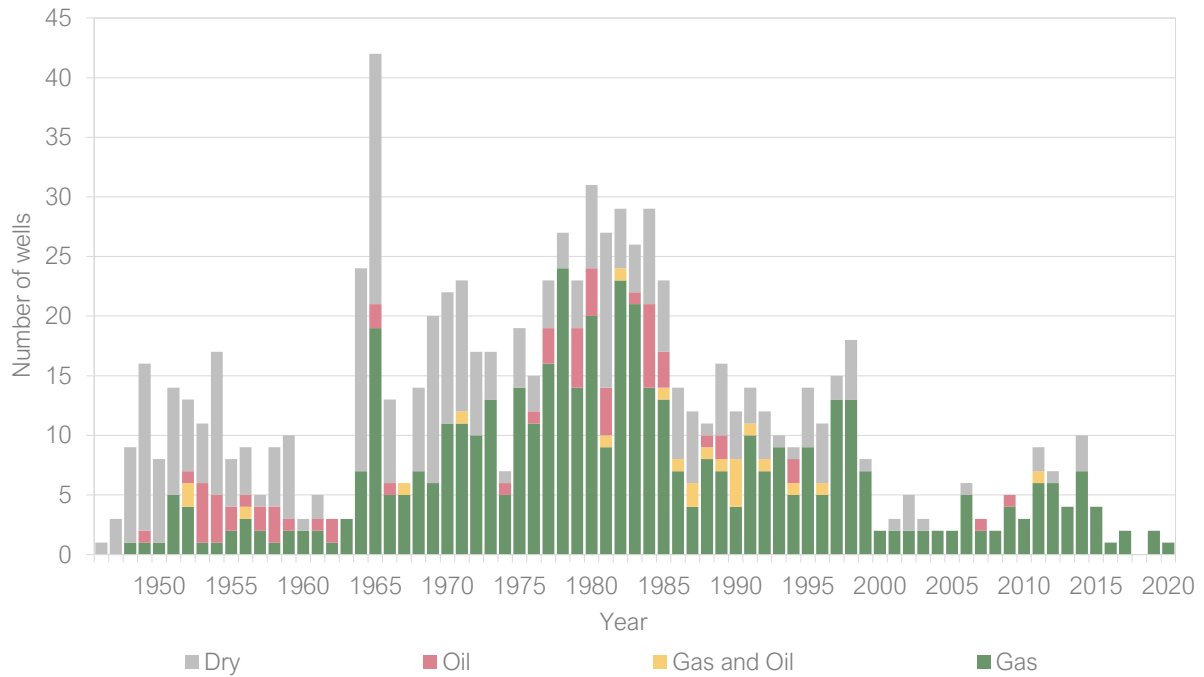
Year	Exploration					Appraisal					Production
	O	G	G&O	D	Σ	O	G	G&O	D	Σ	Σ
1962	-	1	1	1	3	-	-	-	-	-	-
1963	-	-	-	-	-	-	-	-	-	-	-
1964	-	-	-	1	1	-	-	-	-	-	-
1965	-	-	-	-	-	-	-	-	-	-	-
1966	-	-	-	-	-	-	-	-	-	-	-
1967	-	-	-	-	-	-	-	-	-	-	-
1968	-	2	-	5	7	-	-	-	-	-	-
1969	1	8	-	8	17	-	-	-	-	-	-
1970	1	7	-	5	13	-	-	-	-	-	-
1971	1	5	1	12	19	-	-	-	-	-	-
1972	-	11	1	6	18	-	-	-	-	-	-
1973	-	7	-	11	18	-	1	-	-	1	2
1974	-	8	2	6	16	-	1	-	-	1	4
1975	-	7	-	8	15	-	2	-	3	5	11
1976	-	6	1	10	17	-	5	-	2	7	12
1977	-	5	-	18	23	-	6	1	-	7	14
1978	-	7	-	13	20	-	-	-	1	1	17
1979	1	7	-	9	17	-	5	-	1	6	9
1980	6	9	-	10	25	2	2	-	1	5	5
1981	1	2	-	14	17	7	6	-	1	14	7
1982	8	5	2	18	33	1	6	1	4	12	21
1983	3	3	1	24	31	4	3	-	2	9	19
1984	4	5	1	16	26	3	1	-	3	7	27
1985	4	8	-	14	26	2	3	-	1	6	29
1986	2	11	-	11	24	2	2	-	1	5	34
1987	5	10	1	9	25	1	3	-	1	5	8
1988	-	15	2	4	21	-	4	1	1	6	20
1989	1	14	-	12	27	-	6	-	-	6	17
1990	-	13	1	14	28	-	6	-	-	6	14
1991	4	17	1	19	41	-	2	-	-	2	13
1992	-	10	1	7	18	-	-	-	1	1	14
1993	1	5	-	7	13	-	1	-	-	1	19
1994	1	3	-	3	7	1	1	-	-	2	9
1995	-	3	-	4	7	-	2	-	-	2	17

Year	Exploration					Appraisal					Production
	O	G	G&O	D	Σ	O	G	G&O	D	Σ	Σ
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
Total	53	350	24	371	798	32	116	4	28	180	599

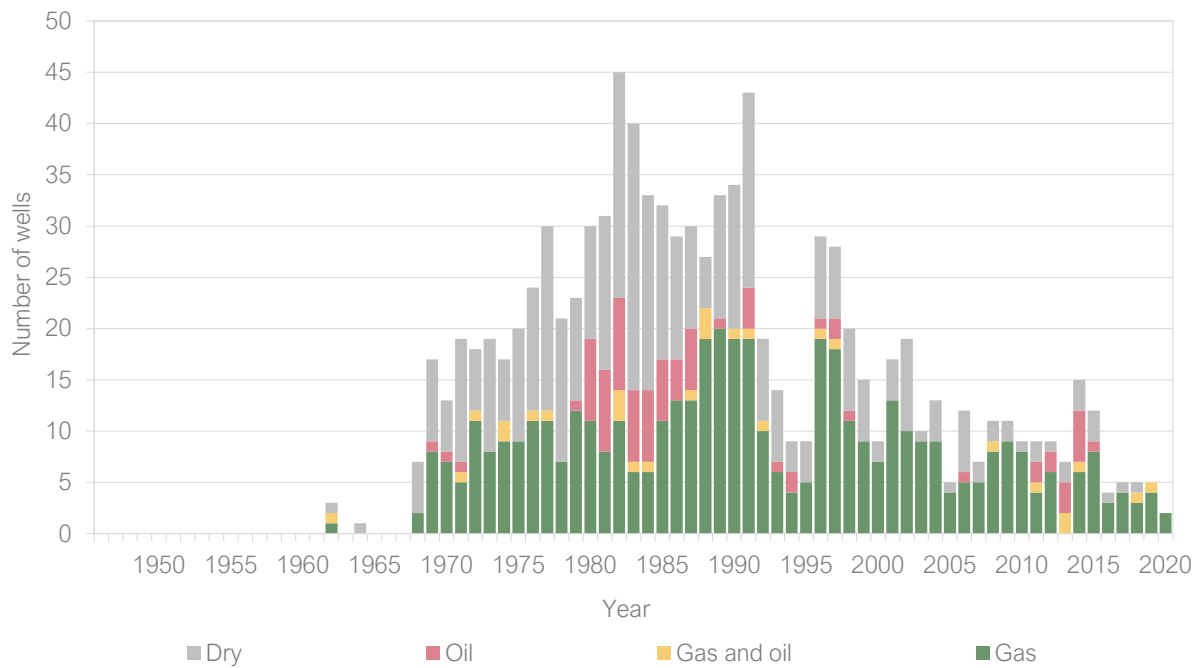
O = Oil; G = Gas; G&O = Gas and oil; D = Dry; Σ = Total.

V. Number of wells, Land and Sea since 1946

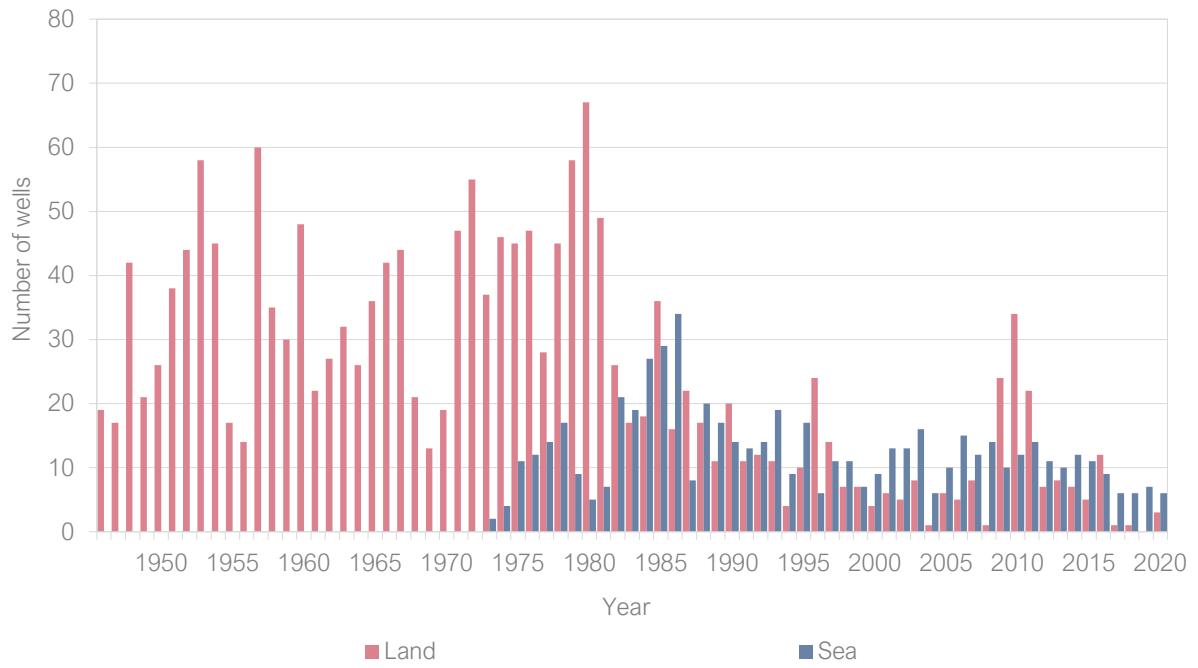
Exploration and appraisal wells, Land



Exploration and appraisal wells, Sea



Production wells



W. Platforms, Sea

As at 1 January 2021

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 or Scraper	3
AWG-1W	NAM	Operational	Gas	1984		Wellheads	4
K07-FA-1P	NAM	Operational	Gas	1980		Processing	6
K07-FA-1W	NAM	Operational	Gas	1980		Wellheads	4
K07-FB-1	NAM	Operational	Gas	2002		Wellheads	3
K07-FD-1	NAM	Operational	Gas	1999		Wellheads	4
K08-FA-1AP	NAM	Operational	Gas	2001		Accommodation or Office	4
K08-FA-1PP	NAM	Operational	Gas	1976		Processing	10
K08-FA-2	NAM	Operational	Gas	1977		Wellheads	4
K08-FA-3	NAM	Operational	Gas	1984		Wellheads	6
K11-FA-1	NAM	Decommissioned	Gas	1977	1999	Wellheads	4
K14-FA-1C	NAM	Operational	Gas	1985		Compression	8
K14-FA-1P	NAM	Operational	Gas	1975		Processing	10
K14-FA-1V	NAM	Operational	Gas	1985		Vent stack 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 or Scraper	1
K15-FB-1	NAM	Operational	Gas	1978		Processing	10
K15-FC-1	NAM	Operational	Gas	1989		Wellheads	4
K15-FG-1	NAM	Operational	Gas	1990		Wellheads	4
K15-FK-1	NAM	Operational	Gas	2002		Wellheads	4
K17-FA-1	NAM	Operational	Gas	2005		Wellheads	1
L02-FA-1	NAM	Operational	Gas	1990		Processing	6
L09-FA-1	NAM	Operational	Gas	2007		Wellheads	1
L09-FB-1	NAM	Operational	Gas	2007		Wellheads	1
L09-FF-1P	NAM	Operational	Gas	1997		Processing	6
L09-FF-1W	NAM	Operational	Gas	1996		Wellheads	6
L13-FC-1P	NAM	Operational	Gas	1986		Processing	6
L13-FC-1W	NAM	Operational	Gas	1985		Wellheads	4

Platform	Operator	Status	Carries	Installed	Decom.	Function	Number of legs
L13-FD-1	NAM	Operational	Gas	1988		Wellheads	4
L13-FE-1	NAM	Operational	Gas	1989		Wellheads	4
L13-FI	NAM	Operational	Gas	2017		Wellheads	1
N07-FA-1	NAM	Suspended	Gas	1997		Wellheads	1
D15-FA-1	Neptune	Operational	Gas	1999		Processing	6
D18a-A	Neptune	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	Decommissioning in progress	Gas	2007		Processing	4
G16a-A	Neptune	Operational	Gas	2005		Processing	4
G16a-B	Neptune	Operational	Gas	2011		Processing	4
G17d-A	Neptune	Operational	Gas	2001		Processing	4
G17d-AP	Neptune	Operational	Gas	2005		Processing	4
K02b-A	Neptune	Operational	Gas	2005		Processing	4
K09ab-A	Neptune	Operational	Gas	1987		Processing	4
K09ab-B	Neptune	Operational	Gas	1999		Processing	4
K09c-A	Neptune	Operational	Gas	1987		Processing	4
K11-B	Neptune	Decommissioned	Gas	1995	2005	Wellheads	4
K12-A	Neptune	Suspended	Gas	1983		Manifold	4
K12-BD	Neptune	Operational	Gas	1985		Wellheads	4
K12-BP	Neptune	Operational	Gas	1987		Processing	8
K12-C	Neptune	Decommissioning in progress	Gas	1984		Processing	4
K12-CC	Neptune	Decommissioning in progress	Gas	1988		Compression	4
K12-D	Neptune	Operational	Gas	1985		Processing	4
K12-E	Neptune	Decommissioned	Gas	1986	2005	Wellheads	4
K12-G	Neptune	Operational	Gas	2001		Processing	4
K12-K	Neptune	Operational	Gas	2007		Processing	4
L05a-D	Neptune	Operational	Gas	2013		Processing	4
L05-FA-1	Neptune	Operational	Gas	1992		Processing	6
L10-AC	Neptune	Operational	Gas	1987		Compression	4
L10-AD	Neptune	Operational	Gas	1974		Wellheads	10
L10-AP	Neptune	Operational	Gas	1975		Processing	8
L10-AR	Neptune	Operational	Gas	1975		Riser or Scraper	4

Platform	Operator	Status	Carries	Installed	Decom.	Function	Number of legs
L10-B	Neptune	Operational	Gas	1974		Processing	4
L10-BB	Neptune	Operational	Gas	1980		Wellheads	3
L10-C	Neptune	Decommissioned	Gas	1974	2020	Wellheads	4
L10-D	Neptune	Decommissioned	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	Decommissioned	Gas	1984	2020	Wellheads	4
L10-K	Neptune	Decommissioned	Gas	1984	2000	Wellheads	4
L10-L	Neptune	Operational	Gas	1988		Processing	4
L10-M	Neptune	Operational	Gas	1999		Processing	4
L11a-A	Neptune	Decommissioned	Gas	1990	1999	Processing	4
L15-FA-1	Neptune	Operational	Gas	1992		Processing	6
Q13a-A	Neptune	Operational	Oil	2013		Processing	4
D12-A	Wintershall	Operational	Gas	2004		Processing	4
D12-B	Wintershall	Operational	Gas	2019		Production	4
E18-A	Wintershall	Decommissioned	Gas	2009	2019	Wellheads	4
F16-A	Wintershall	Operational	Gas	2005		Processing	6
K10-BP	Wintershall	Decommissioned	Gas	1981	2014	Processing	6
K10-BW	Wintershall	Decommissioned	Gas	1981	2014	Wellheads	6
K10-C	Wintershall	Decommissioned	Gas	1981	1997	Processing	4
K10-V	Wintershall	Decommissioned	Gas	1993	2005	Processing	4
K13-AP	Wintershall	Operational	Gas	1974		Processing	8
K13-AW	Wintershall	Operational	Gas	1974		Riser or Scraper	4
K13-B	Wintershall	Decommissioned	Gas	1976	1997	Processing	4
K13-CP	Wintershall	Decommissioned	Gas	1977	1995	Compression	6
K13-CW	Wintershall	Decommissioned	Gas	1977	1995	Wellheads	4
K13-D	Wintershall	Decommissioned	Gas	1978	1995	Wellheads	4
K18-Kotter-P	Wintershall	Decommissioned	Oil	1984	2019	Processing	8
K18-Kotter-W	Wintershall	Decommissioned	Oil	1984	2019	Wellheads	6
L05-B	Wintershall	Operational	Gas	2003		Processing	4
L05-C	Wintershall	Operational	Gas	2006		Processing	4
L06-B	Wintershall	Operational	Gas	2014		Wellheads	1
L08-A	Wintershall	Suspended	Gas	1988		Processing	4
L08-G	Wintershall	Suspended	Gas	1988		Processing	6
L08-H	Wintershall	Suspended	Gas	1988		Processing	4
L08-P	Wintershall	Operational	Gas	1994		Processing	4
L08-P4	Wintershall	Operational	Gas	1999		Processing	4

Platform	Operator	Status	Carries	Installed	Decom.	Function	Number of legs
L16-Logger-P	Wintershall	Decommissioned	Oil	1985	2019	Processing	4
L16-Logger-W	Wintershall	Decommissioned	Oil	1985	2019	Accommodation or Office	4
P02-NE	Wintershall	Decommissioned	Gas	1996	2004	Wellheads	4
P02-SE	Wintershall	Decommissioned	Gas	1997	2004	Wellheads	4
P06-A	Wintershall	Operational	Gas	1982		Processing	8
P06-B	Wintershall	Operational	Gas	1985		Processing	4
P06-D	Wintershall	Operational	Gas	2000		Processing	4
P06-S	Wintershall	Decommissioned	Gas	1997	2013	Wellheads	4
P12-C	Wintershall	Decommissioned	Gas	1990	1999	Wellheads	4
P12-SW	Wintershall	Suspended	Gas	1990		Processing	4
P14-A	Wintershall	Decommissioned	Gas	1993	2008	Wellheads	4
Q01-D	Wintershall	Operational	Gas	2013		Processing	4
Q04-A	Wintershall	Operational	Gas	1999		Processing	4
Q04-B	Wintershall	Operational	Gas	2002		Processing	4
Q04-C	Wintershall	Operational	Gas	2002		Processing	4
Q08-A	Wintershall	Decommissioned	Gas	1986	2012	Wellheads	3
Q08-B	Wintershall	Decommissioned	Gas	1994	2012	Wellheads	4
Zuidwal	Vermilion	Operational	Gas	1987		Processing	8
F15-A	Total	Operational	Gas	1991		Processing	6
K01-A	Total	Operational	Gas	2001		Wellheads	4
K04-A	Total	Operational	Gas	1998		Wellheads	4
K04-BE	Total	Operational	Gas	2000		Wellheads	4
K05-A	Total	Operational	Gas	1993		Wellheads	4
K05-B	Total	Operational	Gas	1995		Wellheads	1
K05-CU	Total	Operational	Gas	2010		Wellheads	4
K05-D	Total	Operational	Gas	1993		Wellheads	4
K05-EN/C	Total	Operational	Gas	1997		Wellheads	4
K05-P	Total	Operational	Gas	1994		Processing	4
K05-PK	Total	Operational	Gas	2002		Compression	4
K06-C	Total	Operational	Gas	1991		Wellheads	4
K06-D	Total	Operational	Gas	1992		Wellheads	4
K06-DN	Total	Operational	Gas	1991		Wellheads	4
K06-GT	Total	Operational	Gas	1998		Wellheads	4
K06-N	Total	Operational	Gas	1993		Wellheads	4
K06-P	Total	Operational	Gas	1991		Processing	4
L04-A	Total	Operational	Gas	1981		Processing	8
L04-B	Total	Suspended	Gas	1984		Wellheads	4
L04-PN	Total	Operational	Gas	1999		Wellheads	4

Platform	Operator	Status	Carries	Installed	Decom.	Function	Number of legs
L07-A	Total	Suspended	Gas	1984		Wellheads	4
L07-B	Total	Suspended	Gas	1976		Processing	4
L07-BB	Total	Suspended	Gas	1979		Wellheads	4
L07-C	Total	Suspended	Gas	1976		Wellheads	4
L07-H	Total	Suspended	Gas	1989		Wellheads	4
L07-N	Total	Suspended	Gas	1988		Wellheads	4
L07-P	Total	Suspended	Gas	1976		Processing	8
L07-PK	Total	Suspended	Gas	1982		Compression	4
L07-Q	Total	Suspended	Gas	1976		Accommodation or Office	4
P15-A	TAQA	Operational	Oil	1985		Wellheads	4
P15-B	TAQA	Decommissioned	Oil	1985	2003	Wellheads	4
P15-C	TAQA	Operational	Gas	1985		Wellheads	6
P15-D	TAQA	Operational	Gas	1993		Processing	6
P15-E	TAQA	Suspended	Gas	1993		Wellheads	4
P15-F	TAQA	Suspended	Gas	1993		Wellheads	4
P15-G	TAQA	Suspended	Gas	1993		Wellheads	4
P18-A	TAQA	Operational	Gas	1993		Wellheads	4
A12-CPP	Petrogas	Operational	Gas	2007		Processing	4
A18	Petrogas	Operational	Gas	2015		Production	4
B13-A	Petrogas	Operational	Gas	2011		Production	4
P09-Horizon	Petrogas	Operational	Oil	1993		Processing	4
Q01-Halfweg	Petrogas	Decommissioning in progress	Gas	1995		Production	4
Q01-Haven-A	Petrogas	Operational	Oil	1989		Production	1
Q01-Helder-AP	Petrogas	Operational	Oil	1982		Processing	4
Q01-Helder-AW	Petrogas	Operational	Oil	1982		Production	6
Q01-Helder-B	Petrogas	Decommissioned	Oil	1986	1988	Wellheads	1
Q01-Helm-AP	Petrogas	Suspended	Oil	1982		Processing	4
Q01-Helm-AW	Petrogas	Suspended	Oil	1981		Production	4
Q01-Hoorn-AP	Petrogas	Suspended	Oil	1983		Processing	4
Q01-Hoorn-AW	Petrogas	Operational	Gas	1983		Production	6
L11b-PA	ONE-Dyas	Operational	Gas	1986		Processing	4
M07-A	ONE-Dyas	Operational	Gas	2009		Wellheads	1
P11-E	ONE-Dyas	Operational	Gas	2016		Wellheads	4
F02-A-Hanze	Dana	Operational	Oil	2000		Processing	6
P11-B-De Ruyter	Dana	Operational	Oil	2006		Processing	4
Q10-A	Tulip	Operational	Hical	2018		Production	4

Platform	Operator	Status	Carries	Installed	Decom.	Function	Number of legs
F03-FA	Spirit	Decommissioned	Gas	2010	2019	Processing	4
J06-A-Markham	Spirit	Operational	Gas	1991		Processing	6
J06-C-Markham	Spirit	Operational	Gas	2006		Compression	4
ST-1-Markham	Spirit	Decommissioned	Gas	1994	2019	Wellheads	4

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

Subsea production installations

Subsea	Operator	Status	Gas/Oil	Installed	Decom.	Function
L13-FH-1	NAM	Decommissioned	Gas	1995	2011	Wellheads
G17a-S1	Neptune	Operational	Gas	2005		Wellheads
K12-S1	Neptune	Decommissioned	Gas	1990	2003	Wellheads
K12-S2	Neptune	Suspended	Gas	2002		Wellheads
K12-S3	Neptune	Operational	Gas	2003		Wellheads
L10-S1	Neptune	Decommissioned	Gas	1988	1997	Wellheads
L10-S2	Neptune	Operational	Gas	1997		Wellheads
L10-S3	Neptune	Decommissioned	Gas	1993	2004	Wellheads
L10-S4	Neptune	Operational	Gas	1996		Wellheads
L14-S1	Neptune	Decommissioned	Gas	1990	1997	Wellheads
K18-G1	Wintershall	Operational	Gas	2011		Wellheads
K18-G2	Wintershall	Operational	Gas	2014		Wellheads
K18-G4	Wintershall	Operational	Gas	2011		Wellheads
L08-A-West	Wintershall	Operational	Gas	2000		Wellheads
P09-A	Wintershall	Operational	Gas	2009		Wellheads
P09-B	Wintershall	Suspended	Gas	2009		Wellheads
Q05-A	Wintershall	Decommissioned	Gas	2004	2013	Wellheads
K04a-D	Total	Operational	Gas	1997		Wellheads
K04-Z	Total	Operational	Gas	2012		Wellheads
K05-F	Total	Operational	Gas	2008		Wellheads
L04-G	Total	Operational	Gas	2005		Wellheads
P15-10S	TAQA	Decommissioned	Gas	1992	2019	Wellheads
P15-12S	TAQA	Decommissioned	Gas	1992	2019	Wellheads
P15-14S	TAQA	Decommissioned	Gas	1992	2019	Wellheads
L06d-S1	ONE-Dyas	Decommissioned	Gas	2005	2014	Wellheads
Q16-FA-1	ONE-Dyas	Operational	Gas	1998		Wellheads
F02-A-Hanze TMLS	Dana	Operational	Oil	2000		Offloading

Subsea	Operator	Status	Gas/Oil	Installed	Decom.	Function
P11-B-De Ruyter TMLS	Dana	Operational	Oil	2006		Offloading
P11-B-Van Ghent WHPS	Dana	Operational	Oil	2011		Wellheads
P11-B-Van Nes WHPS	Dana	Operational	Gas	2012		Wellheads
P11-B-WYE Manifold	Dana	Operational	Oil	2011		Manifold

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

X. Pipelines, Sea

As at 1 January 2021

Operator	Status	Carries	Installed	Decom.	From	To	Length (km)	Diameter (inch)
NAM	Operational	Gas	1977		K08-FA-1PP	K14-FA-1P	31	24
NAM	Operational	Gas	1977		K14-FA-1C	WGT Sidetap K14-FA	0.206	24
NAM	Operational	Gas	1978		K08-FA-2	K08-FA-1PP	4	11
NAM	Suspended	Chemicals	1978		K11-FA-1	K08-FA-1PP	6.021	6
NAM	Suspended	Gas	1978		K15-FA-1	WGT Sidetap K15-FA	1.322	24
NAM	Operational	Gas	1982		K07-FA-1P	K08-FA-1PP	9	18
NAM	Operational	Gas	1983		K15-FB-1	LoCal Sidetap onshore Callantssoog	84	24
NAM	Operational	Gas	1985		Ameland- Oost-1	AWG-1R	4	20
NAM	Operational	Gas	1985		AWG-1R	NP-001-ST- KP-118,9-36- 24	7	20
NAM	Operational	Gas	1986		L13-FC-1P	K15-FA-1	15	18
NAM	Operational	Gas	1986		K08-FA-3	K07-FA-1P	9	12
NAM	Operational	Gas	1987		K15-FA-1	K14-FA-1C	24	18
NAM	Operational	Gas	1989		L13-FD-1	L13-FC-1P	4	7
NAM	Operational	Gas	1989		K08-FA-2	K08-FA-1PP	4	10
NAM	Operational	Gas	1990		K15-FC-1	K15-FB-1	8	10
NAM	Operational	Gas	2013		L13-FE-1	L13-FC-1P	4	10
NAM	Suspended	Gas	2013		L13-FE-1	L13-FC-1P	1.057	2
NAM	Suspended	Gas	1990		L13-FE-1	L13-FC-1P	4	10
NAM	Operational	Gas	1990		K15-FG-1	K15-FA-1	7	11
NAM	Operational	Gas	1991		AME-2	AWG-1R	5	11
NAM	Suspended	Gas	1995		L13-FH-1	K15-FA-1	9	6
NAM	Operational	Gas	1997		K14-FB-1	K14-FA-1P	9	10
NAM	Suspended	Gas	1997		K14-FA-1P	K15-FB-1	17	16
NAM	Operational	Gas	1997		L09-FF-1P	L09-FF-1P Sidetap	19	24
NAM	Operational	Gas	1998		K07-FD-1	K08-FA-1PP	9	13
NAM	Operational	Gas	1998		K08-FA-1PP	K14-FA-1C	31	24
NAM	Operational	Gas	2003		K15-FK-1	K15-FB-1	8	10
NAM	Operational	Gas	2005		K17-FA-1	K14-FB-1	15	16
NAM	Operational	Gas	2003		K07-FB-1	K07-FD-1	17	12

Operator	Status	Carries	Installed	Decom.	From	To	Length (km)	Diameter (inch)
NAM	Operational	Chemicals	2005		K14-FB-1	K17-FA-1	15	2
NAM	Operational	Gas	2008		L09-FA-1	L09-FF-1P	20	16
NAM	Operational	Gas	2008		L09-FB-1	Sidetap leiding L09-FA naar L09-FB	0.916	16
NAM	Operational	Chemicals	2008		L09-FF-1P	L09-FA-1	20	2
NAM	Operational	Chemicals	2008		Sidetap leiding L09-FA naar L09-FB	L09-FB-1	0.916	2
NAM	Operational	Chemicals	2008		L09-FF-1P	L09-FA-1	20	2
NAM	Operational	Water	2008		Sidetap leiding L09-FA naar L09-FB	L09-FB-1	0.916	2
NAM	Operational	Gas	2019		L13-FI	K15-FA-1	6.47	20
NAM	Operational	Chemicals	2019		L13-FI	K15-FA-1	6.559	2
NAM	Operational	Chemicals	1989		L13-FC-1P	L13-FD-1	4	4
NAM	Operational	Chemicals	1991		L13-FC-1P	L13-FE-1	4	4
NAM	Operational	Chemicals	1991		K15-FB-1	K15-FC-1	8	4
NAM	Operational	Chemicals	1991		K15-FA-1	K15-FG-1	7	4
NAM	Operational	Chemicals	1991		AWG-1R	AME-2	5	4
NAM	Suspended	Chemicals	1995		K15-FA-1	L13-FH-1	9	3
NAM	Operational	Chemicals	1997		K14-FA-1P	K14-FB-1	9	4
NAM	Operational	Chemicals	1997		K08-FA-1PP	K07-FD-1	9	3
NAM	Operational	Chemicals	2002		K08-FA-1PP	K08-FA-2	4	4
NAM	Operational	Chemicals	2003		K08-FA-1PP	K07-FB-1	26	4
NAM	Operational	Chemicals	2003		K15-FB-1	K15-FK-1	9	4
Neptune	Operational	Gas	1984		L10-B	L10-AP	6.8	14
Neptune	Operational	Gas	1983		K12-A	L10-AP	29.2	14
Neptune	Operational	Gas	2001		K12-G	L10-AP	15.6	14
Neptune	Operational	Gas	2007		K12-K	K12-BP	10.3	14
Neptune	Operational	Gas	2005		G16a-A	G17d-AP	17.6	10
Neptune	Operational	Gas	2005		K02b-A	NP-002-ST-KP-61,88-36	2.8	12
Neptune	Operational	Gas	2005		G14-A	G17d-AP	19.8	12
Neptune	Operational	Gas	2007		G14-B	G17d-AP	13.4	12
Neptune	Operational	Gas	2010		E17a-A	E17a-A to Side Tap D15-FA to L10-AC KP 35,73	2	12
Neptune	Suspended	Water	1974		L10-B	L10-AD	7.3	10
Neptune	Decom.	Gas	1974	2016	L10-C	L10-AP	1.1	10

Operator	Status	Carries	Installed	Decom.	From	To	Length (km)	Diameter (inch)
Neptune	Decom.	Gas	1977	2016	L10-D	L10-AP	1	10
Neptune	Operational	Gas	1977		L10-E	L10-AP	4	10
Neptune	Suspended	Gas	1984		L10-E	L10-E to Side Tap L10-B to L10-AP KP 3,86	0.1	10
Neptune	Operational	Gas	1980		L10-F	L10-AP	4.3	10
Neptune	Decom.	Gas	1984	2016	L10-G	L10-G to Side Tap L10-B to L10-AP KP 6,44	4.7	10
Neptune	Operational	Gas	1988		L10-L	L10-AP	2.2	10
Neptune	Operational	Gas	1985		K12-D	K12-C	4.4	10
Neptune	Operational	Gas	1984		K12-C	K12-C to Side Tap K12-A to L10-AP KP 8,6	0.4	10
Neptune	Operational	Gas	2000		L10-M	L10-AP	12	10
Neptune	Operational	Gas	1999		K09ab-B	K09ab-B to Side Tap D15-FA to L10-AC KP 106,76	0.1	10
Neptune	Operational	Gas	2011		G16a-B	G17d-AP	13.9	14
Neptune	Suspended	Gas	1997		L10-S2	L10-AP	6.6	6
Neptune	Suspended	Gas	1997		L10-S4	L10-AP	8.2	6
Neptune	Suspended	Gas	2002		K12-S2	K12-C	6.9	6
Neptune	Operational	Gas	2004		K12-S3	K12-BP	3.4	6
Neptune	Operational	Gas	2005		G17a-S1	G17d-AP	5.7	6
Neptune	Operational	Control & Power	2002		K12-S2	K12-C	7	5
Neptune	Operational	Control & Power	1997		L10-S2	L10-AP	6.8	4
Neptune	Operational	Control & Power	1997		L10-S4	L10-AP	8.4	4
Neptune	Operational	Control & Power	2005		G17a-S1	G17d-AP	5.8	3
Neptune	Suspended	Water	1974		L10-B	L10-AD	7.3	2
Neptune	Decom.	Chemicals	1974	2016	L10-C	L10-AP	1.1	2
Neptune	Decom.	Chemicals	1977	2016	L10-D	L10-AP	1	2
Neptune	Suspended	Water	1977		L10-E	L10-AP	4	2
Neptune	Operational	Water	1980		L10-F	L10-AP	4.3	2
Neptune	Decom.	Chemicals	1984	2016	L10-G	L10-G to Side Tap L10-B to L10-AP KP 6,44	4.7	2

Operator	Status	Carries	Installed	Decom.	From	To	Length (km)	Diameter (inch)
Neptune	Operational	Water	1988		L10-L	L10-AP	2.2	2
Neptune	Operational	Chemicals	1983		K12-A	L10-AP	29.2	2
Neptune	Operational	Chemicals	1985		K12-D	K12-C	4.1	2
Neptune	Operational	Chemicals	1984		K12-C	K12-C to Side Tap K12-A to L10-AP KP 8,6 Piggyback	0.4	2
Neptune	Suspended	Chemicals	1997		L10-S2	L10-AP	6.6	2
Neptune	Operational	Water	1997		L10-S4	L10-AP	8.2	2
Neptune	Operational	Chemicals	2000		L10-M	L10-AP	12	2
Neptune	Operational	Chemicals	2001		K12-G	L10-AP	15.6	2
Neptune	Operational	Condensate	2005		G16a-A	G17d-AP	17.6	2
Neptune	Operational	Chemicals	2005		G14-A	G17d-AP	19.8	2
Neptune	Operational	Chemicals	2007		K12-K	K12-BP	10.3	2
Neptune	Operational	Chemicals	2007		G14-B	G17d-AP	13.4	2
Neptune	Operational	Chemicals	2011		G16a-B	G17d-AP	13.9	2
Neptune	Operational	Chemicals	2004		K12-S3	K12-BP	3.5	3
Neptune	Suspended	Gas	2013		D18a-A	D15-FA-1	21.5	8
Neptune	Suspended	Chemicals	2013		D18a-A	D15-FA-1	21.5	2
Neptune	Operational	Gas	2013		L05a-D	L05-FA-1	10.6	10
Neptune	Operational	Chemicals	2013		L05a-D	L05-FA-1	10.6	2
Neptune	Operational	Oil	2013		Q13a-A	P15-C	24.4	8
Neptune	Operational	Control & Power	2013		Scheveningen	Q13a-A	13.7	3.5
Neptune	Operational	Oil	1992		F03-FB-F1	F03-FB OLT	2	16
Neptune	Operational	Control & Power	1992		F03-FB-F1	F03-FB OLT	2	16
Wintershall	Decom.	Gas	1994	2012	K05-A	WGT EXT Sidetap K05-A	0.308	16
Wintershall	Decom.	Gas	1992	2004	K10-B	K13-AP	16.763	20
Wintershall	Decom.	Gas	1982	1994	K10-C	K13-B	19.154	20
Wintershall	Decom.	Gas	1993	2003	K10-V	K10-BP	14.205	10
Wintershall	Decom.	Gas	1977	1991	K13-B	K13-AP	9.2	10
Wintershall	Decom.	Gas	1977	1992	K13-CP	K13-AP	10.272	20
Wintershall	Decom.	Gas	1978	1987	K13-D	K13-CP	3.2	8
Wintershall	Decom.	SaltWater	1988	2020	L08-H	L8-H Sidetap	0.2	8
Wintershall	Decom.	Gas	1996	2002	P02-NE	P06-A	38.135	10
Wintershall	Decom.	Gas	1996	2012	P06-S	P06-B	6.577	6
Wintershall	Decom.	Gas	1990	2001	P12-C	P12-SW	6.925	8

Operator	Status	Carries	Installed	Decom.	From	To	Length (km)	Diameter (inch)
Wintershall	Decom.	Gas	1993	2007	P14-A	P15-D	12.6	10
Wintershall	Decom.	Gas	2004	2011	Q05-A	Q08-B	13.454	8
Wintershall	Decom.	Gas	1994	2011	Q08-B	Q08-A	8.317	8
Wintershall	Decom.	Gas	1978	1993	K10-BP	K13-CP	6.377	8
Wintershall	Decom.	Gas	1990	2002	P12-C	P12-SW	6.925	8
Wintershall	Decom.	Chemicals	1993	2007	P14-A	P15-D	12.543	2
Wintershall	Decom.	Control & Power	2004	2011	Q05-A	Q08-B	13.662	3
Wintershall	Operational	Gas	2000		NOGAT EXT Border Crossing	F03-FB-F1	86.8	20
Wintershall	Suspended	Water	2000		NOGAT EXT Border Crossing	F03-FB-F1	86.8	4
Wintershall	Operational	Gas	1975		K13-AP	Afsluiter WGT zeeleiding	120.5	36
Wintershall	Operational	Gas	1992		J06-A-Markham	K13-AP	85.835	24
Wintershall	Decom.	SaltWater	1984	2019	K18-Kotter-P	Q01-Helder-AP	20.237	12
Wintershall	Operational	Gas	2003		L05-B	L08-P4	6.366	10
Wintershall	Operational	Control & Power	2003		L05-B	L08-P4	6.366	3
Wintershall	Operational	Gas	2006		L05-C	L08-P4	7.964	10
Wintershall	Operational	Control & Power	2006		L05-C	L08-P4	7.964	10
Wintershall	Decom.	SaltWater	1988	2020	L08-A	L08-G	9.985	8
Wintershall	Decom.	SaltWater	1994	2020	L08-G	L08-P	7.369	8
Wintershall	Decom.	SaltWater	1994	2020	L08-P	L08-G	7.385	2
Wintershall	Operational	Gas	2000		L08-P	L08-P4	2.987	12
Wintershall	Operational	Gas	2000		L08-A-West	L08-P4	10.267	6
Wintershall	Operational	Control & Power	2000		L08-A-West	L08-P4	10.267	4
Wintershall	Decom.	SaltWater	1984	2019	L16-Logger-P	K18-Kotter-P	18.761	8
Wintershall	Decom.	Water	1985	2019	L16-Logger-P	K18-Kotter-P	18.761	6
Wintershall	Operational	Gas	1983		P06-A	L10-AR	78.647	20
Wintershall	Operational	Gas	1985		P06-B	P06-A	3.946	12
Wintershall	Operational	Gas	2001		P06-D	P06-B	6.696	10
Wintershall	Suspended	Gas	2009		P09-B	P06-D	16.629	8
Wintershall	Operational	Control & Power	2009		P09-B	P06-D	16.629	3
Wintershall	Suspended	Gas	1990		P12-SW	P06-A	42.048	12
Wintershall	Operational	Gas	2000		Q04-A	P06-A	35.32	14
Wintershall	Operational	Gas	2001		Q04-B	Q04-A	7.26	10

Operator	Status	Carries	Installed	Decom.	From	To	Length (km)	Diameter (inch)
Wintershall	Operational	Gas	2002		Q04-C	Q01-Hoorn-AP	14.222	16
Wintershall	Operational	Gas	1986		Subsea aansluiting Q08	Wijk aan Zee	13.71	10
Wintershall	Operational	Gas	2011		Q04-C	Subsea aansluiting Q08	30.6	10
Wintershall	Operational	Gas	2004		D12-A	D15-FA-1	4.853	10
Wintershall	Operational	Control & Power	2004		D12-A	D15-FA-1	5.145	3
Wintershall	Decom.	SaltWater	2009	2019	E18-A	F16-A	5.315	10
Wintershall	Decom. prog.	SaltWater	2004		F16-A	NP-002-ST-KP-61,88-36	32	24
Wintershall	Operational	Gas	2011		K18-G1	K15-FA-1R	10	8
Wintershall	Operational	Gas	2011		Wingate	D15-FA-1	20.5	12
Wintershall	Operational	Gas	2012		K05-A	WGT EXT Sidetap K05-A	0.308	14
Wintershall	Operational	Gas	2014		L06-B	L08-P4	19.2	8
Wintershall	Operational	Control & Power	2014		L06-B	L08-P4	19.2	3
Wintershall	Operational	Gas	2013		Q01-D	Q1-D Side tap	2	8
Wintershall	Decom.	Control & Power	2009	2019	E18-A	F16-A	5.5	3
Wintershall	Operational	Control & Power	1992		J06-A-Markham	Subsea Isolation Valve	0.3	3
Wintershall	Operational	Control & Power	2011		K18-G1	K15-FA-1R	10	3
Wintershall	Operational	Gas	2014		K18-G2	K18-G1	0.05	4
Wintershall	Operational	Control & Power	2014		K18-G2	K18-G1	0.07	4
Wintershall	Suspended	Diesel	1990		P12-SW	P06-A	42	3
Wintershall	Operational	Water	1985		P06-B	P06-A	3.946	3
Wintershall	Operational	Chemicals	2002		Q01-Hoorn-AP	Q1-D Side tap	7	2
Wintershall	Suspended	Chemicals	2002		Q1-D Side tap	Q04-C	7.3	2
Wintershall	Operational	Chemicals	2011		D15-FA-1	Wingate	20.5	2
Wintershall	Operational	Gas	2019		D12-B	D15-FA-1	11.8	10
Wintershall	Operational	Chemicals	2019		D12-B	D15-FA-1	11.8	3
Vermilion	Operational	Gas	1987		Zuidwal	Harlingen Treatment Center	20.3	20
Vermilion	Operational	Gas	1986		Zuidwal	Harlingen Treatment Center	19.82	20

Operator	Status	Carries	Installed	Decom.	From	To	Length (km)	Diameter (inch)
Vermilion	Operational	Chemicals	1986		Harlingen Treatment Center	Zuidwal	19.82	3
Total	Decom.	Chemicals	1999	2005	L04-B	K06-GT	10.3	3
Total	Operational	Chemicals	2002		J06-A-Markham	K01-A	9.1	3
Total	Operational	Control & Power	1997		J06-A-Markham	K04a-D	7.39	2.5
Total	Operational	Gas	2002		K01-A	J06-A-Markham	9.1	14
Total	Operational	Gas	1997		K04a-D	J06-A-Markham	7.33	4
Total	Operational	Chemicals	2001		K04-A	K04-BE	8.08	2.5
Total	Operational	Gas	1998		K04-A	K05-A	6.7	12
Total	Decom.	Gas	2001	2003	K04-BE	K04-A	8.02	9.5
Total	Operational	Gas	2004		K04-BE	K04-A	7.96	10
Total	Operational	Gas	2014		K04-Z	K05-A	17.15	6
Total	Operational	Chemicals	1998		K05-A	K04-A	6.7	3
Total	Operational	Control & Power	1998		K05-A	K04-A	6.9	2.5
Total	Operational	Control & Power	2014		K05-A	K04-Z	17.61	3.17
Total	Operational	Control & Power	1995		K05-A	K05-B	6.51	3.5
Total	Operational	Chemicals	2011		K05-A	K05-CU	15.21	3
Total	Operational	Chemicals	1994		K05-A	K05-D	10.6	3
Total	Decom.	Gas	1995	2010	K05-B	K05-A	6.51	8
Total	Operational	Gas	2012		K05-B	K05-A	6.7	8
Total	Operational	Control & Power	1997		K05-B	K05-EN/C	6.22	3.5
Total	Operational	Gas	2011		K05-CU	K05-A	15.2	10
Total	Operational	Gas	1994		K05-D	K05-A	10.6	12
Total	Operational	Chemicals	1997		K05-D	K05-EN/C	2.82	2.5
Total	Decom.	Gas	1997	2001	K05-EN/C	K05-D	2.74	10
Total	Operational	Gas	2001		K05-EN/C	K05-D	2.66	10
Total	Operational	Gas	2008		K05-F	K06-N	9.8	8
Total	Operational	Control & Power	2008		K06-C	K05-F	18.3	4.13
Total	Operational	Chemicals	1992		K06-C	K06-D	3.75	3
Total	Operational	Chemicals	1992		K06-C	K06-DN	5.33	3
Total	Operational	Chemicals	2005		K06-C	K06-GT	6.9	3
Total	Operational	Chemicals	1993		K06-C	K06-N	8.5	3
Total	Operational	Gas	1992		K06-D	K06-C	3.75	10
Total	Operational	Gas	1992		K06-DN	K06-C	5.33	12

Operator	Status	Carries	Installed	Decom.	From	To	Length (km)	Diameter (inch)
Total	Operational	Gas	2005		K06-GT	K06-C	6.9	10
Total	Decom.	Gas	1999	2005	K06-GT	L04-B	10.3	10
Total	Operational	Gas	1993		K06-N	K06-C	8.5	12
Total	Operational	Gas	2017		L04-A	K06-GT	13.1	10
Total	Operational	Control & Power	2005		L04-A	L04-G	10.45	4.5
Total	Operational	Chemicals	1999		L04-A	L04-PN	11.5	3
Total	Suspended	Gas	1982		L04-A	L07-P	22.8	12
Total	Suspended	Gas	1985		L04-B	L07-A	10.12	10
Total	Operational	Gas	2005		L04-G	L04-A	10.45	6
Total	Decom.	Gas	1999	2007	L04-PN	L04-A	11.5	10
Total	Operational	Gas	1999		L04-PN	L04-A	11.52	10
Total	Suspended	Chemicals	1985		L07-A	L04-B	10.12	3
Total	Suspended	Gas	1985		L07-A	L07-P	10.4	10
Total	Suspended	Gas	1977		L07-B	L07-P	8.02	12
Total	Suspended	Water	1977		L07-B	L07-P	7.99	4
Total	Suspended	Gas	1989		L07-H	L07-N	6.4	10
Total	Suspended	Chemicals	1989		L07-N	L07-H	6.4	3
Total	Suspended	Gas	1988		L07-N	L07-P	4.13	10
Total	Suspended	Gas	1977		L07-P	L10-AP	15.85	16
Total	Suspended	Chemicals	1982		L07-P	L04-A	22.8	3
Total	Suspended	Chemicals	1985		L07-P	L07-A	10.12	3
Total	Suspended	Chemicals	1977		L07-P	L07-B	7.99	3
Total	Suspended	Chemicals	1988		L07-P	L07-N	4.13	3
TAQA	Decom.	Water	1985	2003	P15-B	P15-C	3.4	6
TAQA	Decom.	Chemicals	1985	2003	P15-B	P15-C	3.4	4
TAQA	Decom.	Gas	1985	2003	P15-C	P15-B	3.4	6
TAQA	Operational	Oil	1985		P15-C	P15 Hoek van Holland Metering station	42.6	10
TAQA	Operational	Gas	1993		P15-D	Maasvlakte onshore (gas)	40.1	26
TAQA	Operational	Gas	1993		P15-E	P15-D	13.9	10
TAQA	Operational	Chemicals	1993		P15-D	P15-E	13.9	2
TAQA	Suspended	Gas	1993		P15-F	P15-D	9.1	12
TAQA	Operational	Chemicals	1993		P15-D	P15-F	9.1	3
TAQA	Operational	Gas	1993		P15-G	P15-D	9.1	12
TAQA	Operational	Chemicals	1993		P15-D	P15-G	9.1	3
TAQA	Decom.	Gas	1993	2018	P15-10S	P15-D	3.9	4
TAQA	Decom.	Chemicals	1993	2018	P15-D	P15-10S	3.9	2

Operator	Status	Carries	Installed	Decom.	From	To	Length (km)	Diameter (inch)
TAQA	Decom.	Gas	1993	2018	P15-12S	P15-D	6.1	4
TAQA	Decom.	Chemicals	1993	2018	P15-D	P15-12S	6.1	2
TAQA	Decom.	Gas	1993	2018	P15-14S	P15-G	3.7	4
TAQA	Decom.	Chemicals	1993	2018	P15-G	P15-14S	3.7	2
TAQA	Operational	Gas	1993		P18-A	P15-D	20.8	16
TAQA	Operational	Chemicals	1993		P15-D	P18-A	20.8	3
TAQA	Decom.	Oil	1985	2003	P15-B	P15-C	3.4	10
Petrogas	Operational	Gas	2007		A12-CPP	NOGAT EXT Sidetap A12	16.5	16
Petrogas	Operational	Gas	2014		A18	A12-CPP	32	12
Petrogas	Operational	Gas	2011		B13-A	A12-CPP	20.3	16
Petrogas	Decom.	Gas	1995	2019	Q01-Halfweg	Q01-Hoorn-AP	12.4	12
Petrogas	Decom.	Oil	1989	1995	Q01-Haven-A	Q01-Helder-AW	5.8	8
Petrogas	Operational	Oil	1995		Q01-Haven-A	Q01-Helder-AW	5.8	8
Petrogas	Decom.	Oil	1986	1989	Q01-Helder-B	Q01-Helder-AW	1.9	8
Petrogas	Operational	Control & Power	1989		Q01-Haven-A	Q01-Helder-AW	5.8	3
Petrogas	Operational	Oil	1982		Q01-Helder-AW	Q01-Helm-AP	6	20
Petrogas	Operational	Oil	1982		Q01-Helm-AP	Sidetap onshore Ijmuiden (olie)	56.7	20
Petrogas	Decom.	Control & Power	1995	2019	Q01-Halfweg	Q01-Hoorn-AP	12.4	3
Petrogas	Operational	Gas	1983		Q01-Hoorn-AP	Q01-Helder-AW	3.6	10
Petrogas	Suspended	Gas	1995		Q01-Hoorn-AP	WGT Sidetap Hoorn	17.5	12
Petrogas	Operational	Oil	1993		P09-Horizon	Q01-Helder-AW	47.5	10
ONE-Dyas	Operational	Gas	1998		Q16-FA-1	P18-A	10.3	8
ONE-Dyas	Operational	Chemicals	1998		Q16-FA-1	P18-A	10.3	2
ONE-Dyas	Operational	Gas	2009		M07-A	L09-FF-1P	12	6
ONE-Dyas	Operational	Chemicals	2009		M07-A	L09-FF-1P	12	2
ONE-Dyas	Suspended	Gas	2006		L06d-S1	G17d-AP	40	6
ONE-Dyas	Operational	Gas	2015		P11-E	P15-F	9.8	8
ONE-Dyas	Operational	Chemicals	2015		P11-E	P15-F	9.8	2
ONE-Dyas	Operational	Control & Power	1998		Q16-FA-1	P18-A	10.3	3
ONE-Dyas	Suspended	Control & Power	2006		G17d-AP	L06d-S1	40	3

Operator	Status	Carries	Installed	Decom.	From	To	Length (km)	Diameter (inch)
Dana	Decom.	Gas	2005	2019	P11-B-De Ruyter	Tie-in leiding P11-B-De Ruyter naar P12-SW	20	8
Dana	Decom.	Gas	2005	2019	Tie-in leiding P11-B-De Ruyter naar P12-SW	P12-SW	9	8
Dana	Decom.	Gas	2019	2019	Tie-in leiding P11-B-De Ruyter naar P12-SW	P15-C	17	8
Dana	Operational	Gas	2019		P11-B-De Ruyter	P15-D	38	8
Dana	Operational	Gas	2001		F02-A-Hanze	NOGAT EXT Sidetap F02-Hanze	0.15	4
Dana	Operational	Control & Power	2001		F02-A-Hanze	NOGAT EXT Sidetap F02-Hanze	0.15	3
Dana	Operational	Control & Power	2000		F02-A-Hanze	F02-A-Hanze TMLS	1.5	3
Dana	Operational	Oil	2005		P11-B-De Ruyter	P11-B-De Ruyter TMLS	1.5	16
Dana	Operational	Oil	2000		F02-A-Hanze	F02-A-Hanze TMLS	1.5	16
Dana	Operational	Control & Power	2011		P11b-Van Ghent	P11-B-WYE Manifold	4.5	5
Dana	Operational	Gas	2011		P11b-Van Ghent	P11-B-De Ruyter	4.9	8
Dana	Suspended	Control & Power	2011		P11b-Van Nes	P11-B-WYE Manifold	8	5
Dana	Suspended	Gas	2011		P11-B-WYE Manifold	P11-B-De Ruyter	0.15	10.9
Dana	Suspended	Gas	2011		P11b-Van Nes	P11-B-WYE Manifold	8	8
Tulip	Operational	Chemicals	2018		P15-D	Q10-A	42.5	2
Tulip	Operational	Gas	2018		Q10-A	P15-D	42.5	14
Spirit	Decom.	Gas	2010	2019	F03-FA	NOGAT EXT Sidetap F02-Hanze	23	10
Spirit	Operational	Gas	2006		J06-C-Markham	J06-A-Markham	0.01	14
Spirit	Decom.	Gas	1994	2019	ST-1-Markham	J06-A-Markham	5.5	12
Spirit	Decom.	Control & Power	2010	2019	F03-FA	NOGAT EXT Sidetap F02-Hanze	23	3
Spirit	Decom.	Chemicals	1994	2019	J06-A-Markham	ST-1-Markham	5.5	2
NOGAT	Operational	Gas	1991		L02-FA-1	Sidetap onshore	144.2	36

Operator	Status	Carries	Installed	Decom. From	To	Length (km)	Diameter (inch)
					NOGAT Callantsoog		
NOGAT	Operational	Gas	1992	F03-FB-F1	L02-FA-1	108.1	24
NOGAT	Operational	Gas	1992	L05-FA-1	TP-001-ST- KP-19,665	0.4	16
NOGAT	Operational	Gas	1992	L15-FA-1	TP-001-ST- KP-82,753	0.4	16
NOGAT	Operational	Gas	1993	F15-A	TP-003-ST- KP-71,52	0.3	16
NGT	Operational	Gas	2016	L11b-PA	Sidetap NLP008 in NP-007	0.12	8
NGT	Operational	Gas	1974	L10-AR	NGT Sidetap onshore Uithuizen	177.6	36
NGT	Operational	Gas	1999	D15-FA-1	L10-AR	140.6	36
NGT	Operational	Gas	1987	K12-BP	L10-AR	21.5	18
NGT	Operational	Gas	2001	G17d-AP	NP-001-ST- KP-118,9-36- 24	64.5	18
NGT	Operational	Gas	1987	K09c-A	L10-AR	36.6	16
NGT	Operational	Gas	1991	K06-C	K09c-A	5.2	16
NGT	Operational	Gas	1988	L08-G	NP-001-ST- KP-20,4-36	21.3	14
NGT	Operational	Gas	1987	K09ab-A	NGT Sidetap K09c-A	0.1	8
NGT	Operational	Gas	2000	L08-P4	NP-001-ST- KP-20,4-36	27.786	16

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 Climate and Energy

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 46 00
Website: www.tno.nl

State Supervision of Mines

Address: Henri Faasdreef 312 P.O. Box 24037
 2492 JP The Hague 2490 AA The Hague

Telephone: 070 379 84 00
E-mail: info@sodm.nl
Website: www.sodm.nl

Netherlands Oil and Gas Portal – www.nlog.nl

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

Z. Definition of selected terms

Land/onshore:

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

Sea/offshore:

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

Exploration licence:

Licence to explore for the minerals stipulated therein.

Production licence:

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

Seismic surveys:

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

Wells:

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

Gas field/oilfield:

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

Resource categories and definitions:

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

1. Gas/oil initially in place (GIIP/OIIP)

Total volume of hydrocarbons initially present in a reservoir, calculated on the basis of the mean values of the parameters used in the calculations.

2. Expected initial reserves

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

3. Proven initial reserves

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

4. Remaining expected reserves

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

5. Remaining proven reserves

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

6. Contingent resources

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

7. Expected contingent resources

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

8. Future reserves

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

a. Prospect database

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

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

In the definitions above, the term 'expected' is used in the statistical sense and thus the figure given represents the expected value (or expectation). The following explanation may be helpful. All data used for the purpose of calculating volumes have an intrinsic uncertainty. By processing these uncertainties statistically, an expectation curve can be determined for each accumulation. This is a cumulative probability distribution curve, i.e. a graph in which reserve values are plotted against the associated probabilities that they will be achieved or exceeded. As production from a hydrocarbon reservoir progresses, various uncertainties decrease and the expected value will deviate less and less from the 50 % value on the cumulative probability distribution curve.

In practice, the stated reserves of a given field are the expected values. This is the most realistic estimate of the volume of hydrocarbons present in a reservoir. The recoverability of hydrocarbons from an accumulation is determined by the geological and reservoir characteristics of that accumulation, the recovery techniques available at the time of reporting and the economic conditions prevailing at that time.

Probabilistic summation of the proven reserves:

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

Exploration potential:

The exploration potential has been calculated using the ExploSim program, which is described in:

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

Units:**Standard m³:**

Natural gas and oil reserves are expressed in cubic metres at a pressure of 101.325 kPa (or 1.01325 bar) and 15 °C. This m³ is defined as a standard m³ in Standard no. 5024-1976(E) of the International Organisation for Standardisation (ISO) and is usually abbreviated Sm³.

Normal m³:

Natural gas and oil reserves are expressed in cubic metres at a pressure of 101.325 kPa (or 1.01325 bar) and 0 °C. This m³ is defined as a normal m³ in Standard no. 5024-1976(E) of the International Organisation for Standardisation (ISO) and is usually abbreviated Nm³.

Groningen gas equivalent:

In order to be able to incorporate volumes of natural gas of different qualities in calculations, they have been converted to Groningen gas equivalents (Geq). This is achieved by converting the volume of gas that differs in quality from the gas in the Groningen field to a volume of gas that is hypothetically of the same quality as the gas in the Groningen field (which is 35.17 Mega joules upper value per m³ of 0 °C and 101.325 kPa. or 1.01325 bar).

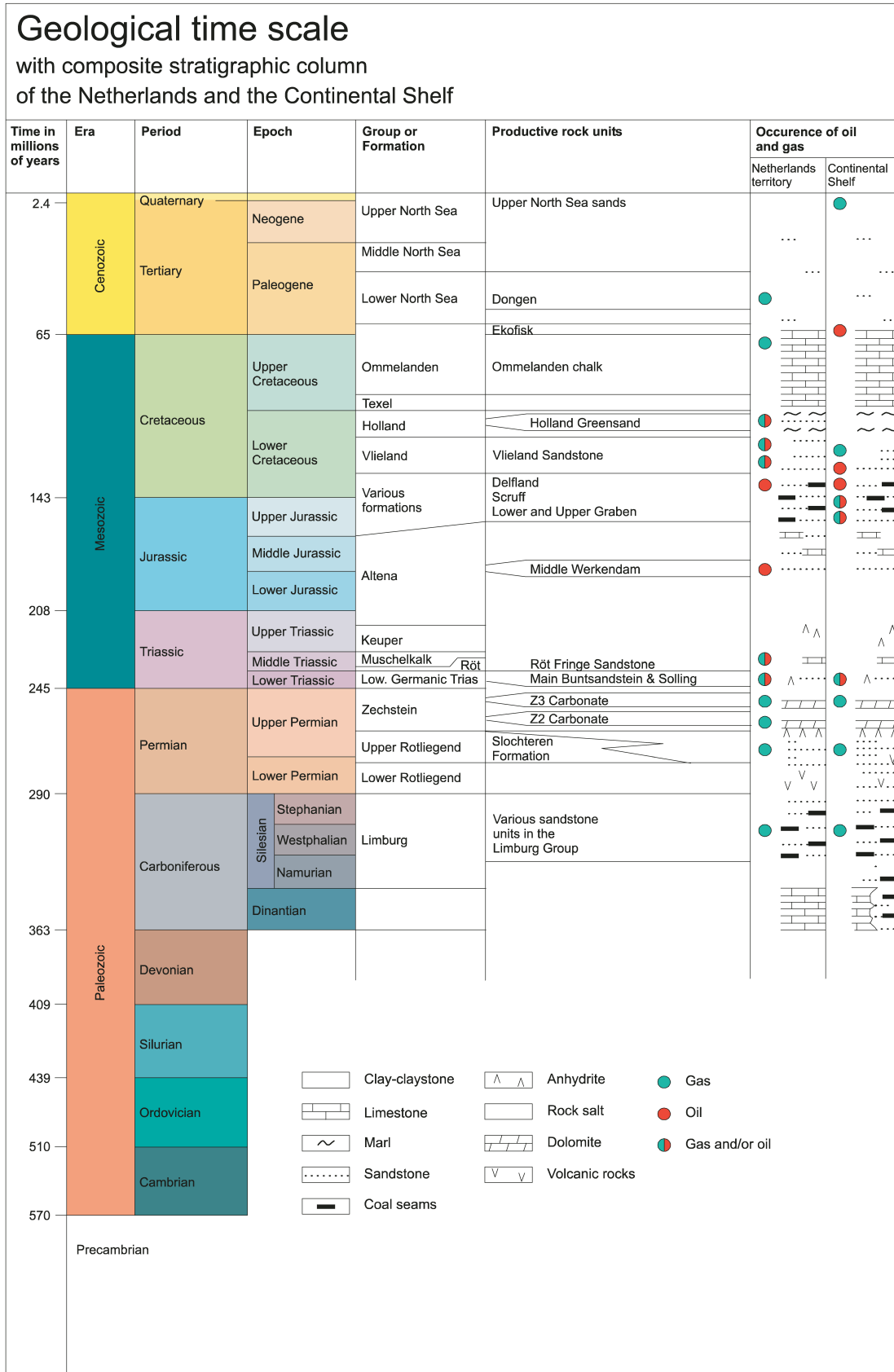
One Nm³ gas with a calorific value of 36.5 MJ is equivalent to 36.5/35.17 Nm³ Geq.

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

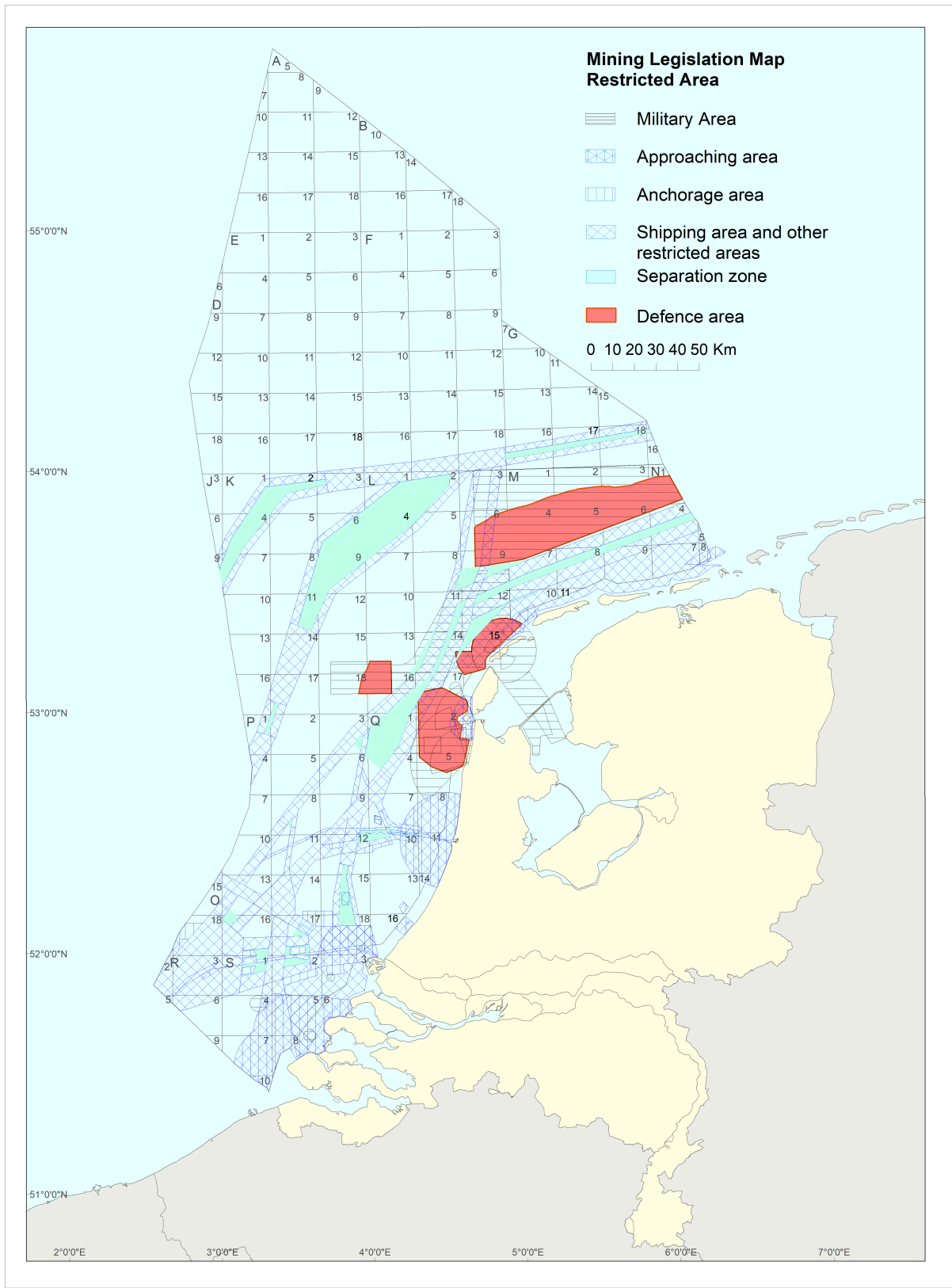
Fuel	Unit	Giga joule	Giga calorie	Oil equiv. tonnes	Oil equiv. barrels	Coal equiv. tonnes	Gas equiv. 1000 m ³
Fuelwood (dry)	tonnes	13.51	3.23	0.32	2.36	0.46	0.43
Coal	tonnes	29.30	7.00	0.70	5.11	1.00	0.93
Lignite	tonnes	17.00	4.06	0.41	2.96	0.58	0.54
Coke	tonnes	28.50	6.81	0.68	4.97	0.97	0.90
Coke-oven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

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

Appendix 1. Geological time scale



Appendix 2. Mining legislation map



Appendix 3. Petroleum Resource Management System (PRMS)

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

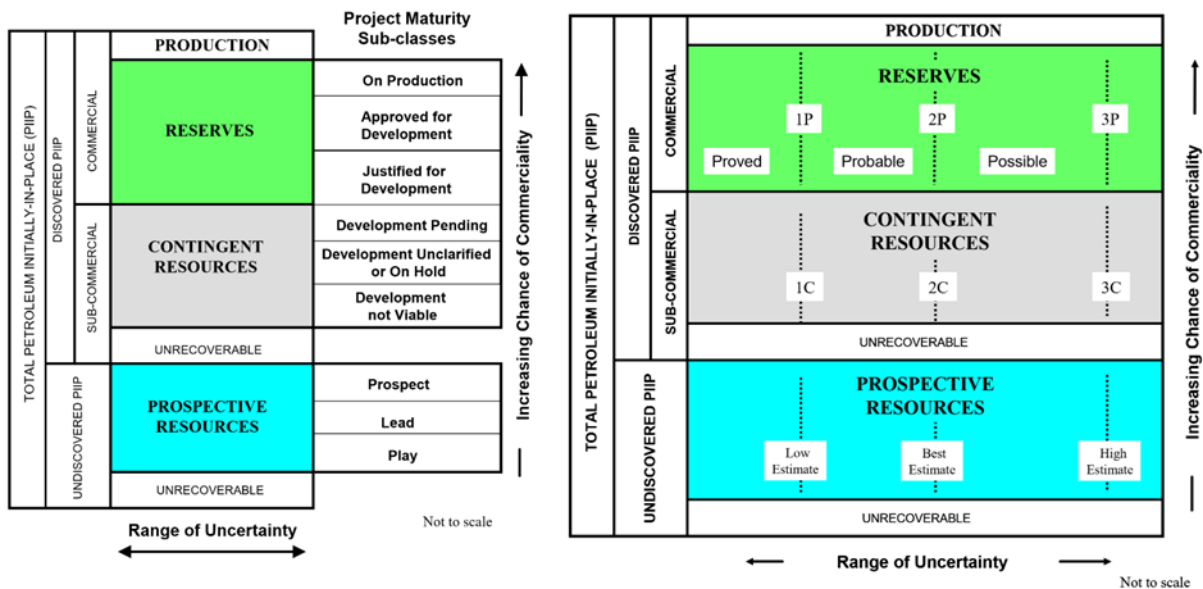


Figure Appendix 3.1 Schematic representation of the PRMS classification.

Status (chance of commercial realisation)

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

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

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

Likelihood of recovery

Since oil and natural gas are physically located underground at great depths, hydrocarbon resources are estimated by evaluating the data on the amounts present. All resource estimates have an intrinsic uncertainty. The PRMS resource classification takes account of this uncertainty. This is expressed in a low, expected and high estimate as depicted along the horizontal axis (Figure Appendix 3.1).

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

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



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