

7

Petroleum resources



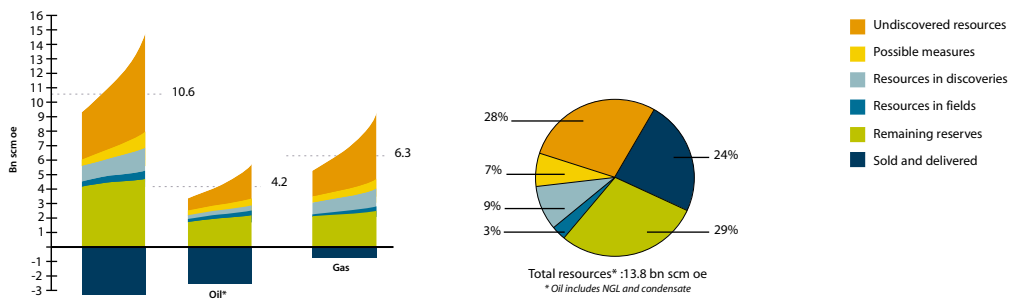


Figure 7.1 Status for petroleum resources and the uncertainty in the estimates (Source:NPD).

Discovered and undiscovered resources on the NCS are expected to total roughly 13.8 bn scm oe. This represents a slight increase of about 200 mill scm oe from 2000. Production to date amounts to 3.25 bn scm oe, corresponding to 24 per cent of total resources.

Remaining recoverable resources total 10.6 bn scm oe, of which proven reserves total 5.7 bn scm oe. In addition, possible future measures for improving oil recovery from fields are expected to add just under one bn scm oe.

The NPD introduced a new classification system for Norway's offshore petroleum resources during 2001. These changes mean that figures broken down in older reports cannot be directly compared with those in the 2001 accounts.

Important changes are:

- Petroleum volumes in fields in production which could be produced without significant investment, can be reported as reserves. This includes substantial gas volumes in Troll and Oseberg which were previously classified as resources in higher resource classes.
- Reserves are now defined as a separate class confined to remaining reserves. This embraces the following categories: fields in production, fields approved for development and discoveries which the licensees have decided to develop.
- Resources in the planning phase now have a time horizon of about four years until an anticipated plan for development and operation (PDO).
- Discovered resources not yet in production are designated contingent resources.

To be able to compare the resource accounts for 2001 with the previous year, the accounts for

2000 have been reclassified in accordance with the new system. The accounts show the estimated value of resources.

Exploration activity off Norway in 2001 was relatively high, with a technical discovery rate of no less than 60 per cent. However, most of these finds were small and cover in total only about two months of oil production and five months of gas output.

Table 7.1 presents produced reserves, remaining reserves and contingent resources on the NCS. These figures are supplemented by the future potential for improved resource utilisation, put at almost one bn scm oe. This is shown in the total resources, but not broken down for the North, Norwegian or Barents Seas. In addition come undiscovered resources, which total 3.9 bn scm oe.

Cumulative output since petroleum production began off Norway in 1971 amounts to 3.25 bn scm oe. Overall production in 2001 amounted to 251 mill scm oe.

Of producing fields at 31 December 2001, 37 were in the North Sea and five in the Norwegian Sea. In addition, nine fields had development plans approved but were not yet on stream (including Snøhvit).

Undiscovered petroleum resources on the NCS are put at 3.9 bn scm oe, with a large uncertainty range of 1.5 to seven bn scm oe. About 30 per cent of this total is thought to lie in the North Sea, 45 per cent in the Norwegian Sea and 25 per cent in the Barents Sea. Gas accounts for 64 per cent of the total.

Remaining reserves increased by a total of 116 mill scm oe in 2001. Gas reserves were up by 166 bn scm, but oil reserves declined by 110 mill scm. Resources in fields sank by about 162 mill scm oe.

Twelve new discoveries were made in 2001,

Table 7.1 Total recoverable potential and remaining proven reserves and resources at 1 Jan 2002. (Source: NPD)

Total recoverable potential	Resource accounts at 31.12.01					Changes from 2000				
	Oil	Gas	NGL	Cond	Total	Oil	Gas	NGL	Cond	Total
Project status category	mill scm	bn scm	mill tonnes	mill scm	mill scm oe	mill scm	bn scm	mill tonnes	mill scm	mill scm oe
Produced	2 368	730	57	50	3 258	181	53	5	7	251
Remaining reserves**	1 501	2 189	111	131	4 033	-110	166	15	30	116
Contingent resources in fields	221	173	20	16	447	-19	-75	-12	-44	-162
Contingent resources in discoveries	189	972	16	73	1 264	1	-150	-5	-40	-198
Total remaining proven reserves and resources	1 912	3 333	147	219	5 745	-128	-59	-2	-55	-245
Possible future measures for improved recovery*	400	500			900	-25	0			-25
Undiscovered	1 420	2 510			3 930	70	110			180
Total NCS	6 100	7 074	205	270	13 832	98	104	3	-47	161
North Sea										
Produced	2 150	721	56	49	3 027	136	47	4	6	197
Remaining reserves**	1 224	1 740	63	32	3 115	-76	-56	-2	-25	-161
Contingent resources in fields	201	115	13	6	346	-18	1	6	-2	-8
Contingent resources in discoveries	102	204	3	24	336	5	1	-3	-3	-3
Total remaining proven reserves and resources	1 528	2 059	78	62	3 798	-90	-54	1	-30	-171
Undiscovered	630	570			1 200	8	22			30
Total	4 308	3 350	135	111	8 025	54	15	5	-24	55
Norwegian Sea										
Produced	218	9	1	1	230	45	6	1	1	54
Remaining reserves**	277	285	44	81	726	-34	58	12	37	85
Contingent resources in fields	20	58	7	10	101	0	-76	-19	-42	-154
Contingent resources in discoveries	70	715	13	46	855	10	-6	4	-19	-7
Total remaining proven reserves and resources	367	1 058	64	137	1 683	-24	-24	-2	-24	-77
Undiscovered	480	1 270			1 750	75	81			156
Total	1 064	2 337	65	139	3 663	96	63	-1	-23	133
Barents Sea										
Produced	0	0	0	0	0	0	0	0	0	0
Remaining reserves**	0	164	5	18	191	0	164	5	18	191
Contingent resources in fields	0	0	0	0	0	0	0	0	0	0
Contingent resources in discoveries	18	53	0	2	73	-14	-145	-6	-18	-188
Total remaining proven reserves and resources	18	217	5	20	264	-14	19	-1	0	3
Undiscovered	310	670			980	-13	7			-6
Total	328	887	5	20	1 244	-27	26	-1	0	-3

* Resources from future IOR measures are registered at the aggregate level, and no division has been made between the various regions.

** Includes resource categories 1, 2 and 3 (see the explanation on page 75).

with overall resources in the order of 33-38 million scm of oil and 15-22 bn scm of gas. Contingent resources in discoveries declined by roughly 200 mill scm oe, despite the new finds. The most important reason for the reduction is that Kristin, Mikkjel, Sigyn, Snøhvit, Vale, Fram and Tune have been reclassified as reserves after the licensees decided to develop.

A total of 6.8 bn scm oe has been found in the North Sea. Of this, three bn scm oe has been produced and remaining reserves amount to 3.1 bn scm oe. Oil accounts for about 40 per cent of this. Remaining reserves in the North Sea declined by about 160 mill scm oe as a result of production in 2001. Six new fields have been approved for development and classified as reserves. This means that resources in discoveries declined correspondingly. A review of the potential for undiscovered resources in the North Sea has resulted in a small increase of about 30 mill scm oe, primarily gas.

Discoveries in the Norwegian Sea total 1.9 bn scm oe, of which 230 mill scm oe has so far been

produced. Remaining reserves total some 700 mill scm oe, with crude oil accounting for about 38 per cent. Remaining reserves increased by 85 mill scm oe, primarily because two new fields were approved for development and thereby reclassified as reserves. That meant a significant reduction in contingent resources in discoveries. The potential for undiscovered resources was upgraded during the year by about 160 mill scm oe, with a slight preponderance of gas. This is the most important single reason why total resources on the NCS increased from 2000.

Discoveries in the Barents Sea total 300 mill scm oe. The submission of a PDO for Snøhvit means that petroleum volumes in this discovery are now classified as reserves. That in turn is the principal reason why these petroleum volumes are now booked as remaining reserves in the Barents Sea, and that contingent resources in discoveries have been reduced accordingly. A small oil discovery during 2001 made a positive contribution to continued exploration of and future production from the Barents Sea.