

10. UNDERGROUND STORAGE

As of 1 January 2011 a total of nine 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 storage licence for gas oil (Twenthe-Rijn De Marssteden) and one storage licence for salt water (Zevenbergen). The increased differentiation of stored materials is both a matter of policy impact as well as market development

In 2010 Gasunie Underground Storage B.V. opened the first underground gas storage facility in salt caverns in Zuidwending. Electricité de France (EDF) was awarded an exploration licence for rock salt for an area in the vicinity of Pieterburen (Groningen). Similar to the Zuidwending storage facility EDF will explore the feasibility of the underground storage of natural gas in salt caverns.

The storage licence *Barendrecht* which was applied for in 2008 has not been awarded TAQA offshore B.V. has applied for a storage licence in the offshore block P18a for storage of CO₂ in a depleted gas field..

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. Storage of gas oil is part of the strategic energy reserves of the Netherlands. The storage of brackish water concerns a 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.

STORAGE LICENCES, Netherlands Territory as at 1 January 2011

Applied for

Licence	Datum	Storage of	Applicant(s)
Waalwijk-Noord *	26-04-04	natural gas	Northern cs

* Current application, formerly published in Annual Report Natural resources and geothermal energy in the Netherlands

Rejected

Licence	Datum	Storage of	Applicant(s)
Barendrecht	05-11-10	CO ₂	Shell CO ₂ Storage B.V.

Awarded

Licence holder	Licence	Storage of	In force	km ²
Akzo Nobel Salt B.V.	Twente-Rijn De Marssteden	gas oil	02-10-10	2
			Total	2

Lapsed/relinquished

Licence holder	Licence	Storage of	In force	km ²
Vitens Friesland	Noardburgum	Brackish water	01-01-11	1
			Totaal	1

Splitted

Licence holder	Licence	Storage of	In force	km ²
- Original				
Akzo Nobel Salt B.V.	Winschoten	Nitrogen		28
- After splitting				
Akzo Nobel Salt B.V.	Winschoten II	Nitrogen	15-11-10	<1
Akzo Nobel Salt B.V.	Winschoten III	Nitrogen	15-11-10	28

STORAGE LICENCES, Continental Shelf changes in 2010

Applied for

Licence	Storage of	Date	Applicant
P18a	CO ₂	30-06-10	TAQA Offshore B.V.

STORAGE LICENCES, Company changes in 2010

The following tables present the company changes which took place during 2010, as a result of mutations in consortiums of companies that participate in the storage licences.

Licence	Relinquishing company	Acquiring company	In force	Government Gazette
Bergermeer	Dyas B.V. Petro-Canada Netherlands B.V.	-	28-08-10	13 642
Zuidwending	-	Nuon Storage B.V.	01-09-10	13 750
Winschoten II	Akzo Nobel Salt B.V.	N.V. Nederlandse Gasunie	15-11-10	18 321

Name changes

Previous Company	New Company
Nuon Zuidwending B.V.	Gasunie Underground Storage B.V.

STORAGE OF NATURAL GAS in 2010

The table below shows the volume of natural gas that has been injected into, respectively discharged from a storage facility in the Netherlands in 2010. The following tables shows the monthly volumes per storage facility. The information was submitted by the licence holders. The tables give the volumes in in Sm³ and Nm³.

(Natural) Gas storage in 2010	10 ⁶ Sm ³	10 ⁶ Nm ³
Injection	5898	5591
Discharge	4176	3959

INJECTION (in million Sm³)

Licence	Operator	Total	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
Alkmaar	Taqa	396	0	0	0	0	12	115	118	119	33	0	0	0
Bergermeer	Taqa	1140	0	82	107	104	108	104	103	118	115	115	102	81
Grijpskerk	NAM	1963	0	0	0	272	390	337	295	335	335	0	0	0
Norg	NAM	2027	0	0	0	192	381	382	367	380	325	0	0	0
Zuidwending	Gasunie	372	0	0	0	29	39	42	15	79	81	75	0	12
Totaal		5898	0	82	107	598	929	980	897	1030	890	190	102	94

INJECTION (in million Nm³)

Licence	Operator	Total	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
Alkmaar	Taqa	375	0	0	0	0	11	109	111	113	32	0	0	0
Bergermeer	Taqa	1081	0	78	102	98	102	99	98	112	109	109	96	77
Grijpskerk	NAM	1861	0	0	0	258	369	319	279	317	318	0	0	0
Norg	NAM	1921	0	0	0	182	361	362	348	360	309	0	0	0
Zuidwending	Gasunie	352	0	0	0	28	37	40	14	75	77	71	0	12
Totaal		5591	0	78	102	567	881	929	850	976	844	180	96	89

DISCHARGE (in million Sm³)

Licence	Operator	Total	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
Alkmaar	Taqa	161	0	40	23	0	0	0	0	0	0	22	51	26
Bergermee	Taqa	0	0	0	0	0	0	0	0	0	0	0	0	0
Grijpskerk	NAM	1963	354	426	379	5	0	0	0	0	0	8	310	479
Norg	NAM	2053	688	359	26	0	0	0	0	0	0	29	220	730
Zuidwending	Gasunie	0	0	0	0	0	0	0	0	0	0	0	0	0
Totaal		4176	1042	825	428	5	0	0	0	0	0	59	582	1236

DISCHARGE (in million Nm³)

Licence	Operator	Total	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
Alkmaar	Taqa	153	0	37	22	0	0	0	0	0	0	21	48	24
Bergermeer	Taqa	0	0	0	0	0	0	0	0	0	0	0	0	0
Grijpskerk	NAM	1860	335	404	360	5	0	0	0	0	0	8	294	454
Norg	NAM	1946	652	340	25	0	0	0	0	0	0	27	209	692
Zuidwending	Gasunie	0	0	0	0	0	0	0	0	0	0	0	0	0
Totaal		3959	987	782	406	5	0	0	0	0	0	56	551	1171

STORAGE LICENCES, Netherlands Territory as at 1 January 2011

	Licence holder	Licence	km ²	Awarded	Date of expiry	Government Gazette
1	Akzo Nobel Salt B.V.	Twenthe-Rijn De Marssteden	2	02/10/2010	12/11/2040	15 650
2	Akzo Nobel Salt B.V.	Winschoten III	28	15/11/2010	13/05/2079	18 321
3	Brabant Water N.V.	Zevenbergen	1	19/12/2008	19/12/2012	2009/3
4	N.V. Nederlandse Gasunie	Winschoten III	<1	15/11/2010	13/05/2079	18 321
5	N.V. Nederlandse Gasunie 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
6	Nederlandse Aardolie Maatschappij B.V.	Grijpskerk	27	01/04/2003		67
7	Nederlandse Aardolie Maatschappij B.V.	Norg	81	01/04/2003		68
8	TAQA Onshore B.V.	Bergermeer	19	08/01/2007	30/06/2050	7
9	TAQA Piek Gas B.V. Dana Petroleum Netherlands B.V. Dyas B.V.	Alkmaar	12	01/04/2003		68
		Total	172	km ²		