

# Natural resources and geothermal energy in the Netherlands

Annual review 2012



Ministry of Economic Affairs



# **NATURAL RESOURCES AND GEOTHERMAL ENERGY IN THE NETHERLANDS**

**Annual review 2012**

A review of exploration and production activities and underground storage.



## Preface

The annual review on 'Natural resources and geothermal energy in the Netherlands' reports on the activities and results of exploration and production of hydrocarbons, rock salt and geothermal energy in the Netherlands. Moreover the underground storage of various substances (e.g. natural gas, nitrogen, CO<sub>2</sub> and brackish water) is included as well. In this way all the exploration, production and storage activities in the Netherlands and the Netherlands' part of the Continental shelf, related to the realm of the Mining Act, are combined in this report.

The first section of the report deals with developments during the year 2012.

The section shows the developments in the exploration, production and underground storage of hydrocarbons. It concerns changes in natural gas and oil resource estimates during 2012 and the way these changes affected the situation at 1 January 2013.

This section also presents a prognosis for the gas production for the next 25 years.

This year the remaining resources of natural gas and oil are reported in accordance with the Petroleum Resource Management System. This system should lead to a uniform classification of all reported resources.

Subsequently, a number of tables summarise developments during 2012, with respect to licences and exploration efforts (seismic surveys and wells drilled). This section ends with a summary of the volumes of natural gas, condensate and oil that were produced in 2012. The subsequent chapters report on the exploration for and production of coal, rock salt and geothermal energy and on the underground storage of substances.

The second section comprises a large number of annexes that report on the current situation as well as on historical developments during the past decades.

Subsequently an overview of the situation as at 1 January 2013 is presented in the final part of the review.

This review has been compiled by TNO (Geological Survey of the Netherlands), at the request of the Energy Market Directorate of the Dutch Ministry of Economic Affairs.

The annual review contains the data that, in accordance with the provisions of article 125 of the Mining Act, will be presented to both Chambers of Dutch Parliament on behalf of the Minister of Economic Affairs.

The digital version of this publication can be found at the Netherlands Oil and Gas Portal: [www.nlog.nl](http://www.nlog.nl)

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The Hague, June 2013.



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In this annual review, natural gas and oil volumes are stated in terms of 'standard' m<sup>3</sup>, usually abbreviated as Sm<sup>3</sup>. 'Standard' relates to the reference conditions: 15° C and 101.325 kPa.

In some cases the natural gas volumes are stated in terms of:

-Normal m<sup>3</sup> (Nm<sup>3</sup>). "Normal" relates to the reference conditions: 0°C and 101.325 kPa.

-Groningen Gas Equivalent, which has a gross calorific value of 35.17 MJ/ m<sup>3</sup> at 0°C and 101.325 kPa.

In such cases this is explicitly stated in the text.



## KEY DATA 2012

### Natural gas and oil resources

The discovered natural gas resources as at 1 January 2013 are estimated to be 1130 billion Sm<sup>3</sup>. 824 billion Sm<sup>3</sup> of these reside in the Groningen gas field, 144 billion Sm<sup>3</sup> in the other onshore fields and 163 billion Sm<sup>3</sup> in the fields on the Dutch part of the North Sea Continental Shelf.

Oil resources as at 1 January 2013 add up to 48.1 million Sm<sup>3</sup>. 41.4 million Sm<sup>3</sup> of which reside in onshore oil fields and 6.7 million Sm<sup>3</sup> in fields on the Continental Shelf.

### Licences for hydrocarbons

During 2012 there were seven applications for an exploration licence for the onshore territory. Two exploration licences are awarded and three are prolonged. One production licence is awarded while one other licence was relinquished. Two production licences are split.

For the Continental Shelf five exploration licences were awarded. One exploration licence was split, one restricted and seven were prolonged. Ten exploration licences were relinquished.

Furthermore, four production licences have been submitted, five licences were awarded and one was restricted. For details see chapters 3 and 4 and annexes 1 and 2.

### Wells

A total of 35 wells were drilled for oil and gas. That is 21 less than in 2011. In 2012 eleven exploration wells were drilled. From these wells, eight found gas and one well struck oil. Two wells were dry. This results in a technical success ratio of 73%.

Furthermore, five appraisal wells and nineteen production wells were drilled. For details see chapter 7 and annex 2.

### Gas production

In 2012, total production from Dutch gas fields was 78.2 billion Sm<sup>3</sup>. Onshore gas fields produced 59.3 billion Sm<sup>3</sup> in total, 7.2 billion Sm<sup>3</sup> of which was accounted for by the small fields and 52.2 billion Sm<sup>3</sup> by the Groningen gas field. Offshore gas fields produced 18.9 Sm<sup>3</sup>. The overall production in 2012 was 0.4% lower than in 2011. For details see chapter 9.

### Oil production

In 2012, a total of 1.32 million Sm<sup>3</sup> of oil was produced in the Netherlands, which is 4.2% more than in 2011. The onshore fields produced 0.44 million Sm<sup>3</sup>, which means a 4% increase compared to 2011. Production from offshore oil fields increased to 0.88 million Sm<sup>3</sup> which is 4.2% more than in 2010. The average oil production over 2012 was about 3600 Sm<sup>3</sup> per day. For details see chapter 9.

### **Underground storage**

In 2012 one storage licence (Gas) was applied for, but the application was withdrawn. Two storage licences (for brackish water) were awarded and one was relinquished. On the Continental Shelf one storage licence (CO<sub>2</sub>) was applied for. In the five existing underground storages for natural gas 4.6 billion Nm<sup>3</sup> was injected while discharge was 4 billion Nm<sup>3</sup>. In the Heiligerlee cavern 112 million Nm<sup>3</sup> nitrogen was injected. For details see chapter 10.

### **Coal**

No changes in licences for have occurred in 2012. There are five production licences in force. For details see chapter 11.

### **Rock salt**

In 2012 one new exploration licence for rock salt has been applied for and one was relinquished. Three production licences were applied for and two were awarded. As at 1 January 2013 fourteen production licences were in force. The production of rock salt in 2012 was 6.5 million tons. For details see chapter 12.

### **Geothermal energy**

In 2012, eight exploration licences have been submitted for geothermal energy. Eleven exploration licences have been awarded and two were relinquished. Two production licences were applied for. In 2012 four wells for geothermal energy were drilled and completed. For details see chapter 13.

# 1. NATURAL GAS RESOURCE AND FUTURE GAS SUPPLY FROM WITHIN THE NETHERLANDS

## INTRODUCTION

This chapter reports on the natural gas resources in the Netherlands and the Netherlands part of the Continental Shelf. First it presents estimates of the natural gas resource as at 1 January 2013 and changes compared to 1 January 2012. A brief explanation of the method used for determining the natural gas resource is given below. Subsequently, this section on the supply of natural gas in the Netherlands presents the Dutch gas production expected for the next 25 years (period 2013 - 2037).

## Data

In accordance with the Mining Act (Mining decree, article 113) the operators of production licences annually report remaining resources estimates for their developed hydrocarbon accumulations as well as the prognoses for the remaining annual production. These figures are used in the estimations of the total Dutch supply of natural gas as presented in this chapter. As per January 1<sup>st</sup> 2013 resources are reported according to the Petroleum Resource Management System (PRMS)<sup>1</sup> enabling a uniform classification of the resources.

## Petroleum Resource Management System

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

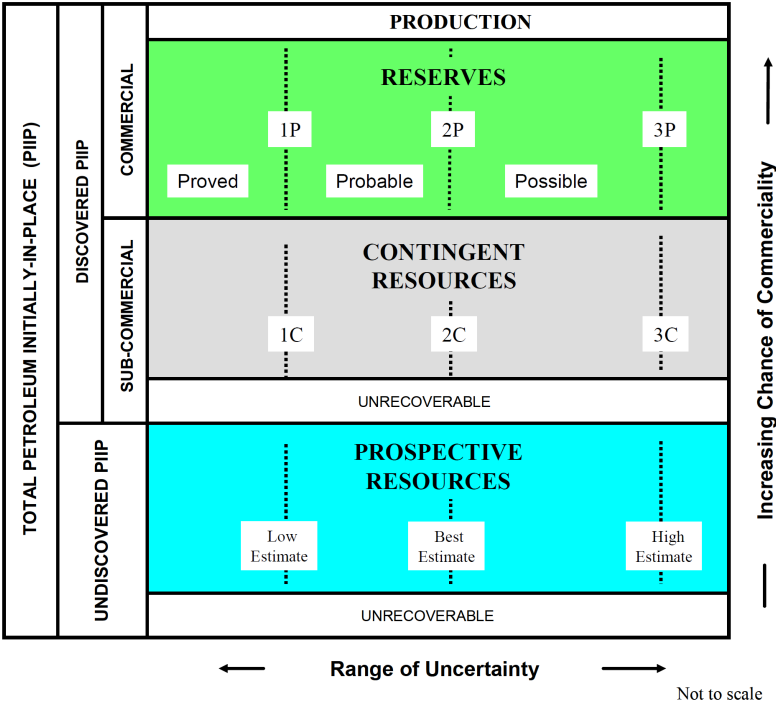


Figure 1. Schematic representation of the PRMS classification<sup>1</sup>

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

Since oil and gas are physically located at great depths under the ground, estimates are based on the evaluation of data showing the amounts present. All reserve estimates carry some uncertainty. In order to take this into consideration the PRMS comprises a central frame work that the gas supply for each project categorizes according to the likelihood that will be associated to the recoverable quantities (horizontal axis in the figure below) and classifies them to have the potential to achieve (commercial production status vertical axis).

The status is divided into three main classes; Reserves, Contingent resources and Prospective resources. Within the classes it is possible to divide into sub-classes. Reported resources reflect the situation as of 1 January 2013.

The Dutch gas resources, as reported in this chapter, include the total volume of expected (or 2P) Reserves and Contingent Resources insofar as they belong to the subclass 'development pending'. The Contingent Resources subclasses 'development unclarified or on hold' and 'development unviable' are not included in the resources. The section on the exploration potential describes how the third main class of undiscovered prospective resources (Prospective Resources) is determined.

For further information on PRMS see [www.spe.org](http://www.spe.org)

## **RESOURCE**

The natural gas resource is defined as the volume of natural gas that can be produced from discovered gas accumulations in the subsurface of the Netherlands. Many of these accumulations have already been developed and are currently on production. The remaining commercially producible volumes of natural gas in the proven accumulations are defined as the (*remaining*) reserves. Discovered volumes of gas which are currently not considered to be commercially recoverable due to one or more contingencies are called contingent resources.

As at 1 January 2013 there are 452 proven natural gas accumulations in the Netherlands (table 1). At present, the majority of these accumulations is developed (265), i.e. producing. Besides this four former gas fields are currently operational as gas-storage facility (a fifth storage facility is located in a salt cavern). Of the 107 accumulations that have not been developed as yet, 30 are expected to start producing within five years (between 2013 and 2017). The development of the remaining 77 accumulations is uncertain. Of all accumulations that have ever been developed, 76 have (temporarily) ceased production. Compared to January 1<sup>st</sup> 2012 the number of accumulations has increased by seven.

Table 1. Number of proven natural gas accumulations sorted by status as at 1 January 2012

Status of accumulations	Onshore Territory	Continental Shelf	Total
<b>I. Developed</b>			
a. producing	113	152	265
b. gas-storage facility	4		4
<b>II. Undeveloped</b>			
a. start of production 2012-2016	13	17	30
b. others	33	44	77
<b>III. Production ceased</b>			
closed in	10	4	14
abandoned	25	37	62
<b>Total</b>	<b>198</b>	<b>254</b>	<b>452</b>

The accumulations with a status change from 2012 to 2013 are shown in table 2. In 2012 fifteen new fields came on stream among which four fields that were temporarily shut in. while four ceased producing. A complete overview of all accumulations is listed in annex 1. Accumulations are sorted by status and stating operator and licence. In accordance with the Mining Act, production plans or storage plans have been submitted for all developed accumulations.

Table 2. Gas accumulations with a status change in 2012.

Accumulation	Operator	Licence	Status 2013	Status 2012
Blija-Zuid	NAM	Noord Friesland	P	NP<5
De Hoeve	Vermilion	Gorredijk	P	NP<5
Eernewoude	Vermilion	Leeuwarden	P	
Metslawier-Zuid	NAM	Noord Friesland	P	NP<5
G16a-D	GDF Suez	G16a	P	
K12-M	GDF Suez	K12	P	
K18-Golf	Wintershall	K18b	P	NP<5
L04-D	Total	L04a	P	NP<5
L12a-B	GDF Suez	L12a	P	NP<5
P11b Van Ghent	Dana Petroleum	P11b	P	NP<5
P11b Van Nes	Dana Petroleum	P11b	P	NP<5
Metslawier	NAM	Noord-Friesland	P	U
Spijkensisse-Oost	NAM	Botlek	P	U
K14-FA	NAM	K14	P	U
K15-FN	NAM	K15	P	U
Donkerbroek-West	Tulip	Akkrum 11	NP<5	
L05a-D	GDF Suez	L05a	NP<5	NP>5
L10-N	GDF Suez	L10	NP<5	
P11b VanGhent East	Dana-Petroleum	P11b	NP<5	NP>5
Q01-D	Wintershall	Q01	NP<5	NP>5
Hollum-Ameland	NAM	Noord-Friesland	NP>5	NP<5

Accumulation	Operator	Licence	Status 2013	Status 2012
Nieuwehorne	Vermilion	Gorredijk	NP>5	NP<5
Oppenhuizen	Northern Petroleum	Zuid-Friesland III	NP>5	NP<5
Oosterwolde	Northern Petroleum	Oosterwolde	NP>5	NP<5
Terschelling-Noord		Terschelling-Noord	NP>5	NP<5
Woudsend	Northern Petroleum	Zuid-Friesland III	NP>5	NP<5
E13 Epidoot		E13a	NP>5	NP<5
F16-P	Wintershall	F16	NP>5	NP<5
L02-FC	NAM	L02	NP>5	NP<5
P02-E	Chevron	P2	NP>5	NP<5
Zuidwijk	Taq	Bergen II	NP>5	
Geestvaartpolder	NAM	Rijswijk	T	P
K05a-Es	Total	K05a	U	P

P: Producing

NP<5: undeveloped gas accumulation, production start expected within 5 years

NP>5: undeveloped gas accumulation, production start unknown

T: production ceased temporarily

U: production ceased

A: abandoned

\* : new discovery

## RESOURCE ESTIMATES

### Reserves as at 1 January 2013

As at 1 January 2013 the over all resources in both the developed and undeveloped accumulations add up to 1130 billion Sm<sup>3</sup> (table 3a).

The resource estimates for developed accumulations are based on the information supplied by the operators in their annual reports and submitted in accordance with the Mining Act. As a consequence of the adoption of the PRMS, the resources are from now on subdivided in Reserves and Contingent resources (subcategory Development pending). To a certain degree this corresponds with the formerly used subdivision in developed and undeveloped fields and as such does not result in a change in trend. The use of PRMS as resource classification results in a uniform way of reporting.

### Restricted to conventional gas accumulations

According to the PRMS classification shale gas is still in the category of prospective resources in a not yet proven play. Hence the reporting here is restricted to the conventional gas resources. Although there is much attention for the unconventional gas resources (such as shale gas and coal bed methane) the exploration potential remains very uncertain.

In the summer of 2013 the results of the study commissioned by the Minister of Economic Affairs on the possible risks and consequences of exploration and production of shale gas and coal bed methane for men, nature and the environment will be available. Depending on these results the minister will decide on the possibilities of exploration and production of shale gas in the Netherlands.



## Reserves and Contingent resources

The remaining resources are listed in the tables 3a (in billion Sm<sup>3</sup>) and 3b (in m<sup>3</sup> Groningen equivalents, m<sup>3</sup>Geq). These resources may be present in either developed or non-developed accumulations. According to the PRMS a volume of gas may qualify as reserves when it has been discovered and is assumed to be commercially produced according to well defined projects. Contingent resources are those volumes of gas in known accumulations that are potentially producible, but currently not assumed commercial due to one or more contingencies. Of the contingent resources only that part belonging to the subcategory 'development pending' is presented here.

The remaining reserves add up to 1156 billion Sm<sup>3</sup> in total, 813 billion Sm<sup>3</sup> for the Groningen field and 176 billion Sm<sup>3</sup> for the other (small) fields. The remaining reserves present in the fields Norg, Grijpskerk and Alkmaar, at the time of their conversion to underground gas storage facilities (together some 19 billion Sm<sup>3</sup> or 20 m<sup>3</sup> Geq) are separately mentioned as UGS cushion gas in table 3a. The Bergermeer accumulation had no remaining reserves at the time of conversion. This 'cushion gas' will only be produced once the fields are no longer used as storage facilities. This is not expected to happen prior to 2040.

The contingent resources are partly present in developed accumulations, but the major part is resides in as yet undeveloped accumulations. According to the PRMS 11 billion Sm<sup>3</sup> of the Groningen field belongs to the category contingent resources (table 3a). The small fields contain a contingent resource of 60 billion Sm<sup>3</sup> on the Dutch territory and 52 billion Sm<sup>3</sup> on the Continental shelf

Table 3a. Gas resources in the Netherlands as at 1 January 2013 in billions of Sm<sup>3</sup>

Accumulations	Reserves		Contingent resources	Total
		UGS*		
<b>Groningen</b>	813		11	824
<b>Others Territory</b>	65	19	60	144
<b>Continental Shelf</b>	111		52	163
<b>Total</b>	988	19	123	1130

For the purpose of equating volumes of natural gas of different qualities in calculations, these volumes have been converted to Groningen Gas Equivalents (Geq) on the basis of calorific value (table 3b).

The Groningen Gas Equivalents is calculated relative to the heating value of 35.17 MJ/Nm<sup>3</sup>, the calorific value of the original content of the Groningen field. However, since 2010 we use the heating value of 35.08 MJ/Nm<sup>3</sup> for the remaining gas in the Groningen field as the gas composition of the gas presently produced from the Groningen field differs from the composition of the originally produced gas.

Table 3b. Gas resources in the Netherlands as at 1 January 2013 in billions of m<sup>3</sup>Geq

Accumulations	Reserves		Contingent resources	Total
		UGS*		
Groningen	768		10	779
Others Territory	64	20	60	144
Continental Shelf	113		54	167
<b>Total</b>	<b>945</b>	<b>20</b>	<b>125</b>	<b>1090</b>

### Revisions compared to 1 January 2012

The table below lists the revisions to the Dutch gas resource, resulting from:

- Transition to PRMS reporting
- new discoveries;
- re-evaluations of previously proven accumulations;
- production during 2012.

Table 4. Revisions of expected gas resource compared to 1 January 2012, in billion Sm<sup>3</sup>

Area	New discoveries	Re-evaluations, PRMS	Production	Total
Groningen field	0.0	-25.7	-50.4	-76.1
Others Territory	0.5	-16.2	-8.8	-24.5
Continental Shelf	3.0	16.9	-19.9	-0.9
<b>Total</b>	<b>3.5</b>	<b>-25.0</b>	<b>-78.2</b>	<b>-99.7</b>

The net result is a decrease of the resource by 99.7 billion Sm<sup>3</sup> compared to 1 January 2012. A brief explanation of these figures follows below.

### New discoveries

Of the eight exploration wells that struck gas six seem to have discovered commercially producible quantities (table 5). Their locations are indicated by asterisks in figure 2. According to preliminary estimates, these new discoveries will add approximately 3.5 billion Sm<sup>3</sup> to the Dutch gas resources.

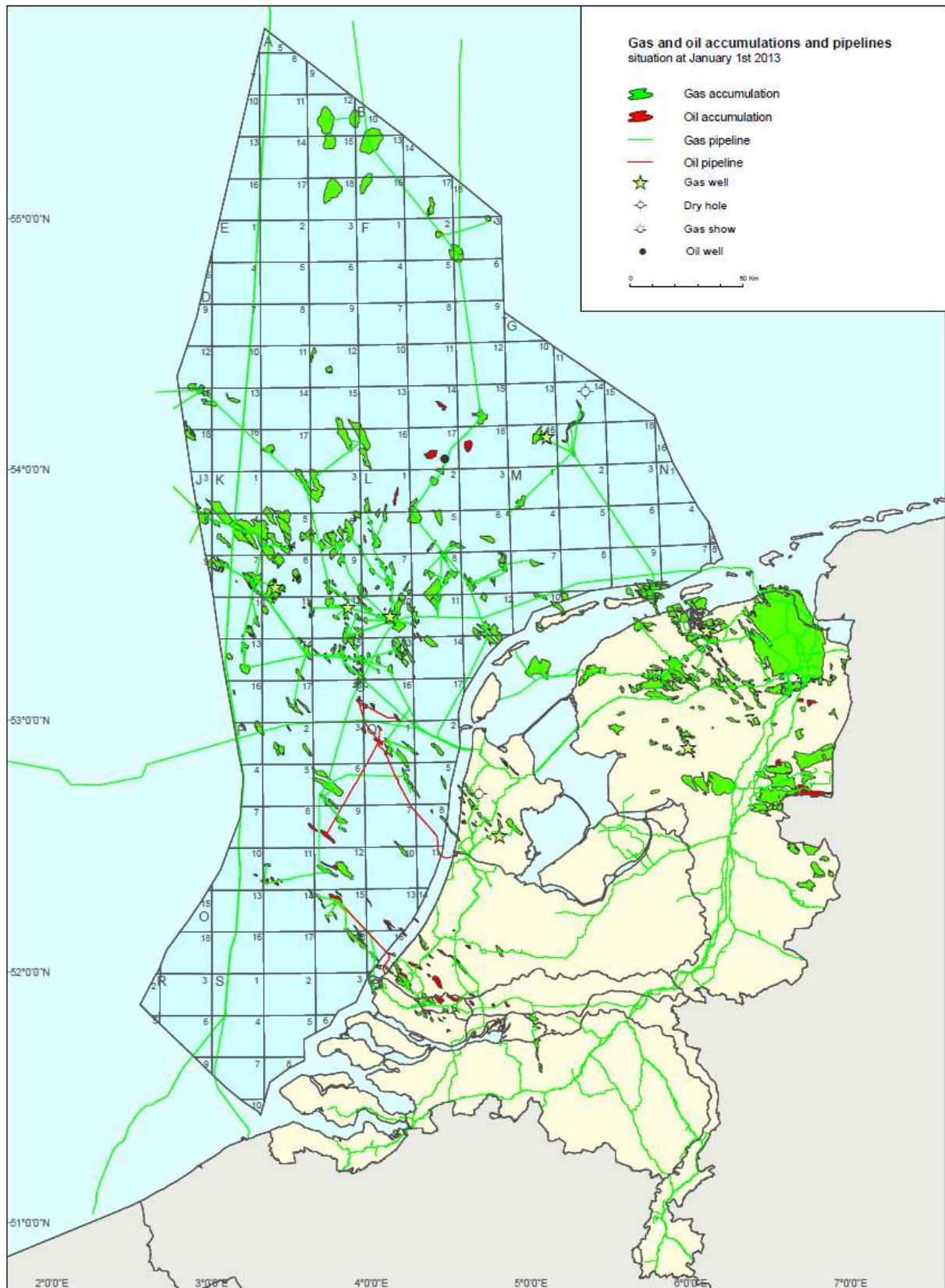


Figure 2. Outline map showing oil and gas accumulations in the Netherlands (as at 1 January 2013). New discoveries are indicated with an asterisk.

Table 5. Gas accumulations discovered in 2012

Name accumulation	Discovery well	Licence area	Operator
Wieringa	Krabbenburen-04	Noord-Friesland, Groningen, Tietjerksteradeel	NAM
Vinkega	Vinkega-02	Gorredijk	Vermilion
G16a-D	G16-B-04-Sidetrack1	G16a	GDF-Suez
K08-FC-west	K08-FA-308-Sidetrack2	K08	NAM
K12-M	K12-19-Sidetrack1	K12	GDF-Suez
L10-N	L10-36-Sidetrack2	L10	GDF-Suez

\* This field contains both commercial oil and gas volumes.

## Revisions

Both producing and non producing gas accumulations are periodically evaluated by their operators to implement economical and technical developments. These evaluations may lead to adjustments of the reserves. In 2012 they have resulted in a downward revision of the gas reserves by 25.0 billion Sm<sup>3</sup>. The reduction of resources in the Groningen accumulation is - 25.7 billion Sm<sup>3</sup> (approx. 3% of the remaining reserves), the adjustments on the territory and the Continental shelf are balancing each other with -16.2 and 16.9 billion Sm<sup>3</sup> respectively

The revision of the reserves is related to adjustments based on the production performance of the fields or technical interventions. These interventions comprise the drilling of new wells, and application of new technologies to extend the production life of the field. In all cases the changes in reserves are based on proven technologies such as (extra) compression and deliquification of production wells.

This year the adoption of the PRMS has resulted in the readjustment of the resource figures although this may not be distinguished from the technical and economical influences.

## EXPLORATION POTENTIAL

TNO updates the Dutch prospect portfolio for natural gas annually. This is, amongst others, based on the annual reports submitted by the operators for the licenced areas in accordance to the Mining Decree (article 113). For other areas TNO uses figures from its own database.

### Geological units and prospects

TNO focuses on the evaluation of the so called 'proven plays'. These are geological units for which it is legitimate to assume that they meet the necessary geological conditions to enable the formation of natural gas accumulations. Within those proven plays all mapped and evaluated prospects, based on existing data, will be considered as the prospect portfolio. Hypothetical plays and prospects will not be considered due to their speculative character.

### Portfolio characteristics

The prospect portfolio is characterised by the number of prospects and its associated volume of gas. The volume of a prospect can be expressed in terms of the expected recoverable volume in case of a discovery (the so called *Mean Success Volume*, MSV) or in terms of the

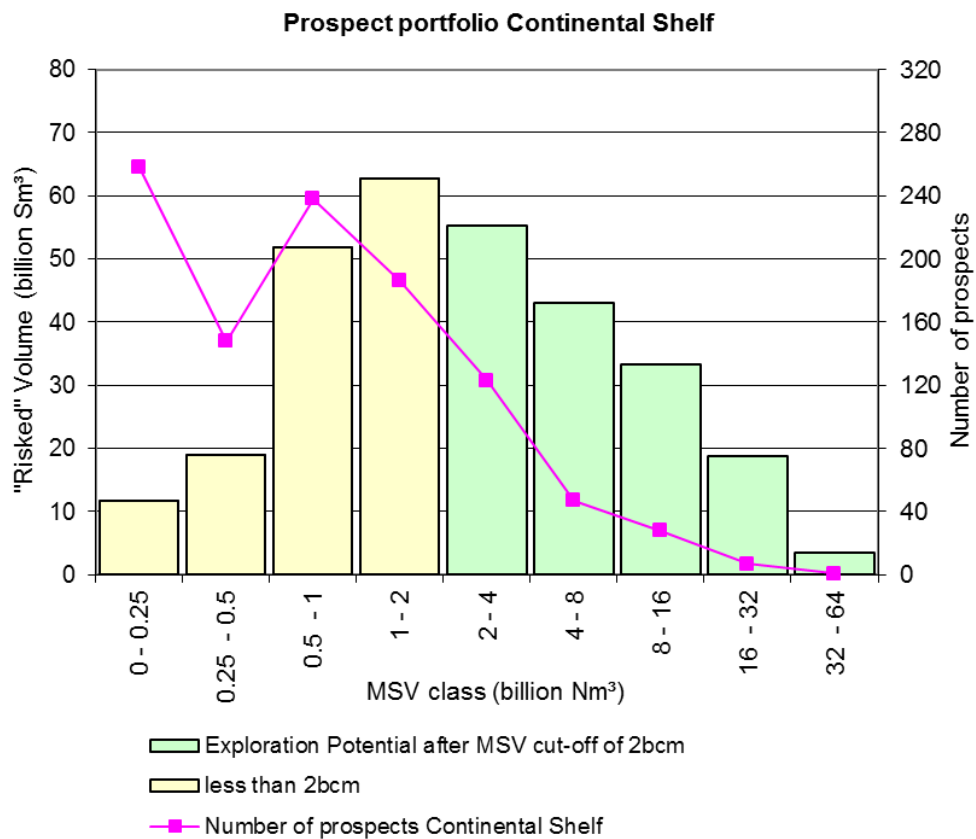
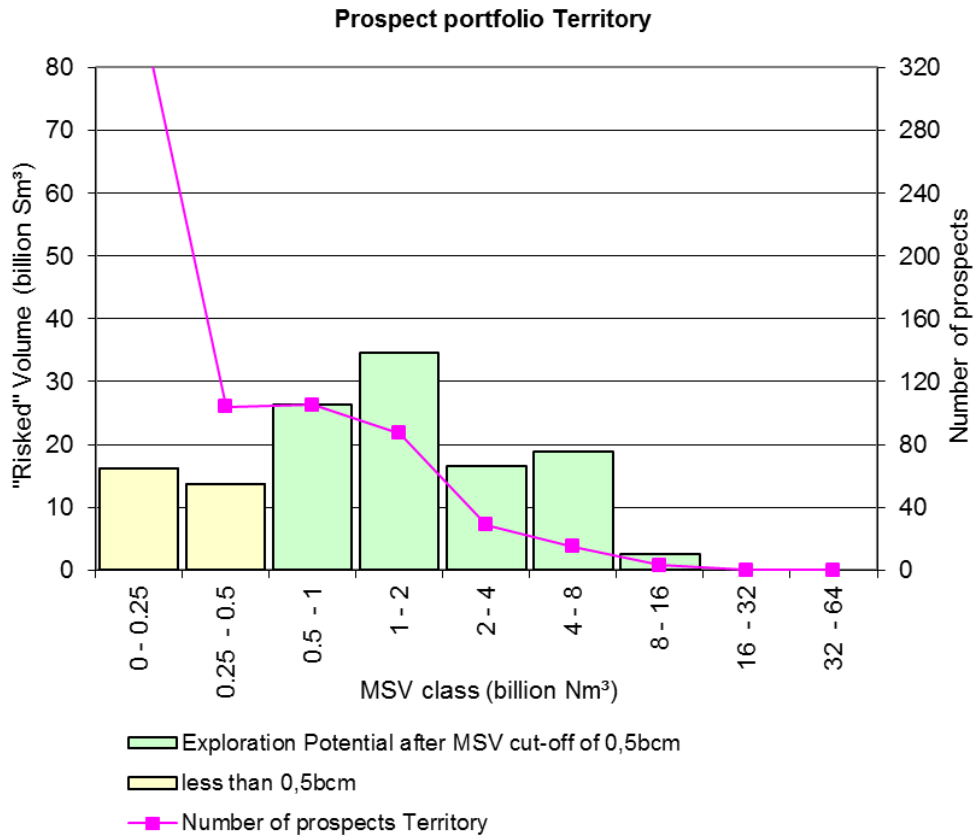


Figure 3: Prospect portfolio characteristics. The exploration potential, after applying a MSV cut-off, is represented by the green columns.

*risked volume* (the so called *Expectation*, EXP), which is the product of the MSV and the Possibility of Success (POS).

The prospect portfolio characteristics as of 1 January 2013 are presented in figure 2 for the prospects in the Territory and the Continental shelf. The number of prospects and the *risked volumes* are shown per MSV volume class. The total number of prospects in the portfolio has increased compared to 1 January 2012. In general the *risked volumes* in most MSV classes have been valued more pessimistically than on 1 January 2012, mainly due to a re-evaluation of the possibility of success of older prospects.

### Exploration potential

The exploration potential is that part of the prospect portfolio that meets certain minimum conditions. Since the first report on the exploration potential in 1992 a cut-off was defined for the expected recoverable volume in case of discovery (MSV). This cut-off was set at 0.5 billion cubic meter for prospects in the Territory and at 2 billion cubic meters for prospects on the Continental Shelf. The green columns in figure 2 represent the risked volume of the prospects that meet this MSV cut-off. This volume is called the exploration potential based on the MSV cut-off.

The estimate of the exploration potential (see Table 6) is expressed as a range, to stress the inherent highly uncertain nature.

Table 6. Exploration potential for natural gas based on MSV cut-off as at 1 January 2013.

Area	MSV cut-off [billion Sm <sup>3</sup> ]	Exploration potential [billion Sm <sup>3</sup> ]
Territory	0.5	62 – 155
Continental Shelf	2	90 – 228

The consequence of a minimum MSV based cut-off is that other factors determining the commercial attractiveness of a prospect are not considered. These factors are partly related to individual prospects (possibility of success, distance to infrastructure, type of field development, gas quality, productivity etc.) and partly on generic factors such as expenses and revenues.

An alternative cut-off, for the first time presented in the annual review of 2006, is based on a positive net present value of a prospect. Per prospect the *Expected Monetary Value* (EMV) is derived from the net present value considering the exploration risk using a discounted cash flow model. This model determines the commercial attractiveness of a prospect incorporating the factors mentioned above.

As an example table 7 shows the expectation value for the exploration potential after applying an EMV cut-off (prospects with a positive EMV at a gas price scenario of 23 cents per cubic meter). Compared to the figures in table 6 the EMV > 0 cut-off results are close to the middle of the range of the exploration potential based on the MSV cut-off. This is a notable decrease as compared to January 1<sup>st</sup> 2012. The decrease is mainly caused by the application of a lower gas price expectancy and re-evaluation of older (pre-2012) prospects in the portfolio.

Table 7. Exploration potential natural gas as at 1 January 2013. Commercial conditions: (EMV >0), and a gas price for 23 cents per cubic meter.

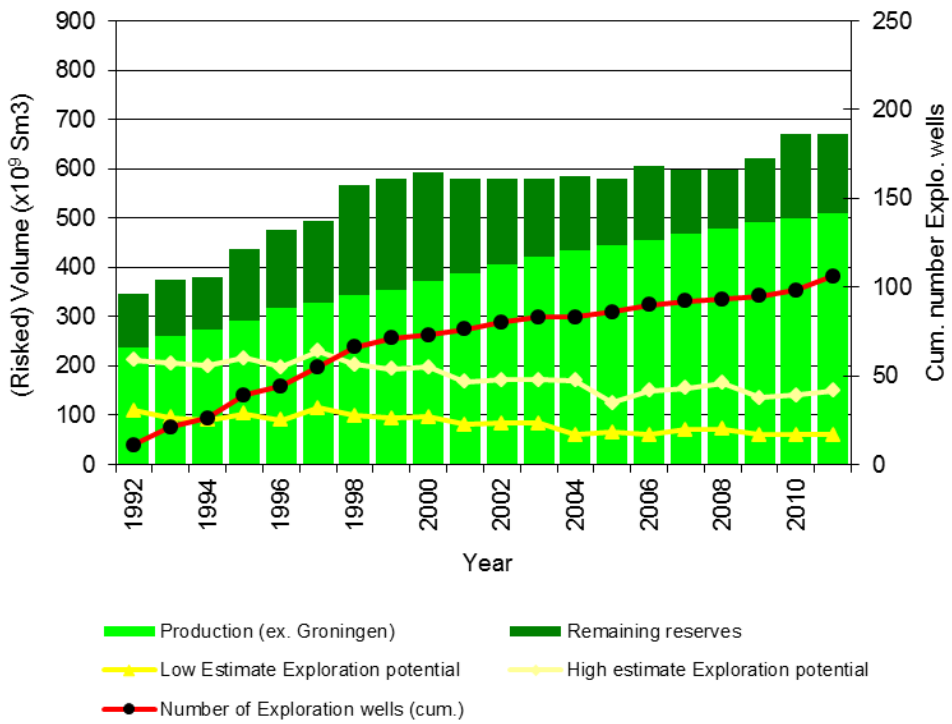
Area	Expectation Exploration Potential [Billion Sm <sup>3</sup> ]
Territory	120
Continental Shelf	119

### Exploration potential trend/history

Figure 4 shows the development of the exploration potential in the Netherlands. The graph for the Dutch territory shows a gradual decline for both the high and the low estimate until present. The graph of the Continental Shelf shows an increase for the high estimate in particular around 2004, followed by a decline to a present day level similar to that in the 90's.

Over time, part of the exploration potential has been drilled successfully, thereby converting the potential volumes into actual reserves. This is expressed in the increased height of the green columns (cumulative production and remaining reserves) in figure 3. The exploration potential of 100 billion cubic meter for the Territory as reported in 1992 had already been added to the reserves in 1996. The fact that nonetheless the exploration potential remains stable is due to the dynamics in the prospect portfolio on which the estimations of the exploration potential are based. Each year prospects are removed from the portfolio after the drilling of exploration wells, and new prospects are added. Evaluations of prospects may also lead to changes in the values of the prospect portfolio (see paragraph Portfolio Characteristics).

### Volume Trend Territory



### Volume Trend Continental Shelf

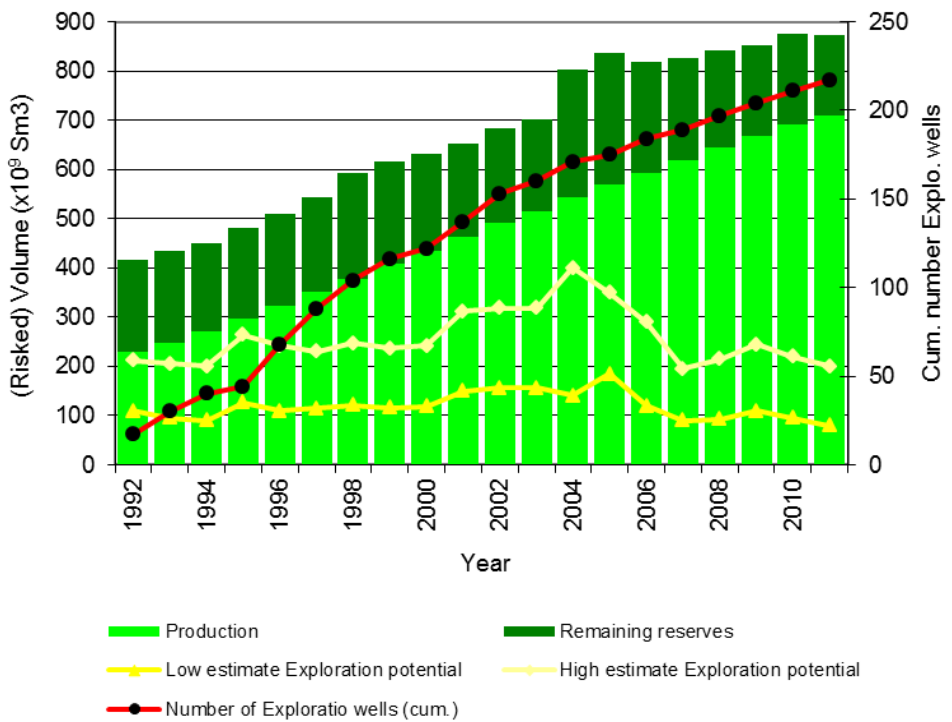


Figure 4: Reserves from 1992 to present (excluding the Groningen gas field).



## **Incentives**

The Decree on investment deduction for marginal gas accumulations on the Continental Shelf (*Regeling investeringsaftrek marginale gasvoorkomens continentaal plat*) became in force on 16<sup>th</sup> of September 2010. This measure aims to encourage the mining industry to develop marginal gas fields on the Dutch Continental shelf which otherwise would not have been drilled. Licensees and co-licences may charge 25% of the amount of investment for the appointed marginal fields or prospects against the result subject to legal payment of the State Profit Share under the Mining Act. The applications for marginal fields will be reviewed against the following three parameters: Technically producible volume of gas, well productivity and transport distance to a platform.

Since the Decree became in force 27 applications have been filed (12 in 2012) by nine different licences. In 2012 eight applications have been treated, one was rejected and five applications have been approved. Two applications are tentatively rejected. The five approved cases expect to discover and develop 4.5 billion Sm<sup>3</sup> of gas (technically recoverable).

At the same time and with the same purpose an agreement became into force between the Minister of Economic Affairs and the mining companies active on the Continental Shelf. This covenant includes a voluntarily procedure to stimulate mining companies holding permits for gas production on the Continental shelf to either actively use the permit areas (and parts thereof) within a reasonable time for exploration and exploitation operations, or make them available to others.

The first of July 2011 for all production licences the areas classified as 'inactive' were published. During the following nine months the main licence holder (operator) and during the subsequent three month the other licensees were in the position to submit a work plan for these 'inactive' areas. Since July 1<sup>st</sup> 2012 third parties are also invited to submit work plans.

In 2012 a work plan was submitted by a third part for a part of the production licence F3b (GDF-Suez). This work plan is under review with the ministry. If the plan is accepted, the part of the production licence F3b classified as 'inactive' will be transferred to the new applicant.

The actual status of production licence areas, based on the above mentioned covenant, is published on [www.nlog.nl](http://www.nlog.nl). On this web site the activity level in onshore licence areas are published as well. This onshore classification is according to article 32a of the Mining Act.

## GAS SUPPLY FROM WITHIN THE NETHERLANDS

This section deals with the developments in the supply of gas produced from within the Netherlands that can reasonably be expected for the next 25 years (2013 to 2037). This section of the review is based on data submitted by operators and gas boards. The reference date for the present review is 1 January 2012. All volumes in the present section are quoted in billions of m<sup>3</sup> Groningen Gas Equivalent (heating value of 35.17 MJ/Nm<sup>3</sup>) abbreviated to m<sup>3</sup>Geq.

The estimated Dutch natural gas supply is presented in figure 5, divided into production from the Groningen field (upper part of the diagram) and production from other accumulations (small fields). The figure shows both the realised Dutch natural gas production for the period 2001 – 2012 as the production estimates for the next 25 years (2013 – 2037).

The estimated supply from the Groningen field has been derived from the maximum allowed production until 2020 and the expected production after that:

- The **maximum allowed production** from the Groningen accumulation for the period 2012 – 2020 is based on the amendment to article 55 of the Gas Act. It has been limited to 425 billion m<sup>3</sup>Geq raised with the 20.7 billion m<sup>3</sup>Geq which remains from the previous period (2006 – 2011). The purpose of setting a maximum allowance is to ensure that the Groningen accumulation can continue to fulfil its function as a swing producer to for the small fields policy for a sufficiently long period of time. The function as swing producer implies that the actual annual production of the Groningen accumulation is difficult to estimate. Therefore the supply from the Groningen accumulation until and including 2020 has been profiled as the maximum allowed production as mentioned above (425 billion m<sup>3</sup>Geq + 20.7 billion m<sup>3</sup>Geq minus the production in 2012 (94.6 m<sup>3</sup>Geq) resulting in an annual production forecast of 43.9 billion m<sup>3</sup>Geq.
- From 2020 onwards the **production profile** is derived from the Production plan of the Groningen accumulation.

The estimated supply from the small fields has been prepared based on the following data:

- the summation of the production profiles of the **reserves**. These profiles have been submitted by the operators as part of their annual reports (Mining Decree, article 113).
- the summation of the **contingent resources**. These resources are not profiled by the operators. Therefore an arbitrary production profile is based on the assumption that this category (contingent resources/development pending) will be brought on stream within 10 years from now with a dominant part in the beginning of this time period.
- the summation of the production profiles of the **accumulations that have not been discovered as yet**. These profiles are prepared by using a simulation model; taking into account the number of wells that is expected to be drilled (10 exploration wells per year and a risked value to investment ratio (RVIR) of 0.1), the expected producible volumes of the prospects and the probability of success.

### Groningen field

Production limits allow an annual production of 43.9 billion m<sup>3</sup>Geq until and during 2020. After 2021, production from the Groningen field is expected to gradually decline to approximately 8 billion m<sup>3</sup>Geq in 2037.

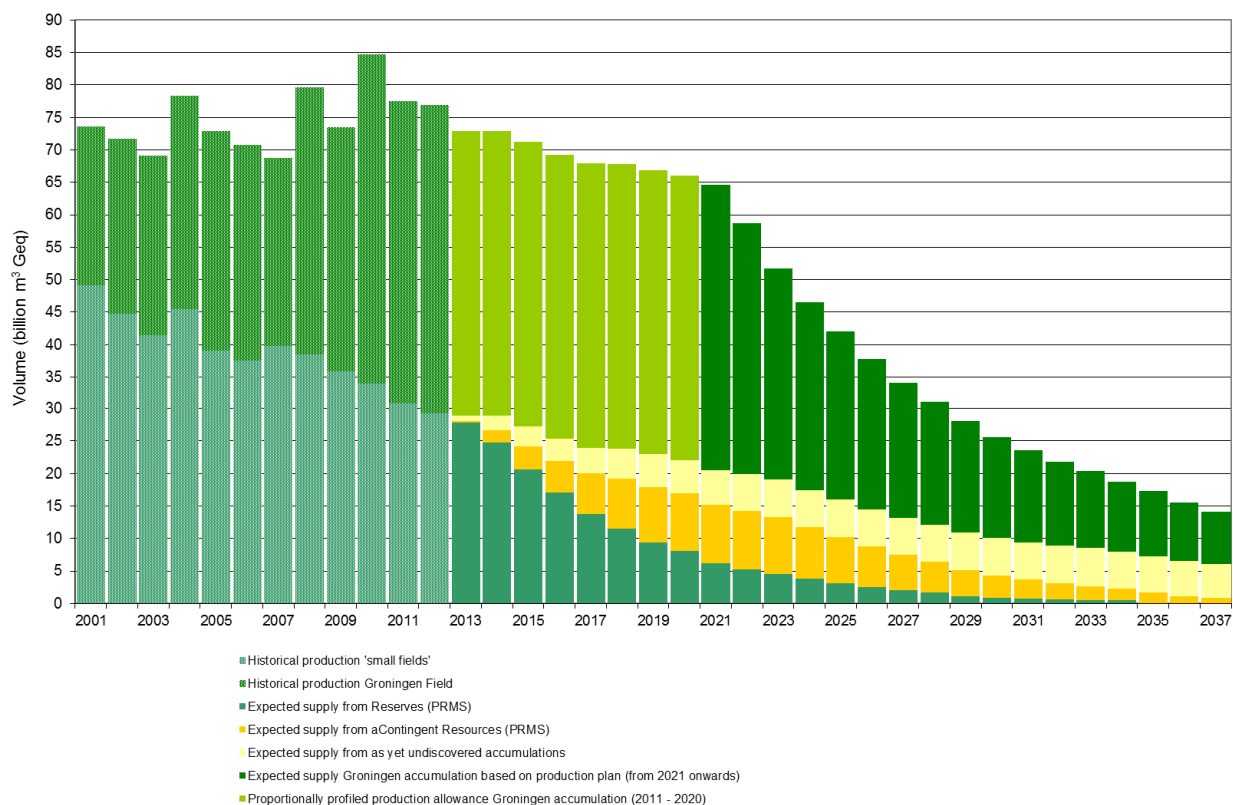


Figure 5. Actual production of natural gas in the Netherlands from 2001 - 2012 and production prognosis the period 2013 - 2037.

### Small fields

Production in 2012 from small fields was according to the expectations. It is expected that production from the current portfolio of small fields will gradually decline to around six billion m<sup>3</sup>Geq in 2037.

### Total production from proven fields

The Dutch natural gas production for the coming 10 years will be 678 billion m<sup>3</sup>Geq at most, based on the production limits for the Groningen field (table 8). It is estimated that 243 billion m<sup>3</sup>Geq will come from production from small fields supplemented by a maximum of 434 billion m<sup>3</sup>Geq from the Groningen field.

Table 8. Gas supply from within the Netherlands for the 10 year period from 2013 - 2022 and the 25 year period 2013 - 2037, in billion m<sup>3</sup>Geq

Supply	2013 – 2022	2013 – 2037
Small fields		
Reserves	144	166
Contingent resources (dev. pending)	60	120
Still to be discovered	40	125
Subtotal Small fields	243	411
Groningen accumulation*	434	695
Total supply from within the Netherlands	678	1105

\* This is the maximum quantity of gas from the Groningen accumulation based on the Gas Act (article 55).

## 2. OIL RESOURCES

As at 1 January 2013 there are 46 proven natural oil accumulations in the Netherlands, one more than last year (table 9); Wintershall discovered an oil accumulation in block F17. According to the first estimations by Wintershall it concerns a substantial find. The actual volume will have to be appraised by further drilling in 2013. At present, 15 of these accumulations are producing.

All accumulations are listed in annex 1, sorted by status and stating operator and licence.

Table 9. Number of proven oil accumulations as at 1 January 2013

Status of oil accumulations	Onshore	Continental Shelf	Total
<b>I. Developed</b>			
Producing	4	11	15
<b>II. Undeveloped</b>			0
a. start of production 2013-2017	1	2	3
b. others	8	12	20
<b>III. Production ceased</b>			
Ceased	8	0	8
<b>Total</b>	<b>21</b>	<b>25</b>	<b>46</b>

### Oil resources as at 1 January 2013

The reserve estimates for developed accumulations are based on the figures and information submitted in accordance with the Mining Act. Starting this year the resource reporting is according to the Petroleum Resources Management System (PRMS, see chapter 1 for further explanation). Below the reserves (that part of resources which is commercially recoverable and has been justified for development by the operators) and the contingent resources (these are resources that are potentially recoverable but not yet considered mature enough for commercial development) are reported. Because the resource classification is project based, both reserves and contingent reserves can be present within one accumulation.

The total resources add up to 48.1 million Sm<sup>3</sup> consisting of 23.8 million Sm<sup>3</sup> oil reserves and 24.3 million Sm<sup>3</sup> contingent resources (table 10).

Table 10. Dutch oil reserves in million Sm<sup>3</sup> as at 1 January 2013

Area	Reserves	Contingent resources	Total
Territory	17.7	23.7	41.4
Continental Shelf	6.1	0.6	6.7
<b>Total</b>	<b>23.8</b>	<b>24.3</b>	<b>48.1</b>

## Revisions compared to 1 January 2012

Table 11 lists the revisions to the Dutch oil resource, resulting from

- re-evaluations of previously proven accumulations;
- production during 2012.

The discovery of the F17 oil accumulation is not yet incorporated in the resource amount as (according to the PRMS) it is too early to make firm enough estimations on its size. The net result is an overall increase of the oil resources by 7.9 million Sm<sup>3</sup> compared to 1 January 2012. The largest part of this increase is due to the evaluation of the onshore accumulations that already ceased production. For a number of these fields there may be opportunities for redevelopment. On the contrary, oil resources offshore are devaluated, mainly as a consequence of the introduction of the PRMS classification (e.g. accumulations in relinquished licences). Finally the oil production in 2012 accounts for a decrease of the resources by 1.3 million Sm<sup>3</sup>.

Table 11. Revisions of expected gas resource compared to 1 January 2012, in million Sm<sup>3</sup>

Area	Change as a result of:		
	(re-)evaluation	production	total
Territory	13.4	-0.4	13.0
Continental Shelf	-4.2	-0.9	-5.1
<b>Total</b>	<b>9.2</b>	<b>-1.3</b>	<b>7.9</b>

Figure 6 shows the oil production since 2001 and the prognoses of oil production for the next 25 years. This prognosis is based on the annual reports of the operators. The decreasing trend of the last years has been reversed by the re-start of the production from the Schoonebeek field. The Schoonebeek field will reach its maximum production in 2014 the same year that the Q13-FA will have first oil. From 2014 onwards production will show an overall decline towards 2037.

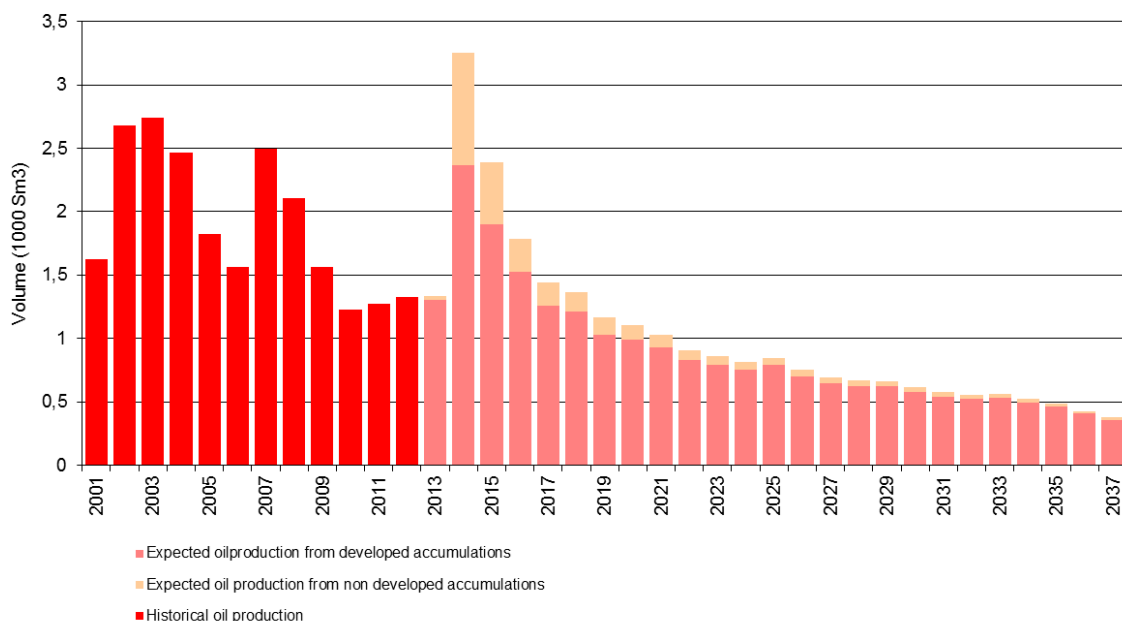


Figure 6. Oil production since 2001 and prognoses of the oil production until 2037.

### 3. HYDROCARBON LICENCES, Netherlands Territory in 2012

Changes in the licences for hydrocarbon exploration and production and all current licence applications on the Territory during 2012 are listed in the tables below

Total area	Under licence
41 785 km <sup>2</sup>	20 595 km <sup>2</sup> (49%)

#### EXPLORATION LICENCES, Netherlands Territory

##### Applied for

Licence	Publication	Date	Closing date	Applicant(s)
Schiermonnikoog-Noord *	Government Gazette 193	06-10-92		GDF
IJsselmuiden *	Official Journal C 93 Govern. Gazette 6 645	25-03-11	24-06-11	Northern, Vermillion
Terschelling-Noord *	Official Journal C 115 Govern. Gazette 8 001	13-04-11	13-07-11	Ascent
De Kempen *	Official Journal C 174 Govern. Gazette 11 021	15-06-11	14-09-11	Basgas Energia, Brabant Resources
Breda-Maas *	Official Journal C 178 Govern. Gazette 11 810	18-06-11	19-09-11	Brabant Resources, Gallic
Akkrum *	Official Journal C 292 Govern. Gazette 19 985	05-10-11	04-01-12	Vermillion, Mac Oil SpA, Smart Energy
Midden-Nederland	Official Journal C 79 Govern. Gazette 9 820	17-03-12	18-06-12	BNK

\* Current application, formerly published in Annual Report

##### Awarded

Licence holder	Licence	In force	km <sup>2</sup>
Vermilion Oil & Gas Netherlands B.V.	Hemelum	17-01-12	450
Vermilion Oil & Gas Netherlands B.V.	Opmeer	19-12-12	229
		Total	679

## Prolonged

Licence holder	Licence	In force	km <sup>2</sup>
Smart Energy Solutions B.V. cs	Schagen	24-03-12	355
Northern Petroleum Nederland B.V.	Utrecht	31-03-12	1 144
Northern Petroleum Nederland B.V.	Oosterwolde	31-03-12	127
		Total	1 626

## PRODUCTION LICENCES, Netherlands Territory

### Awarded

Licence holder	Licence	In force	km <sup>2</sup>
Tulip Oil Netherlands B.V.	Akkrum 11	26-07-12	6
		Total	6

### Split

Licence holder	Licence	In force	km <sup>2</sup>
<b>- Original</b>			
Northern Petroleum Nederland B.V. cs	Drenthe III		389
Nederlandse Aardolie Maatschappij B.V.	Drenthe II		1888
<b>- After splitting</b>			
Northern Petroleum Nederland B.V. cs	Drenthe IIIa	17-03-12	1
Northern Petroleum Nederland B.V. cs	Drenthe IIIb	17-03-12	388
Nederlandse Aardolie Maatschappij B.V.	Drenthe IIa	17-03-12	7
Nederlandse Aardolie Maatschappij B.V.	Drenthe IIb	17-03-12	1 881

### Lapsed / relinquished

Licence holder	Licence	In force	km <sup>2</sup>
Tulip Oil Netherlands B.V.	Oosterwolde	04-07-12	4
		Total	4

#### 4. HYDROCARBON LICENCES, Netherlands Continental Shelf in 2012

Changes in the licences for hydrocarbon exploration and production and all current licence applications on the Continental Shelf during 2012 are listed in the tables below.

Total area	Under licence
56 814 km <sup>2</sup>	30 697 km <sup>2</sup> (54%)

#### EXPLORATION LICENCES, Continental Shelf

##### Awarded

Licence holder	Licence	In force	km <sup>2</sup>
Oranje-Nassau Energie B.V.	P11a	22-06-12	210
Hansa Hydrocarbons Limited	G18	18-09-12	405
Hansa Hydrocarbons Limited	H16	18-09-12	73
Hansa Hydrocarbons Limited	M3	18-09-12	406
Hansa Hydrocarbons Limited	N1	18-09-12	217
		Total	1 311

##### Split

Licence holder	Licence	In force	km <sup>2</sup>
<b>- Original</b>			
Oranje-Nassau Energie B.V. cs	P18b		313
<b>- After splitting</b>			
Oranje-Nassau Energie B.V. cs	P18b	24-03-12	311
Oranje-Nassau Energie B.V. cs	P18d	24-03-12	2



## Restricted

Licence holder	Licence	In force	km <sup>2</sup>
GDF Suez E&P Nederland B.V. cs	E17c	31-03-12	171
		Total	171

## Prolonged

Licence holder	Licence	In force	km <sup>2</sup>
Oranje-Nassau Energie B.V. cs	L16b	14-03-12	176
Smart Energy Solutions B.V. cs	Q7	24-03-12	419
Smart Energy Solutions B.V. cs	Q10a	24-03-12	53
GDF Suez E&P Nederland B.V. cs	E17c	31-03-12	171
Oranje-Nassau Energie B.V. cs	Q13b-diep	14-04-12	369
Chevron Exploration and Production Netherlands B.V.	P1a	07-06-12	137
Tullow Netherlands B.V. cs	E13a	25-09-12	234
		Total	1 559

## Lapsed / relinquished

Licence holder	Licence	In force	km <sup>2</sup>
Oranje-Nassau Energie B.V.	F15b & F15c	14-11-12	165
Oranje-Nassau Energie B.V.	F12	14-11-12	401
Oranje-Nassau Energie B.V. cs	Q10b	23-11-12	367
Wintershall Noordzee B.V. cs	P5	14-12-13	417
Wintershall Noordzee B.V. cs	P8b	14-12-13	209
Dana Petroleum Netherlands B.V.	P8c	19-12-12	210
Sterling Resources Netherlands B.V. cs	F14-ondiep	22-12-12	403
Sterling Resources Netherlands B.V. cs	L1b-ondiep	22-12-12	339
Oranje-Nassau Energie B.V. cs	Q13b-diep	28-12-12	369
Tullow Netherlands B.V. cs	E13a	01-01-13	234
		Total	3 114

## PRODUCTION LICENCES, Continental Shelf

### Applied for

Licence	Publication	Date	Closing date	Applicant(s)
A12b & B10a *	Govern. Gazette 22	30-12-99	-	Chevron cs
B16a *	Govern. Gazette 105	06-05-93	-	Chevron cs
B17a *	Govern. Gazette 106	30-05-97	-	Centrica cs
B17b *	-	29-07-10	-	Centrica cs

\* Current application, previously published in Annual Report

### Awarded

Licence holder	Licence	In force	km <sup>2</sup>
GDF Suez E&P Nederland B.V. cs	D18a	29-08-12	58
Oranje-Nassau Energie B.V. cs	Q16b & Q16c-diep	20-09-12	80
Oranje-Nassau Energie B.V. cs	P18d	20-09-12	2
Oranje-Nassau Energie B.V. cs	S3a	20-09-12	2
Oranje-Nassau Energie B.V.	T1	20-09-12	1
		Total	143

### Restricted

Licence holder	Licence	In force	km <sup>2</sup>
Wintershall Noordzee B.V. cs	Q05d	17-01-12	20
		Total	20

## 5. HYDROCARBON LICENCES, company changes, name changes and legal mergers in 2012

The tables below list changes in chronological order which took place during 2012, as a result of mutations in consortiums of companies that participate in licences as well as name changes of participating companies or name changes as a result of legal mergers.

### Company changes in exploration licences

Licence	Relinquishing company	Acquiring company	In force	Govern. Gazette
F14-ondiep	-	Petro Ventures Netherlands B.V.	24-03-12	7 326
F18-ondiep	-	Petro Ventures Netherlands B.V.	24-03-12	7 329
F17a-ondiep	-	Petro Ventures Netherlands B.V.	24-03-12	7 331
L1b-ondiep	-	Petro Ventures Netherlands B.V.	24-03-12	7 333
E10	XTO Netherlands Ltd.	-	26-05-12	13 853
E11	XTO Netherlands Ltd.	-	26-05-12	13 854
E14	XTO Netherlands Ltd.	-	26-05-12	13 855
E15c	XTO Netherlands Ltd.	-	26-05-12	14 663
E18b	XTO Netherlands Ltd.	-	26-05-12	14 667
E18b	GTO Limited	Tullow Exploration & Production Netherlands B.V.	14-11-12	24 816
E15c	GTO Limited	Tullow Exploration & Production Netherlands B.V.	14-11-12	24 818
E14	GTO Limited	Tullow Exploration & Production Netherlands B.V.	14-11-12	24 820
E10	GTO Limited	Tullow Exploration & Production Netherlands B.V.	14-11-12	24 821
F18-ondiep	Grove Energy Ltd.	-	22-11-12	24 922
F17a-ondiep	Grove Energy Ltd.	-	22-11-12	24 923
F14-ondiep	Grove Energy Ltd.	-	22-11-12	24 924
E5	-	Volantis Netherlands B.V.	22-11-12	25 265
L1b-ondiep	Grove Energy Ltd.	-	22-11-12	25 271
E1	-	Volantis Netherlands B.V.	22-11-12	25 274
E2	-	Volantis Netherlands B.V.	22-11-12	25 277
E4	-	Volantis Netherlands B.V.	22-11-12	25 294

## Company changes in production licences

Licence	Relinquishing company	Acquiring company	In force	Govern. Gazette
Drenthe IIa	Nederlandse Aardolie Maatschappij B.V.	Vermilion Oil & Gas Netherlands B.V.	17-03-12	6 883
Drenthe IIIa	Northern Petroleum Nederland B.V. Dyas B.V. Nederlandse Aardolie Maatschappij B.V.	Vermilion Oil & Gas Netherlands B.V.	17-03-12	6 885
F16	-	Petro Ventures Netherlands B.V.	24-03-12	7 328
Papekop	Dyas B.V.	Parkmead (E&P) Ltd.	28-07-12	17 037
Andel V	Dyas B.V.	Parkmead (E&P) Ltd.	28-07-12	17 041
Drenthe IV	Dyas B.V.	Parkmead (E&P) Ltd.	28-07-12	17 042
Drenthe IIIb	Dyas B.V.	Parkmead (E&P) Ltd.	28-07-12	18 936
P18d	-	Energy06 Investments B.V.	20-09-12	23 457
T1	-	Energy06 Investments B.V. TAQA Offshore B.V.	20-09-12	23 467
F16	Grove Energy Ltd.	-	22-11-12	25 272

## Name changes

Previous company name	New company name
Smart Energy Solutions B.V.	Tulip Oil Netherlands B.V.

## 6. SEISMIC ACQUISITION

### TERRITORY

In 2012 neither 2D nor 3D seismic data has been acquired on the Netherlands Territory.

### CONTINENTAL SHELF

On the Continental shelf four 3D and one 2D surveys have been acquired in 2012. The 2D survey comprises a number of tie-in lines. The 3D surveys consist of a small extension into the D-blocks of a larger survey in de UK 44 quad, the finalisation of the extensive NL-DEF survey that Fugro started in 2011, a survey covering the northern K & L blocks and a 4D survey within K15.

#### 2D seismic surveys

Area	Company	Status	Length km
F02	DANA Petroleum	Completed	37
		Total	37

#### 3D seismic surveys

Area	Company	Status	Area km <sup>2</sup>
D06-D09	CGG-Veritas	Completed	95
A17, A18, B16, B17, E02, E03, F01, F02	Fugro	Completed	3230
K01, K02, K04, K05, K06, L04, L07	TOTAL	Completed	3615
K15	NAM	Completed	120
		Total	7060

## 7. OIL AND GAS WELLS, completed in 2012

The tables below list all wells drilled and ended during 2012, sorted by drilling location: either on the Territory or on the Continental Shelf. Subsequently they are sorted by exploration, appraisal or production wells. The tables list the name, licence, operator and result for each well. The last table summarizes the drilling activities of 2012.

Nine out of eleven exploration wells encountered hydrocarbons, a success ratio of 73%. Except one well, they all struck gas. F17-09 encountered oil.

Five appraisal wells (three on the Territory and two on the Continental Shelf) confirmed previously discovered reservoirs. Nineteen production wells were drilled in 2012.

### NETHERLANDS TERRITORY

#### Exploration wells

	Well name	Licence	Operator	Result
1	Krabburen-04	Noord-Friesland,	NAM	Gas
2	Vinkega-02	Gorredijk	Vermilion	Gas
3	Warmenhuizen-02-Sidetrack1	Middelie	TAQA	Droog
4	Zuidwijk-01	Bergen	TAQA	Gas

#### Appraisal wells

	Well name	Licence	Operator	Result
1	Donkerbroek-04	Donkerbroek-West	Tulip Oil	Gas
2	Eernewoude-02	Leeuwarden	Vermilion	Gas
3	Monster-04	Rijswijk	NAM	Gas

#### Production wells

	Well name	Licence	Operator	Result
1	Groet Oost-01-Sidetrack1	Bergen (Middelie)	TAQA	Gas
2	Kiel Windeweer-02	Groningen	NAM	Gas
3	Moddergat-03	Noord-Friesland	NAM	Gas
4	Norg-416	Norg	NAM	Gas
5	Spijkenisse Oost-01-Sidetrack2	Botlek	NAM	Gas
6	Vries-09	Drenthe	NAM	Gas
7	Westbeemster-03	Middelie, Bergermeer	NAM	Gas
8	De Wijk-35	Schoonebeek	NAM	Gas

## CONTINENTAL SHELF

### Exploration wells

	Well name	Licence	Operator	Result
1	F17-10	F17a	Wintershall	Olie
2	G14-06	G14	GdF Suez	Droog
3	G16-B-04-Sidetrack1	G16a	GdF Suez	Gas
4	K08-FA-308-Sidetrack2	K08	NAM	Gas
5	K12-19-Sidetrack1	K12	GdF Suez	Gas
6	K18-09	K18b	Wintershall	Gas
7	L10-36-Sidetrack2	L10	GdFSuez	Gas

### Appraisal wells

	Well name	Licence	Operator	Result
1	F17-09	F17	Sterling	Olie
2	P02-10-Sidetrack1	P02	Chevron	Gas

### Production wells

	Well name	Licence	Operator	Result
1	D15-FA-105	D15	GdF Suez	Gas
2	E17-A-04-Sidetrack1	E17a	GdF Suez	Gas
3	F03-FB-109-Sidetrack2	F03b	GdF Suez	Gas
4	G14-B-03-Sidetrack1	G14	GdF Suez	Gas
5	K04-Z-02	K04a	Total	Gas
6	K05-B-03-Sidetrack1	K05a, K05b	Total	Gas
7	K05-CU-04	K05a, K05b	Total	Droog
8	K08-FA-307	K08	NAM	Mislukt
9	K12-B-10	K12, K15	GdF Suez	Gas
10	K18-G-04	K15, K18b	Wintershall	Gas
11	L04-A-07-Sidetrack1	L04a	Total	Gas

## SUMMARY DRILLING OPERATIONS DURING 2012

	Well type	Results				Total
		Gas	Oil	Dry	Others	
<b>Territory</b>	Exploration	3		1		4
	Evaluation	3				3
	Production	8				8
	Subtotal	14	0	1	0	15
<b>Continental Shelf</b>	Exploration	5	1	1		7
	Evaluation	1	1			2
	Production	9		1	1*	11
	Subtotal	15	2	2	1	20
<b>Total</b>		29	2	3	1	35

\* K08-FA-307 is seen as technically failed; The reservoir couldn't been reached.



## 8. PLATFORMS AND PIPELINES, Netherlands Continental Shelf

In 2012 no new platforms or subsea completions have been installed on the Netherlands Continental Shelf. One subsea completion and two platforms have been removed.

During 2012 three new pipelines have been laid. Four pipelines have been abandoned or removed.

Annexes 13 and 14 present a complete list of all platforms and pipelines. Data on the pipelines is supplied by Rijkswaterstaat Directie Noordzee.

### Platforms, removed in 2012

Platform	Operator	Number of legs	Gas/Oil	Function
Q5-A	Wintershall	-	Gas	Sub sea
Q8-A	Wintershall	4	Gas	Wellhead
Q8-B	Wintershall	4	Gas	Satellite

### New pipelines in 2012

Operator	From	To	Diameter (inch)	Length (km)	Carries*
Wintershall	Q4C	Q8A	10	8.3	g
Total	K5-B	K5-A	8	13.5	g
Wintershall	K5A	J6A/K13-A	14	13.5	c

\* g = gas, c = condensate

### Pipelines, abandoned in 2012

Operator	From	To	Diameter (inch)	Length (km)	Carries*
Wintershall	Q8-B	Q8-A	8*2	8.3	g+m
Wintershall	Q8-B	Q5-A	8	13.5	g
Wintershall	Q8-B	Q5-A	4	13.5	c

\* g = gas, c = condensate, m = methanol

## 9. GAS AND OIL PRODUCTION

The tables below list the aggregated production figures for natural gas, oil and condensate for 2012. Condensate is generally considered as a by-product from oil or gas production. Changes in comparison to 2011 are listed in absolute terms and in terms of percentage.

The information in the following tables is based on data supplied by the production operators.

### Total production of gas, oil and condensate in 2012 and changes compared to 2011

Gas	Production 2012		Changes compared to 2011	
	$10^6 Nm^3$	$10^6 Sm^3$	$10^6 Sm^3$	%
Netherlands Territory	56233.1	59348.9	370.9	0.6
Groningen accumulation	47773.5	52154.8	2783.1	5.6
Territory other fields	8330.6	7194.1	-2412.2	-25.1
Continental Shelf	17899.8	18891.6	-687.5	-3.6
Total	74132.9	78240.5	-316.6	-0.4

Oil	Production 2012		Changes compared to 2011	
		$10^3 Sm^3$	$10^3 Sm^3$	%
Netherlands Territory		438.9	17.1	4.1
Continental Shelf		883.9	36.0	4.2
Total		1322.8	53.1	4.2
Average daily oil production		3624	$Sm^3/day$	

Condensate	Production 2012		Changes compared to 2011	
		$10^3 Sm^3$	$10^3 Sm^3$	%
Netherlands Territory		216.5	-7.0	-3.1
Continental Shelf		263.0	-31.5	-10.7
Total		479.6	-35.3	-6.9

The tables on the following pages present the monthly production figures for each production licence. Figures are presented Standard cubic meters ( $Sm^3$ ).

Annexes 15 up to and including 17 present historical gas and oil production figures. Due to the round off of monthly production figures, slight differences in the summations per year may exist.

## GAS PRODUCTION. Netherlands Territory in 2012 (in million Sm<sup>3</sup>)

The production per licence is a summation of the production of all producing wells of which the wellhead is located within the licence area. These figures have been supplied by the operating companies.

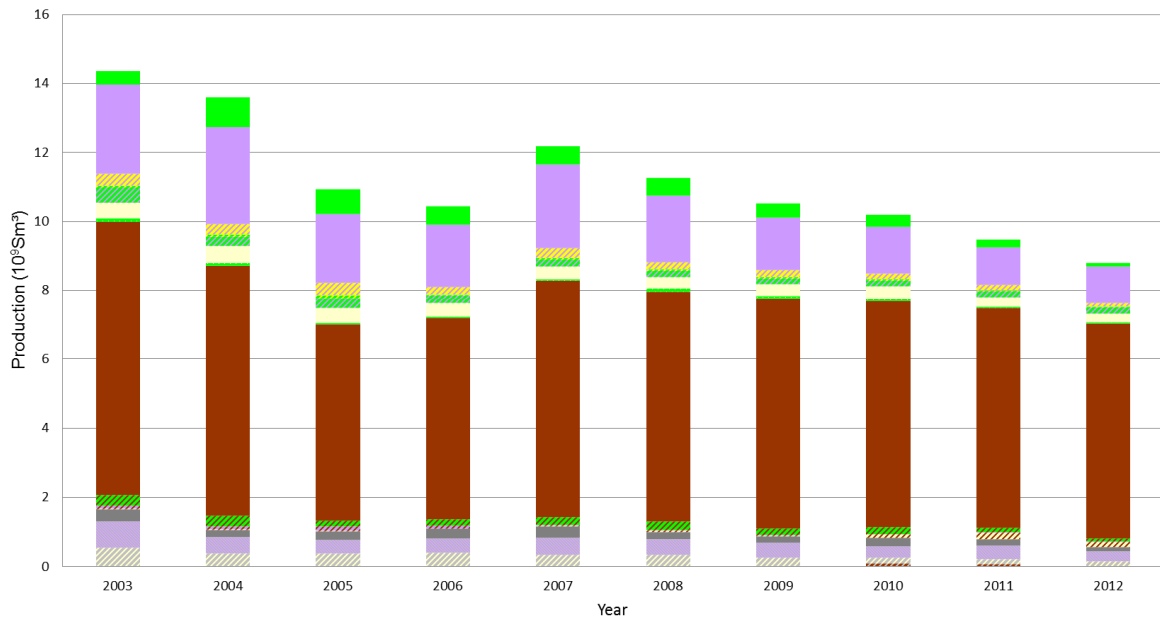
Licence	Operator	Total	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
Andel III	NPN	29.0	2.4	3.0	3.4	2.4	2.7	3.0	2.1	2.7	1.6	2.1	2.3	1.3
Andel V	NPN	6.8	0.0	0.0	0.0	0.9	1.3	1.0	0.8	0.4	0.4	0.8	0.6	0.6
Beijerland	NAM	249.7	27.4	25.0	20.5	21.8	21.5	22.7	12.4	22.6	9.1	23.4	21.6	21.8
Bergen II	TAQA	131.6	0.0	0.0	0.0	6.4	16.4	11.6	15.0	16.1	16.9	17.3	15.1	16.7
Botlek	NAM	404.5	31.5	28.0	33.7	37.5	39.7	39.1	31.0	35.1	28.7	33.8	32.1	34.2
Drenthe II	NAM	587.3	59.1	55.8	60.2	35.3	36.6	55.4	55.9	35.7	35.5	46.7	55.3	55.9
Drenthe II	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 III	NPN	30.5	2.8	3.1	3.5	3.3	3.3	3.1	2.2	2.8	1.4	0.0	1.8	3.0
Drenthe IV	NPN	18.1	2.2	2.1	2.2	2.0	1.2	2.0	1.4	0.2	0.4	1.1	1.7	1.6
Gorredijk	Vermilion	346.7	30.1	29.0	29.0	29.9	29.3	27.6	28.8	30.9	30.0	31.5	25.7	24.9
Groningen	NAM	52154.8	6783.8	7020.7	5399.3	4167.2	3118.6	2747.1	2505.6	2334.3	2503.0	4240.9	5650.3	5684.1
Hardenberg	NAM	21.6	2.5	2.4	2.4	2.2	2.2	1.8	1.6	1.7	0.8	0.0	1.1	2.8
Leeuwarden	Vermilion	54.4	7.1	4.5	3.7	3.3	3.9	4.1	3.0	3.8	3.3	3.6	4.2	9.9
Middelie	NAM	241.1	19.8	18.0	21.3	20.2	19.7	12.9	15.0	13.2	16.6	26.9	28.6	29.1
Noord-Friesland	NAM	3456.6	301.5	257.2	290.6	159.1	184.4	252.8	292.2	296.7	307.3	356.5	379.5	378.8
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	583.5	60.9	45.1	57.7	48.9	51.3	42.2	45.4	43.5	42.6	49.5	50.2	46.1
Rossum-De Lutte	NAM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Schoonebeek	NAM	598.1	63.0	54.7	59.5	44.4	59.6	55.4	57.2	60.0	26.7	12.9	38.4	66.4
Slootdorp	Vermilion	139.9	9.8	11.6	14.2	12.0	11.7	12.4	14.1	11.0	13.3	11.9	8.3	9.6
Steenwijk	Vermilion	34.8	2.5	2.3	3.0	3.0	2.7	3.6	3.7	2.0	2.6	2.4	3.4	3.4
Tietjerksteradeel	NAM	213.6	26.3	22.6	20.2	18.0	13.2	4.5	9.4	13.6	21.5	22.3	21.3	20.8
Tubbergen	NAM	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Waalwijk	NPN	26.7	2.6	2.2	2.5	2.4	2.6	2.5	2.5	2.1	0.6	2.5	2.5	1.5
Zuidwal	Vermilion	19.5	2.3	0.6	2.0	0.9	0.8	1.9	1.9	1.4	1.8	2.5	1.0	2.5
<b>Total</b>		<b>59348.9</b>	<b>7437.5</b>	<b>7587.8</b>	<b>6028.9</b>	<b>4621.1</b>	<b>3623.0</b>	<b>3306.8</b>	<b>3101.3</b>	<b>2929.8</b>	<b>3064.3</b>	<b>4888.6</b>	<b>6345.0</b>	<b>6414.8</b>

### Onshore natural gas production per stratigraphic reservoir level

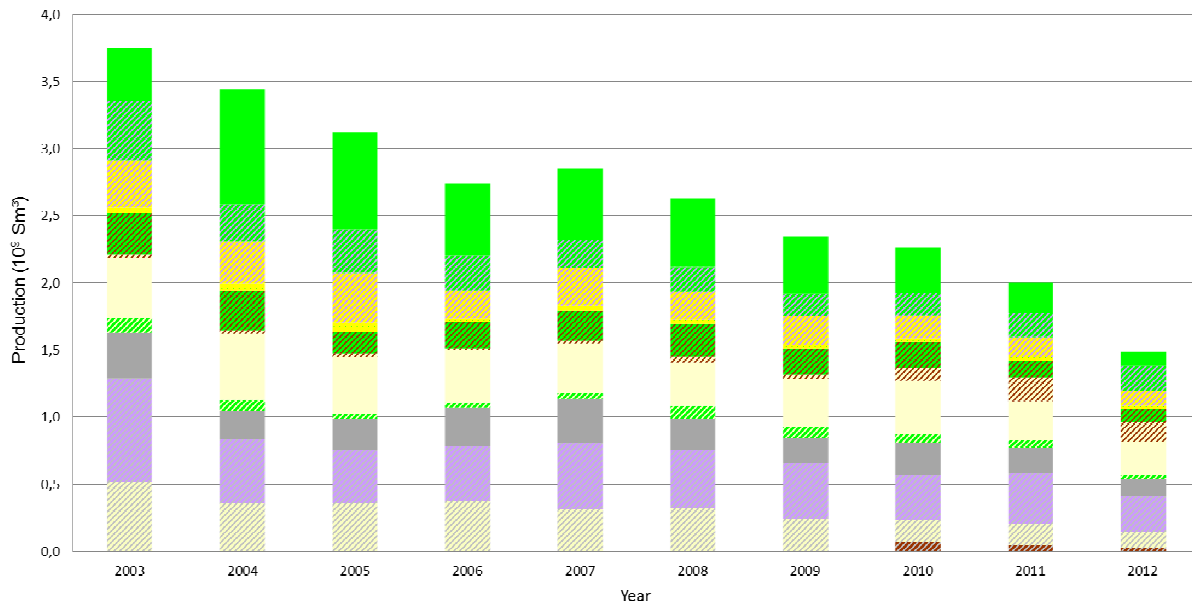
The following figures show the contribution of each stratigraphic reservoir level to the total produced volume of gas from the Territory. This is excluding the contribution of the Groningen field (Rotliegend). Contributions from fields with multiple reservoirs are shown in hatched colours. The figures clearly show that the main contribution is from the Rotliegend and Triassic reservoirs. The decline during the period 2003 – 2006 (around 10% per year) decreases since 2007 to rates of around 5% per year. This is due to production from fields below the Waddenzee. Currently, the total annual production decreases with approximately 5%.

In the next graph, the production from Rotliegend and Triassic reservoirs has been removed to reveal the contribution of the Cretaceous, Zechstein and Carboniferous reservoirs to the overall production. Last year the production from these reservoirs decreased more than before. There is no production from onshore Jurassic reservoirs.

**Production Territory per reservoir (excluding the Groningen field)**



**Production Territory per reservoir (excluding the Groningen field and the Rotliegend and Triassic reservoirs)**



- Carboniferous/Rotliegend
- Carboniferous/Zechstein
- Carboniferous/Zechstein/Triassic
- Carboniferous
- Zechstein/Cretaceous
- Zechstein
- Rotliegend/Zechstein
- Rotliegend/Cretaceous
- Triassic/Cretaceous/Tertiary
- Triassic/Tertiary
- Triassic/Cretaceous
- Cretaceous

## GAS PRODUCTION. Continental Shelf in 2012 (in million Sm<sup>3</sup>)

The production per licence is a summation of the production of all producing wells of which the wellhead is located within the licence area. These figures have been supplied by the operating companies.

Licence	Operator	Total	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
A12a	Chevron	545.8	55.9	59.9	62.1	39.5	49.0	45.9	29.7	32.3	35.6	44.1	45.5	46.3
B10c & B13a	Chevron	712.7	54.7	58.3	59.2	52.2	67.0	61.7	41.8	65.6	54.6	63.9	65.1	68.5
D12a	Wintershall	53.4	5.4	5.1	5.2	4.6	4.6	3.2	7.4	1.5	4.4	3.1	4.6	4.4
D15	GDF Suez	15.1	4.2	2.8	0.0	2.8	0.8	0.1	1.9	2.3	0.0	0.0	0.1	0.0
E17a & E17b	GDF Suez	963.8	77.9	72.5	76.5	76.1	74.5	71.0	53.7	96.3	88.3	91.5	91.0	94.6
E18a	Wintershall	187.0	20.3	16.5	18.1	15.7	13.4	15.7	16.2	15.7	14.1	14.4	13.3	13.6
F02a	Dana	86.7	7.8	6.5	7.9	7.3	6.0	8.2	4.2	7.3	8.2	7.8	7.6	7.9
F03a	Centrica	546.3	49.0	46.7	49.1	47.9	47.8	48.1	25.7	48.6	48.2	38.1	47.3	49.8
F03b	GDF Suez	382.7	35.1	32.7	32.3	35.1	33.8	34.5	11.0	29.5	33.9	35.2	34.6	35.1
F15a	Total	193.9	17.8	18.6	19.1	17.6	16.9	17.5	6.7	15.8	16.0	16.3	15.9	15.9
F16	Wintershall	357.7	35.2	32.4	35.9	33.7	32.8	31.2	28.7	27.3	24.4	26.5	24.7	24.8
G14 & G17b	GDF Suez	889.8	79.9	76.1	79.2	78.6	82.5	80.0	72.1	66.9	41.3	81.9	66.6	84.8
G16a	GDF Suez	1328.2	48.0	62.4	126.5	131.3	134.2	128.8	130.5	103.6	67.6	129.6	128.8	136.8
G17a	GDF Suez	118.8	11.9	10.9	11.1	11.2	11.2	9.1	10.7	8.0	5.4	10.4	9.4	9.5
G17c & G17d	GDF Suez	90.0	9.4	8.6	8.5	8.7	8.8	7.1	8.4	6.3	1.4	7.1	7.5	8.2
J03a	Total	115.4	11.8	10.9	11.5	11.0	10.8	10.9	9.9	8.5	1.3	8.6	9.9	10.4
J03b & J06	Centrica	44.4	4.9	4.3	4.5	4.3	4.3	4.3	3.6	3.9	0.5	1.2	4.3	4.3
K01a	Total	485.8	51.2	46.6	47.5	46.2	44.1	44.1	40.2	35.3	4.3	38.6	43.5	44.2
K02b	GDF Suez	542.1	69.9	59.7	63.2	55.7	37.7	26.9	28.3	25.5	41.7	50.4	37.5	45.7
K04a	Total	724.8	83.1	76.6	77.9	72.6	77.9	66.1	70.8	67.9	11.2	1.2	48.7	70.9
K04b & K05a	Total	773.4	77.2	71.4	83.0	74.7	78.6	82.3	65.5	58.8	11.6	0.4	63.9	105.9
K05b	Total	320.8	34.0	24.6	19.9	23.2	20.7	23.4	45.4	40.9	7.7	0.8	35.2	45.1
K06 & L07	Total	714.4	65.1	62.0	63.0	46.6	64.6	61.4	52.0	62.7	61.8	62.1	55.8	57.4
K07	NAM	60.9	4.0	2.3	4.6	2.0	5.7	7.2	4.0	5.3	4.0	6.0	8.0	7.8
K08 & K11	NAM	610.6	68.7	64.3	56.6	48.7	48.0	52.2	54.8	40.8	32.9	42.3	46.7	54.6
K09a & K09b	GDF Suez	171.1	21.0	15.6	21.1	14.7	15.8	10.7	10.2	10.9	10.0	14.6	14.7	11.8
K09c	GDF Suez	19.8	1.7	1.4	1.7	1.7	1.8	1.7	1.7	1.8	1.2	1.8	1.7	1.7
K12	GDF Suez	783.0	71.1	71.2	68.9	45.0	63.7	56.1	59.3	70.2	66.6	62.1	69.7	79.0
K14	NAM	84.0	10.0	11.8	9.2	7.6	7.2	10.5	9.1	8.2	4.7	4.9	0.2	0.4
K15	NAM	1319.4	138.8	111.4	131.6	126.1	129.9	119.7	109.1	119.4	41.7	93.7	94.0	104.0
K17	NAM	111.5	12.2	9.9	9.7	9.2	9.7	8.1	9.7	8.8	5.6	8.1	10.4	10.0
K18b	Wintershall	241.2	0.0	1.9	20.7	22.1	21.5	16.6	14.9	30.6	17.4	19.2	36.4	39.9
L02	NAM	588.6	54.1	56.9	52.9	44.9	51.3	57.3	25.2	52.2	52.7	46.1	43.2	51.9
L04a	Total	461.3	41.1	33.9	40.1	39.8	39.4	36.4	39.5	39.0	35.3	27.2	35.8	53.8
L05a	GDF Suez	170.8	17.3	17.3	17.6	12.9	15.0	15.3	11.8	17.7	16.5	3.2	9.6	16.7
L05b	Wintershall	489.7	55.6	50.3	51.5	47.3	42.1	41.9	40.5	19.5	31.3	36.7	35.2	37.8
L06d	ATP	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
L08a	Wintershall	60.0	5.8	5.0	5.4	5.2	5.2	5.1	5.0	3.2	4.6	5.4	5.0	5.1
L08b	Wintershall	133.0	13.4	12.1	12.6	12.0	11.9	11.3	11.5	3.2	2.4	16.2	15.1	11.3
L09a	NAM	831.6	84.7	76.4	81.3	50.6	71.3	78.9	37.2	79.7	69.8	65.3	64.5	71.9
L09b	NAM	60.9	5.8	7.7	6.5	15.4	6.2	3.6	2.7	3.0	2.7	3.3	1.7	2.3
L10 & L11a	GDF Suez	362.3	37.8	35.7	37.0	21.5	35.8	32.7	28.6	27.6	26.0	27.4	27.2	24.9
L11b	Cirrus	15.0	1.6	1.3	1.2	1.1	1.5	1.6	1.2	1.5	1.4	1.1	0.2	1.3

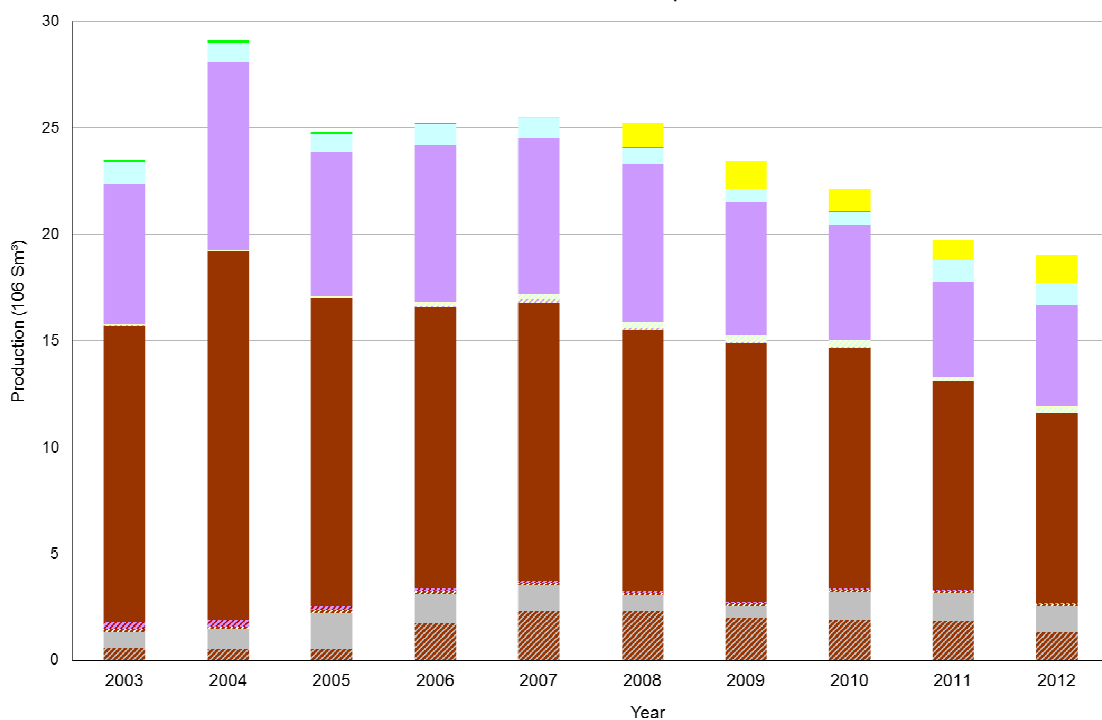
Licence	Operator	Total	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
L12b & L15b	GDF Suez	392.1	42.9	44.6	27.7	26.2	27.4	36.6	22.0	28.7	32.1	34.8	33.5	35.6
L13	NAM	200.8	17.2	17.2	15.7	15.1	19.4	19.7	19.5	17.8	12.7	14.4	16.7	15.3
M07	ONE	177.3	19.7	16.9	17.0	13.5	15.7	13.7	3.3	16.8	14.6	14.4	16.5	15.5
P06	Wintershall	151.7	14.4	13.8	14.6	9.7	14.8	14.3	12.2	14.2	14.3	14.5	12.4	2.5
P09a & P09b	Wintershall	36.3	4.1	3.6	3.4	3.2	3.7	3.4	3.0	3.3	2.9	2.8	2.6	0.3
P09c	Chevron	2.8	0.3	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.2	0.1	0.2	0.2
P09c	Wintershall	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
P11b	Dana	208.2	4.9	6.8	8.5	3.0	16.4	21.8	17.5	20.7	23.8	27.8	26.3	30.7
P12	Wintershall	10.4	3.2	2.1	3.0	2.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
P15a & P15b	TAQA	88.5	7.2	8.1	9.1	8.0	8.8	1.4	7.0	7.8	5.2	8.2	7.2	10.5
P15c	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	205.7	15.6	18.7	19.8	19.4	21.1	5.4	20.8	18.7	16.2	16.5	17.3	16.0
Q01	Chevron	15.5	1.7	1.6	2.0	1.7	1.1	0.4	1.7	2.5	1.3	0.5	0.8	0.4
Q04	Wintershall	490.6	43.2	43.2	46.4	38.2	44.8	43.2	37.6	39.1	31.9	45.8	42.4	34.8
Q16a	ONE	143.9	9.7	13.7	14.1	13.7	14.4	0.6	9.4	14.4	12.0	14.0	13.9	14.0
Total		18891.6	1738.3	1643.0	1773.1	1578.6	1692.7	1609.0	1394.6	1557.4	1177.5	1411.8	1569.7	1745.9

### Offshore natural gas production per stratigraphic reservoir level

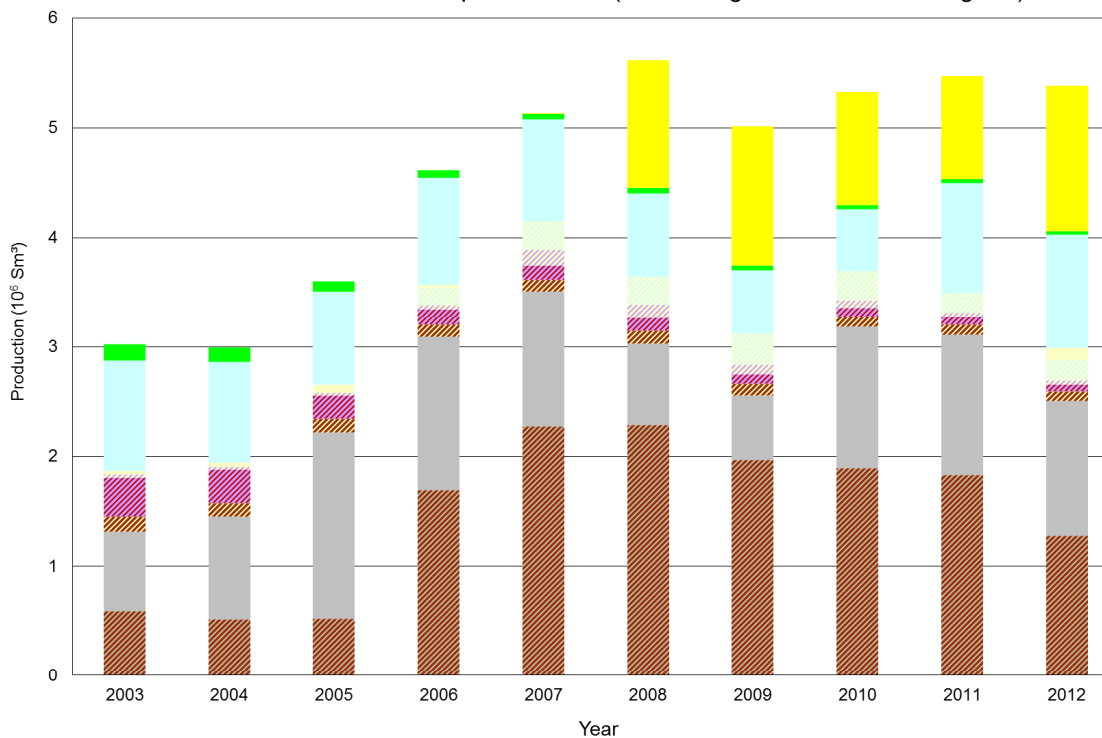
The graphs below present the contribution of the various reservoirs to the offshore gas production. Alike the onshore most of the produced gas from the offshore gas fields comes from Rotliegend and Triassic reservoirs. The annual offshore production was rather stable during the period 2003 – 2008, well above the 20 Nm<sup>3</sup> per year. During the more recent years production shows a clear decline. In 2011 the annual production fell below 20 billion Nm<sup>3</sup>

In the second graph the Rotliegend and Trias production have been excluded to highlight the other reservoir productions. Since 2005 the contribution of combined Carboniferous – Rotliegend reservoirs tripled reaching a maximum in 2007. Conspicuous is the start of the production from the Tertiary (North Sea Group) shallow gas play in 2008.

Production Continental Shelf per reservoir



Production Continental Shelf per reservoir (excluding Triassic and Rotliegend)



- Tertiary
- Jurassic
- Zechstein/Jurassic
- Rotliegend/Triassic
- Carboniferous
- Cretaceous
- Zechstein
- Zechstein/Triassic
- Rotliegend/Zechstein/Triassic
- Carboniferous/Rotliegend

## OIL PRODUCTION in 2012 (x 1000 Sm<sup>3</sup>)

The production per licence is a summation of the production of all producing wells of which the wellhead is located within the licence area. These figures have been supplied by the operating companies.

Licence	Operator	Total	Jan	Feb	Mrch	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec
Botlek	NAM	1.6	0.0	0.0	0.2	1.1	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0
Rijswijk	NAM	147.8	21.8	21.3	22.0	16.0	3.2	3.7	6.9	3.7	2.6	9.1	17.0	20.6
Schoonebeek	NAM	289.5	14.6	22.8	27.1	21.5	27.5	27.4	25.3	25.6	16.5	22.6	29.0	29.7
F02A	Dana	237.5	23.2	21.0	21.5	21.3	20.7	19.4	15.6	20.4	19.0	19.6	17.7	18.0
F03B	GDF Suez	78.7	7.3	6.8	6.8	7.4	7.0	7.1	2.4	5.9	6.8	7.1	7.0	7.1
K18B	Wintershall	28.9	2.8	2.6	2.7	2.6	2.7	0.7	2.8	2.6	2.2	2.4	2.4	2.4
L16A	Wintershall	34.4	3.6	3.2	3.3	3.2	3.2	1.1	2.3	3.0	2.7	3.1	2.8	3.0
P09C	Chevron	30.8	2.9	2.6	2.6	2.5	3.3	3.2	3.3	3.0	1.9	0.9	2.5	2.0
P11B	Dana	331.9	29.5	38.2	37.8	16.9	30.6	30.2	22.4	26.6	23.5	25.9	25.2	25.2
P15A & P15B	TAQA	36.4	6.9	6.1	6.3	2.8	2.3	0.0	1.7	1.3	0.8	0.9	1.5	5.7
Q01	Chevron	105.3	8.0	7.7	9.3	8.6	10.3	9.4	8.6	9.5	6.9	8.6	9.2	9.2
Total		1322.8	120.5	132.4	139.8	103.8	110.9	102.3	91.5	101.5	83.0	100.3	114.2	122.8

## CONDENSATE\* PRODUCTION in 2012 (x 1000 Sm<sup>3</sup>)

These figures have been supplied by the operating companies.

Licence	Total	Jan	Feb	Mrch	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec
Gas fields Territory	216.5	20.7	19.2	17.7	16.6	15.9	18.0	15.1	17.5	15.1	19.9	20.2	20.6
Gas fields Continental Shelf	263.0	25.0	23.7	24.5	21.9	22.7	20.8	17.7	22.8	17.0	18.1	23.0	25.8
Total	479.6	45.7	42.9	42.2	38.6	38.5	38.8	32.8	40.4	32.1	38.0	43.1	46.3

\* Condensate is a liquid that is recovered as a by-product during the production of natural gas. This liquid is also referred to as natural gasoline or natural gas liquids (NGL).



## 10. UNDERGROUND STORAGE

As of 1 January 2013 a total of ten storage licences are in force; five storage licences for natural gas (Alkmaar, Bergermeer, Grijpskerk, Norg en Zuidwending), two storage licences for nitrogen (Winschoten II and Winschoten III), one for gas oil (Twenthe-Rijn De Marssteden) and two storage licences for salt water.

Mid 2012 the first underground storage for nitrogen was filled to its maximum level. In the second half of 2012 the storage was prepared for full operations which commenced in 2013. The application for the storage licence for Waalwijk Noord has been withdrawn and the procedure for the storage licence for CO<sub>2</sub> in P18 is not yet finalised. Vitens has applied for the extension for its storage licence for salt water in Noardburgum.

The storage of nitrogen (in a salt cavern) will be used to maintain the specifications of the natural gas in the national gas grid of Gasunie. The planned storage of gas oil is part of the strategic energy reserves of the Netherlands. The storage of brackish water concerns a prolonged pilot project for the production of drinking water from brackish aquifers. The generated membrane filtrate, highly brackish water, will be stored in yet another aquifer at a depth of more than 100 m. According to the Mining act a storage licence is mandatory for storage at this depth.

Appendix 1 contains a map showing the locations of all storage licence areas as at 1 January 2013.

### STORAGE LICENCES, Netherlands Territory and Continental Shelf changes in 2012

#### Applied for

Licence	Publication	Date	Closing date	Storage of	Applicant(s)
Waalwijk-Noord *	-	26-04-04	-	Gas	Northern cs

\* Application withdrawn at November the first 2012

#### Awarded

Licence holder	Licence	Storage of	In force	km <sup>2</sup>
Vitens Fryslan	Noardburgum	Salt water	24-03-12	1
Oasen N.V.	Ridderkerk *	Salt water	19-12-12	1
Total				2

\* Application published in 2012

### Lapsed/ relinquished

Licence holder	Licence	Storage of	In force	km <sup>2</sup>
Brabant Water N.V.	Zevenbergen	Salt water	20-12-12	1
			Total	1

### STORAGE LICENCES, Netherlands Continentaal Shelf per 1 januari 2013

#### Applied for

Licence	Publication	Date	Closing date	Storage of	Applicant(s)
P18-4 *	Staatscourant 10 244	14-06-11	13-09-11	CO <sub>2</sub>	TAQA

\* Pending application, published in previous Annual Review

### STORAGE LICENCES, Company changes in 2012

No changes.

## STORAGE OF GAS IN 2012

In 2012 both natural gas and nitrogen have been stored in underground facilities. The following tables show the monthly quantities of gas and nitrogen injected respectively discharged per storage facility. The information was submitted by the licence holders.

### INJECTION NATURAL GAS (in million Sm<sup>3</sup>)

Licence	Operator	Total	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
Alkmaar	Taqa	350	0	0	0	0	118	0	0	116	116	0	0	0
Bergermeer	Taqa	940	11	42	122	116	118	85	89	92	92	90	81	0
Grijpskerk	NAM	1937	0	0	0	271	364	350	372	344	235	0	0	0
Norg	NAM	887	0	0	0	101	0	369	354	62	0	0	0	0
Zuidwending	Gasunie	747	16	49	121	11	93	50	73	104	40	87	53	51
Total		4861	26	91	244	500	693	855	887	719	483	176	135	51

### DISCHARGE NATURAL GAS (in million Sm<sup>3</sup>)

Licence	Operator	Total	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
Alkmaar	Taqa	363	58	205	0	0	0	0	0	0	0	25	0	75
Bergermeer	Taqa	0	0	0	0	0	0	0	0	0	0	0	0	0
Grijpskerk	NAM	1587	462	655	290	0	0	0	0	0	7	8	80	84
Norg	NAM	1455	240	401	11	0	0	0	0	0	0	40	40	725
Zuidwending	Gasunie	765	81	88	18	157	17	96	37	41	96	18	45	70
Total		4172	840	1350	319	157	17	96	37	41	103	92	166	954

### INJECTION NITROGEN (in million Sm<sup>3</sup>)

Licence	Operator	Total	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
Winschoten II	Gasunie	45	10	9	11	8	7	0	0	0	0	0	0	0

### DISCHARGE NITROGEN

The nitrogen storage facility is in its first development phase. During 2012 only injection took place. In 2013 production is expected to take place.

## 11.COAL

Coal mining in the Netherlands has ceased in 1974. In total almost 570 million tons of coal have been mined over the years. Conventional mining is not expected to be profitable anymore, but recent interest to produce coal bed methane (CBM) has become evident. Although research has indicated that a large resource of CBM may be present, the feasibility of these types of projects is still very uncertain.

As at 1 January 2013 five production licences for coal were in force. Appendix 6 contains a map showing the locations of the licence areas.

### PRODUCTION LICENCES, NETHERLANDS TERRITORY, on 1 January 2013

Licence holder	Licence	In force	km <sup>2</sup>
DSM	Beatrix	27-09-1920	130
DSM	Staatsmijn Emma	26-10-1906	73
DSM	Staatsmijn Hendrik	08-08-1910	24
DSM	Staatsmijn Maurits	12-03-1915	51
DSM	Staatsmijn Wilhelmina	08-01-1903	6
		Total	284

## 12. ROCK SALT

In 2012 one exploration licences for rock salt has been restricted, due to the award of a production licence, and one has been relinquished. Three production licences were applied for and two were awarded.

As at January 1<sup>st</sup> 2013, fourteen production licences were in force. The licence areas are (for geological reasons) all located in the North and East of the country. In those areas thick layers of Zechstein and Triassic aged evaporites have been deposited.

Appendix 6 contains a map showing the production licence areas.

Besides the overview for all the licences and its changes, the monthly rock salt production during 2012 is presented for each production site as well as the annual production since 2003.

### EXPLORATION LICENCES, Netherlands territory changes in 2012

#### Restricted

Licence holder	Licence	In force	km <sup>2</sup>
Akzo Nobel Salt B.V.	Zuidoost-Twente *	08-06-12	31
		Total	31

\* Prolonging WV Isidorushoeve

#### Lapsed/ relinquished

Licence holder	Licence	In force	km <sup>2</sup>
Electricité de France S.A.	Pieterburen	27-03-12	25
		Total	25

## PRODUCTION LICENCES, Netherlands territory changes in 2012

### Applied for

Licence	Government Gazette	Date	Closing date	Applicant(s)
Barradeel-oost *	Staatscourant 249	19-12-07	24-03-08	Frisia
Zuidoost-Enschede *	Staatscourant 20 915	22-11-11	21-02-12	Westfalen
Twenthe-Rijn Oude Maten	-	17-07-12	-	Akzo Nobel

\*Pending application, published in previous Annual Review

### Awarded

Licence holder	Licence	In force	km <sup>2</sup>
Frisia Zout B.V.	Havenmond	03-01-12	32
Akzo Nobel Salt B.V.	Isidorushoeve	08-06-12	20
		Total	52

## ROCK SALT LICENCES, company changes, name changes and legal mergers in 2012

No changes.

## PRODUCTION LICENCES, Netherlands Territory, 1 January 2013

Licence holder	Licence	In force	Date of expiry	km <sup>2</sup>
<b>Akzo Nobel Salt B.V.</b>	Adolf van Nassau III	16-11-2010		28
<b>Akzo Nobel Salt B.V.</b>	Buurse	18-06-1918		30
<b>Akzo Nobel Salt B.V.</b>	Isidorushoeve	08-06-2012	19-07-2052	20
<b>Akzo Nobel Salt B.V.</b>	Twenthe-Rijn	20-10-1933		48
<b>Akzo Nobel Salt B.V.</b>	Twenthe-Rijn Helmerzijde	29-10-2008	09-12-2048	1
<b>Akzo Nobel Salt B.V.</b>	Uitbreiding Adolf Van Nassau II	21-12-2010		1
N.V. Nederlandse Gasunie				
Gasunie Zuidwending B.V.				
Gasunie Underground				
Storage B.V.				
Nuon Storage B.V.				
<b>Akzo Nobel Salt B.V.</b>	Uitbreiding Adolf van Nassau III	21-12-2009		77
<b>Akzo Nobel Salt B.V.</b>	Uitbreiding Twenthe-Rijn	01-12-1994		9
<b>Akzo Nobel Salt B.V.</b>	Weerselo	13-03-1967		80
<b>Frisia Zout B.V.</b>	Barradeel	22-08-1998	22-08-2054	3
<b>Frisia Zout B.V.</b>	Barradeel II	12-06-2004	26-04-2062	17
<b>Frisia Zout B.V.</b>	Havenmond	03-01-2012	13-02-2052	32
<b>N.V. Nederlandse Gasunie</b>	Adolf Van Nassau II	16-11-2010		<1
<b>Nedmag Industries B.V.</b>	Veendam	01-08-1980		171
			Total	518

## WELLS DRILLED FOR ROCK SALT completed in 2012

	Name well	Licence	Operator	Type of well
1	TWR-509	Twenthe-Rijn	AkzoNobel	Production
2	TWR-510	Twenthe-Rijn	AkzoNobel	Production
3	TWR-514	Twenthe-Rijn	AkzoNobel	Production
4	TWR-517	Twenthe-Rijn	AkzoNobel	Production
5	TWR-520	Twenthe-Rijn	AkzoNobel	Production

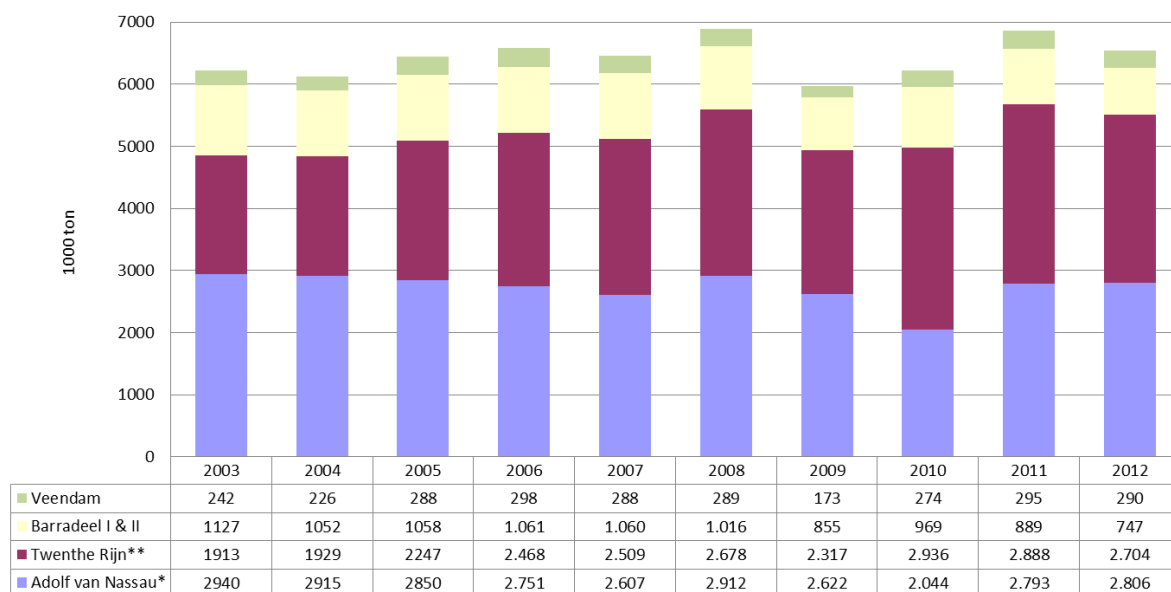
## ROCK SALT PRODUCTION, 2012 (in 1000 ton)

Production	Operator	total	Jan	Feb	Mrch	April	May	June	July	Aug	Sept	Oct	Nov	Dec
Adolf van Nassau	AKZO	1272	113	108	119	80	105	107	95	110	104	104	110	116
Adolf van Nassau*	AKZO	1534	145	126	140	132	111	136	115	145	137	108	116	126
Barradeel	Frisia	1.6	0	0.2	0.1	0	0.1	0.2	0	0.1	0	0.2	0.1	0.4
Barradeel II	Frisia	746	66	60	59	20	62	76	81	65	65	52	72	68
Twenthe-Rijn	AKZO	2460	130	186	214	205	232	183	229	226	195	223	217	222
Twenthe-Rijn**	AKZO	219	11	21	23	22	23	21	23	23	14	14	9	15
Veendam	Nedmag	280	26	20	25	15	27	34	25	28	20	13	21	27
Totaal		6513	490	521	581	474	560	558	567	595	534	514	545	574

\* Extension Adolf van Nassau

\*\* Extension Twenthe – Rijn

## ROCK SALT PRODUCTION 2003 – 2012



\* Including extension Adolf van Nassau

\*\* Including extension Twenthe – Rijn

## OFFICIAL NAME OF MINING COMPANIES

Frisia Zout B.V.

Akzo Nobel Salt B.V.

N.V. Nederlandse Gasunie

Nedmag Industries Mining & Manufacturing B.V



## 13. GEOTHERMAL ENERGY

In 2012 eight new exploration licences for geothermal energy were applied for, eleven exploration licences for geothermal energy were awarded and two lapsed/relinquished. Two production licences were applied for. Changes in the exploration and production licences for geothermal energy, which took place during 2012, are listed in the tables below. Pending applications are also listed.

### EXPLORATION LICENCES, Netherlands Territory changes in 2012

#### Applied for

Licence	Government Gazette	Date	Closing date	Applicant(s)
Zuidoost-Drenthe *	Staatscourant 1 520	04-02-10	06-05-10	Geo Thermie Nederland Holding B.V.
Haarlemmermeer 2 *	Staatscourant 2 978	26-02-10	28-05-10	Schiphol Group
's-Hertogenbosch *	Staatscourant 7 746	26-05-10	25-08-10	Gemeente 's-Hertogenbosch
Amsterdam *	Staatscourant 9 250	17-06-10	16-09-10	Gemeente Amsterdam
Wervershoof *	Staatscourant 9 259	17-06-10	16-09-10	VD Holland C.V.
Lingewaard *	Staatscourant 12 820	18-08-10	17-11-10	Energiecooperatie Greenhouse Energy u.a.
Eemsmond *	Staatscourant 13 019	23-08-10	22-11-10	Holland Malt B.V.
Franekeradeel *	Staatscourant 13 167	25-08-10	24-11-10	A.C. Hartman Beheer cs
Hoogeveen *	Staatscourant 19 287	03-12-10	04-03-11	Gemeente Hoogeveen
's-Gravensande *	Staatscourant 19 648	09-12-10	10-03-11	Greenlight Energy B.V.
Gorinchem **	Staatscourant 21 515	31-12-10	01-04-11	Gemeente Gorinchem
Baarn *	Staatscourant 21 517	31-12-10	01-04-11	Maarten A. van Dijk Beheer B.V.
Eindhoven *	Staatscourant 2 045	07-02-11	09-05-11	Gemeente Eindhoven
Monster 2 *	Staatscourant 2 440	07-02-11	09-05-11	Fa. Van den Enden Rozen
Eemsmond 2 *	Staatscourant 2 345	10-02-11	12-05-11	Gemeente Eemsmond
Luttelgeest *	Staatscourant 2 805	17-02-11	19-05-11	ECL Netwerk B.V. cs
Rotterdam-Vlaardingen *	Staatscourant 15 193	22-08-11	21-11-11	Vopak
Lansingerland 3 *	Staatscourant 15 195	22-08-11	21-11-11	Vastgoed Batenburg B.V.
Nieuwkoop *	Staatscourant 15 915	06-09-11	06-12-11	Gemeente Nieuwkoop
Harmelerwaard	Staatscourant 1 591	27-01-12	27-04-12	Van Dijk Bedrijven Holding B.V.
Delfzijl	Staatscourant 1 657	30-01-12	30-04-12	Akzo Nobel Salt B.V.
Utrecht-Noord Brabant	Staatscourant 6 884	11-05-12	10-08-12	Transmark Renewable Products B.V.
Friesland	Staatscourant 6 991	11-05-12	10-08-12	Transmark Renewable Products B.V.
Heemskerk 2	Staatscourant 9 429	15-05-12	14-08-12	Ce-Ren Beheer B.V.
Helmond 2	Staatscourant 23 905	22-11-12	21-02-13	
Tilburg-Geertruidenberg	Staatscourant 23 922	22-11-12	21-02-13	
Bommelerwaard	Staatscourant 26 056	18-12-12	19-03-13	

\* Pending application, published in previous Annual Review

\*\* Application withdrawn, October 24th 2012

## Awarded

Licence holder	Licence	In force	km <sup>2</sup>
SC Johnson Europlant B.V.	Mijdrecht	01-02-12	41
Eneco Solar. Bio & Hydro B.V.	Den Haag 2	06-03-12	62
Hydreco GeoMEC B.V.	Rozenburg	26-06-12	45
Eneco Solar. Bio & Hydro B.V.	Rotterdam 6-Trias	04-07-12	13
Akzo Nobel Salt B.V.	Hengelo	18-12-12	58
Hydreco GeoMEC B.V.	Werkendam	19-12-12	28
Hydreco GeoMEC B.V. cs	Rotterdam	18-12-12	23
Eneco Solar. Bio & Hydro B.V.	Rotterdam 2	18-12-12	26
Eneco Solar. Bio & Hydro B.V.	Rotterdam 3	18-12-12	2
E.ON Benelux N.V.	Rotterdam 4	18-12-12	20
E.ON Benelux N.V.	Rotterdam 5	18-12-12	39
		Total	357

## Lapsed/Relinquished

Licence holder	Licence	In force	km <sup>2</sup>
R. Bekkers cs	Berkel en Rodenrijs 2	17-04-12	6
Monsanto Holland B.V.	Lansingerland 2	19-07-12	6
		Total	12

## PRODUCTION LICENCES, Netherlands Territory

### Applied for

Licence	Government Gazette	Date	Closing date	Applicant(s)
Bleiswijk 2 *	-	20-06-11	-	A+G van den Bosch B.V.
Den Haag *	-	21-09-11	-	Gemeente Den Haag

\* Pending application. Previously published in annual review

## COMPANY CHANGES in 2012

No changes.

## GEOTHERMAL WELLS completed in 2012

Name well	Licence geothermal energy	Operator
1 CAL-GT-01	Californië-1 & -2	Californië Wijnen Geothermie B.V.
2 CAL-GT-02	Californië-1 & -2	Californië Wijnen Geothermie B.V.
3 HON-GT-01	Honselersdijk	Green Well Westland B.V.
4 HON-GT-02	Honselersdijk	Green Well Westland B.V.

## ANNEXES

## NATURAL GAS AND OIL ACCUMULATIONS BY STATUS as at 1 January 2013

### NATURAL GAS ACCUMULATIONS

I. DEVELOPED ACCUMULATIONS				
Accumulation*	Company	Licence name**	Licence type***	Gas/ Oil
<b>a) Producing</b>				
Ameland-Oost	NAM	Noord-Friesland	pl	G
Anjum	NAM	Noord-Friesland	pl	G
Appelscha	NAM	Drenthe IIb	pl	G
Assen	NAM	Drenthe IIb	pl	G
Annerveen	NAM	Groningen	pl	G&O
Ameland-Westgat	NAM	Noord-Friesland	pl	G
Bedum	NAM	Groningen	pl	G
Bergen	TAQA	Bergen II	pl	G
Blijham	NAM	Groningen	pl	G
Blesdijke	Vermilion	Steenwijk	pl	G
Blija-Ferwerderadeel	NAM	Noord-Friesland	pl	G
De Blesse	Vermilion	Steenwijk	pl	G
Blija-Zuid	NAM	Noord Friesland	pl	G
Blija-Zuidoost	NAM	Noord-Friesland	pl	G
Boerakker	NAM	Groningen	pl	G
Brakel	Northern Petroleum	Andel III	pl	G&O
Barendrecht-Ziedewij	NAM	Rijswijk	pl	G
Botlek	NAM	Botlek	pl	G
Bozum	Vermilion	Oosterend	pl	G
Collendoorn	NAM	Hardenberg	pl	G
Collendoornerveen	NAM	Schoonebeek	pl	G
Coevorden	NAM	Schoonebeek	pl	G
Dalen	NAM	Drenthe IIb	pl	G
De Hoeve	Vermilion	Gorredijk	pl	G
Den Velde	NAM	Hardenberg	pl	G
Eleveld	NAM	Drenthe IIb	pl	G
Emmen	NAM	Drenthe IIb	pl	G
Emmen-Nw Amsterdam	NAM	Drenthe IIb	pl	G
Eernewoude	Vermilion	Leeuwarden	pl	G
Ezumazijl	NAM	Noord-Friesland	pl	G
Faan	NAM	Groningen	pl	G
Feerwerd	NAM	Groningen	pl	G
Gaag	NAM	Rijswijk	pl	G
Grootegast	NAM	Groningen	pl	G
Grolloo	Northern Petroleum	Drenthe IV	pl	G
Groningen	NAM	Groningen	pl	G
Groet	TAQA	Bergen II	pl	G
Groet-Oost	TAQA	Middelie	pl	G
Grouw	Vermilion	Leeuwarden	pl	G

Accumulation*	Company	Licence name**	Licence type***	Gas/ Oil
Geesbrug	Northern. Petroleum	Drenthe IIbIb	pl	G
Gasselternijveen	NAM	Drenthe IIb	pl	G
Hardenberg	NAM	Schoonebeek	pl	G
Hardenberg-Oost	NAM	Hardenberg	pl	G
Hekelingen	NAM	Botlek	pl	G
Harkema	NAM	Groningen	pl	G
Kollum	NAM	Tietjerksteradeel	pl	G
Kollum-Noord	NAM	Noord-Friesland	pl	G
Kommerzijl	NAM	Groningen	pl	G
Kollumerland	NAM	Tietjerksteradeel	pl	G
Kiel-Windeweer	NAM	Groningen	pl	G
Leens	NAM	Groningen	pl	G
Loon op Zand	Northern Petroleum	Waalwijk	pl	G
Loon op Zand-Zuid	Northern Petroleum	Waalwijk	pl	G
Leeuwarden en Nijega	Vermilion	Leeuwarden	pl	G
Lauwersoog	NAM	Noord-Friesland	pl	G
Middelburen	Vermilion	Leeuwarden	pl	G
Middenmeer	Vermilion	Slootdorp	pl	G
Metslawier	NAM	Noord-Friesland	pl	G
Metslawier-Zuid	NAM	Noord Friesland	pl	G
Moddergat	NAM	Noord-Friesland	pl	G
Middelie	NAM	Middelie	pl	G
Munnekezijl	NAM	Groningen	pl	G
Monster	NAM	Rijswijk	pl	G
Molenpolder	NAM	Groningen	pl	G
Maasdijk	NAM	Rijswijk	pl	G
Noorderdam	NAM	Rijswijk	pl	G
Nes	NAM	Noord-Friesland	pl	G
Noordwolde	Vermilion	Gorredijk	pl	G
Oud-Beijerland Zuid	NAM	Botlek	pl	G
Oudeland	NAM	Beijerland	pl	G
Oldelamer	Vermilion	Gorredijk	pl	G
Opeinde	Vermilion	Leeuwarden	pl	G
Oude Pekela	NAM	Groningen	pl	G
Opende-Oost	NAM	Groningen	pl	G
Opeinde-Zuid	Vermilion	Leeuwarden	pl	G
Oosterhesselen	NAM	Drenthe IIb	pl	G
Oostrum	NAM	Noord Friesland	pl	G
Pernis	NAM	Rijswijk	pl	G&O
Pernis-West	NAM	Rijswijk	pl	G&O
Pasop	NAM	Groningen	pl	G
Rauwerd	Vermilion	Oosterend	pl	G
Reedijk	NAM	Botlek	pl	G
Ried	Vermilion	Leeuwarden	pl	G
Rustenbug	NAM	Middelie	pl	G
Schoonebeek (gas)	NAM	Schoonebeek	pl	G
Sebaldeburen	NAM	Groningen	pl	G

Accumulation*	Company	Licence name**	Licence type***	Gas/ Oil
's-Gravenzande	NAM	Rijswijk	pl	G
Surhuisterveen	NAM	Groningen	pl	G
Slootdorp	Vermilion	Slootdorp	pl	G
Sprang	Northern Petroleum	Waalwijk	pl	G
Spijkenisse-Oost	NAM	Botlek	pl	G
Spijkenisse-West	NAM	Beijerland	pl	G&O
Schermer	TAQA	Bergen II	pl	G
Saaksum	NAM	Groningen	pl	G
Suawoude	NAM	Tietjerksteradeel	pl	G
Tietjerksteradeel	NAM	Tietjerksteradeel	pl	G
Ureterp	NAM	Tietjerksteradeel	pl	G
Vierhuizen	NAM	Noord-Friesland	pl	G
Vinkega	Vermilion	Gorredijk	pl	G
Vries	NAM	Drenthe IIb	pl	G
Wijk en Aalburg	Northern Petroleum	Andel III	pl	G
Wanneperveen	NAM	Schoonebeek	pl	G
Westbeemster	NAM	Middelie	pl	G
Wieringa	NAM	Groningen	pl	G
Warffum	NAM	Groningen	pl	G
Warga	Vermilion	Leeuwarden	pl	G
Wartena	Vermilion	Leeuwarden	pl	G
Witterdiep	NAM	Drenthe IIb	pl	G
Waalwijk-Noord	Northern Petroleum	Waalwijk	pl	G
De Wijk	NAM	Schoonebeek	pl	G
Zuidwal	Vermilion	Zuidwal	pl	G
Zevenhuizen	NAM	Groningen	pl	G
Zuidwending-Oost	NAM	Groningen	pl	G
A12-FA	Chevron	A12a	pl	G
B13-FA	Chevron	B13a	pl	G
D12-A	Wintershall	D12a	pl	G
D15-A	GDF Suez	D15	pl	G
D15-A-104	GDF Suez	D15	pl	G
E17a-A	GDF Suez	E17a	pl	G
E18-A	Wintershall	E18a	pl	G
F03-FA	Centrica	F03a	pl	G
F03-FB	GDF Suez	F03	pl	G
F15a-A	Total	F15a	pl	G
F15a-B	Total	F15a	pl	G
F16-E	Wintershall	E16	pl	G
G14-A/B	GDF Suez	G14	pl	G
G14-C	GDF Suez	G14	pl	G
G16a-A	GDF Suez	G16a	pl	G
G16a-B	GDF Suez	G16a	pl	G
G16a-C	GDF Suez	G16a	pl	G
G16a-D	GDF Suez	G16a	pl	G
G17cd-A	GDF Suez	G17d	pl	G

Accumulation*	Company	Licence name**	Licence type***	Gas/ Oil
G17a-S1	GDF Suez	G17a	pl	G
Halfweg	Chevron	Q01	pl	G
F02-A Pliocéen	Dana Petroleum	F02a	pl	G
J03-C Unit	Total	J03a	pl	G
K01-A Unit	Total	J03a	pl	G
K02b-A	GDF Suez	K03a	pl	G
K04-A	Total	K05a	pl	G
K04a-B	Total	K04a	pl	G
K04a-D	Total	K04a	pl	G
K04-E	Total	K04b	pl	G
K04-N	Total	K04b	pl	G
K05a-A	Total	K04b	pl	G
K05a-B	Total	K05a	pl	G
K05-C Unit	Total	K05a	pl	G
K05-C North	Total	K05b	pl	G
K05a-D	Total	K05a	pl	G
K05a-En	Total	K05a	pl	G
K05-F	Total	K05a	pl	G
K05-U	Total	K05b	pl	G
K06-A	Total	K06	pl	G
K06-C	Total	K06	pl	G
K06-D	Total	K06	pl	G
K06-DN	Total	K06	pl	G
K06-G	Total	K03d	pl	G
K07-FA	NAM	K07	pl	G
K07-FB	NAM	J09	pl	G
K07-FC	NAM	K07	pl	G
K07-FD	NAM	K07	pl	G
K08-FA	NAM	K11	pl	G
K09ab-A	GDF Suez	K09b	pl	G
K09ab-B	GDF Suez	K09a	pl	G
K09ab-C	GDF Suez	K09a	pl	G
K09ab-D	GDF Suez	K09a	pl	G
K09c-A	GDF Suez	K09c	pl	G
K12-B	GDF Suez	K12	pl	G
K12-B9	GDF Suez	K12	pl	G
K12-C	GDF Suez	K12	pl	G
K12-D	GDF Suez	K12	pl	G
K12-G	GDF Suez	K12	pl	G
K12-K	GDF Suez	K13	pl	G
K12-L	GDF Suez	K12	pl	G
K12-M	GDF Suez	K12	pl	G
K12-S2	GDF Suez	K12	pl	G
K12-S3	GDF Suez	K12	pl	G
K14-FA	NAM	K14	pl	G
K14-FB	NAM	K14	pl	G
K15-FA	NAM	K15	pl	G

Accumulation*	Company	Licence name**	Licence type***	Gas/ Oil
K15-FB	NAM	K15	pl	G
K15-FC	NAM	K15	pl	G
K15-FD	NAM	K15	pl	G
K15-FE	NAM	K15	pl	G
K15-FG	NAM	K15	pl	G
K15-FJ	NAM	K15	pl	G
K15-FK	NAM	K15	pl	G
K15-FL	NAM	K15	pl	G
K15-FM	NAM	K15	pl	G
K15-FN	NAM	K15	pl	G
K15-FO	NAM	K15	pl	G
K15-FP	NAM	K15	pl	G
K15-FQ	NAM	K15	pl	G
K17-FA	NAM	K17	pl	G
K18-Golf	Wintershall	K18b	pl	G
L01-A	Total	L01a	pl	G
L02-FA	NAM	L02	pl	G
L02-FB	NAM	L02	pl	G
L04-A	Total	L04a	pl	G
L04-B	Total	L04a	pl	G
L04-D	Total	L04a	pl	G
L04-F	Total	L04a	pl	G
L04-G	Total	L04a	pl	G
L04-I	Total	L04a	pl	G
L05-B	Wintershall	L05b	pl	G
L05-C	Wintershall	L05b	pl	G
L05a-A	GDF Suez	L05a	pl	G&O
L07-B	Total	L07	pl	G
L07-C	Total	L07	pl	G
L07-G	Total	L07	pl	G
L07-H	Total	L07	pl	G
L07-H South-East	Total	L07	pl	G
L07-N	Total	L07	pl	G
L08-A	Wintershall	L08a	pl	G
L08-A-West	Wintershall	L08b	pl	G
L08-D	One	L08a	pl	G
L08-G	Wintershall	L08a	pl	G
L08-H	Wintershall	L08a	pl	G
L08-P	Wintershall	L08b	pl	G
L09-FA	NAM	L09a	pl	G
L09-FB	NAM	L09a	pl	G
L09-FC	NAM	L09b	pl	G
L09-FD	NAM	L09a	pl	G
L09-FE	NAM	L09a	pl	G
L09-FF	NAM	L09a	pl	G
L09-FG	NAM	L09a	pl	G
L09-FH	NAM	L09a	pl	G



Accumulation*	Company	Licence name**	Licence type***	Gas/ Oil
L09-FI	NAM	L09a	pl	G
L09-FJ	NAM	L09b	pl	G
L09-FK	NAM	L09b	pl	G
L09-FL	NAM	L09b	pl	G
L10-CDA	GDF Suez	L10	pl	G
L10-G	GDF Suez	L10	pl	G
L10-M	GDF Suez	L10	pl	G
L12a-B	GDF Suez	L12a	pl	G
L12b-C	GDF Suez	L12b	pl	G
L13-FC	NAM	L13	pl	G
L13-FD	NAM	L13	pl	G
L13-FE	NAM	L13	pl	G
L13-FF	NAM	L13	pl	G
L13-FG	NAM	L13	pl	G
L15b-A	GDF Suez	L15b	pl	G
M07-A	One	M07	pl	G
Markham	Centrica	J03b	pl	G
N07-FA	NAM	N07a	pl	G
P06-D	Wintershall	P06	pl	G
P06-Main	Wintershall	P06	pl	G
P09-A	Wintershall	P09c	pl	G
P09-B	Wintershall	P09c	pl	G
P11b Van Nes	Dana Petroleum	P11b	pl	G
P12-SW	Wintershall	P12	pl	G
P15-11	TAQA	P15a	pl	G
P15-12	TAQA	P15a	pl	G
P15-13	TAQA	P15a	pl	G
P15-14	TAQA	P15c	pl	G
P15-15	TAQA	P15a	pl	G
P15-16	TAQA	P15a	pl	G
P15-17	TAQA	P15a	pl	G
P15-09	TAQA	P15a	pl	G&O
P18-2	TAQA	P18a	pl	G
P18-4	TAQA	P18a	pl	G
P18-6	TAQA	P18a	pl	G
Q01-B	Wintershall	Q01	pl	G
Q04-A	Wintershall	Q04	pl	G
Q04-B	Wintershall	Q04	pl	G
Q16-FA	NAM	Q16a	pl	G
<b>b) Underground Gas Storage</b>				
Alkmaar PGI	TAQA	Bergen	pl/sl	G
Bergermeer	TAQA	Bergermeer	pl/sl	G
Grijpskerk	NAM	Groningen	pl/sl	G
Norg	NAM	Drenthe	pl/sl	G

<b>II. UNDEVELOPED ACCUMULATIONS</b>				
<b>Accumulation*</b>	<b>Company</b>	<b>Licence name**</b>	<b>Licence type</b>	<b>Gas/ Oil</b>
<b>a) start of production expected between 2013 - 2017</b>				
<b>Donkerbroek</b>	<b>Tulip</b>	<b>Donkerbroek</b>	<b>pl</b>	<b>G</b>
Donkerbroek-West	Tulip	Akkrum 11	pl	G
Eesveen	Vermilion	Steenwijk	pl	G
Heinenoord	NAM	Botlek	pl	G
Langezwaag	Vermilion	Gorredijk	pl	G
Marumerlage	NAM	Groningen	pl	G
Marknesse	Tulip	Marknesse	pl	G
Nes-Noord	NAM	Noord-Friesland	pl	G
Papekop	Northern Petroleum	Papekop	pl	G
Rodewolt	NAM	Groningen	pl	G
Ternaard	NAM	Noord Friesland	pl	G
Usquert	NAM	Groningen	pl	G
Zevenhuizen-West	NAM	Groningen	pl	G
A15-A	Centrica	A15a	pl	G
A18-FA	Chevron	A18a	pl	G
B17-A	Centrica	B17b	pla	G
D18-FA	GDF Suez	D18a	pl	G
K04a-Z	Total	K04a	pl	G
K09c-B	GDF Suez	K09c	pl	G
L05a-D	GDF Suez	L05a	pl	G
L06-B	Wintershall	L06b	pl	G
L10-N	GDF Suez	L10	pl	G
L13-FA	NAM	L13	pl	G
L13-FI	NAM	L13	pl	G
L13-FJ	NAM	L13	pl	G
M01-A	One	M01a	pl	G
M09-FA	NAM	M09a	pl	G
Q01-D	Wintershall	Q01	pl	G
Q07-FA	SES	Q10a	el	G
P11b Van Ghent East	Dana Petroleum	P11b	pl	G
Q16-Maas	One	Q16b	pl	G
<b>b) Others</b>				
Beerta	NAM	Groningen	pl	G
Boskoop	NAM	Rijswijk	pl	G
Buma	NAM	Drenthe IIb	pl	G
Burum	NAM	Tietjerksteradeel	pl	G
Deurningen	NAM	Twenthe	pl	G
Egmond-Binnen	NAM	Middelie	pl	G

Accumulation*	Company	Licence name**	Licence type	Gas/ Oil
Exloo	NAM	Drenthe IIb	pl	G
Haakswold	NAM	Schoonebeek	pl	G
Heiloo	TAQA	Bergen II	pl	G
Hollum-Ameland	NAM	Noord-Friesland	pl	G
Kerkwijk	NAM	Andel III	pl	G
Kijkduin-Zee	NAM	Rijswijk	pl	G&O
Langebrug	NAM	Groningen	pl	G
Lankhorst	NAM	Schoonebeek	pl	G
Maasgeul	NAM	Botlek	pl	G
Midlaren	NAM	Groningen	pl	G&O
Molenaarsgraaf	NAM	Andel III	pl	G
Nieuwehorne	Vermilion	Gorredijk	pl	G
Nieuweschans	NAM	Groningen	pl	G
Oosterwolde	Northern Petroleum	Oosterwolde	pl	G
Oppenhuizen	Northern Petroleum	Zuid-Friesland III	pl	G
Oude Leede	NAM	Rijswijk	pl	G
Rammelbeek	NAM	Twenthe	pl	G
Schiermonnikoog-Wad	NAM	Noord-Friesland	pl	G
Sonnega Weststellingwerf	Vermilion	Steenwijk	pl	G
Terschelling-Noord	NAM	Noord-Friesland	pl	G
Terschelling-West			open	G
Vlagtwedde	NAM	Groningen	pl	G
Wassenaar-Diep	NAM	Rijswijk	pl	G
Werkendam-Diep	NAM	Rijswijk	pl	G&O
Witten	NAM	Drenthe IIb	pl	G
Woudsend	Northern Petroleum	Zuid-Friesland III	pl	G
Zuidwijk	Taqa	Bergen II	pl	G
B10-FA	Chevron	A12b&B10a	pla	G
B16-FA	Chevron	B16a	pll	G
D15 Tourmaline	GDF Suez	D15	pl	G
E12 Lelie			open	G
E12 Tulp East			open	G
E13 Epidoot			open	O&G
F16-P	Wintershall	F16	pl	G
K08-FB	NAM	K08	pl	G
K08-FD	NAM	K08	pl	G
K08-FF	NAM	K08	pl	G
K14-FC	NAM	K14	pl	G
K15-FF	NAM	K15	pl	G
K15-FH	NAM	K15	pl	G
K15-FI	NAM	K15	pl	G
K16-5			open	G
K17-FB	NAM	K17	pl	G
K18-FB	Wintershall	K18b	pl	G
L02-FC	NAM	L02	pl	G
L05b-A	Wintershall	L05b	pl	G

Accumulation*	Company	Licence name**	Licence type	Gas/ Oil
L07-D	Total	L07	pl	G
L07-F	Total	L07	pl	G
L10-19	GDF Suez	L10	pl	G
L10-6	GDF Suez	L10	pl	G
L11-1	GDF Suez	L11a	pl	G
L11-7	GDF Suez	L11a	pl	G
L12-FA	GDF Suez	L12a	pl	G
L12-FD	Tullow	L12d	pl	G
L13-FK	NAM	L13	pl	G
L14-FB			open	G
L16-Alpha	Wintershall	L16a	pl	G
L16-Bravo	Wintershall	L16a	pl	G
L16-FA	Wintershall	L16a	pl	G
M09-FB	NAM	Noord-Friesland	pl	G
M10-FA	Ascent	M10	pl	0
M11-FA	Ascent	M11	el	G
P01-FA	Chevron	P02	el	G
P01-FB	Chevron	P01	el	G
P02-Delta	Chevron	P02	el	G
P02-E	Chevron	P2	pl	G
P06-Northwest	Wintershall	P06	pl	G
P10b Van Brakel	Dana Petroleum	P10b	pl	G
Q02-A			open	G
Q13-FC	GDF Suez	Q13b	el	G

### III. PRODUCTION CEASED

Accumulation*	Company	Licence name**	Type of licence***	Gas/ Oil
Akkrum 1	Chevron USA	Akkrum	open-a	G
Akkrum 11	Tulip	Akkrum	pl	G
Akkrum 13	Chevron USA	Akkrum	open-a	G
Akkrum 3	Chevron USA	Akkrum	open-a	G
Akkrum 9	Chevron USA	Akkrum	open-a	G
Ameland-Noord	NAM	Noord-Friesland	pl	G
Boekel	TAQA	Bergen II	pl	G
Barendrecht	NAM	Rijswijk	pl	G
Castricum-Zee	Wintershall	Middelie	pl	G
Een	NAM	Drenthe IIb	pl	G
Emshoern	NAM	Groningen	pl	G
Engwierum	NAM	Noord-Friesland	pl	G
Franeker	Vermilion	Leeuwarden	pl	G
Geestvaartpolder	NAM	Rijswijk	pl	G
Hoogenweg	NAM	Hardenberg	pl	G
Houwerzijl	NAM	Groningen	pl	G

Accumulation*	Company	Licence name**	Type of licence***	Gas/Oil
Harlingen Lower Cretaceous	Vermilion	Leeuwarden	pl	G
Harlingen Upper Cretaceous	Vermilion	Leeuwarden	pl	G
Leidschendam	NAM	Rijswijk	pl	G
Leeuwarden 101				
Rotliegend	Vermilion	Leeuwarden	pl	G
De Lutte	NAM	Rossum-de Lutte	pl	G
Marum	NAM	Groningen	pl	G
Norg-Zuid	NAM	Drenthe IIb	pl	G
Nijensleek	Vermilion	Drenthe IIA	pl	G
Oldenzaal	NAM	Rossum-de Lutte	pl	G
Roden	NAM	Drenthe IIb	pl	G
Rossum-Weerselo	NAM	Rossum-De Lutte	pl	G
Roswinkel	NAM	Drenthe IIb	pl	G
Sleen	NAM	Drenthe IIb	pl	G
Starnmeer	TAQA	Bergen II	pl	G
Tubbergen	NAM	Tubbergen	pl	G
Tubbergen-Mander	NAM	Tubbergen	pl	G
Wimmenum-Egmond	NAM	Middelie	pl	G
Weststellingwerf	Vermilion	Gorredijk	pl	G
Zuid-Schermer	Taq	Bergen II	pl	G
K05a-Es	Total	K05a	pl	G
K05-G	Total	K05a	pl	G
K06-N	Total	K06	pl	G
K06-T	Total	K06	pl	G
K07-FE	NAM	K07	pl	G
K08-FC	NAM	K08	pl	G
K10-B (gas)	Wintershall	K10a	pl	G
K10-C	Wintershall	K10a	pl	G
K10-V	Wintershall	K10b	pl	G
K11-FA	NAM	K11	pl	G
K11-FB	NAM	K11	pl	G
K11-FC	NAM	K11	pl	G
K12-A	GDF Suez	K12	pl	G
K12-E	GDF Suez	K12	pl	G
K12-S1	GDF Suez	K12	pl	G
K13-A	NAM	K13	open	G
K13-B	NAM	K13	open	G
K13-CF	NAM	K13	open	G
K13-DE	NAM	K13	open	G
L06d-S1	ATP	L06d	pl	G
L07-A	Total	L07	pl	G
L10-K	GDF Suez	L10	pl	G
L10-S1	GDF Suez	L10	pl	G
L10-S2	GDF Suez	L10	pl	G

Accumulation*	Company	Licence name**	Type of licence***	Gas/ Oil
L10-S3	GDF Suez	L10	pl	G
L10-S4	GDF Suez	L10	pl	G
L11a-A	GDF Suez	L11a	pl	G
L11-Lark	GDF Suez	L11a	pl	G
L11b-A	one	L11b	pl	G
L13-FB	NAM	L13	pl	G
L13-FH	NAM	L13	pl	G
L14-FA	Transcanada Int.	L14	open	G
P02-NE	Tullow	P02	el	G
P02-SE	Tullow	P02	el	G
P06-South	Wintershall	P06	pl	G
P12-C	Wintershall	P12	pl	G
P14-A	Wintershall	P14a	pl	G
P15-10	TAQA	P15c	pl	G
Q05-A	Wintershall	Q05c	pl	G
Q08-A	Wintershall	Q08	pl	G
Q08-B	Wintershall	Q08	pl	G

\* Name of the accumulation is according to the name used in the production licence application.

\*\* Licence stands for the licence effective at the time the accumulation was discovered. however. an accumulation can straddle more than one licence (these are not indicated in this table).

\*\*\* el = exploration licence. pla = production licence application. pl = production licence ; open = open area open a = open area licence applied., sl = storage licence.

## OIL ACCUMULATIONS

I. DEVELOPED ACCUMULATIONS				
Accumulation*	Company	Licence name**	Licence type***	Gas/Oil
<b>a) Producing</b>				
Berkel	NAM	Rijswijk	pl	O&G
Oud-Beijerland Noord	NAM	Botlek	pl	O&G
Rotterdam	NAM	Rijswijk	pl	O&G
Schoonebeek	NAM	Schoonebeek	pl	O&G
F2a Hanze	Dana Petroleum	F02a	pl	O
F03-FB	GDF-Suez	F03	pl	O&G
Haven	Chevron	Q01	pl	O
Helder	Chevron	Q01	pl	O
Helm	Chevron	Q01	pl	O
Hoorn	Chevron	Q01	pl	O
Horizon	Chevron	P09c	pl	O
Kotter	Wintershall	K18b	pl	O
Logger	Wintershall	L16a	pl	O
P11b De Ruyter	Dana Petroleum	P11b	pl	O&G
P15-Rijn	TAQA	P15a	pl	O&G
<b>II. UNDEVELOPED ACCUMULATIONS</b>				
Accumulation*	Company	Licence name**	Licence type***	Gas/Oil
<b>a) start of production expected between 2013 - 2017</b>				
Ottoland	Northern Petroleum	Andel III	opv	O
P08-A	Grove Energy	P8a	pl	O
Q13-Amstel (FA)	GDF Suez	Q13a	pl	O
<b>b) Others</b>				
Alblasserdam	NAM	Rijswijk	pl	O
Gieterveen	NAM	Drenthe	pl	O
Lekkerkerk/blg	NAM	Rijswijk	pl	O
Noordwijk	NAM	Rijswijk	pl	O&G
Stadskanaal	NAM	Groningen	pl	O&G
Wassenaar-Zee	NAM	Rijswijk	pl	O
Woubrugge	NAM	Rijswijk	pl	O
Zweelo	NAM	Drenthe	pl	O

Accumulation*	Company	Licence name**	Licence type***	Gas/Oil
B18-FA	NAM	B18a	pl	O
F03-FC	NAM	F3	pl	O
F14-A	Sterling	F14	el	O
F17-FA	Wintershall	F17a	el	O
F17-FB	Wintershall	F17a	el	O
F17-FC	Wintershall	F17a	el	O
F18-FA	Sterling	F18	el	O
K10-B-OIL	Wintershall	K10	pl	O
L1-FB	Sterling	L01b	el	O
P12-3	Wintershall	P12	pl	O
Q1 Northwest	Chevron	Q1	pl	O
Q13-FB	GDF Suez	Q16b	el	O

### III. PRODUCTION CEASED

Accumulation*	Company	Licence name**	Licence type***	Gas/Oil
De Lier	NAM	Rijswijk	pl	O&G
IJsselmonde	NAM	Rijswijk	pl	O&G
Moerkapelle	NAM	Rijswijk	pl	O
Pijnacker	NAM	Rijswijk	pl	O&G
Rijswijk	NAM	Rijswijk	pl	O&G
Werkendam	NAM	Rijswijk	pl	O
Wassenaar	NAM	Rijswijk	pl	O
Zoetermeer	NAM	Rijswijk	pl	O&G

\* Name of the accumulation is conform the name used in the production licence application.

\*\* Licence stands for the licence effective at the time the accumulation was discovered. However, an accumulation can straddle more than one licence (these are not indicated in this table).

\*\*\* el = exploration licence. pla = production licence application. pl = production licence ; sl = storage licence.  
open a = open area licence applied.



## EXPLORATION LICENCES, Netherlands Territory as at 1 January 2013

	Licence holder	Licence	km <sup>2</sup>	Awarded	Date of expiry	Government Gazette
1	<b>Brabant Resources B.V.</b>	Noord-Brabant	1929	14-10-2009	24-11-2014	16 000
2	<b>Hardenberg Resources B.V.</b>	Noordoostpolder	819	15-06-2010	26-07-2015	9 431
3	<b>Hexagon Energy B.V.</b>	Peel	365	17-11-2009	28-12-2013	17 675
4	<b>Northern Petroleum Nederland B.V.</b>	Engelen	97	14-10-2009	24-11-2013	16 878
5	<b>Northern Petroleum Nederland B.V.</b>	Oosterwolde	127	20-04-2007	24-11-2013	83
6	<b>Northern Petroleum Nederland B.V.</b>	Utrecht	1144	26-04-2007	24-11-2013	85
7	<b>Tulip Oil Netherlands B.V.</b> PA Resources UK Ltd.	Schagen	355	20-06-2009	31-07-2013	118
8	<b>Vermilion Oil &amp; Gas Netherlands B.V.</b> Lundin Netherlands B.V.	Follega	3	15-06-2010	26-07-2014	9 426
9	<b>Vermilion Oil &amp; Gas Netherlands B.V.</b>	Hemelum	450	17-01-2012	27-02-2016	1 490
10	<b>Vermilion Oil &amp; Gas Netherlands B.V.</b> Lundin Netherlands B.V.	Lemsterland	111	15-06-2010	26-07-2014	9 427
11	<b>Vermilion Oil &amp; Gas Netherlands B.V.</b>	Opmeer	229	19-12-2012	29-01-2017	205
		Total	5629	km <sup>2</sup>		

## PRODUCTION LICENCES, NETHERLANDS TERRITORY as at 1 January 2013

	Licence holder	Licence	km <sup>2</sup>	Awarded	Date of expiry	Government Gazette
1	Nederlandse Aardolie Maatschappij B.V.	Beijerland	140	14-02-1997	14-02-2027	243
2	Nederlandse Aardolie Maatschappij B.V.	Botlek	235	18-02-1992	18-02-2027	141
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	1881	17-03-2012		6 883
5	Nederlandse Aardolie Maatschappij B.V.	Groningen	2970	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	1593	27-02-1969		47
9	Nederlandse Aardolie Maatschappij B.V.	Rijswijk	2090	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	411	27-02-1969		47
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	Northern Petroleum Nederland B.V. Nederlandse Aardolie Maatschappij B.V. Parkmead (E&P) Ltd.	Andel V	225	06-07-2011	30-12-2038	12 480
16	Northern Petroleum Nederland B.V. Nederlandse Aardolie Maatschappij B.V. Parkmead (E&P) Ltd.	Drenthe IIIb	388	17-03-2012		6 885
17	Northern Petroleum Nederland B.V. Parkmead (E&P) Ltd.	Drenthe IV	7	18-07-2007		140
18	Northern Petroleum Nederland B.V. Parkmead (E&P) Ltd.	Papekop	63	08-06-2006	19-07-2031	113

19	<b>Northern Petroleum Nederland B.V.</b> Essent Energy Gas Storage B.V. Gas Storage Ltd. Overseas Gas Storage Ltd.	Waalwijk	186	17-08-1989	17-08-2024	154
20	<b>Northern Petroleum Nederland B.V.</b> Dana Petroleum Netherlands B.V. Dyas B.V. Total E&P Nederland B.V.	Zuid-Friesland III	105	09-03-2010	19-04-2030	4 016
21	<b>TAQA Onshore B.V.</b> Dana Petroleum Netherlands B.V. Dyas B.V.	Bergen II	221	23-12-2006		232
22	<b>TAQA Onshore B.V.</b>	Bergermeer	19	23-12-2006		232
23	<b>TAQA Piek Gas B.V.</b> Dana Petroleum Netherlands B.V. Dyas B.V.	Alkmaar	12	23-12-2006		232
24	<b>Tulip Oil Netherlands B.V.</b>	Akkrum 11	6	26-07-2012	04-04-2025	6 909
25	<b>Tulip Oil Netherlands B.V.</b>	Donkerbroek	22	04-04-1995	04-04-2025	66
26	<b>Tulip Oil Netherlands B.V.</b>	Donkerbroek-West	2	16-03-2011	04-04-2025	4 902
27	<b>Tulip Oil Netherlands B.V.</b>	Marknesse	19	26-01-2010	09-03-2030	1 446
28	<b>Vermilion Oil &amp; Gas Netherlands B.V.</b>	Drenthe IIa	7	17-03-2012		6 883
29	<b>Vermilion Oil &amp; Gas Netherlands B.V.</b>	Drenthe IIIa	1	17-03-2012		6 885
30	<b>Vermilion Oil &amp; Gas Netherlands B.V.</b> Lundin Netherlands B.V.	Gorredijk	629	29-07-1989	29-07-2024	145
31	<b>Vermilion Oil &amp; Gas Netherlands B.V.</b> Lundin Netherlands B.V.	Leeuwarden	614	27-02-1969		46
32	<b>Vermilion Oil &amp; Gas Netherlands B.V.</b> Lundin Netherlands B.V.	Oosterend	92	05-09-1985		84
33	<b>Vermilion Oil &amp; Gas Netherlands B.V.</b> Lundin Netherlands B.V.	Slootdorp	162	01-05-1969		94
34	<b>Vermilion Oil &amp; Gas Netherlands B.V.</b>	Steenwijk	99	16-09-1994	16-09-2029	177
35	<b>Vermilion Oil &amp; Gas Netherlands B.V.</b> Lundin Netherlands B.V.	Zuidwal	225	07-11-1984		190
Total			14966	km <sup>2</sup>		

## STORAGE LICENCES, Netherlands Territory as at 1 January 2013

	Licence holder	Licence	km <sup>2</sup>	Awarded	Date of expiry	Government Gazette
1	<b>Akzo Nobel Salt B.V.</b>	Twenthe-Rijn De Marssteden	2	02-10-2010	12-11-2040	15 650
2	<b>Akzo Nobel Salt B.V.</b>	Winschoten III	28	15-11-2010	13-05-2079	18 321
3	<b>N.V. Nederlandse Gasunie</b>	Winschoten II	<1	15-11-2010	13-05-2079	18 321
4	<b>N.V. Nederlandse Gasunie</b> Akzo Nobel Salt B.V. Gasunie Zuidwending B.V. Gasunie Underground Storage B.V. Nuon Storage B.V.	Zuidwending	1	11-04-2006	11-04-2036	77
5	<b>Nederlandse Aardolie Maatschappij B.V.</b>	Grijpskerk	27	01-04-2003		67
6	<b>Nederlandse Aardolie Maatschappij B.V.</b>	Norg	81	01-04-2003		68
7	<b>Oasen N.V.</b>	Ridderkerk	1	19-12-2012	29-01-2018	7 641
8	<b>TAQA Onshore B.V.</b>	Bergermeer	19	08-01-2007	30-06-2050	7
9	<b>TAQA Piek Gas B.V.</b> Dana Petroleum Netherlands B.V. Dyas B.V.	Alkmaar	12	01-04-2003		68
10	<b>Vitens Friesland</b>	Noardburgum	1	24-03-2012	04-05-2015	7 641
		Total	173	km <sup>2</sup>		

## EXPLORATION LICENCES, Netherlands Continental Shelf as at January 2013

	Licence holder	Licence	km <sup>2</sup>	Awarded	Date of expiry	Governm Gazette	Rem.
1	<b>Ascent Resources Netherlands B.V.</b>	M10a & M11	110	28-07-2007	30-06-2013	152	
2	<b>Centrica Production Nederland B.V.</b> Dana Petroleum Netherlands B.V. TAQA Offshore B.V.	B17a	80	02-06-1987		70	wva
3	<b>Centrica Production Nederland B.V.</b> Volantis Netherlands B.V.	E01	374	22-11-2011	02-01-2016	21 395	
4	<b>Centrica Production Nederland B.V.</b> Volantis Netherlands B.V.	E02	396	22-11-2011	02-01-2016	21 396	
5	<b>Centrica Production Nederland B.V.</b> Volantis Netherlands B.V.	E04	398	22-11-2011	02-01-2016	21 398	
6	<b>Centrica Production Nederland B.V.</b> Volantis Netherlands B.V.	E05	398	22-11-2011	02-01-2016	21 401	
7	<b>Chevron Exploration and Production Netherlands B.V.</b> Dyas B.V. TAQA Offshore B.V.	A12b & B10a	79	16-04-2005		77	wva
8	<b>Chevron Exploration and Production Netherlands B.V.</b> Dyas B.V. TAQA Offshore B.V.	B16a	67	11-05-1987		70	wva
9	<b>Chevron Exploration and Production Netherlands B.V.</b> TAQA Offshore B.V.	P01a	137	28-06-2007	01-07-2014	128	
10	<b>Chevron Exploration and Production Netherlands B.V.</b> TAQA Offshore B.V.	P02	416	22-02-2008	03-04-2014	42	
11	<b>Dana Petroleum Netherlands B.V.</b> Dyas B.V. Tulip Oil Netherlands B.V.	F06b	390	07-04-2009	19-05-2014	70	
12	<b>Dana Petroleum Netherlands B.V.</b> Dyas B.V.	F13b	399	21-09-2010	01-11-2014	14 904	

	<b>Licence holder</b>	<b>Licence</b>	<b>km<sup>2</sup></b>	<b>Awarded</b>	<b>Date of expiry</b>	<b>Governm Gazette</b>	<b>Rem.</b>
13	<b>GDF Suez E&amp;P Nederland B.V.</b> Lundin Netherlands B.V. Total E&P Nederland B.V.	E17c	171	22-02-2008	03-04-2014	42	
14	<b>GDF Suez E&amp;P Nederland B.V.</b> Total E&P Nederland B.V.	K01c	274	22-11-2011	02-01-2016	21 372	
15	<b>GDF Suez E&amp;P Nederland B.V.</b>	Q13b-ondiep	369	23-12-2008	30-04-2013	5	
16	<b>GDF Suez E&amp;P Nederland B.V.</b>	Q16b & Q16c- ondiep	80	17-02-2009	05-08-2013	37	
17	<b>Hansa Hydrocarbons Limited</b>	G18	405	18-09-2012	29-10-2018	23 464	
18	<b>Hansa Hydrocarbons Limited</b>	H16	73	18-09-2012	29-10-2018	23 463	
19	<b>Hansa Hydrocarbons Limited</b>	M03	406	18-09-2012	29-10-2018	23 462	
20	<b>Hansa Hydrocarbons Limited</b>	N01	217	18-09-2012	29-10-2018	23 460	
21	<b>Oranje-Nassau Energie B.V.</b>	F09	400	22-11-2011	02-01-2016	784	
22	<b>Oranje-Nassau Energie B.V.</b> GDF Suez E&P Nederland B.V.	L11c	179	23-11-2010	03-01-2015	18 884	
23	<b>Oranje-Nassau Energie B.V.</b> Dyas B.V.	L16b	176	02-02-2006	15-03-2014	38	
24	<b>Oranje-Nassau Energie B.V.</b>	M02	406	22-11-2011	02-01-2016	1 486	
25	<b>Oranje-Nassau Energie B.V.</b>	M04	408	21-09-2010	01-11-2014	14 900	
26	<b>Oranje-Nassau Energie B.V.</b>	P11a	210	22-06-2012	02-08-2016	12 941	
27	<b>Oranje-Nassau Energie B.V.</b> TAQA Offshore B.V.	P18b	311	24-03-2012	04-01-2015	6 865	
28	<b>Sterling Resources Netherlands B.V.</b> Petro Ventures Netherlands B.V.	F17a-ondiep	386	30-12-2009	25-08-2013	154	
29	<b>Sterling Resources Netherlands B.V.</b> Petro Ventures Netherlands B.V.	F18-ondiep	404	30-12-2009	22-05-2013	152	
30	<b>Tulip Oil Netherlands B.V.</b> PA Resources UK Ltd.	Q07	419	16-01-2008	26-02-2014	13	

	<b>Licence holder</b>	<b>Licence</b>	<b>km<sup>2</sup></b>	<b>Awarded</b>	<b>Date of expiry</b>	<b>Governm Gazette</b>	<b>Rem.</b>
31	<b>Tulip Oil Netherlands B.V.</b> PA Resources UK Ltd.	Q10a	53	06-08-2008	26-02-2014	155	
32	<b>Tullow Netherlands B.V.</b> Tullow Exploration & Production Netherlands B.V.	E10	401	16-01-2008	26-02-2014	13	
33	<b>Tullow Netherlands B.V.</b>	E11	401	22-04-2009	03-06-2014	84	
34	<b>Tullow Netherlands B.V.</b> Tullow Exploration & Production Netherlands B.V.	E14	403	15-01-2008	25-02-2014	12	
35	<b>Tullow Netherlands B.V.</b> Gas Plus Netherlands B.V. Tullow Exploration & Production Netherlands B.V.	E15c	343	22-04-2008	02-06-2014	78	
36	<b>Tullow Netherlands B.V.</b> Tullow Exploration & Production Netherlands B.V.	E18b	192	11-01-2008	21-02-2014	10	
37	<b>Wintershall Noordzee B.V.</b> EWE ENERGIE AG GAZPROM Germania GmbH GDF Suez E&P Nederland B.V.	D12b	41	25-02-2011	07-04-2015	5 287	
38	<b>Wintershall Noordzee B.V.</b> Sterling Resources Netherlands B.V.	E03	396	22-11-2011	02-01-2016	21 402	
39	<b>Wintershall Noordzee B.V.</b> Sterling Resources Netherlands B.V.	F01	396	22-11-2011	02-01-2016	21 394	
40	<b>Wintershall Noordzee B.V.</b> GDF Suez E&P Nederland B.V. Rosewood Exploration Ltd. TAQA Offshore B.V.	F14-diep	403	30-12-2009	21-11-2013	153	
41	<b>Wintershall Noordzee B.V.</b> GDF Suez E&P Nederland B.V. Rosewood Exploration Ltd. TAQA Offshore B.V.	F17a-diep	386	30-12-2009	25-08-2013	154	
42	<b>Wintershall Noordzee B.V.</b> GDF Suez E&P Nederland B.V. Rosewood Exploration Ltd.	F18-diep	404	30-12-2009	21-11-2013	152	

	<b>Licence holder</b>	<b>Licence</b>	<b>km<sup>2</sup></b>	<b>Awarded</b>	<b>Date of expiry</b>	<b>Governm Gazette</b>	<b>Rem.</b>
43	<b>Wintershall Noordzee B.V.</b> GDF Suez E&P Nederland B.V.	K03e	258	22-04-2009	03-06-2013	80	
44	<b>Wintershall Noordzee B.V.</b> GDF Suez E&P Nederland B.V. Rosewood Exploration Ltd.	L01b-diep	339	30-12-2009	21-11-2013	149	
		Total	12954	km <sup>2</sup>			

\*pla: Licence holder has filed an application for a production licence.



## PRODUCTION LICENCES, Netherlands Continental Shelf as at 1 January 2013

	Licence holder	Licence	km <sup>2</sup>	Awarded	Date of expiry	Government Gazette
1	<b>ATP Oil and Gas Netherlands B.V.</b>	L06d	16	07-03-2003	18-04-2013	48
2	<b>Centrica Production Nederland B.V.</b> Dana Petroleum Netherlands B.V. Oranje-Nassau Energie B.V.	A15a	67	27-12-2011	03-02-2027	746
3	<b>Centrica Production Nederland B.V.</b>	B18a	40	10-10-1985	10-10-2025	182
4	<b>Centrica Production Nederland B.V.</b>	F03a	62	13-12-2007	09-09-2022	245
5	<b>Centrica Production Nederland B.V.</b>  Dyas B.V. Total E&P Nederland B.V.	J03b & J06	126	06-11-1992	06-11-2032	219
6	<b>Chevron Exploration and Production Netherlands B.V.</b> Dyas B.V. TAQA Offshore B.V.	A12a	195	01-07-2005	11-08-2025	129
7	<b>Chevron Exploration and Production Netherlands B.V.</b> Dyas B.V. TAQA Offshore B.V.	A12d	33	01-07-2005	11-08-2025	129
8	<b>Chevron Exploration and Production Netherlands B.V.</b> Dyas B.V. TAQA Offshore B.V.	A18a	229	01-07-2005	11-08-2025	129
9	<b>Chevron Exploration and Production Netherlands B.V.</b> Dyas B.V.	A18c	47	01-07-2005	11-08-2025	125
10	<b>Chevron Exploration and Production Netherlands B.V.</b> Dyas B.V. TAQA Offshore B.V.	B10c & B13a	252	01-07-2005	11-08-2025	129
11	<b>Chevron Exploration and Production Netherlands B.V.</b> Aceiro Energy B.V. Dyas B.V.	P09a & P09b	126	16-08-1993	16-08-2033	127

	Licence holder	Licence	km <sup>2</sup>	Awarded	Date of expiry	Government Gazette
	TAQA Offshore B.V. Wintershall Noordzee B.V.					
12	<b>Chevron Exploration and Production Netherlands B.V.</b> Dyas B.V. TAQA Offshore B.V. Wintershall Noordzee B.V.	P09c	267	16-08-1993	16-08-2033	126
13	<b>Chevron Exploration and Production Netherlands B.V.</b> TAQA Offshore B.V. Wintershall Noordzee B.V.	Q01	416	11-07-1980	11-07-2020	110
14	<b>Chevron Exploration and Production Netherlands B.V.</b> Dyas B.V. TAQA Offshore B.V.	Q02c	32	14-07-1994	14-07-2034	18
15	<b>Dana Petroleum Netherlands B.V.</b> Dyas B.V. Noble Energy (Europe) Ltd. Oranje-Nassau Energie B.V. TAQA Offshore B.V.	F02a	307	24-08-1982	24-08-2022	139
16	<b>Dana Petroleum Netherlands B.V.</b>	P10a	5	31-05-2005	11-07-2020	102
17	<b>Dana Petroleum Netherlands B.V.</b>	P10b	100	07-04-2009	19-05-2019	70
18	<b>Dana Petroleum Netherlands B.V.</b>	P11b	210	03-04-2004	14-05-2019	67
19	<b>Dana Petroleum Netherlands B.V.</b> Tulip Oil Netherlands B.V.	P14a	50	23-06-1992	23-06-2032	99
20	<b>GDF Suez E&amp;P Nederland B.V.</b> Faroe Petroleum (UK) Ltd. Wintershall Noordzee B.V.	D15	247	06-09-1996	06-09-2021	138
21	<b>GDF Suez E&amp;P Nederland B.V.</b> Faroe Petroleum (UK) Ltd. TAQA Offshore B.V. Wintershall Noordzee B.V.	D18a	58	29-8-2012	09-10-2032	19 757
22	<b>GDF Suez E&amp;P Nederland B.V.</b> Lundin Netherlands B.V. Total E&P Nederland B.V.	E16a	29	29-06-2007	09-08-2021	128

	<b>Licence holder</b>	<b>Licence</b>	<b>km<sup>2</sup></b>	<b>Awarded</b>	<b>Date of expiry</b>	<b>Government Gazette</b>
23	<b>GDF Suez E&amp;P Nederland B.V.</b>  Lundin Netherlands B.V. Total E&P Nederland B.V.	E17a & E17b	114	28-06-2007	08-08-2021	128
24	<b>GDF Suez E&amp;P Nederland B.V.</b> TAQA Offshore B.V.	F03b	335	13-12-2007	09-09-2022	245
25	<b>GDF Suez E&amp;P Nederland B.V.</b>  Nederlandse Aardolie Maatschappij B.V. TAQA Offshore B.V.	G14 & G17b	441	15-12-2006	14-12-2019	248
26	<b>GDF Suez E&amp;P Nederland B.V.</b>	G16a	224	06-01-1992	06-01-2032	245
27	<b>GDF Suez E&amp;P Nederland B.V.</b>	G16b	5	11-10-2003	06-01-2032	198
28	<b>GDF Suez E&amp;P Nederland B.V.</b>	G17a	237	19-07-2006	14-12-2019	143
29	<b>GDF Suez E&amp;P Nederland B.V.</b>  Wintershall Noordzee B.V.	G17c & G17d	130	10-11-2000	10-11-2025	188
30	<b>GDF Suez E&amp;P Nederland B.V.</b>	K02b	110	20-01-2004	24-08-2023	16
31	<b>GDF Suez E&amp;P Nederland B.V.</b>	K03a	83	24-08-1998	24-08-2023	122
32	<b>GDF Suez E&amp;P Nederland B.V.</b>	K03c	32	26-11-2005	06-01-2021	233
33	<b>GDF Suez E&amp;P Nederland B.V.</b>  EWE ENERGIE AG Rosewood Exploration Ltd. XTO Netherlands Ltd.	K09a & K09b	211	11-08-1986	11-08-2026	129
34	<b>GDF Suez E&amp;P Nederland B.V.</b> EWE ENERGIE AG Rosewood Exploration Ltd. XTO Netherlands Ltd.	K09c	199	18-12-1987	18-12-2027	229
35	<b>GDF Suez E&amp;P Nederland B.V.</b> EWE ENERGIE AG Production North Sea Netherlands Ltd. Rosewood Exploration Ltd. XTO Netherlands Ltd.	K12	411	18-02-1983	18-02-2023	11
36	<b>GDF Suez E&amp;P Nederland B.V.</b>	L04c	12	07-01-1994	07-01-2034	2

	<b>Licence holder</b>	<b>Licence</b>	<b>km<sup>2</sup></b>	<b>Awarded</b>	<b>Date of expiry</b>	<b>Government Gazette</b>
37	<b>GDF Suez E&amp;P Nederland B.V.</b>	L05a	163	15-03-1991	15-03-2031	55
38	<b>GDF Suez E&amp;P Nederland B.V.</b>  EWE ENERGIE AG GDF Suez E&P Participation Ned. B.V. Rosewood Exploration Ltd. XTO Netherlands Ltd.	L10 & L11a	596	13-01-1971	01-01-2025	4
39	<b>GDF Suez E&amp;P Nederland B.V.</b>  Oranje-Nassau Energie B.V. Tullow Exploration & Production Netherlands B.V. Wintershall Noordzee B.V.	L12a	119	25-09-2008	14-03-2030	189
40	<b>GDF Suez E&amp;P Nederland B.V.</b>  Tullow Exploration & Production Netherlands B.V. Wintershall Noordzee B.V.	L12b & L15b	92	06-08-2008	12-03-2030	155
41	<b>GDF Suez E&amp;P Nederland B.V.</b>	L15c	4	07-09-1990	07-09-2030	172
42	<b>GDF Suez E&amp;P Nederland B.V.</b>  Rosewood Exploration Ltd. XTO Netherlands Ltd.	N07b	174	23-12-2003	10-03-2034	252
43	<b>GDF Suez E&amp;P Nederland B.V.</b>  Aceiro Energy B.V. TAQA Offshore B.V.	Q13a	30	28-11-2006	28-12-2021	231
44	<b>Grove Energy Ltd.</b>	P08a	26	21-10-2006	01-12-2021	214
45	<b>Nederlandse Aardolie Maatschappij B.V.</b>	F17c	18	04-12-1996	04-12-2024	207
46	<b>Nederlandse Aardolie Maatschappij B.V.</b>	K07	408	08-07-1981	08-07-2021	120
47	<b>Nederlandse Aardolie Maatschappij B.V.</b>  Oranje-Nassau Energie B.V. Tullow Exploration & Production Netherlands B.V. Wintershall Noordzee B.V.	K08 & K11	820	26-10-1977	26-10-2017	197
48	<b>Nederlandse Aardolie Maatschappij B.V.</b>	K14	412	16-01-1975	16-01-2015	6
49	<b>Nederlandse Aardolie Maatschappij B.V.</b>	K15	412	14-10-1977	14-10-2017	197

	Licence holder	Licence	km <sup>2</sup>	Awarded	Date of expiry	Government Gazette
50	<b>Nederlandse Aardolie Maatschappij B.V.</b>	K17	414	19-01-1989	19-01-2025	12
51	<b>Nederlandse Aardolie Maatschappij B.V.</b> Wintershall Noordzee B.V.	K18a	36	15-03-2007	09-05-2025	57
52	<b>Nederlandse Aardolie Maatschappij B.V.</b>	L02	406	15-03-1991	15-03-2031	55
53	<b>Nederlandse Aardolie Maatschappij B.V.</b>	L09	409	18-09-2010	09-05-2035	14 911
54	<b>Nederlandse Aardolie Maatschappij B.V.</b> Oranje-Nassau Energie B.V. Tullow Exploration & Production Netherlands B.V. Wintershall Noordzee B.V.	L13	413	26-10-1977	26-10-2017	197
55	<b>Nederlandse Aardolie Maatschappij B.V.</b> ExxonMobil Producing Netherlands B.V.	M09a	213	10-04-1990	10-04-2030	56
56	<b>Nederlandse Aardolie Maatschappij B.V.</b>	N07a	141	23-12-2003	10-03-2034	252
57	<b>Oranje-Nassau Energie B.V.</b> Energy06 Investments B.V. TAQA Offshore B.V.	L11b	47	15-06-1984	15-06-2024	110
58	<b>Oranje-Nassau Energie B.V.</b> Energy06 Investments B.V.	M01a	213	28-06-2007	08-08-2022	128
59	<b>Oranje-Nassau Energie B.V.</b> Energy06 Investments B.V. TAQA Offshore B.V.	M07	409	22-03-2001	22-03-2021	19
60	<b>Oranje-Nassau Energie B.V.</b> Energy06 Investments B.V. TAQA Offshore B.V.	P18d	2	20-09-2012	31-10-2027	23 457
61	<b>Oranje-Nassau Energie B.V.</b> Lundin Netherlands B.V. Total E&P Nederland B.V.	Q16a	85	29-12-1992	29-12-2032	227
62	<b>Oranje-Nassau Energie B.V.</b> Energy06 Investments B.V. TAQA Offshore B.V.	Q16b & Q16c-diep	80	20-09-2012	31-10-2027	23 465
63	<b>Oranje-Nassau Energie B.V.</b> Energy06 Investments B.V.	S03a	2	20-09-2012	31-10-2027	23 466

	<b>Licence holder</b>	<b>Licence</b>	<b>km<sup>2</sup></b>	<b>Awarded</b>	<b>Date of expiry</b>	<b>Government Gazette</b>
	TAQA Offshore B.V.					
64	<b>Oranje-Nassau Energie B.V.</b> Energy06 Investments B.V. TAQA Offshore B.V.	T01	1	20-09-2012	31-10-2027	23 467
65	<b>TAQA Offshore B.V.</b> Dana Petroleum Netherlands B.V. Dyas B.V. Oranje-Nassau Energie B.V. Van Dyke Netherlands Inc. Wintershall Noordzee B.V.	P15a & P15b	220	12-07-1984	12-07-2024	110
66	<b>TAQA Offshore B.V.</b> Dana Petroleum Netherlands B.V. Dyas B.V. Oranje-Nassau Energie B.V. Wintershall Noordzee B.V.	P15c	203	07-05-1992	07-05-2032	114
67	<b>TAQA Offshore B.V.</b>	P18a	105	30-04-1992	30-04-2032	99
68	<b>TAQA Offshore B.V.</b> Dana Petroleum Netherlands B.V. Dyas B.V.	P18c	6	02-06-1992	02-06-2032	99
69	<b>Total E&amp;P Nederland B.V.</b> Lundin Netherlands B.V. TAQA Offshore B.V.	F06a	8	09-09-1982	09-09-2022	139
70	<b>Total E&amp;P Nederland B.V.</b> Dyas B.V. First Oil Expro Ltd. Lundin Netherlands B.V.	F15a	233	06-05-1991	06-05-2031	52
71	<b>Total E&amp;P Nederland B.V.</b> Dyas B.V. First Oil Expro Ltd. Lundin Netherlands B.V.	F15d	4	15-06-1992	15-06-2032	97
72	<b>Total E&amp;P Nederland B.V.</b> Nederlandse Aardolie Maatschappij B.V.	J03a	72	12-01-1996	12-01-2036	22
73	<b>Total E&amp;P Nederland B.V.</b> Nederlandse Aardolie Maatschappij B.V.	K01a	83	10-02-1997	10-02-2022	46
74	<b>Total E&amp;P Nederland B.V.</b> Rosewood Exploration Ltd.	K01b & K02	75	20-06-2009	31-07-2022	11 801

	Licence holder	Licence	km <sup>2</sup>	Awarded	Date of expiry	Government Gazette
75	<b>Total E&amp;P Nederland B.V.</b> Rosewood Exploration Ltd.	K02c	46	21-01-2004	07-11-2021	16
76	<b>Total E&amp;P Nederland B.V.</b> Lundin Netherlands B.V.	K03b	7	30-01-2001	30-01-2021	19
77	<b>Total E&amp;P Nederland B.V.</b> Lundin Netherlands B.V.	K03d	26	01-04-1999	01-04-2024	58
78	<b>Total E&amp;P Nederland B.V.</b>	K04a	307	29-12-1993	29-12-2033	220
79	<b>Total E&amp;P Nederland B.V.</b> Dyas B.V. Lundin Netherlands B.V.	K04b & K05	305	01-06-1993	01-06-2033	87
80	<b>Total E&amp;P Nederland B.V.</b> Rosewood Exploration Ltd.	K05b	204	07-11-1996	07-11-2021	207
81	<b>Total E&amp;P Nederland B.V.</b>  Lundin Netherlands B.V.	K06 & L07	817	20-06-1975	20-06-2015	112
82	<b>Total E&amp;P Nederland B.V.</b> Van Dyke Netherlands Inc.	L01a	31	12-09-1996	12-09-2016	135
83	<b>Total E&amp;P Nederland B.V.</b>	L01d	7	13-11-1996	13-11-2016	207
84	<b>Total E&amp;P Nederland B.V.</b> Lundin Netherlands B.V.	L01e	12	13-11-1996	13-11-2016	207
85	<b>Total E&amp;P Nederland B.V.</b> Lundin Netherlands B.V.	L01f	17	14-1-2003	14-1-2033	235
86	<b>Total E&amp;P Nederland B.V.</b> Lundin Netherlands B.V.	L04a	313	30-12-1981	30-12-2021	230
87	<b>Tullow Netherlands B.V.</b> Tullow Exploration & Production Netherlands B.V. Wintershall Noordzee B.V.	L12c	30	06-08-2008	12-03-2030	155
88	<b>Tullow Netherlands B.V.,</b> Oranje-Nassau Energie B.V. Tullow Exploration & Production Netherlands B.V. Wintershall Noordzee B.V.	L12d	225	25-09-2008	14-03-2030	189

	<b>Licence holder</b>	<b>Licence</b>	<b>km<sup>2</sup></b>	<b>Awarded</b>	<b>Date of expiry</b>	<b>Government Gazette</b>
89	<b>Tullow Netherlands B.V.</b> Tullow Exploration & Production Netherlands B.V. Wintershall Noordzee B.V.	L15d	62	06-08-2008	12-03-2030	155
90	<b>Wintershall Noordzee B.V.</b> GDF Suez E&P Participation Ned. B.V.	D12a	214	06-09-1996	06-09-2021	138
91	<b>Wintershall Noordzee B.V.</b> Dana Petroleum Netherlands B.V. GDF Suez E&P Nederland B.V. Tullow Exploration & Production Netherlands B.V.	E15a	39	04-10-2002	21-10-2032	175
92	<b>Wintershall Noordzee B.V.</b> Dana Petroleum Netherlands B.V. Tullow Exploration & Production Netherlands B.V.	E15b	21	20-02-2008	01-04-2033	38
93	<b>Wintershall Noordzee B.V.</b> Dana Petroleum Netherlands B.V. GDF Suez E&P Nederland B.V. Tullow Exploration & Production Netherlands B.V.	E18a	212	04-10-2002	21-10-2032	175
94	<b>Wintershall Noordzee B.V.</b> Dana Petroleum Netherlands B.V. GDF Suez E&P Nederland B.V. Tullow Exploration & Production Netherlands B.V.	F13a	4	04-10-2002	21-10-2032	175
95	<b>Wintershall Noordzee B.V.</b> GDF Suez E&P Nederland B.V. Petro Ventures Netherlands B.V. Sterling Resources Netherlands B.V.	F16	404	04-10-2002	21-10-2032	175
96	<b>Wintershall Noordzee B.V.</b> Dana Petroleum Netherlands B.V. Dyas B.V. Nederlandse Aardolie Maatschappij B.V.	K18b	155	15-03-2007	09-05-2023	57
97	<b>Wintershall Noordzee B.V.</b> Dana Petroleum Netherlands B.V.	L05b	237	28-06-2003	09-08-2033	134
98	<b>Wintershall Noordzee B.V.</b> Dana Petroleum Netherlands B.V.	L05c	8	03-12-1996	03-12-2016	209



	Licence holder	Licence	km <sup>2</sup>	Awarded	Date of expiry	Government Gazette
99	<b>Wintershall Noordzee B.V.</b> Dana Petroleum Netherlands B.V.	L06a	332	24-11-2010	04-01-2031	18 910
100	<b>Wintershall Noordzee B.V.</b> Dana Petroleum Netherlands B.V.	L06b	60	01-07-2003	11-08-2031	134
101	<b>Wintershall Noordzee B.V.</b> EWE ENERGIE AG Oranje-Nassau Energie B.V. TAQA Offshore B.V.	L08a	213	18-08-1988	18-08-2021	146
102	<b>Wintershall Noordzee B.V.</b> Dana Petroleum Netherlands B.V. Oranje-Nassau Energie B.V.	L08b	181	17-05-1993	17-05-2031	78
103	<b>Wintershall Noordzee B.V.</b> Dana Petroleum Netherlands B.V. Dyas B.V. Nederlandse Aardolie Maatschappij B.V.	L16a	238	12-06-1984	12-06-2024	84
104	<b>Wintershall Noordzee B.V.</b> Dyas B.V.	P06	417	14-04-1982	14-04-2022	54
105	<b>Wintershall Noordzee B.V.</b> Dyas B.V. Northern Petroleum Nederland B.V.	P12	421	08-03-1990	08-03-2030	27
106	<b>Wintershall Noordzee B.V.</b> Dyas B.V. Tullow Exploration & Production Netherlands B.V.	Q04	417	02-12-1999	02-12-2011	228
107	<b>Wintershall Noordzee B.V.</b> Dyas B.V. Tullow Exploration & Production Netherlands B.V.	Q05d	20	15-02-2001	15-02-2021	19
		Total	18613	km <sup>2</sup>		

## LIST OF BLOCKS. Netherlands Continental Shelf as at 1 January 2013

Block (part of block)	Open Area (km <sup>2</sup> )	Operator	Licence (km <sup>2</sup> )	
			Exploration	Production
A04	0			
A05	91			
A07	47			
A08	382			
A09	141			
A10	129			
A11	392			
A12a		Chevron		195
A12b		Chevron	31	
A12c	130			
A12d		Chevron		33
A13	211			
A14	393			
A15a		Centrica		67
A15b	326			
A16	293			
A17	395			
A18a		Chevron		229
A18b	119			
A18c		Chevron		47
B10a		Chevron	48	
B10b	85			
B10c		Chevron		46
B13a		Chevron		206
B13b	187			
B14	198			
B16a		Chevron	67	
B16b	327			
B17a		Centrica	80	
B17b	315			
B18a		Centrica		40
B18b	160			
D03	2			
D06	60			
D09	149			
D12a		Wintershall		214
D12b		Wintershall	41	
D15		GDF Suez		247
D18a		GDF Suez		58

Block (part of block)	Open Area (km <sup>2</sup> )	Operator	Licence (km <sup>2</sup> )	
			Exploration	Production
D18b	139			
E01		Centrica	374	
E02		Centrica	396	
E03		Wintershall	396	
E04		Centrica	398	
E05		Centrica	398	
E06	398			
E07	400			
E08	400			
E09	400			
E10		Tullow	401	
E11		Tullow	401	
E12	401			
E13a	234			
E13b	169			
E14		Tullow	403	
E15a		Wintershall		39
E15b		Wintershall		21
E15c		Tullow	343	
E16a		GDF Suez		29
E16b	375			
E17a		GDF Suez		87
E17b		GDF Suez		27
E17c		GDF Suez	171	
E17d	119			
E18a		Wintershall		212
E18b		Tullow	192	
F01		Wintershall	396	
F02a		Dana		307
F02b	89			
F03a		Centrica		62
F03b		GDF Suez		335
F04	398			
F05	398			
F06a		Total		8
F06b		Dana	390	
F07	400			
F08	400			
F09		Oranje-Nassau	400	
F10	401			
F11	401			
F12	401			
F13a		Wintershall		4

Block (part of block)	Open Area (km <sup>2</sup> )	Operator	Licence (km <sup>2</sup> )	
			Exploration	Production
F13b		Dana	399	
F14		Wintershall	403	
F15a		Total		233
F15b	73			
F15c	93			
F15d		Total		4
F16		Wintershall		404
F17a		Sterling - Wintershall	386	
F17c		NAM		18
F18		Sterling - Wintershall	404	
G07	120			
G10	397			
G11	169			
G13	403			
G14		GDF Suez		403
G15	226			
G16a		GDF Suez		224
G16b		GDF Suez		5
G16c	176			
G17a		GDF Suez		237
G17b		GDF Suez		38
G17c		GDF Suez		34
G17d		GDF Suez		96
G18		Hansa	405	
H13	1			
H16		Hansa	73	
J03a		Total		72
J03b		Centrica		42
J03c	30			
J06		Centrica		83
J09	18			
K01a		Total		83
K01b		Total		50
K01c		GDF Suez	274	
K02a		Total		25
K02b		GDF Suez		110
K02c		Total		46
K02d	225			
K03a		GDF Suez		83
K03b		Total		7

Block (part of block)	Open Area (km <sup>2</sup> )	Operator	Licence (km <sup>2</sup> )	
			Exploration	Production
K03c		GDF Suez		32
K03d		Total		26
K03e		Wintershall	258	
K04a		Total		307
K04b		Total		101
K05a		Total		204
K05b		Total		204
K06		Total		408
K07		NAM		408
K08		NAM		409
K09a		GDF Suez		150
K09b		GDF Suez		61
K09c		GDF Suez		199
K10	374			
K11		NAM		411
K12		GDF Suez		411
K13	324			
K14		NAM		412
K15		NAM		412
K16	267			
K17		NAM		414
K18a		NAM		36
K18b		Wintershall		155
K18c	223			
L01a		Total		31
L01b		Wintershall	339	
L01d		Total		7
L01e		Total		12
L01f		Total		17
L02		NAM		406
L03	406			
L04a		Total		313
L04b	82			
L04c		GDF Suez		12
L05a		GDF Suez		163
L05b		Wintershall		237
L05c		Wintershall		8
L06a		Wintershall		332
L06b		Wintershall		60
L06d		ATP		16
L07		Total		409
L08a		Wintershall		213
L08b		Wintershall		181

Block (part of block)	Open Area (km <sup>2</sup> )	Operator	Licence (km <sup>2</sup> )	
			Exploration	Production
L08c	16			
L09		NAM		409
L10		GDF Suez		411
L11a		GDF Suez		185
L11b		Oranje-Nassau		47
L11c		Oranje-Nassau	179	
L12a		GDF Suez		119
L12b		GDF Suez		37
L12c		Tullow		30
L12d		Tullow		225
L13		NAM		413
L14	413			
L15a	81			
L15b		GDF Suez		55
L15c		GDF Suez		4
L15d		Tullow		62
L16a		Wintershall		238
L16b		Oranje-Nassau	176	
L17	394			
L18	14			
M01a		Oranje-Nassau		213
M01b	193			
M02		Oranje-Nassau	406	
M03		Hansa	406	
M04		Oranje-Nassau	408	
M05	408			
M06	408			
M07		Oranje-Nassau		409
M08	406			
M09a		NAM		213
M09b	158			
M10a		Ascent	82	
M10b	140			
M11		Ascent	28	
N01		Hansa	217	
N04	381			
N05	14			
N07a		NAM		141
N07b		GDF Suez		174
N08	35			
O12	2			

Block (part of block)	Open Area (km <sup>2</sup> )	Operator	Licence (km <sup>2</sup> )	
			Exploration	Production
O15	142			
O17	3			
O18	367			
P01a		Chevron	137	
P01b	72			
P02		Chevron	416	
P03	416			
P04	170			
P05	417			
P06		Wintershall		417
P07	222			
P08a		Grove		26
P08b	393			
P09a		Chevron		59
P09b		Chevron		67
P09c		Chevron		267
P09d	26			
P10a		Dana		5
P10b		Dana		100
P10c	249			
P11a		Oranje-Nassau	210	
P11b		Dana NL		210
P12		Wintershall		421
P13	422			
P14a		DANA		50
P14b	372			
P15a		TAQA		203
P15b		TAQA		17
P15c		TAQA		203
P16	423			
P17	424			
P18a		TAQA		105
P18b		Oranje-Nassau	311	
P18c		TAQA		6
P18d		Oranje-Nassau		2
Q01		Chevron		416
Q02a	333			
Q02c		Chevron		32
Q04		Wintershall		417
Q05a	0			
Q05b	277			
Q05d		Wintershall		20

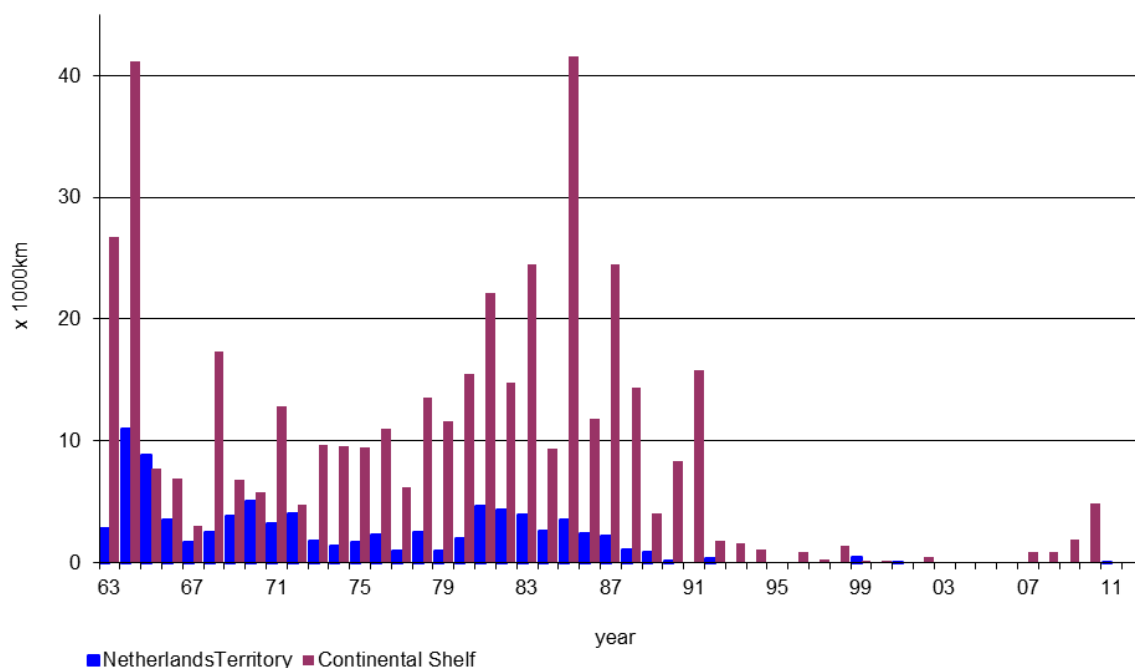
Block (part of block)	Open Area (km <sup>2</sup> )	Operator	Licence (km <sup>2</sup> )	
			Exploration	Production
Q05i	0			
Q07		Tulip	419	
Q08	247			
Q10a		Tulip	53	
Q10b	367			
Q11	162			
Q13a		GDF Suez		30
Q13b		GDF Suez	369	
Q14	25			
Q16a		Oranje-Nassau		85
Q16b		GDF Suez - Oranje-Nassau	59	59
Q16c		GDF Suez - Oranje-Nassau	21	21
R02	103			
R03	425			
R05	7			
R06	311			
R09	28			
S01	425			
S02	425			
S03a		Oranje-Nassau		2
S03b	338			
S04	427			
S05	378			
S06	45			
S07	360			
S08	129			
S10	36			
S11	0			
T01		Oranje-Nassau		1
<b>Total</b>	<b>26090</b>		<b>12164</b>	<b>18613</b>



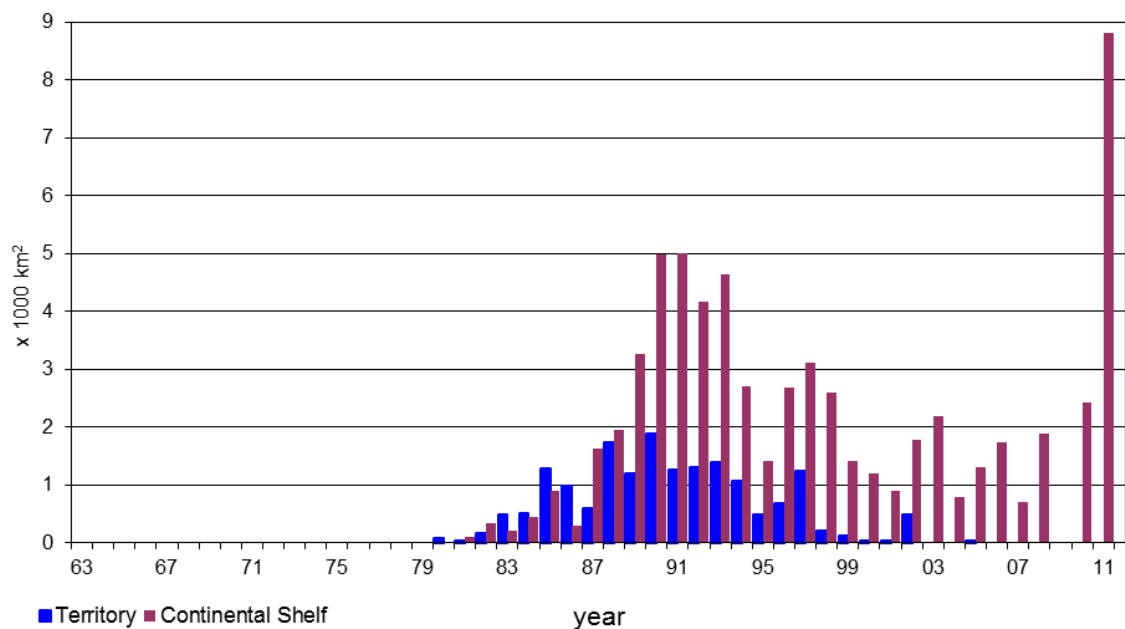
## SEISMIC SURVEYS

Year	Netherlands Territory		Continental Shelf	
	2 D line km	3 D area km <sup>2</sup>	2 D line km	3 D area km <sup>2</sup>
63	2 860	-	26 778	-
64	10 992	-	41 136	-
1965	8 885	-	7 707	-
66	3 510	-	6 939	-
67	1 673	-	3 034	-
68	2 541	-	17 349	-
69	3 857	-	6 846	-
1970	5 113	-	5 780	-
71	3 252	-	12 849	-
72	4 034	-	4 716	-
73	1 783	-	9 708	-
74	1 422	-	9 536	-
1975	1 706	-	9 413	-
76	2 318	-	10 963	-
77	948	-	6 184	-
78	2 466	-	13 568	-
79	986	-	11 575	-
1980	2 017	76	15 497	-
81	4 627	37	22 192	110
82	4 363	170	14 791	337
83	3 980	478	24 498	208
84	2 523	512	9 314	455
1985	3 480	1 282	41 593	892
86	2 386	993	11 795	296
87	2 243	601	24 592	1 637
88	1 103	1 726	14 356	1 958
89	828	1 206	4 033	3 264
1990	160	1 889	8 288	4 972
91	-	1 268	15 853	5 002
92	388	1 307	1 799	4 173
93	-	1 382	1 591	4 637
94	-	1 074	1 089	2 694
1995	-	491	-	1 408
96	-	689	892	2 686
97	-	1 236	260	3 101
98	-	214	1 383	2 603
99	43	124	181	1 409
2000	-	33	160	1 189
01	5	47	-	898
02	-	-	495	1 778
03	-	-	-	2 185
04	-	-	34	790
2005	-	32	-	1 314
06	-	-	53	1 732
07	-	-	886	700
08	-	-	838	1 893
09	-	-	1 849	-
2010	-	-	4 898	2 431
11	14	-	-	8 800
12	-	-	37	7 060

### 2D Seismic surveys 1963 – 2012



### 3D Seismic surveys 1963 – 2012



## OIL AND GAS WELLS, Number of wells Netherlands Territory

Year	Exploration					Appraisal					Production
	O	G	G&O	D	Σ	O	G	G&O	D	Σ	Σ
Up to 1967	2	26	-	61	89	-	8	-	4	12	278
68	-	3	-	4	7	-	2	-	2	4	23
69	-	2	-	11	13	-	2	-	1	3	27
1970	-	3	-	11	14	-	1	-	-	1	25
71	-	3	-	9	12	-	3	-	1	4	55
72	-	3	-	7	10	-	-	-	2	2	64
73	-	2	-	2	4	-	1	-	-	1	46
74	-	-	-	2	2	-	4	-	1	5	50
1975	-	3	-	5	8	-	-	-	2	2	48
76	-	2	-	5	7	-	12	-	-	12	37
77	-	3	-	4	7	2	10	-	1	13	14
78	-	2	-	4	6	-	20	-	-	20	36
79	-	4	-	2	6	2	11	-	2	15	42
1980	1	2	-	2	5	2	16	-	4	22	33
81	2	2	-	11	15	5	7	-	2	14	23
82	-	5	-	9	14	-	8	-	2	10	14
83	-	4	-	4	8	1	13	-	1	15	8
84	1	6	-	7	14	4	8	-	4	16	32
1985	1	5	-	9	15	2	10	-	-	12	34
86	-	2	-	10	12	-	3	-	-	3	35
87	-	1	2	6	9	-	1	-	-	1	22
88	-	5	1	2	8	1	4	-	-	5	17
89	-	2	1	6	9	2	5	-	-	7	11
1990	-	3	1	4	8	-	3	1	1	5	17
91	-	7	1	3	11	-	3	-	1	4	11
92	-	5	2	4	11	-	1	-	-	1	12
93	-	8	-	2	10	-	-	-	-	-	11
94	-	4	-	1	5	2	2	-	1	5	4
1995	-	3	-	10	13	-	3	-	-	3	14
96	-	2	-	3	5	2	3	-	2	7	30
97	-	8	-	3	11	-	6	-	-	6	12
98	-	7	-	4	11	-	7	-	-	7	8
99	-	2	-	3	5	-	3	-	-	3	7
2000	-	2	-	-	2	-	2	-	-	2	5
01	-	2	-	1	3	-	-	-	-	-	6
02	-	1	-	3	4	-	1	-	-	1	5
03	-	1	-	2	3	-	-	-	-	-	7
04	-	-	-	-	-	-	1	-	-	1	1
2005	-	2	-	1	3	-	-	-	-	-	3
06	-	3	-	1	4	-	1	-	-	1	6
07	-	2	-	-	2	-	3	-	2	5	9
08	-	1	-	-	1	-	1	-	-	1	1
09	-	1	-	1	2	-	3	-	-	3	26
2010	-	2	-	1	3	-	-	-	-	-	34
11	-	5	1	2	8	-	-	1	-	1	24
12	-	3	-	1	4	-	3	-	-	3	8
<b>Total:</b>	<b>7</b>	<b>164</b>	<b>9</b>	<b>243</b>	<b>423</b>	<b>25</b>	<b>195</b>	<b>2</b>	<b>36</b>	<b>258</b>	<b>1235</b>

D = dry. O = oil. G&O = gas and oil. G = gas. Σ = total

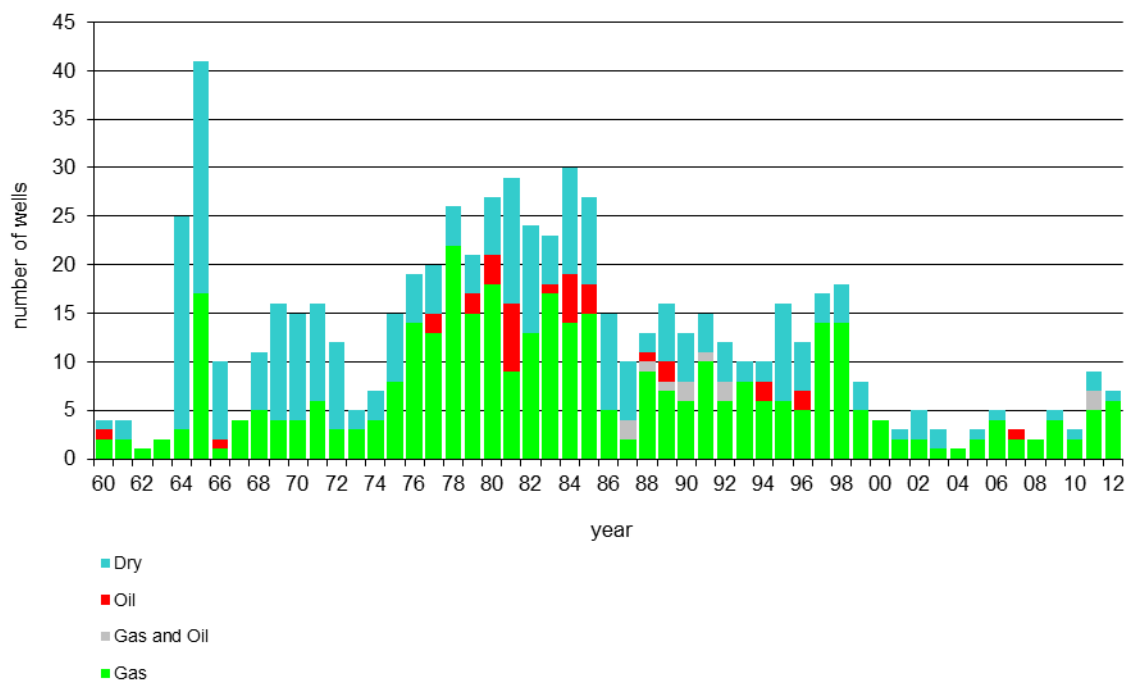
## OIL AND GAS WELLS, Number of wells Netherlands Continental shelf

Year	Exploration					Appraisal					Production
	O	G	G&O	D	Σ	O	G	G&O	D	Σ	Σ
Up to 1967	-	-	-	3	3	-	-	-	-	-	-
68	-	2	-	5	7	-	-	-	-	-	-
69	-	2	-	13	15	-	-	-	1	1	-
1970	-	6	-	7	14	-	-	-	-	-	-
71	1	3	-	15	18	1	-	-	-	1	-
72	-	10	-	6	16	-	-	-	1	1	-
73	-	4	-	13	17	-	1	-	1	2	2
74	-	7	-	8	16	-	1	-	-	1	9
1975	1	6	-	9	15	-	1	-	2	3	12
76	-	5	-	11	16	1	2	-	-	3	14
77	-	3	-	20	23	1	3	-	1	5	18
78	-	4	-	14	18	1	2	-	2	5	14
79	-	7	-	9	17	-	3	-	1	4	9
1980	1	6	-	16	26	2	2	-	1	5	7
81	4	3	-	11	15	6	5	-	6	17	5
82	1	6	-	22	35	1	6	-	3	10	20
83	7	3	-	27	31	1	2	-	9	12	15
84	1	6	-	19	26	3	1	-	3	7	24
1985	1	9	-	24	36	2	4	-	1	7	35
86	3	9	-	14	25	2	2	-	1	5	15
87	2	9	1	12	22	1	2	1	1	5	13
88	-	12	1	8	21	-	4	-	1	5	21
89	-	10	-	13	23	-	4	-	1	5	17
1990	-	8	-	21	29	-	6	-	-	6	14
91	-	15	-	26	43	-	2	-	-	2	18
92	2	8	-	11	19	-	-	-	1	1	15
93	-	3	-	10	13	-	1	-	-	1	17
94	-	4	-	5	10	1	1	-	-	2	10
1995	1	2	-	3	5	-	1	1	1	3	16
96	-	10	1	12	24	-	5	-	-	5	6
97	1	7	-	13	21	1	8	-	1	10	13
98	1	9	-	8	17	1	1	-	1	3	13
99	-	7	-	5	12	-	1	-	1	2	6
2000	-	4	-	2	6	-	6	-	-	6	9
01	-	9	-	6	15	-	2	-	2	4	12
02	-	6	-	10	16	-	1	-	2	3	13
03	-	6	-	1	7	-	3	-	1	4	13
04	-	7	-	4	11	-	2	-	-	2	6
2005	-	3	-	1	4	-	1	-	-	1	8
06	-	3	-	6	9	1	2	-	-	3	16
07	-	3	-	2	5	-	2	-	-	2	12
08	-	4	1	3	8	-	3	-	-	3	13
09	-	4	-	3	7	-	3	-	-	3	11
2010	-	4	-	3	7	-	2	-	-	2	12
11	-	1	1	4	6	1	2	-	-	3	15
12	1	5	-	1	7	1	1	-	-	2	11
<b>Total:</b>	<b>28</b>	<b>264</b>	<b>5</b>	<b>459</b>	<b>756</b>	<b>28</b>	<b>101</b>	<b>2</b>	<b>46</b>	<b>174</b>	<b>529</b>

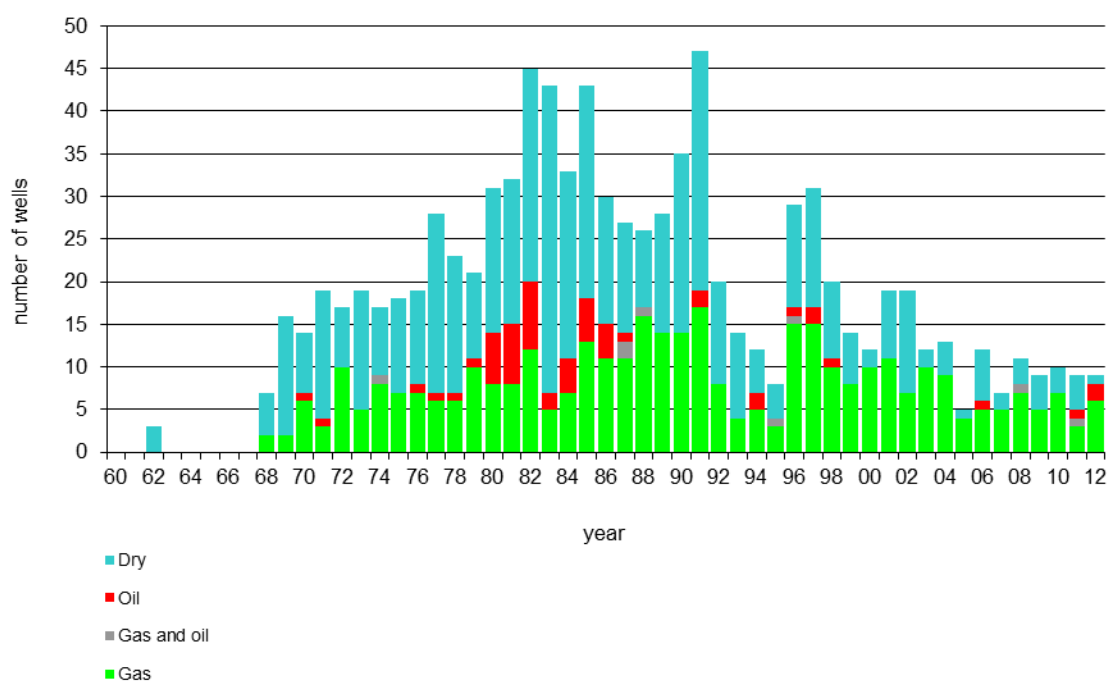
D = dry. O = oil. G&O = gas and oil. G = gas. Σ = total

## NUMBER OF WELLS, Netherlands Territory and Continental Shelf as of 1960

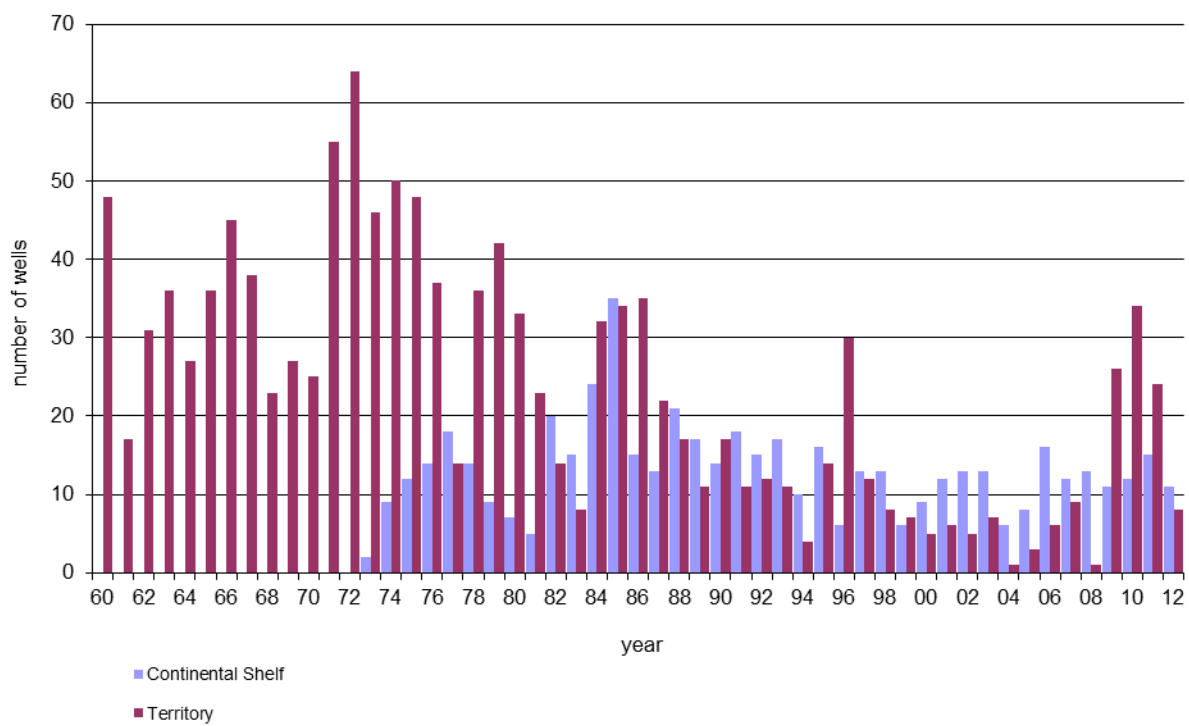
### Exploration and appraisal wells. Netherlands Territory 1960 – 2012



### Exploration and appraisal wells. Continental Shelf 1960 – 2012



### Production wells 1960 – 2012



## PLATFORMS, Netherlands Continental Shelf as at January 1<sup>st</sup> 2013

Platform	Operator	Year of installation	Number of legs	G* - O*	Function
K13-A	Wintershall	1974	8	G	production-compression
K13-A	Wintershall	1974	4	G	wellhead
L10-A	Gaz de France	1974	8	G	production
L10-A	Gaz de France	1974	10	G	wellhead-compression
L10-A	Gaz de France	1974	4	G	riser
L10-B	Gaz de France	1974	4	G	satellite
L10-C	Gaz de France	1974	4	G	satellite
K14-FA-1	NAM	1975	10	G	integrated
L7-B	Total	1975	4	G	integrated
K15-FA-1	NAM	1977	10	G	integrated
K8-FA-1	NAM	1977	10	G	integrated
K8-FA-2	NAM	1977	4	G	satellite
L10-D	Gaz de France	1977	4	G	satellite
L10-E	Gaz de France	1977	4	G	satellite
L7-C(C)	Total	1977	4	G	wellhead
L7-C(P)	Total	1977	8	G	production
L7-C(Q)	Total	1977	4	--	accommodation
K15-FB-1	NAM	1978	10	G	integrated
L7-BB	Total	1978	4	G	wellhead
K7-FA-1	NAM	1980	4	G	wellhead
L10-BB	Gaz de France	1980	3	G	wellhead
L10-F	Gaz de France	1980	4	G	satellite
K10-B	Wintershall	1981	6	G	production
K10-B	Wintershall	1981	6	G	wellhead
L4-A(PA)	Total	1981	8	G	integrated
Q1-HELM	Unocal	1981	6	O	production
Q1-HELM	Unocal	1981	4	O	wellhead
K7-FA-1	NAM	1982	6	G	production
P6-A	Wintershall	1982	8	G	integrated
Q1-HELDER-A	Unocal	1982	6	O	production
Q1-HELDER-A	Unocal	1982	4	O	wellhead
K12-A	Gaz de France	1983	4	--	jacket
L7-C(PK)	Total	1983	4	G	compression
Q1-HOORN	Unocal	1983	6	O	production
Q1-HOORN	Unocal	1983	4	O	wellhead
K12-C	Gaz de France	1984	4	G	satellite
K18-KOTTER	Wintershall	1984	8	O	production
K18-KOTTER	Wintershall	1984	6	O	wellhead
K8-FA-3	NAM	1984	6	G	satellite
L10-EE	Gaz de France	1984	3	G	wellhead
L10-G	Gaz de France	1984	4	G	satellite
L4-B	Total	1984	4	G	wellhead
L7-A	Total	1984	4	G	satellite

Platform	Operator	Year of installation	Number of legs	G* - O*	Function
AWG-1	NAM	1985	3	G	riser
AWG-1P	NAM	1985	6	G	production
AWG-1W	NAM	1985	4	G	wellhead
K12-D	Gaz de France	1985	4	G	satellite
K14-FA-1C	NAM	1985	8	G	compression
L16-LOGGER	Wintershall	1985	4	O	production
L16-LOGGER	Wintershall	1985	4	O	wellhead
P15-RIJN-A	TAQA	1985	4	O	wellhead
P15-RIJN-C	TAQA	1985	6	O	production
P6-B	Wintershall	1985	4	G	satellite
L11b-A	Unocal	1986	4	G	integrated
L13-FC-1	NAM	1986	4	G	wellhead
L13-FC-1	NAM	1986	6	G	production
Q8-A	Wintershall	1986	3	G	wellhead
K12-BD	Gaz de France	1987	4	G	wellhead
K12-BP	Gaz de France	1987	8	G	production
K9ab-A	Gaz de France	1987	4	G	integrated
K9c-A	Gaz de France	1987	4	G	integrated
L10-AC	Gaz de France	1987	4	G	compression
Zuidwal	Total	1987	8	G	wellhead
K12-CC	Gaz de France	1988	4	G	compression
L10-L	Gaz de France	1988	4	G	satellite
L10-S-1	Gaz de France	1988	-	G	subsea completion
L13-FD-1	NAM	1988	4	G	satellite
L7-N	Total	1988	4	G	satellite
L8-A	Wintershall	1988	4	G	satellite
L8-G	Wintershall	1988	6	G	integrated
L8-H	Wintershall	1988	4	G	satellite
K15-FC-1	NAM	1989	4	G	satellite
L13-FE-1	NAM	1989	4	G	satellite
L7-H	Total	1989	4	G	satellite
Q1-HAVEN-A	Unocal	1989	1	O	satellite
K15-FG-1	NAM	1990	4	G	satellite
L11a-A	Gaz de France	1990	4	--	jacket
P12-SW	Wintershall	1990	4	G	satellite
AME-2	NAM	1991	4	G	wellhead
AME-2	NAM	1991	4	G	production
K12-S1	Gaz de France	1991	-	G	subsea completion
K6-D	Total	1991	4	G	wellhead
K6-P	Total	1991	4	G	production
L2-FA-1	NAM	1991	6	G	integrated
F15-A	Total	1992	6	G	integrated
F3-FB-1P	NAM	1992	3+GBS	G+O	integrated
J6-A	ENI	1992	6	G	integrated
K6-C	Total	1992	4	G	wellhead-riser
K6-DN	Total	1992	4	G	satellite



Platform	Operator	Year of installation	Number of legs	G* - O*	Function
L5-FA-1	NAM	1992	6	G	integrated
P15-10S	TAQA	1992	-	G	subsea completion
P15-12S	TAQA	1992	-	G	subsea completion
P15-14S	TAQA	1992	-	G	subsea completion
F3-FB-AP	NAM	1993	3	G+O	accommodation
F3-OLT	NAM	1993	1	O	offshore loading tower
K6-N	Total	1993	4	G	satellite
L15-FA-1	NAM	1993	6	G	integrated
P15-D	TAQA	1993	6	G	production
P15-E	TAQA	1993	4	G	satellite
P15-F	TAQA	1993	4	G	satellite
P15-G	TAQA	1993	4	G	satellite
P18-A	TAQA	1993	4	G	satellite
P9-Horizon	Unocal	1993	4	O	integrated
P9-Seafox-1	Unocal	1993	4	O	accommodation
K5-A	Total	1994	4	G	wellhead
K5-D	Total	1994	4	G	satellite
K5-P	Total	1994	4	G	production
L8-P	Wintershall	1994	4	G	satellite
Q8-B	Wintershall	1994	4	G	satellite
K5-B	Total	1995	4	G	satellite
L13-FH-1	NAM	1995	-	G	subsea completion
Q1-Halfweg	Unocal	1995	4+GBS	G	satellite
K14-FB-1	NAM	1997	4	G	satellite
K4a-D	Total	1997	-	G	subsea completion
K5-EN-C	Total	1997	4	G	satellite
L10-S-2	Gaz de France	1997	-	G	subsea completion
L10-S-3	Gaz de France	1997	-	G	subsea completion
L10-S-4	Gaz de France	1997	-	G	subsea completion
N7-FA-SP	NAM	1997	1	G	satellite
P2-NE	Wintershall	1997	4	G	satellite
P6-S	Wintershall	1997	4	G	satellite
K4-A	Total	1998	4	G	satellite
K6-GT	Total	1998	4	G	satellite
K7-FD-1	NAM	1998	4	G	satellite
L9-FF-1P	NAM	1998	6	G	production
L9-FF-1W	NAM	1998	4	G	wellhead
Q16-FA-1	NAM	1998	-	G	subsea completion
D15-FA-1	NAM	1999	6	G	integrated
K9ab-B	Gaz de France	1999	4	G	satellite
L4-PN	Total	1999	4	G	satellite
F2-A-Hanze	PCN	2000	GBS	G+O	integrated
K4-BE	Total	2000	4	G	satellite
L10-M	Gaz de France	2000	4	G	satellite
L8-A-west	Wintershall	2000	-	G	subsea completion
L8-P4	Wintershall	2000	4	G	integrated

Platform	Operator	Year of installation	Number of legs	G* - O*	Function
Q4-A	Wintershall	2000	4	G	satellite
P6-D	Wintershall	2001	4	G	satellite
K12-G	Gaz de France	2001	4	G	satellite
G17d-A	Gaz de France	2001	4	G	jacket
K8-FA-1P	NAM	2001	4	--	accommodation
K1-A	Total	2001	4	G	satellite
G17d-A	Gaz de France	2002	4	G	satellite
K12-S2	Gaz de France	2002	-	G	subsea completion
K15-FK-1	NAM	2002	4	G	satellite
K5-PK	Total	2002	4	G	satellite
Q4-B	Wintershall	2002	4	G	satellite
K7-FB-1	NAM	2003	4	G	satellite
K12-S3	Gaz de France	2003	0	G	subsea completion
L5-B	Wintershall	2003	4	G	satellite
Q4-C	Wintershall	2003	4	G	satellite
D12-A	Wintershall	2004	4	G	satellite
Q5-A1	Wintershall	2004	-	G	subsea completion
F16-A	Wintershall	2005	6	G	integrated
G14-A	Gaz de France	2005	4	G	satellite
G16-A	Gaz de France	2005	4	G	satellite
G17a-S1	Gaz de France	2005	-	G	subsea completion
G17d-AP	Gaz de France	2005	4	G	production
K2b-A	Gaz de France	2005	4	G	satellite
K17-FA-1	NAM	2005	1	G	satellite
L4-G	Total	2005	-	G	subsea completion
L6d-2	ATP	2005	-	G	subsea completion
P11-B-DeRuyter	PCN	2006	GBS	O	integrated
J6-C	CH4	2006	4	G	riser-compressor
L5-C	Wintershall	2006	4	G	satellite
K12-K	Gaz de France	2006	4	G	wellhead
G14-B	Gaz de France	2006	4	G	wellhead
A12-CPP	Chevron	2007	4	G	Integrated
L09-FA-01	NAM	2007	1	G	wellhead
L09-FB-01	NAM	2007	1	G	wellhead
K05-F	Total	2008	-	G	subsea completion
E17-A	GDFSuez	2009	4	G	satellite
E18-A	Wintershall	2009	4	G	satellite
M7-A	Cirrus	2009	1	G	satellite
P9-A	Wintershall	2009	-	G	subsea completion
P9-B	Wintershall	2009	-	G	subsea completion
F03-FA	Centrica	2010	4	G	production-compression
K5-CU	Total	2010	4	G	satellite
B13-A	Chevron	2011	4	G	satellite
G16a-B	GDF Suez	2011	4	G	satellite
K18-G1	Wintershall	2011	-	G	subsea completion
P11-B-Nes	Dana	2011	-	G	subsea completion

<b>Platform</b>	<b>Operator</b>	<b>Year of installation</b>	<b>Number of legs</b>	<b>G* - O*</b>	<b>Function</b>
P11-C-Van Ghent	Dana	2011	-	G & O	subsea completion

G\* = Gas

O\* = Oil

GBS = Gravity Based Structure

**PIPELINES. Netherlands Continental Shelf as at 1 January 2013**

Operator	From	To	Diameter (inches)	Laid (year)	Length (km)	Carries
Gaz de France	L10-C	L10-AP	10,75 * 2,375	1974	1.1	g + m
Gaz de France	L10-B	L10-AP	10,75 * 2,375	1974	7.4	g + m
NGT	L10-AR	Uithuizen	36	1975	179.0	g
Wintershall	K13-AP	Callantsoog	36	1975	120.5	g
Gaz de France	L10-D	L10-AP	10,75 * 2,375	1977	1.1	g + m
Gaz de France	L10-E	L10-AP	10,75 * 2,375	1977	4.0	g + m
NAM	K8-FA-1	K14-FA-1P	24	1977	30.9	g
NAM	K14-FA-1P	WGT-pipe (s)	24	1977	0.1	g + co
TotalFinaElf	L7-B	L7-P	12,75,4,5,3,5	1977	7.9	g + w + g
TotalFinaElf	L7-P	L10-AR	16	1977	15.8	g
Wintershall	K13-B	K13-AP	10 * 2	1977	9.2	aband.
NAM	K11-FA-1	K8-FA-1	6,625	1978	6.0	aband.
NAM	K8-FA-1	K8-FA-2	3	1978	4.0	c
NAM	K8-FA-2	K8-FA-1	10,75	1978	3.8	g + co
NAM	K15-FA-1	WGT-pipe (s)	24	1978	0.1	co
Wintershall	K13-D	K13-C	10 * 2	1978	3.5	aband.
Wintershall	K13-C (Bypass)	K13-AP	20	1978	10.2	g
Gaz de France	L10-F	L10-AP	10,75 * 2,375	1980	4.3	g + m
TotalFinaElf	L4-A	L7-P	12,75 ,3,5	1981	22.8	g + gl
NAM	K7-FA-1P	K8-FA-1	18	1982	9.4	g + co
Unocal	Q1-Helder-AW	Q1-Helm-AP	20	1982	6.2	o
Unocal	Q1-Helm-AP	Ijmuiden	20	1982	56.7	o
Wintershall	K10-C (Bypass)	K10-B	10 * 2	1982	5.2	g + m
Wintershall	K10-B	K13-C (Bypass)	20	1982	7.4	g
Gaz de France	K12-A	L10-AP	14 * 2,375	1983	29.2	g + m
NAM	K15-FB-1	Callantsoog	24	1983	74.3	g + co
Unocal	Q1-Hoorn-AP	Q1-Helder-AW	10,75	1983	3.5	o
Wintershall	P6-A	L10-AR	20	1983	78.7	g
Gaz de France	L10-G	L10-B - L10-A (s)	10,75 * 2,375	1984	4.7	g + m
Gaz de France	L10-K	L10-B - L10-A (s)	10,75 * 2,375	1984	5.8	aband.
Gaz de France	L10-B	L10-AD	14	1984	6.8	g
Gaz de France	L10-EE	L10-B - L10-A (s)	10	1984	0.2	g
Gaz de France	K12-C	K12-A - L10-A (s)	10 * 2	1984	0.4	g + m
Wintershall	K18-Kotter-P	Q1-Helder-A	12	1984	20.2	o
TAQA	P15-C	Hoek v. Holland	10	1985	42.6	o
TAQA	P15-B	P15-C	10	1985	3.4	aband.
TAQA	P15-B	P15-C	6	1985	3.4	aband.
TAQA	P15-C	P15-B	6	1985	3.4	aband.
TAQA	P15-B	P15-C	4	1985	3.4	aband.
Gaz de France	K12-D	K12-C	10,75 * 2,375	1985	4.3	g + m
NAM	AWG-1R	NGT-pipe (s)	20	1985	7.1	g + co + ci
NAM	AME-1	AWG-1R	20	1985	4.2	g + co
TotalFinaElf	L4-B	L7-A	10,75 , 3,5	1985	10.1	g + gl
TotalFinaElf	L7-A	L7-P	10,75, 3,5	1985	10.4	g + gl

Operator	From	To	Diameter (inches)	Laid (year)	Length (km)	Carries
Wintershall	L16-Logger-P	K18-Kotter-P	8	1985	18.9	o
Wintershall	K18-Kotter-P	L16-Logger-P	6	1985	18.9	w
Wintershall	P6-B	P6-A	12 * 3	1985	3.9	g + gl
Wintershall	P6-C (toek.plf)	P6-B	12 * 3	1985	2.9	g + gl
Gaz de France	K12-A- L10-A (s)	K12-E	2,375	1986	3.9	aband.
Gaz de France	K12-E	K12-C	10,75	1986	6.3	aband.
NAM	L13-FC-1P	K15-FA-1	18	1986	15.4	g + co
NAM	K8-FA-3	K7-FA-1P	12,75	1986	8.9	g
NGT	L11-B	NGT-pipe (s)	14	1986	6.8	g
Unocal	Q1-Helder-B	Q1-Helder-AW	8,625	1986	1.8	aband.
Wintershall	Q8-A	Wijk aan Zee	10	1986	13.7	g
NAM	K15-FA-1	K14-FA-1C	18	1987	24.2	g + co
NGT	K12-BP	L10-AR	18	1987	21.4	g
NGT	K9c-A	L10-AR	16	1987	36.6	g
NGT	K9c-A-L10-AR(s)	K9ab-A	16	1987	0.1	g
TotalFinaElf	Zuidwal	Harlingen TC	20 , 3 , 3	1987	20.3	g + gl + c
Gaz de France	K12-A	K12-CC	10,75	1988	8.3	g
Gaz de France	L10-L	L10-AP	10,75 * 2,375	1988	2.2	g + m
Gaz de France	L10-S1	L10-AP	6,625 * 2,375	1988	11.5	aband.
Gaz de France	K12-E	L10-S1	90 mm	1988	4.6	aband.
NGT	L8-G	L11b-A	14	1988	14.4	g
TotalFinaElf	L7-P	L7-N	10,75 * 3,5	1988	4.2	g + gl
Wintershall	L8-H	L8-A - L8-G(s)	8	1988	0.2	g
Wintershall	K13-C (Bypass)	K10-B - K13-A (s)	20	1988	2.5	g
Wintershall	L8-A	L8-G	8	1988	10.0	g
NAM	L13-FD-1	L13-FC-1P	10	1989	3.7	g + co
NAM	L13-FC-1P	L13-FD-1	3,6	1989	3.6	c
NAM	K8-FA-2	K8-FA-1	10,75	1989	4.0	g + co +ci
TotalFinaElf	L7-H	L7-N	10,75 * 3,5	1989	10.4	g + gl
Unocal	Q1-Haven-A	Q1-Helder-AW	8,625	1989	5.8	aband.
Gaz de France	L14-S1	L11a-A	6,625 * 2,375	1990	6.0	aband.
Gaz de France	K12-B	K12-S1	3,5	1990	4.9	c
NAM	K15-FC-1	K15-FB-1	10,75	1990	7.9	g + co
NAM	K15-FB-1	K15-FC-1	4,03	1990	7.9	c
NAM	K15-FG-1	K15-FA-1	14,3	1990	7.0	g + co
NAM	K15-FA-1	K15-FG-1	4,03	1990	7.0	c
NAM	L13-FE-1	L13-FC-1P	12,98	1990	4.3	g + co
NAM	L13-FC-1P	L13-FE-1	3,76	1990	4.3	c
NGT	L11-A	NGT-pipe (s)	10,75	1990	11.8	aband.
Wintershall	P12-C	P12-SW	8 * 3	1990	6.9	aband.
Wintershall	P12-SW	P6-A	12 * 3	1990	42.0	g + gl
Gaz de France	K12-S1	K12-BP	6,625 * 2,375	1991	4.9	aband.
NAM	AME-2	AWG-1R	13,6	1991	5.2	g + co
NAM	AWG-1R	AME-2	4,02	1991	5.2	c
NAM	F3-FB-1P	L2-FA-1	24	1991	108.1	g + co
NAM	L2-FA-1	Callantsoog	36	1991	144.2	g + co
NAM	L5-FA-1	NOGAT-pipe (s)	16	1991	0.4	g + co

Operator	From	To	Diameter (inches)	Laid (year)	Length (km)	Carries
NAM	L15-FA-1	NOGAT-pipe (s)	16	1991	0.4	g + co
NAM	F15-A	NOGAT-pipe (s)	16	1991	0.3	g + co
NGT	K6-C	K9c-A	16	1991	5.2	g
TotalFinaElf	K6-D	K6-C	10,75 * 3,5	1991	3.8	g + gl
TotalFinaElf	K6-DN	K6-C	12,75 * 3,5	1992	5.4	g + gl
Wintershall	J6-A	K13-AW	24	1992	85.8	g
TAQA	P15-D	Maasvlakte	26	1993	40.1	g
TAQA	P15-E	P15-D	10 * 2	1993	13.9	g + m
TAQA	P15-F	P15-D	12 * 3	1993	9.1	g + m
TAQA	P15-G	P15-D	12 * 3	1993	9.1	g + m
TAQA	P15-10S	P15-D	4 * 2	1993	3.9	g + m
TAQA	P15-D	P15-10S	90 mm	1993	3.9	c
TAQA	P15-12S	P15-D	4 * 2	1993	6.1	g + m
TAQA	P15-D	P15-12S	90 mm	1993	6.1	c
TAQA	P15-14S	P15-G	4 * 2	1993	3.7	g + m
TAQA	P15-D	P15-14S	90 mm	1993	8.0	c
TAQA	P18-A	P15-D	16 * 3	1993	20.8	g + m
NAM	F3-FB-1P	F3-OLT	16	1993	2.0	o
NAM	F3-FB-1P	F3-OLT	3,21	1993	2.0	c
TotalFinaElf	K6-N	K6-C	12,75 * 3,5	1993	8.5	g + gl
Unocal	P9-Horizon-A	Q1-Helder-AW	10,75	1993	4.8	o + w
Wintershall	K10-V	K10-C (Bypass)	10 * 2	1993	10.3	g + m
Wintershall	P14-A	P15-D	10 * 2	1993	12.6	aband.
Lasmo	Markham ST-I (UK)	J6-A	12 * 3	1994	5.5	g + m
TotalFinaElf	K5-D	K5-A	12,75 * 3,6	1994	10.6	g + gl
Wintershall	Q8-B	Q8-A	8 * 2	1994	8.3	g + m
Wintershall	K5-A	J6-A - K13-AW (s)	18	1994	0.3	g
Wintershall	L8-P	L8-G	8 * 2	1994	7.5	g + m
Gaz de France	K11-B	K12-C	14 * 2,375	1995	16.1	aband.
NAM	L13-FH-1	K15-FA-1	6,625	1995	9.4	g + co + m + ci
NAM	K15-FA-1	L13-FH-1	2,98	1995	9.4	c
TotalFinaElf	K5-B	K5-A	346 mm	1995	6.4	g
TotalFinaElf	K5-A	K5-B	3,5	1995	6.4	m + c
Unocal	Q1-Halfweg	Q1-Hoorn-AP	12,75 * 2,375	1995	12.4	g + co + m
Unocal	Q1-Hoorn-AP	Q1-Halfweg	70,9 mm	1995	12.4	c
Unocal	Q1-Hoorn-AP	WGT-pipe (s)	12,75	1995	17.2	g + co
Unocal	Q1-Haven-A	Q1-Helder-AW	8,625	1995	5.8	o + w
Wintershall	P2-NE	P6-A	10	1996	38.2	aband.
Wintershall	P6-S	P6-B	203 mm	1996	6.5	g
Gaz de France	L10-S2	L10-AP	6,625 * 2,375	1997	6.3	g + m
Gaz de France	L10-AP	L10-S2	84 mm	1997	7.0	c
Gaz de France	L10-S3	L10-AP	6,625 * 2,375	1997	1.9	g + gl
Gaz de France	K12-E	L10-S3	3,5	1997	4.5	c
Gaz de France	L10-S4	L10-AP	6,625 * 2,375	1997	8.3	g + m
Gaz de France	L10-AP	L10-S4	84 mm	1997	8.4	c
NAM	K14-FA-1P	K15-FB-1	16	1997	16.6	g

Operator	From	To	Diameter (inches)	Laid (year)	Length (km)	Carries
NAM	K14-FB-1	K14-FA-1P	10,75	1997	9.2	g + co
NAM	K14-FA-1P	K14-FB-1	3,65	1997	9.2	c
NAM	L9-FF-1P	NOGAT-pipe (s)	24	1997	19.3	g + co
TotalFinaElf	K4a-D	J6-A	183 mm	1997	7.3	g
TotalFinaElf	J6-A	K4a-D	2,5	1997	7.4	m + c
TotalFinaElf	K5-EN-C	K5-D	303 mm	1997	2.7	aband.
TotalFinaElf	K5-D	K5-EN-C	2,5	1997	2.7	gl
TotalFinaElf	K5-B	K5-EN-C	70 mm	1997	6.2	c
NAM	K7-FD-1	K8-FA-1	12	1998	9.4	g + co
NAM	K7-FD-1	K8-FA-1	3,4	1998	9.4	c
NAM	K8-FA-1	K14-FA-1C	24	1998	30.9	g
NAM	Q16-FA-1	P18-A	8,625	1998	10.3	g + co
NAM	P18-A	Q16-FA-1	2,375	1998	10.3	m
NAM	Q16-FA-1	P18-A	3,4	1998	10.3	c
TotalFinaElf	K4-A	K5-A	12 * 3	1998	6.9	g + gl
TotalFinaElf	K6-GT	L4-B	10 * 3	1998	10.7	g + gl
TotalFinaElf	K4-A	K5-A	2,5	1998	6.7	c
Gaz de France	K9ab-B	D15-FA-1-L10-A (s)	10	1999	0.1	g
NGT	D15-FA-1	L10-AC	36	1999	140.7	g
TotalFinaElf	L4-PN	L4-A	10	1999	11.4	aband.
TotalFinaElf	L4-A	L4-PN	4	1999	11.4	gl
Gaz de France	L10-M	L10-AP	10,75 * 2,375	2000	11.9	g + m
Petro-Canada	F2-A-Hanze	TMLS	16	2000	1.5	o
TotalFinaElf	K4-BE	K4-A	9,5	2000	8.0	aband.
TotalFinaElf	K4-A	K4-BE	2,5	2000	8.0	gl
Wintershall	Q4-A	P6-A	14	2000	35.2	g + co
Wintershall	Duitsland (A6)	F3-FB-1P	20 , 4	2000	119.0	g + co
Wintershall	L8-A-West	L8-P4	6	2000	10.2	g + co
Wintershall	L8-P4	L8-A-West	82 mm	2000	10.2	c
Wintershall	L8-P	L8-P4	12	2000	2.8	g
Wintershall	L8-P4	NGT-pipe (s)	16	2000	28.0	g + co
Gaz de France	K12-G	L10-AP	14 , 2	2001	15.6	g + m
NGT	G17d-A	NGT-pipe (s)	18	2001	64.5	g
Petro-Canada	F2-A-Hanze	A6 - B4 (s)	4	2001	0.1	g
Petro-Canada	F2-A-Hanze	A6 - B4 (s)	62,1 mm	2001	0.1	c
Petro-Canada	F2-A-Hanze	TMLS	62,1 mm	2001	1.5	c
TotalFinaElf	K5-EN-C	K5-D	10,75	2001	2.8	g
TotalFinaElf	K1-A	J6-A	14,75 * 3,5	2001	9.2	g + m
Wintershall	P6-D	P6-B	12	2001	6.8	g
Gaz de France	K12-S2	K12-C	6,625	2002	6.9	g
Gaz de France	K12-S2	K12-C	95,5 mm	2002	6.9	c
Wintershall	Q4-B	Q4-A	10,75	2002	7.3	g
Wintershall	Q4-C	Q1-Hoorn	16 * 2	2002	14.3	g + gl
Gaz de France	K12-S3	K12-BP	6	2003	3.4	g
Gaz de France	K12-BP	K12-S3	95,5 mm	2003	3.4	c
Maersk	Denemarken (Tyra WE)	F3-FB-1P	26	2003	38.0	g

Operator	From	To	Diameter (inches)	Laid (year)	Length (km)	Carries
Maersk	F3-FB-1P	subsea valve station	4	2003	0.3	c
NAM	K7-FB-1	K7-FD-1	12	2003	17.0	g
NAM	K8-FA-1	K7-FB-1	4	2003	26.0	c
NAM	K15-FK-1	K15-FB-1	10	2003	8.0	g
NAM	K15-FK-1	K15-FB-1	4	2003	8.0	c
Wintershall	L5-B	L8-P4	10 , 4	2003	6.4	g + c
Total	K4-BE	K4-A	10	2004	8.0	g
Wintershall	D12-A	D15-FA-1	10	2004	4.9	g
Wintershall	D12-A	D15-FA-1	10	2004	4.9	c
Wintershall	Q5-A1	Q8-B	8	2004	13.5	g
Wintershall	Q5-A1	Q8-B	4	2004	13.5	c
Wintershall	F16-A	NGT	24	2005	32.0	g
Gaz de France	G14-A	G17d-AP	12 + 2	2005	19.8	g + m
Gaz de France	G17a-S1	G17d-AP	6 + 92,5 mm	2005	5.67	g + c
Gaz de France	K2b-A	D15-FA-1-L10-A	12	2005	2.8	
		NGT-pipe (s)				
NAM	K17-FA-1	K14-FB-1	16 * 2	2005	14.4	g + m
Total	L4-G	L4-A	6 + 4	2005	9.6	g + c
ATP	L6d-2	G17d-AP	6 + 73 mm	2005	40.0	g + c
Petro-Canada	P11-B-Ruyter	P11-B-TMLS	16	2005	1.5	o
Petro-Canada	P11-B-Ruyter	P12-SW	8	2005	29.0	g
ATP	L6d	G17d-AP	6 * 73 mm	2006	40.0	g + c
CH4 Limited	Chiswick (UK)	J6-CT	10 * 1,5	2006	18.3	g + m
Gaz de France	G16A-A	G17d-AP	10 * 2	2006	17.8	g + m
Gaz de France	Minke (UK)	D15-FA-1	8 , 90,6 mm	2006	15.1	g + c
Grove	Grove (UK)	J6-CT	10 * 2	2006	13.4	g + m
NAM	K17-FA-1	K14-FB-1	16 * 2	2006	14.4	g + m
Petro-Canada	P11-B-Ruyter	P11-B-TMLS	16	2006	1.5	o
Petro-Canada	P11-B-Ruyter	P12-SW	8	2006	29.0	g
Total	L4G	L4-PA	6 , 92 mm	2006	10.6	g + c
Wintershall	L5-C	L8-P4	10 , 82 mm	2006	8.1	g + c
Chevron	A12 CCP	B10 NOGAT	16	2007	16.0	g
Gaz de France	G14-B	G17-D-AP	12	2007	13.4	g + m
Venture	Stamfort (UK)	J6-CT	6	2008	7.0	g
Total	L4PN	L4A	10	2008	11.4	g
NAM	L9FA	via L9FB-1» L9FF-1	16 and 2x2	2008	20.0	g + gl + gi
Total	K5-F	K6N	8	2008	10.0	g
Gaz de France	G14-B	G17-D-AP	12 + 2	2008	13.4	g + m
Gaz de France	K12-K	K12-BP	14+ 2	2008	10.3	g + m
GDFSuez	E17-A	NGT	12	2009	2	g
Wintershall	E18-A	F16-A	10 + 84mm	2009	5.4	g+c
Wintershall	P9B	P6D	8 + 70mm	2009	16.8	g+c
Wintershall	P9A	P9B – P6D	8 + 70mm	2009	-	g+c
Cirrus	M7-A	L09-FF	6 + 2	2009	12	g+c
Wintershall	D15-FA-1	D15-A	12 + 2	2010	20.6	g
Chevron	B13-A	A12-CPP	16	2011	22	g
GDF Suez	G16a-B	G17d-AP	14	2011	14	g



Operator	From	To	Diameter (inches)	Laid (year)	Length (km)	Carries
NAM	K18-G1	K15-FA-1		2011	10	g+c
Dana	P11-B-Nes	P11-B-De Ruyter	8	2011	8	g+c
Dana	P11-C-Van Ghent	P11-B-De Ruyter	8	2011	4.5	g+c
Wintershall	Q4C	Q8A	10	2012	8.3	g
Total	K5-B	K5-A	8	2012	13.5	g
Wintershall	K5A	J6A/K13-A	14	2012	13.5	c

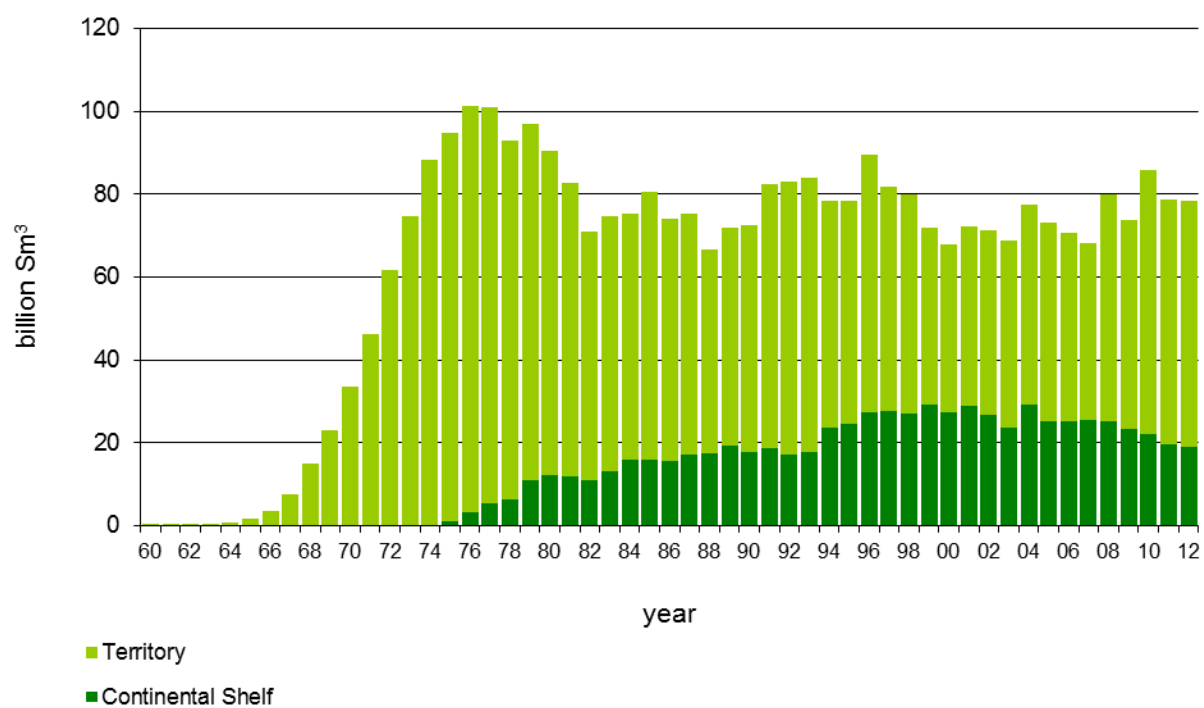
*	= multiple pipeline	gl	= glycol
+	= laid separately	m	= methanol
c	= control cable	ci	= corrosion inhibitor
o	= oil	l	= instrument air
g	= gas	(s)	= side-tap
co	= condensate	aband.	= abandoned

**GAS PRODUCTION** in million Sm<sup>3</sup>

Year	Territory	Continental Shelf	Total
1960	384.0	0.0	384.0
61	476.0	0.0	476.0
62	538.0	0.0	538.0
63	603.0	0.0	603.0
64	876.0	0.0	876.0
1965	1818.0	0.0	1818.0
66	3564.0	0.0	3564.0
67	7423.0	0.0	7423.0
68	14889.0	0.0	14889.0
69	23097.0	0.0	23097.0
1970	33418.0	7.9	33425.9
71	46248.0	2.4	46250.4
72	61661.0	1.4	61662.4
73	74766.0	7.8	74773.8
74	88359.0	14.6	88373.6
1975	93924.0	963.3	94887.3
76	98307.0	3092.7	101399.7
77	95603.0	5479.6	101082.6
78	86475.0	6298.5	92773.5
79	85862.0	10925.5	96787.5
1980	78209.0	12102.0	90311.0
81	70928.0	11798.3	82726.3
82	60004.0	11073.3	71077.3
83	61533.0	13172.2	74705.2
84	59352.0	15787.3	75139.3
1985	64573.0	16070.9	80643.9
86	58480.0	15549.0	74029.0
87	58089.0	17271.4	75360.4
88	49092.0	17591.2	66683.2
89	52570.0	19300.0	71870.0
1990	54585.0	17856.0	72441.0
91	63724.0	18686.3	82410.3
92	65702.0	17279.0	82981.0
93	66154.0	17851.4	84005.4
94	54863.0	23536.9	78399.9
1995	53643.0	24706.9	78349.9
96	62295.0	27350.6	89645.6
97	54261.0	27581.0	81842.0
98	52764.0	27141.0	79905.0
99	42823.0	29207.0	72030.0
2000	40320.2	27473.9	67794.1
01	43220.8	29043.1	72263.9
02	44472.4	26770.1	71242.5
03	45257.1	23508.0	68765.1
04	48422.3	29121.7	77544.0

Year	Territory	Continental Shelf	Total
2005	48019.2	25097.2	73116.4
06	45561.5	25179.9	70741.4
07	42706.6	25603.2	68309.8
08	54734.2	25224.3	79958.5
09	50339.2	23393.1	73732.3
2010	63825.9	22080.2	85906.1
11	58978.0	19579.1	78557.1
12	59212.8	19027.7	78240.6
Total	2 647 005.2	728 806.9	3 375 812.2

### Gas production 1960-2012



**GAS RESERVES AND CUMULATIVE PRODUCTION** in billion Sm<sup>3</sup>

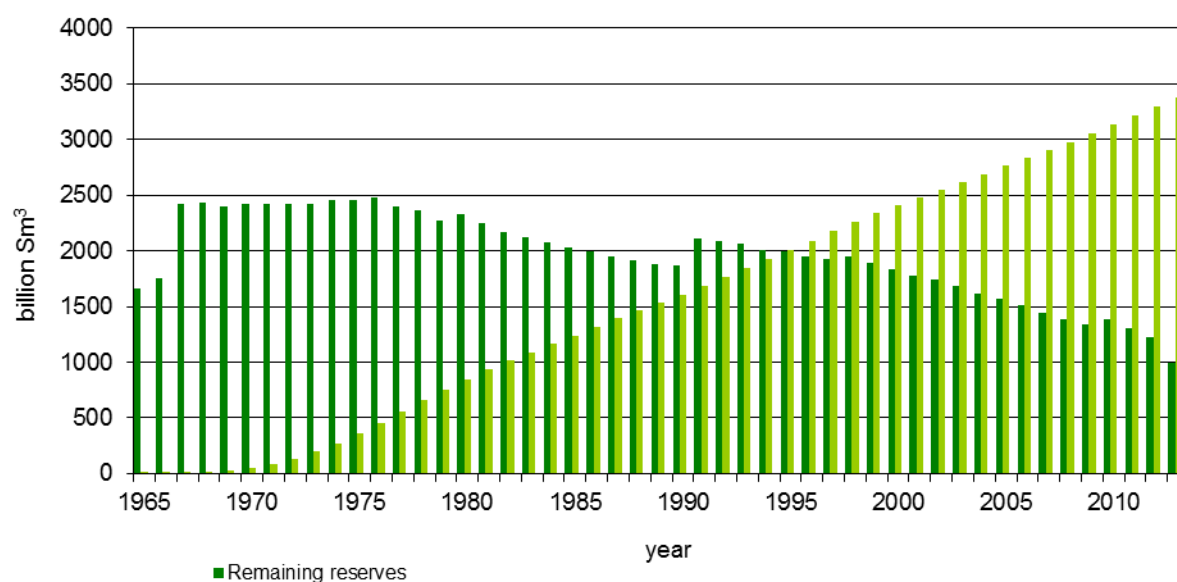
Year as at 1 January	Territory		Continental Shelf		Total	
	expected reserves	cumulative production	expected reserves	cumulative production	expected reserves	cumulative production
1974	2243	269.8	211	0.0	2454	269.8
1975		358.1		0.0	2454	358.2
76	2137	452.0	340	1.0	2477	453.0
77	2030	550.4	367	4.1	2397	554.4
78	1996	646.0	363	9.6	2359	655.5
79	1928	732.4	343	15.9	2271	748.3
1980	2023	818.3	304	26.8	2327	845.1
81	1953	896.5	298	38.9	2251	935.4
82	1899	967.4	275	50.7	2174	1018.1
83	1845	1027.4	272	61.8	2117	1089.2
84	1809	1089.0	271	74.9	2080	1163.9
1985	1754	1148.3	281	90.7	2035	1239.0
86	1704	1212.9	290	106.8	1994	1319.7
87	1655	1271.4	300	122.3	1955	1393.7
88	1607	1329.5	303	139.6	1910	1469.1
89	1557	1378.6	320	157.2	1877	1535.8
1990	1524	1431.1	341	176.5	1865	1607.6
91	1780	1485.7	333	194.4	2113	1680.1
92	1739	1549.4	347	213.1	2086	1762.5
93	1705	1615.1	356	230.3	2061	1845.5
94	1658	1681.3	352	248.2	2010	1929.5
1995	1663	1736.1	334	271.7	1997	2007.9
96	1631	1789.8	321	296.4	1952	2086.2
97	1587	1852.1	343	323.8	1930	2175.9
98	1574	1906.3	373	351.4	1947	2257.7
99	1533	1959.1	360	378.5	1893	2337.6
2000	1499	2001.9	337	407.7	1836	2409.6
01	1447	2042.3	330	435.2	1777	2477.4
02	1406	2085.5	333	464.2	1738	2549.7
03	1362	2129.9	327	491.0	1689	2620.9
04	1357	2175.2	258	514.5	1615	2689.7
2005	1305	2223.6	267	543.6	1572	2767.3
06	1285	2271.6	225	568.7	1510	2840.4
07	1233	2317.2	206	593.9	1439	2911.1
08	1192	2359.9	198	619.5	1390	2979.4
09	1162	2414.6	183	644.7	1345	3059.4
2010	1206	2465.0	184	668.1	1390	3133.1
11	1140	2528.8	164	690.2	1304	3219.0
12	1068	2587.8	162	709.8	1230	3297.6

### As at 2013; table modified due to introduction of PRMS

Rem Res = remaining reserves  
 Cont Res = contingent resources (development pending)  
 Cum Prod = cumulative production

Year	Territory			Continental Shelf			Total			
	As at 1 Jan	Rem Res	Cont Res	Cum prod	Rem Res	Cont Res	Cum prod	Rem Res	Cont Res	Cum prod
2013		897	71	2647.1	111	52	728.7	1008	123	3375.8

### Gas reserves and cumulative production (1 January 2013), 1965 – 2013

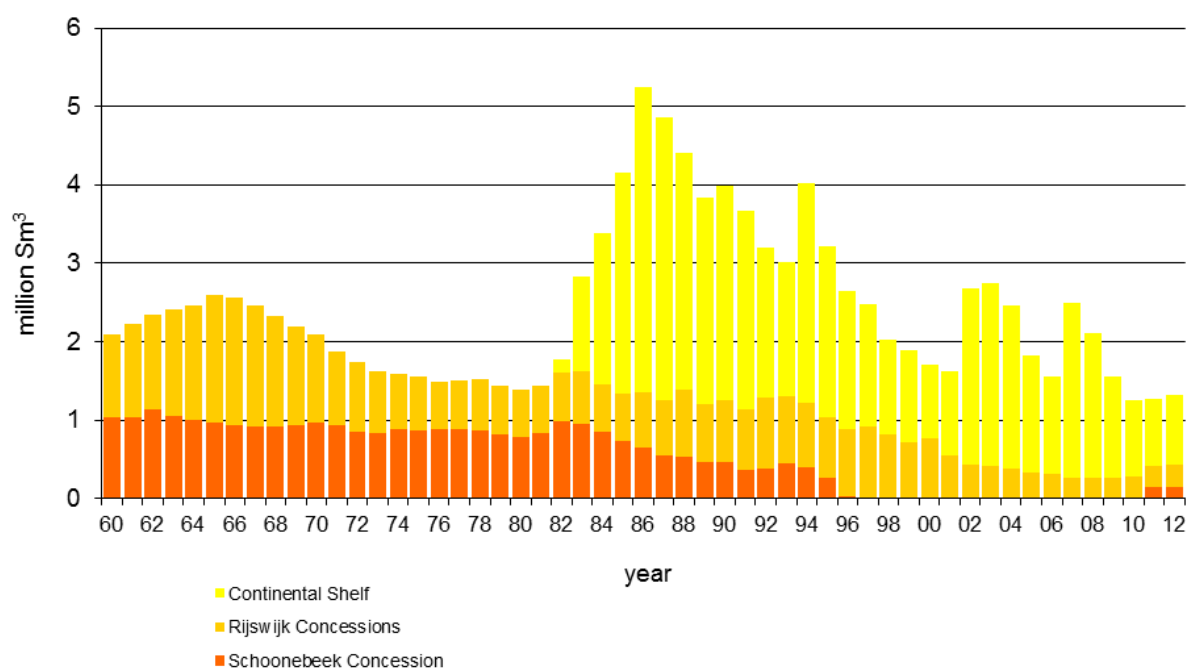


**OIL PRODUCTION** in 1 000 Sm<sup>3</sup>

<b>Year</b>	<b>Production licence Schoonebeek</b>	<b>Production licence Rijswijk &amp; Botlek</b>	<b>Continental Shelf</b>	<b>Total</b>
Till 1969	21 662.0	13.776 0	--	35 438.0
1970	976.0	1 112.2	--	2 088.2
71	940.7	926.8	--	1 867.5
72	856.3	883.1	--	1 739.4
73	838.2	787.4	--	1 625.6
74	878.0	715.5	--	1 593.5
1975	877.0	671.5	--	1 548.5
76	891.9	605.2	--	1 497.1
77	890.8	617.8	--	1 508.6
78	862.3	667.8	--	1 530.1
79	820.4	615.6	--	1 436.0
1980	778.9	617.7	--	1 396.6
81	839.2	596.5	--	1 435.7
82	987.9	625.3	159.7	1 772.9
83	960.0	655.6	1 209.1	2 824.7
84	846.9	615.6	1 921.7	3 384.2
1985	734.5	602.8	2 825.4	4 162.7
86	658.9	688.8	3 889.7	5 237.4
87	556.4	692.5	3 607.8	4 856.7
88	536.0	844.9	3 032.9	4 413.8
89	464.3	731.6	2 634.5	3 830.4
1990	463.0	784.9	2 744.5	3 992.4
91	366.0	777.3	2 527.9	3 671.2
92	379.3	907.3	1 920.7	3 207.3
93	454.0	849.0	1 709.8	3 012.8
94	406.4	811.4	2 804.8	4 022.6
1995	268.3	760.9	2 182.1	3 209.3
96	23.2	856.5	1 767.2	2 647.0
97	-	917.6	1 556.8	2 474.4
98	-	810.4	1 218.9	2 029.3
99	-	714.6	1 173.2	1 887.8
2000	-	776.1	936.4	1 712.5
01	-	542.2	1 085.4	1 627.6
02	-	439.0	2 236.4	2 675.4
03	-	416.2	2 324.6	2 740.0
04	-	381.3	2 081.7	2 463.0
2005	-	335.4	1 489.7	1 825.1
06	-	322.2	1 238.3	1 560.5
07	-	264.1	2 232.9	2 497.0
08	-	261.3	1 841.1	2 102.4
09	-	260.0	1 295.7	1 559.7
2010	-	280.6	981.7	1 262.3
11	144.5	277.3	847.9	1 269.7

Year	Production licence Schoonebeek	Production licence Rijswijk & Botlek	Continental Shelf	Total
12	149.4	289.5	883.9	1 322.8
Total	40 510.7	41 089.3	58 362.4	139 959.7

### Oil production 1960 – 2012



**OIL RESERVES AND CUMULATIVE PRODUCTION** in million Sm<sup>3</sup>

Year	Territory		Continental Shelf		Total		
	as at January 1 <sup>st</sup>	expected reserves	cumulative production	expected reserves	cumulative production	expected reserves	cumulative production
1970							35.4
71							37.5
72							39.4
73				-	-		41.1
74	27			-	-		42.8
1975	40		14		-		44.4
76	51		14		-	65	45.9
77	49		16		-	65	47.4
78	46		7		-	53	48.9
79	44		9		-	53	50.4
1980	43		11		-	54	51.9
81	41		14		-	55	53.3
82	39		20		-	59	54.7
83	38		49	0.2		87	56.5
84	37		41	1.4		78	59.3
1985	41		34	3.3		75	62.7
86	42		36	6.1		78	66.8
87	40		35	10.0		75	72.1
88	41		33	13.6		74	76.9
89	39		32	16.6		71	81.4
1990	41		27	19.3		68	85.2
91	40		24	22.0		64	89.2
92	38		26	24.6		64	92.9
93	37		24	26.5		61	96.1
94	35		23	28.2		58	99.1
1995	34		22	31.0		56	103.1
96	33		17	33.2		50	106.3
97	33		22	34.9		55	109.0
98	12		25	36.5		37	111.4
99	8		26	37.7		34	113.5
2000	7		25	38.9		32	115.3
01	6		24	39.8		30	117.1
02	5		23	40.9		28	118.7
03	5		23	43.1		28	121.4
04	21		17	45.5		38	124.1
2005	19		15	47.6		34	126.6
06	23		13	49.0		35	128.4
07	24		14	50.3		38	129.9
08	24		13	52.5		37	132.4
09	25		9	54.4		34	134.5



Year	Territory		Continental Shelf		Total		
	as at January 1 <sup>st</sup>	expected reserves	cumulative production	expected reserves	cumulative production	expected reserves	cumulative production
2010		37	80.5	13	55.6	50	136.0
2011		33.7	80.7	12	56.6	45.7	137.4
2012		28.6	81.2	11.8	57.5	40.4	138.6

This table has been corrected for a cumulative error due to the rounding off of the annual figures.

### As at 2013; table modified due to introduction of PRMS

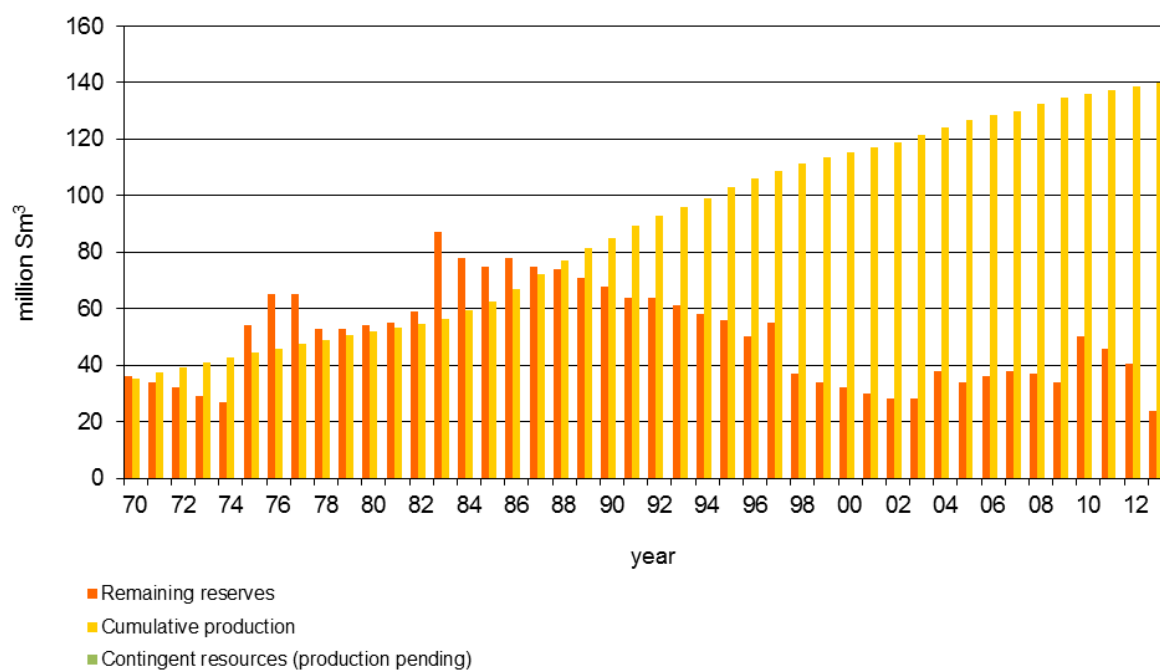
Rem Res = remaining reserves

Cont Res = contingent resources (development pending)

Cum Prod = cumulative production

Year	Territory			Continental shelf			Total			
	As at 1 Jan	Rem Res	Cont Res	Cum prod	Rem Res	Cont Res	Cum prod	Rem Res	Cont Res	Cum prod
2013		18	24	81.6	6	1	58.4	24	24	140.0

### Oil reserves and cumulative production in million Sm<sup>3</sup> 1970 – 2013



## NATURAL GAS REVENUES

Year	Non-tax moneys* (10 <sup>9</sup> €)	Corporate income tax (10 <sup>9</sup> €)	Total (10 <sup>9</sup> €)
1965	0	0	0
66	0	0.01	0.01
67	0.01	0.04	0.05
68	0.02	0.07	0.09
69	0.05	0.14	0.19
1970	0.09	0.18	0.27
71	0.14	0.27	0.41
72	0.14	0.41	0.55
73	0.23	0.54	0.77
74	0.41	0.86	1.27
1975	1.27	1.09	2.36
76	2.18	1.18	3.36
77	2.72	1.23	3.95
78	2.68	1.27	3.95
79	3.09	1.36	4.45
1980	4.36	1.91	6.27
81	6.22	2.45	8.67
82	6.35	2.45	8.8
83	6.22	2.45	8.67
84	7.40	2.54	9.94
1985	8.58	2.54	11.12
86	5.45	1.86	7.31
87	2.86	1.23	4.09
88	2.00	0.86	2.86
89	2.18	0.78	2.96
1990	2.61	0.96	3.57
91	3.72	1.17	4.89
92	3.04	1.02	4.06
93	2.83	0.95	3.78
94	2.34	0.91	3.25
1995	2.64	1.13	3.77
96	3.10	1.26	4.36
97	3.01	1.30	4.31
98	2.33	1.12	3.45
99	1.69	0.92	2.61
2000	3.02	1.47	4.49
01	4.37	1.98	6.35
02	3.67	1.58	5.25
03	4.31	1.74	6.05
04	4.74	1.94	6.68
2005	5.88	1.80	7.68
06	8.40	2.18	10.58
07	8.09	1.86	9.95
08	12.83	2.54	15.37

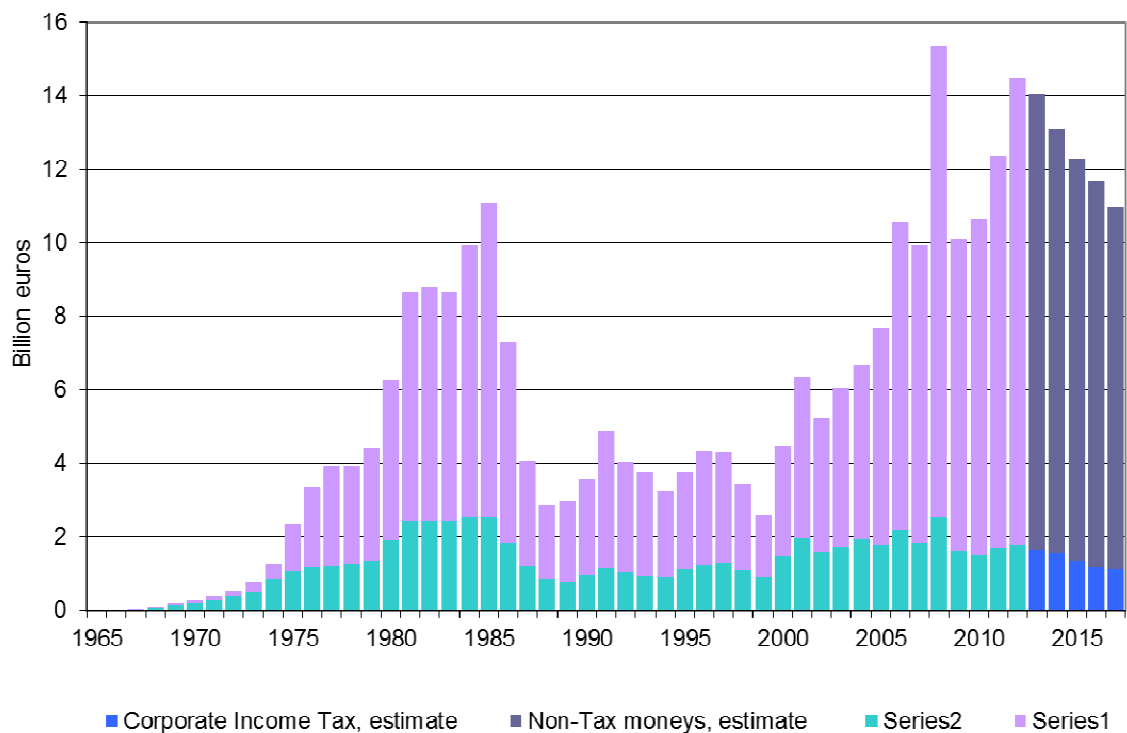
Year	Non-tax moneys* (10 <sup>9</sup> €)	Corporate income tax (10 <sup>9</sup> €)	Total (10 <sup>9</sup> €)
09	8.50	1.60	10.10
2010	9.15	1.50	10.65
11	10.66	1.73	12.39
12	12.70	1.80	14.50
<b>Prognosis</b>			
13	12.40	1.65	14.05
14	11.55	1.55	13.10
2015	10.95	1.35	12.30
16	10.50	1.20	11.70
17	9.85	1.15	11.00

The natural gas revenues are presented on a so called 'trans based'. This means that the revenues are allocated in the year in which the transaction actually took place. The actual receiving of the revenues by the state (cash based) takes place with a certain delay.

Non-tax moneys consist of: bonus, surface rentals, royalties, the State profit share, the special payments to the State on production from the Groningen accumulation and the profit distributed by Energie Beheer Nederland B.V., the participant in the production on behalf of the State.

The estimation for the years 2013 up to and including 2017 are amongst others based on oil price scenarios of the TTF. This implies an oil price of 26 eurocent per cubic meter Groningengas for the entire period.

**Natural gas revenues. 1965 – 2017**



## AUTHORITIES CONCERNED WITH MINING OPERATIONS

### Ministry of Economic Affairs

#### Energy Market Directorate

Address: Ministry of Economic Affairs  
 Directoraat-Generaal voor Energie, Telecom en Mededinging  
 Directie Energiemarkt

Bezuidenhoutseweg 73	PO Box 20401
2594 AC The Hague	2500 EK The Hague
The Netherlands	The Netherlands
Telephone : +31 70 3798911	
Fax : +31 70 3794081	
<a href="http://www.rijksoverheid.nl">www.rijksoverheid.nl</a>	

### TNO – Advisory Group Economic Affairs

Address: TNO – Advisory Group Economic Affairs

Princetonlaan 6	PO Box 80015
3584 CB Utrecht	3508 EC Utrecht
The Netherlands	The Netherlands
Telephone : +31 88 866 46 00	
Fax : +31 88 866 45 05	
E-mail : <a href="mailto:nlog@tno.nl">nlog@tno.nl</a>	
<a href="http://www.tno.nl">www.tno.nl</a>	

### State Supervision of Mines (Staatstoezicht op de Mijnen) (a department of the Ministry of Economic Affairs)

Address: State Supervision of Mines

Henri Faasdreef 312	Postbus 24037
2492 JP The Hague	2490 AA The Hague
Telephone : +31 70 379 8400	
Fax : +31 70 379 8455	
E-mail : <a href="mailto:info@sodm.nl">info@sodm.nl</a>	
<a href="http://www.sodm.nl">www.sodm.nl</a>	

### Netherlands Oil and Gas Portal.

[www.nlog.nl](http://www.nlog.nl)

The Netherlands Oil and Gas Portal provides information about natural resources and geothermal energy in the Netherlands and the Dutch sector of the North Sea Continental Shelf. It aims to help users to access information furnished by the Dutch government in an easy, comprehensible fashion. The portal is produced at the request of the Dutch Ministry of Economic Affairs and is being managed by TNO, *Geological Survey of the Netherlands*.

## DEFINITIONS OF SELECTED TERMS

### **Territory or Netherlands territory:**

in this review, territory and Netherlands territory denotes: the Netherlands mainland and that part of the Netherlands territorial waters located on the landward side of the line referred to in article 1, sub c, of the Mining Act.

### **Continental Shelf:**

in this review, Continental Shelf denotes: 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 article 1, sub c, of the Mining Act.

### **Reconnaissance licence:**

a licence to carry out a reconnaissance survey on the Continental Shelf; as from the 1 January 2003 a reconnaissance survey is only required for certain areas.

### **Exploration licence:**

a licence to carry out exploration for the mineral resources specified in the licence.

### **Production licence:**

a licence to produce the mineral resources specified in the licence, and also to carry out exploration for these mineral resources.

### **Seismic surveying:**

this review differentiates between 2D and 3D seismic techniques. Two-dimensional seismic surveying has a long tradition in the oil industry. This seismic technique is based on vibrations that are generated along a line on the earth's surface. These vibrations penetrate the earth's crust and are reflected by the layers within the crust. Geophones or hydrophones record the reflections. Because the vibrations do not always propagate solely in the vertical plane underneath the recording line, the representations of geological structures in 2D seismic sections only approximate the real situation. This approximation is far better for a 3D seismic survey, in which a large number of recording lines are positioned close together in a relatively small surface 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, and thus permits generating an accurate model of the geological structures at any desired location.

### **Wells:**

- exploration well (or wildcat): a well to explore a prospective underground accumulation of oil and-or gas
- appraisal well: a well drilled in order to establish the volume and extent of a reservoir after an exploration well has found hydrocarbons;
- development well: a well drilled in order to produce the reservoir;

**Gas field-oil field:**

a natural, isolated accumulation of gas and-or oil in a subsurface reservoir consisting of a porous rock that is capped or enclosed by an impermeable rock. In this review, the terms reservoir, field and accumulation are used as synonyms.

**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)**

the total volume of hydrocarbons in a reservoir that is initially (originally) present in a reservoir. This volume is calculated on the basis of the mean values of the parameters used in the calculations.

**2 Expected Initial Reserves**

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

**3 Proven Initial Reserves**

the volume of hydrocarbons in a reservoir that is estimated to be ultimately, commercially recoverable. with an expectation-curve probability of 90%.

**4 Remaining Expected Reserves**

that part of the expected initial reserves remaining after subtraction of the cumulative production, i.e. the total volume of hydrocarbons produced from the reservoir concerned by the end of the year under review. This volume is calculated on the basis of the mean values of the parameters used in the calculations.

**5 Remaining Proven Reserves**

the volume - based on the 90% expectation-curve value - of hydrocarbons that can still be extracted from a reservoir. This volume is calculated by subtracting the cumulative production from the Proven Initial Reserves.

**6 Proven Contingent Resources**

the volume of hydrocarbons in a reservoir with an expectation-curve probability of 90% that is estimated to be potentially recoverable, but are not currently considered commercially recoverable due to one or more contingencies.

**7 Expected Contingent Resources**

the volume of hydrocarbons in a reservoir that is estimated to be potentially recoverable, but are not currently considered commercially recoverable due to one or more contingencies. This volume is calculated on the basis of the mean values of the parameters used in the calculations.

**8 Future reserves**

Future reserves are the volume of hydrocarbons that have not yet been drilled by a well, but which have a certain possibility of success to contribute to the reserves in future times. The following datasets and definitions have been used to estimate the 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). Source of information to this database are the annual reports as submitted by the operating companies according to article 113 of the Mining act.

**b. Prospect Portfolio**

The selection of prospects from the Prospect database located within a “Proven Play” area.

**c. Exploration potential**

Cumulated “risked volumes” of all prospects in the prospect portfolio that meet certain selection criteria. In the series of reports on the exploration potential (published since 1992) the Prospect portfolio it was chosen to apply a threshold for the expected reserves volume per prospect. In certain reports the term “Firm Futures” has been used. This is in general synonymous to Exploration potential.

**d. Potential futures in proven plays**

Volume of gas expected to be present in not yet mapped structures in a proven play area.

**e. Potential futures in not yet proven plays**

Volume of gas expected to be present in valid, but not yet proven plays in the Netherlands.

**f. Potential futures in hypothetical plays**

Volume of gas in plays of which one or more of the basic play elements such as reservoir, seal and source rock are not yet known.

The term ‘expected’ in the definitions above should be interpreted in the statistical sense of the word. The stated figure represents the expected value. The following explanation may be useful. All data that are 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 these values will be achieved or exceeded. As production from a hydrocarbon reservoir progresses, several 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 available of the volume of hydrocarbons actually 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 reporting date, 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. This way, the uncertainties inherent to all reserve estimates are accounted for. The result of applying the probabilistic summation method is that the total figure obtained for the proven reserves according to the definition, now indeed represents the proven proportion of total Dutch reserves in a statistically more reliable manner. In other words, there is a 90% probability that reserves will actually exceed the value stated.



## Exploration Potential

Calculating the exploration potential using a discounted cash flow model requires a set of parameters. The most imported parameters for the economic prospect evaluation are: Oil price (99\$), Euro-dollar exchange rate (1.2), Deduction of costs based on “Unit Of Production” and the standard GasTerra depletion rules. Important scenario parameters are: the number of exploration wells per year (10) and the incorporation of the growth and decline of the infrastructure.

The model ExploSim is used to calculate the exploration potential. A detailed description can be found 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. q Petroleum Geology Conferences Ltd. Published by the Geological Society, London.

### Units:

**Standard m<sup>3</sup>:** Natural gas and oil reserves are expressed in m<sup>3</sup> at a pressure of 101.325 kPa (or 1.01325 bar) and 15°C. This m<sup>3</sup> is defined as Standard m<sup>3</sup> in Standard no. 5024-1976(E) of the International Organization for Standardization (ISO), and is normally abbreviated to Sm<sup>3</sup>.

**Normal m<sup>3</sup>:** Natural gas and oil reserves are expressed in m<sup>3</sup> at a pressure of 101.325 kPa (or 1.01325 bar) and 0°C. This m<sup>3</sup> is defined as Normal m<sup>3</sup> in Standard no. 5024-1976(E) of the International Organization for Standardization (ISO), and is normally abbreviated to Nm<sup>3</sup>.

**Groningen gas equivalent:** For the purpose of performing calculations with volumes of natural gas of varying qualities, these are converted to a Groningen gas equivalent. This is achieved by converting a volume of gas from an accumulation that produces a different quality of gas, to a (fictitious) volume of gas of the quality of the Groningen accumulation (35.17 Mega joules upper value per m<sup>3</sup> of 0°C and 101.325 kPa. or 1.01325 bar). One Nm<sup>3</sup> gas that has a calorific value of 36.5 MJ equals 36.5-35.17 m<sup>3</sup> Groningen gas equivalent (Geq)

The term Groningen gas equivalent is also commonly used by the N.V. Nederlandse Gasunie.

Figures stated in Groningen gas equivalent can be converted simply into equivalents for other fuels, such as Tons Oil Equivalent (TOE) and Coal Equivalent (CE).

Fuel name	Expressed in	Giga Joules	Giga calories	Oil equiv. tonnes	Oil equiv. barrels	Coal equivalent tonnes	Natural Gas equivalent 1.000 m <sup>3</sup>
Firewood (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
Cokes	tonnes	28.50	6.81	0.68	4.97	0.97	0.90
Cokes oven gas	1,000 m <sup>3</sup>	17.60	4.20	0.42	3.07	0.60	0.56
Blast furnace gas	1,000 m <sup>3</sup>	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	1,000 m <sup>3</sup>	46.10	11.01	1.10	8.04	1.57	1.46
LPG	1,000 m <sup>3</sup>	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
Jet fuel	tonnes	43.49	10.39	1.04	7.58	1.48	1.37
Gasoline	tonnes	44.00	10.51	1.05	7.67	1.50	1.39
Kerosene	tonnes	43.11	10.29	1.03	7.52	1.47	1.36
Light 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 cokes	tonnes	35.20	8.41	0.84	6.14	1.20	1.11
Natural gas	1,000 m <sup>3</sup>	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

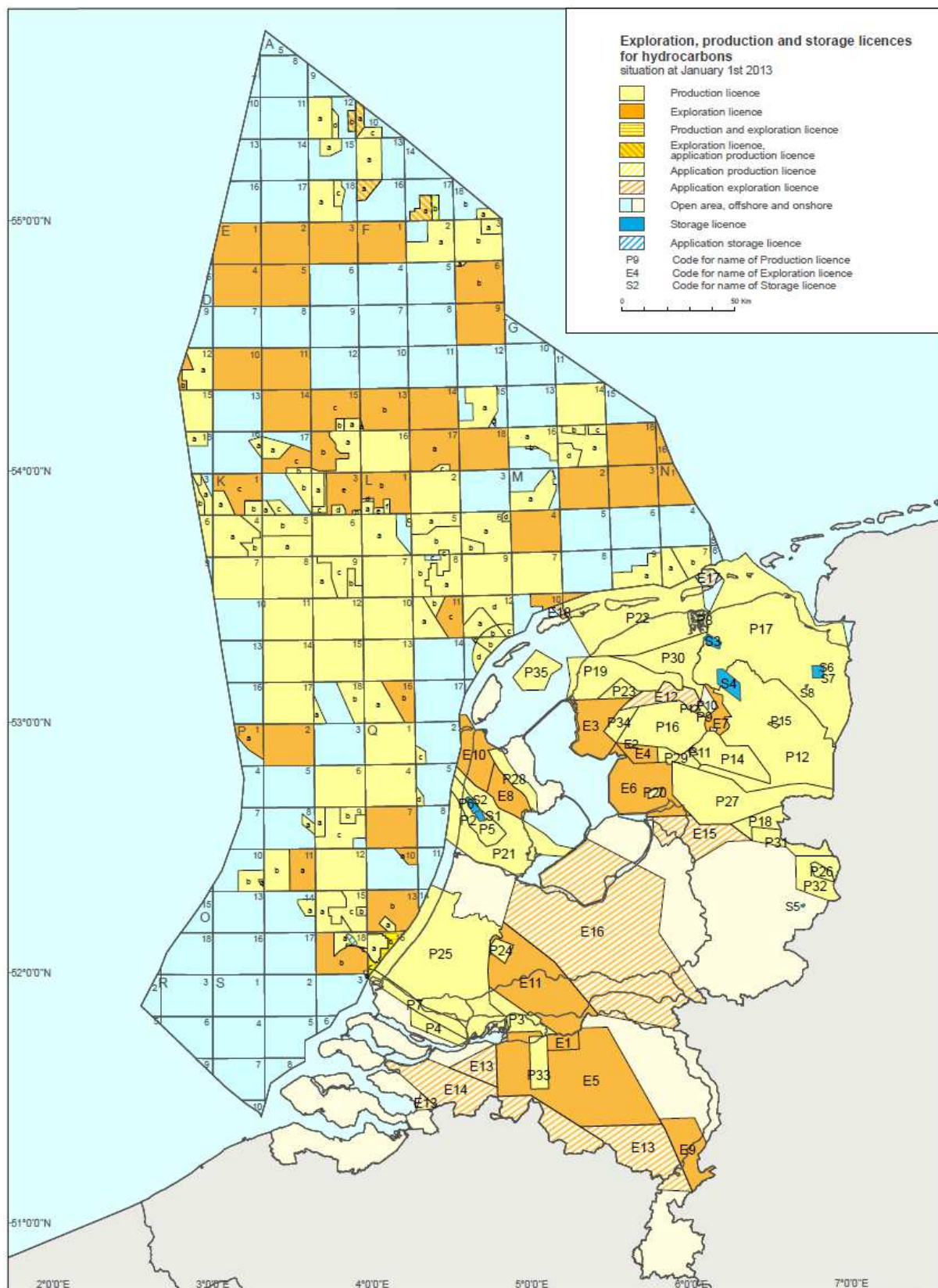
\* In this energy conversion table, the energy value of an MWh electricity is to be understood as the energy content of a generated unit of electricity. In order to produce this unit of energy, more energy is necessary. The amount of energy required depends on the efficiency of the conversion.

## APPENDICES

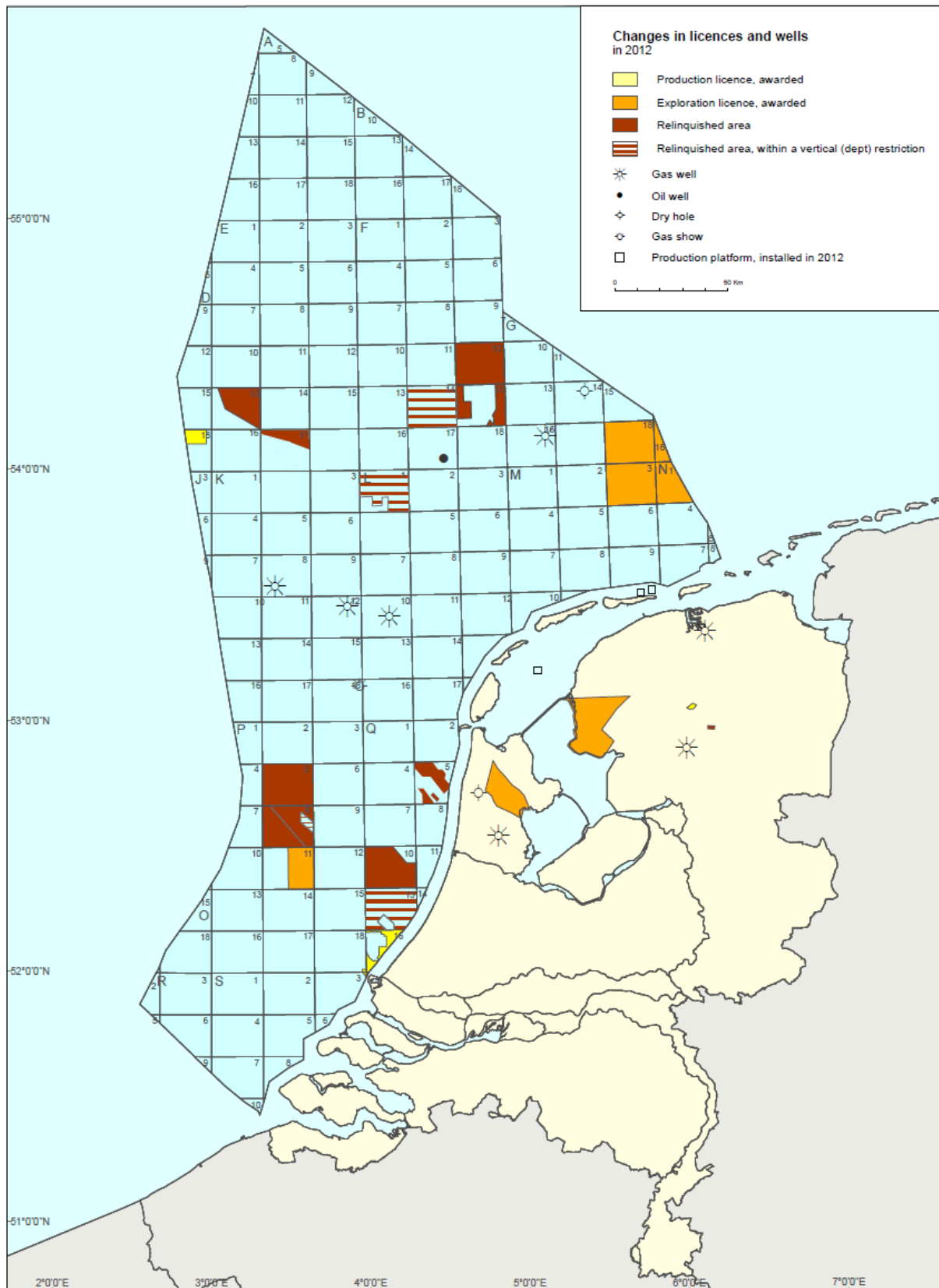
## Exploration, production and storage licences as at 1 January 2013

Names of the exploration, production and storage licences, Netherlands Territory, as indicated on opposite page.

<b>Exploration licences</b>			
E1	Engelen	E7	Oosterwolde
E2	Follega	E8	Opmeer
E3	Hemelum	E9	Peel
E4	Lemsterland	E10	Schagen
E5	Noord-Brabant	E11	Utrecht
E6	Noordoostpolder		
<b>Applications for exploration licence</b>			
E12	Akkrum	E16	Midden-Nederland
E13	Breda-Maas	E17	Schiermonnikoog-Noord
E14	De Kempen	E18	Terschelling-Noord
E15	IJsselmuiden		
<b>Production licences</b>			
P1	Akkrum 11	P19	Leeuwarden
P2	Alkmaar	P20	Marknesse
P3	Andel V	P21	Middelie
P4	Beijerland	P22	Noord-Friesland
P5	Bergen II	P23	Oosterend
P6	Bergermeer	P24	Papekop
P7	Botlek	P25	Rijswijk
P8	De Marne	P26	Rossum-De Lutte
P9	Donkerbroek	P27	Schoonebeek
P10	Donkerbroek-West	P28	Slootdorp
P11	Drenthe IIA	P29	Steenwijk
P12	Drenthe IIB	P30	Tietjerksteradeel
P13	Drenthe IIIA	P31	Tubbergen
P14	Drenthe IIIB	P32	Twenthe
P15	Drenthe IV	P33	Waalwijk
P16	Gorredijk	P34	Zuid-Friesland III
P17	Groningen	P35	Zuidwal
P18	Hardenberg		
<b>Storage licence</b>			
S1	Alkmaar	S5	Twenthe-Rijn De Marssteden
S2	Bergermeer	S6	Winschoten II
S3	Grijpskerk	S7	Winschoten III
S4	Norg	S8	Zuidwending

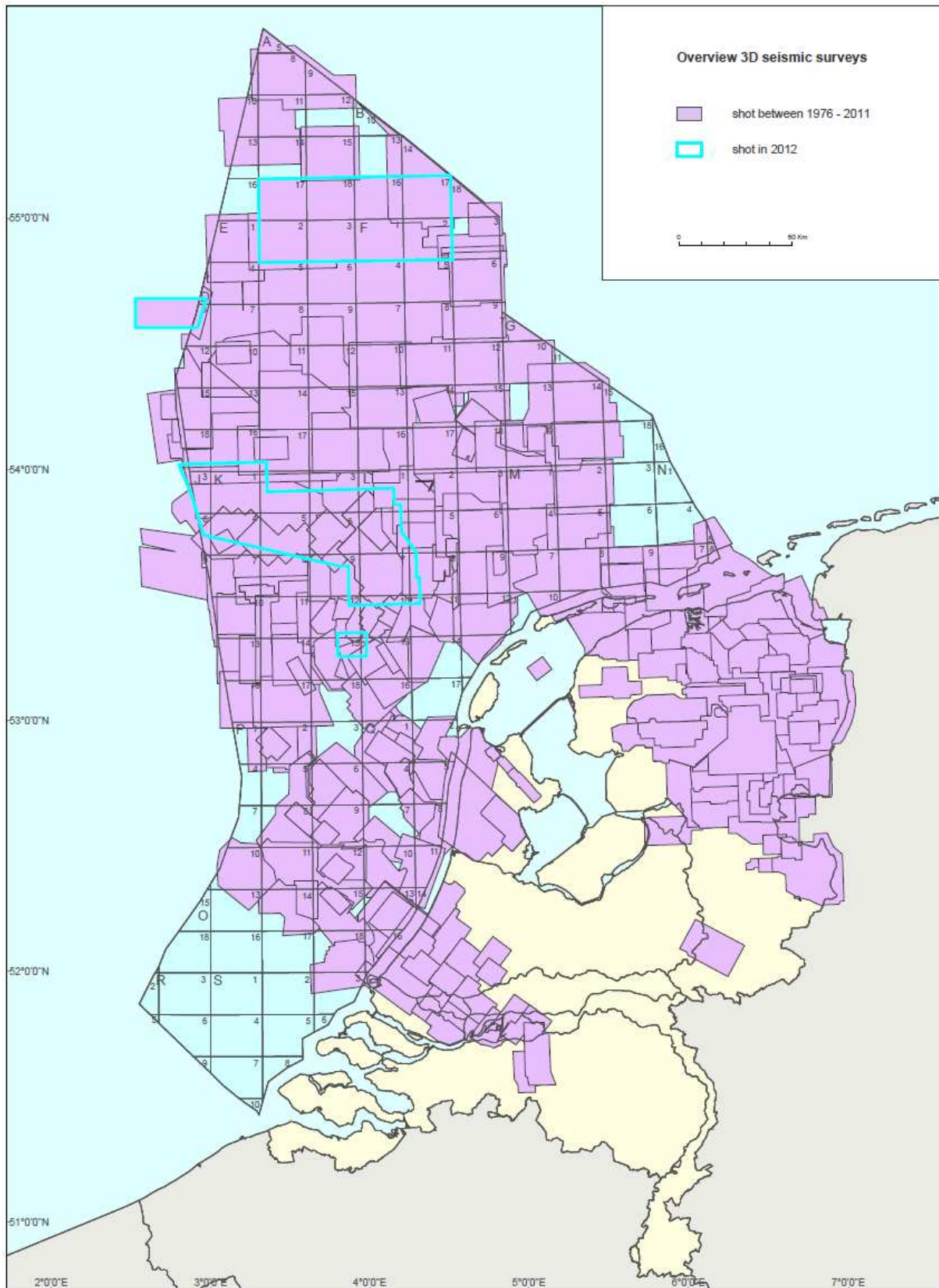


## **Wells and changes in licence situation in 2012**

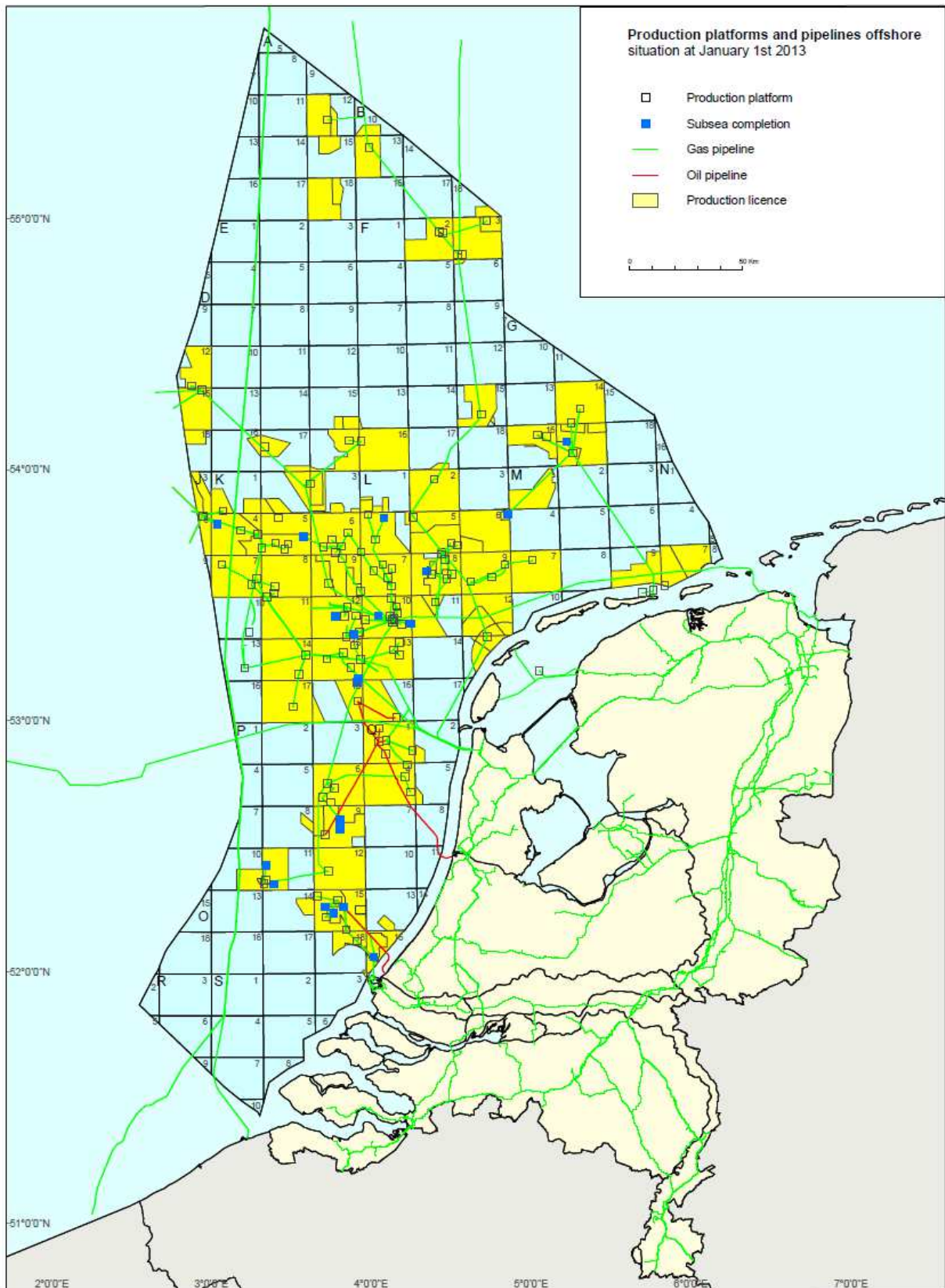


## Summary of 3D seismic surveys

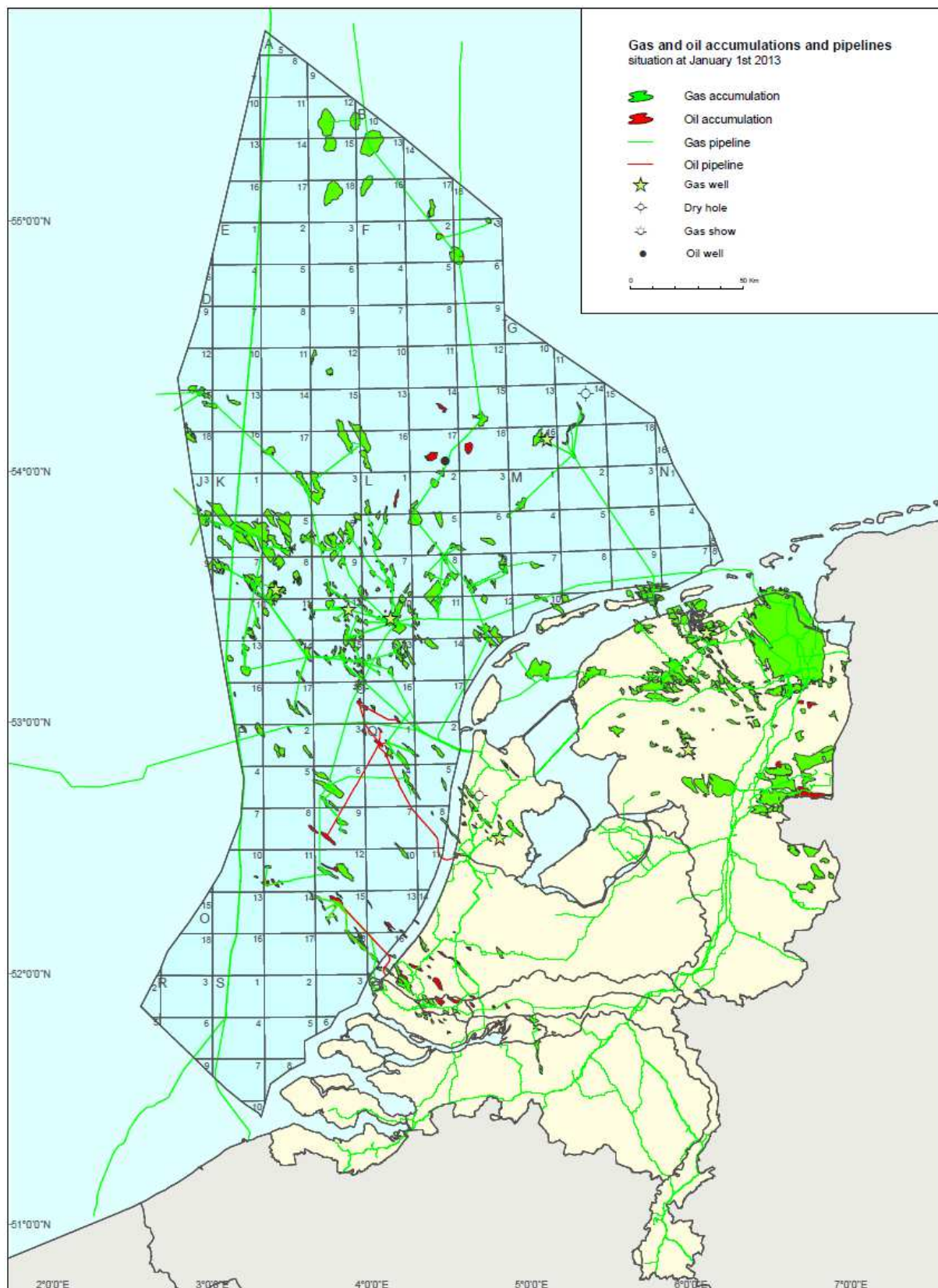




## **Production platforms and pipelines**



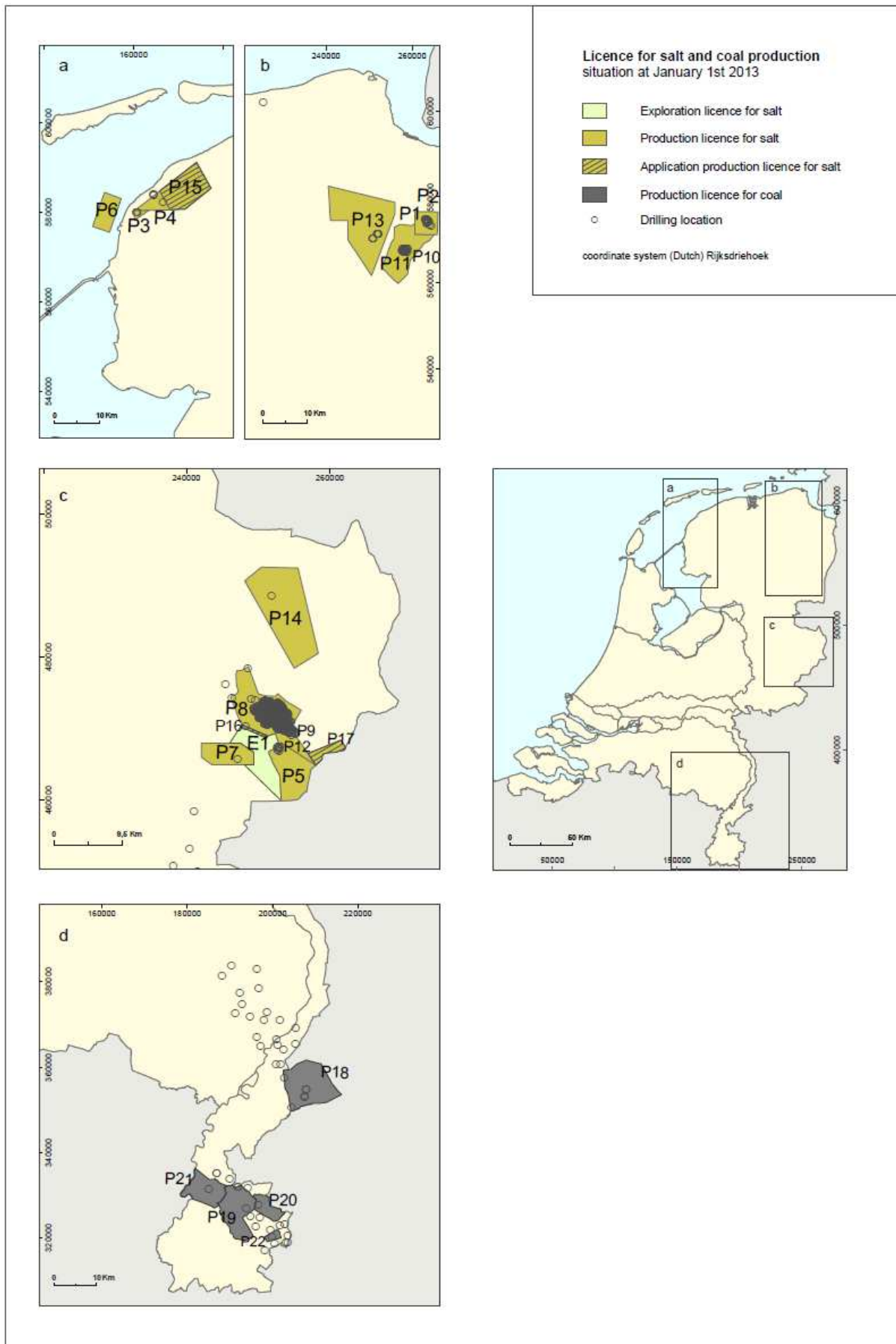
## **Gas and oil accumulations and pipelines as at 1 January 2013**



## Coal and rocksalt licences as at 1 January 2013

Onshore exploration and production licence names for rocksalt and coal. as indicated on the map on the next page:

<b>Exploration licences for rocksalt</b>	
E1	Zuidoost-Twente
<b>Production licences for rocksalt</b>	
P1	Adolf van Nassau II
P2	Adolf van Nassau III
P3	Barradeel
P4	Barradeel II
P5	Burse
P6	Havenmond
P7	Isidorushoeve
P8	Twenthe-Rijn
P9	Twenthe-Rijn Helmerzijde
P10	Uitbreiding Adolf van Nassau II
P11	Uitbreiding Adolf van Nassau III
P12	Uitbreiding Twenthe-Rijn
P13	Veendam
P14	Weerselo
<b>Production licence applications for rocksalt</b>	
P15	Barradeel-Oost
P16	Twenthe-Rijn Oude Maten
P17	Zuidoost-Enschede
<b>Production licences for coal</b>	
P18	Beatrix
P19	Staatsmijn Emma
P20	Staatsmijn Hendrik
P21	Staatsmijn Maurits
P22	Staatsmijn Wilhelmina



## Geothermal energy licences as at 1 January 2013

Exploration and production licence names for geothermal energy as indicated on the map on the next page:

<b>Exploration licences</b>					
E1	Aalsmeer	E26	Est	E51	Oostvoorne
E2	Amstelveen	E27	Groningen 2	E52	Pijnacker-Nootdorp
E3	Andijk	E28	Haarlemmermeer	E53	Pijnacker-Nootdorp 3
E4	Asten	E29	Heemskerk	E54	Pijnacker-Nootdorp 4
E5	Berkel en Rodenrijs I	E30	Helmond	E55	Pijnacker-Nootdorp 5
E6	Berlikum	E31	Hengelo	E56	Pijnacker-Nootdorp 6
E7	Bleiswijk	E32	Honselersdijk	E57	Purmerend
E8	Bleiswijk 2	E33	Honselersdijk 2	E58	Rotterdam
E9	Bleiswijk 3	E34	Honselersdijk 3	E59	Rotterdam 2
E10	Bleiswijk 4	E35	Horst	E60	Rotterdam 3
E11	Bleiswijk 5	E36	Kampen	E61	Rotterdam 4
E12	Brielle	E37	Klazienaveen	E62	Rotterdam 5
E13	Brielle 2	E38	Koekoekspolder II	E63	Rotterdam 6-Trias
E14	Californie I	E39	Lansingerland	E64	Rozenburg
E15	Californie 2	E40	Maasbree	E65	Sexbierum
E16	De Kwakel	E41	Maasdijk	E66	Texel
E17	De Lier	E42	Maasland	E67	Vierpolders
E18	De Lier 3	E43	Maasland 2	E68	Waddinxveen
E19	De Lier 4	E44	Made	E69	Waddinxveen 2
E20	Delft IV	E45	Middenmeer	E70	Werkendam
E21	Den Haag	E46	Middenmeer 2	E71	Westland
E22	Den Haag 2	E47	Mijdrecht	E72	Zevenhuizen
E23	Dinteloord	E48	Monster	E73	Zevenhuizen- Moerkapelle
E24	Emmen	E49	Naaldwijk		
E25	Erica	E50	Naaldwijk 2		
<b>Exploration licence applications</b>					
E74	's-Gravenzande	E83	Franekeradeel	E92	Luttelgeest
E75	's-Hertogenbosch	E84	FrieslandE84	E93	Monster 2
E76	Amsterdam	E85	Haarlemmermeer 2	E94	Nieuwkoop
E77	Baarn	E86	Harmelerwaard	E95	Rotterdam-Vlaardingen
E78	Bommelerwaard	E87	Heemskerk 2	E96	Tilburg-Geertruidenberg
E79	Delfzijl	E88	Helmond 2	E97	Utrecht-Noord Brabant
E80	Eemmond	E89	Hoogeveen	E98	Wervershoof
E81	Eemmond 2	E90	Lansingerland 3	E99	Zuidoost-Drenthe
E82	Eindhoven	E91	Lingewaard		
<b>Production licences</b>					
P1	Bleiswijk	P2	Heerlen		
<b>Production licence applications</b>					
P3	Bleiswijk 2	P4	Den Haag		

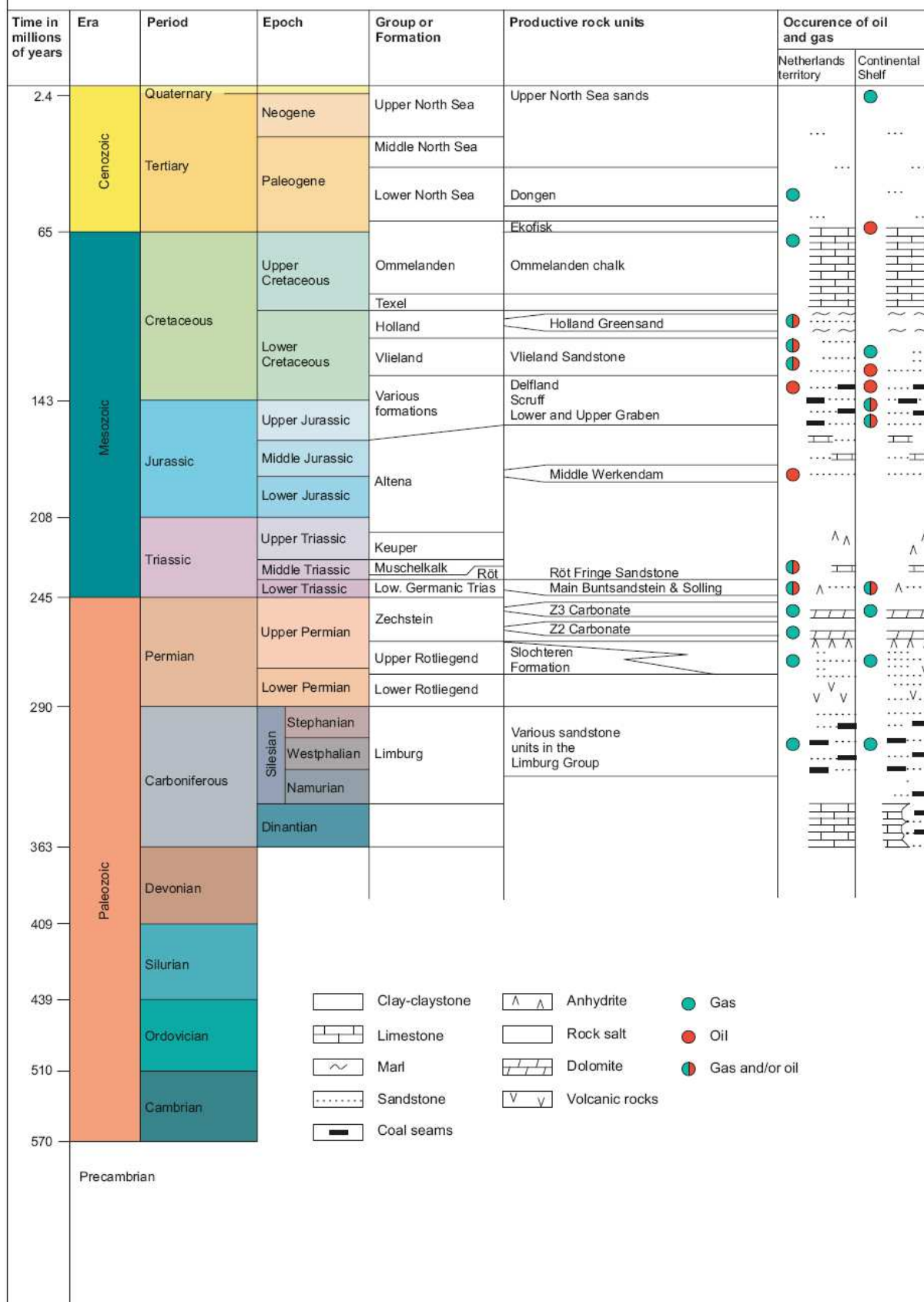




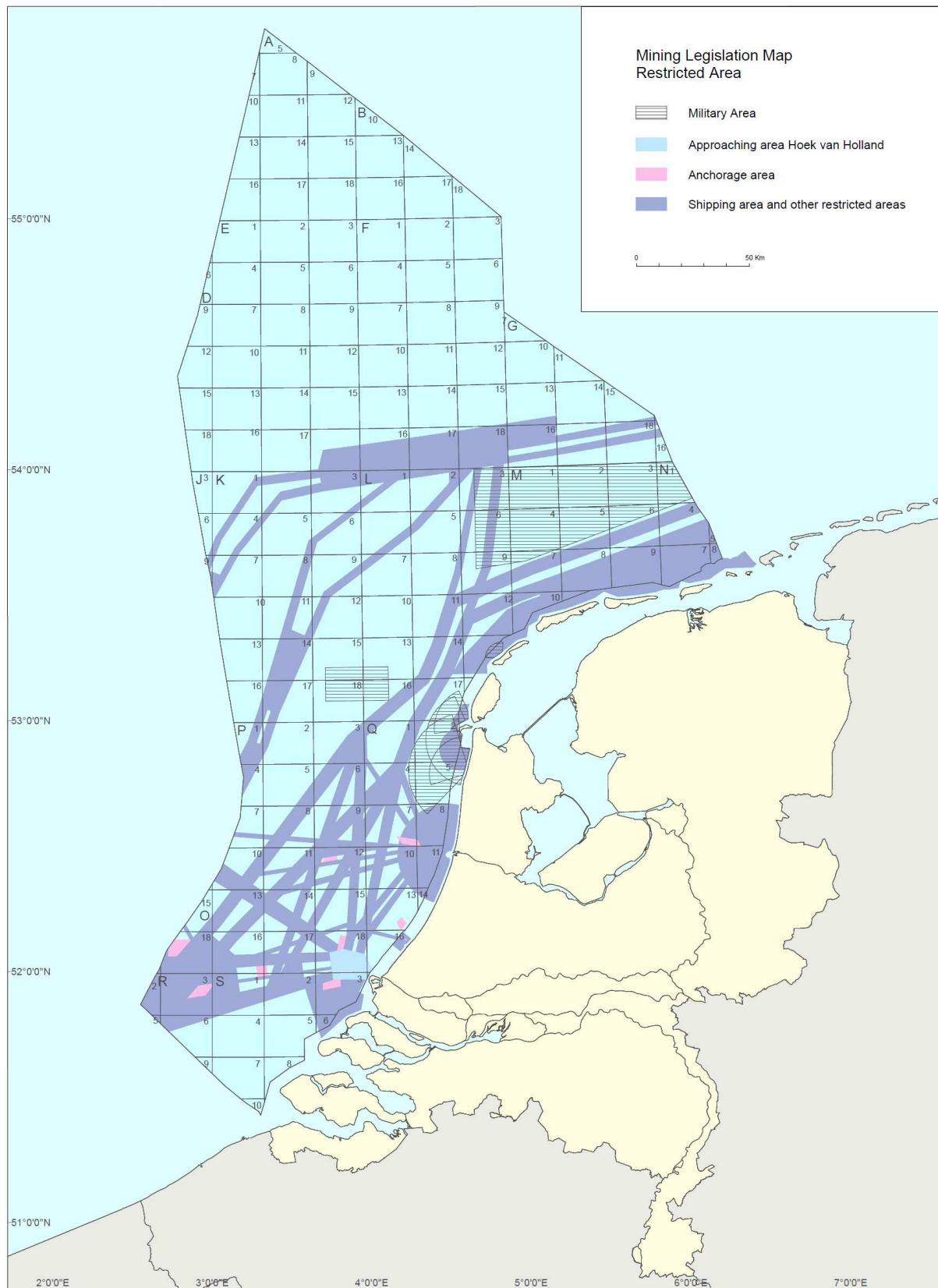
## Geological time scale

# Geological time scale

with composite stratigraphic column  
of the Netherlands and the Continental Shelf



## Mining Legislation Map

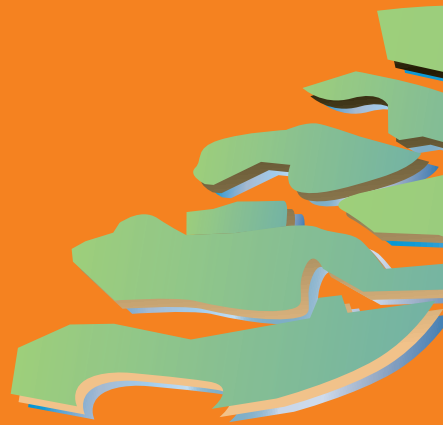








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