

16

Future developments

(Discoveries in late and early planning phases,
where a plan for development and operation is expected
to be submitted within 10 years)

Freja • Dagny • Volve • Sigyn • Vale • Skirne
Byggve • GjØa • Fram • 35/8-1 (PL 248) • Mikkel • Kristin
Lavrans • Tyrihans • SnØhvit • Ormen Lange • Skarv
Tjalve • Trym • Svale • 30/6-18 (Kappa) • 25/11-16 (PL 169)
30/9-19 (Delta) • 34/7-23 S (H West/H North)
30/6-17 (Alpha Cook) • 25/5-5 (PL 102)

2/12-1 Freja

Blocks and production licences	Block 2/12 – production licence 113. Awarded 1985.	
Operator	Amerada Hess Norge AS	
Licensees	Den norske stats oljeselskap a.s (SDFI 30%)	30%
	Amerada Hess Norge AS	50%
	Dong Efterforskning og Produktion A/S	20%
Resources	Oil: 2 mill scm Gas: 0.3 bn scm NGL: 0.1 mill tonnes	

Discovered in 1987, Freja lies east of Valhall on the boundary with the Danish continental shelf. Development plans were earlier based on a unitisation with Gert on the Danish side, but the licensees are now assessing a separate project for Freja. The concept involves an unmanned wellhead platform in about 70 metres of water tied back to Valhall or Denmark's Harald field for processing.

15/5-1 Dagny

Blocks and production licences	Block 15/6 – production licence 029. Awarded 1969.	
	Block 15/5 – production licence 048. Awarded 1977.	
Operator	Den norske stats oljeselskap a.s	
Licensees	PL O29	PL O48
	Den norske stats oljeselskap a.s (SDFI)	68.9% (30.0%)
	TotalFinaElf Exploration Norge AS	21.8%
	Norsk Hydro Produksjon a.s	9.3%
	Esso Expl & Prod Norway A/S	100%
Resources	Gas: 5.8 bn scm NGL: 1 mill tonnes Condensate: 1 mill scm	

Dagny lies north of Sleipner West. A possible development solution involves a subsea production system tied back to the Sleipner A or T platform on Sleipner East when capacity becomes available on one or other of these installations. Dagny was discovered in 1978.

15/9-19 S Volve

Block and production licence	Block 15/9 – production licence 046. Awarded 1976.	
Operator	Den norske stats oljeselskap a.s	
Licensees	Den norske stats oljeselskap a.s (SDFI 34.4%)	52.6%
	Esso Expl & Prod Norway A/S	28.0%
	TotalFinaElf Exploration Norge AS	10.0%
	Norsk Hydro Produksjon a.s	9.4%
Resources	Oil: 4.6 mill scm Gas: 0.5 bn scm NGL: 0.1 mill tonnes	

Proven in 1993, Volve lies in the Sleipner area. A possible development solution involves a wellhead platform tied back to a new processing facility under consideration for phasing in several oil fields in the Sleipner area.

16/7-4 Sigyn

Block and production licence	Block 16/7 – production licence 072. Awarded 1981.	
Operator	Esso Expl & Prod Norway A/S	
Licensees	Den norske stats oljeselskap a.s (SDFI 30%)	50%
	Esso Expl & Prod Norway A/S	40%
	Norsk Hydro Produksjon a.s	10%
Resources	Gas: 5.6 bn scm NGL: 2.6 mill tonnes Condensate: 5.6 mill scm	

Sigyn was proven in 1982 and lies in the Sleipner area. It will probably be developed with a simple phased solution, based on sending the unprocessed wellstream to a parent platform in the Sleipner area.

25/4-6 S Vale

Block and production licence	Block 25/4 – production licence 036. Awarded 1971.	
Operator	Norsk Hydro Produksjon a.s	

Licensees (rounded off to two decimal places)	Marathon Petroleum Norge A/S	46.90%
	Norsk Hydro Produksjon a.s	28.53%
	TotalFinaElf Exploration Norge AS	18.70%
	Total Norge AS	5.54%
	AS Ugland Rederi	0.32%
Resources	Gas: 2.4 bn scm Condensate: 3.1 mill scm	

Vale was found in 1991. A plan for development and operation submitted to the authorities in November 2000 calls for a subsea production solution tied back to Heimdal. These proposals will be considered by the authorities in the first half of 2001.

25/5-3 Skirne

Block and production licence	Block 25/5 – production licence 102. Awarded 1985.	
Operator	TotalFinaElf Exploration Norge AS	
Licensees	Den norske stats oljeselskap a.s (SDFI 30%)	50%
	TotalFinaElf Exploration Norge AS	20%
	Total Norge AS	20%
	Norsk Hydro Produksjon a.s	10%
Resources	Gas: 4.2 bn scm Condensate: 0.9 mill scm	

Plans call for Skirne, proven in 1990, to be developed together with Byggve using a subsea installation tied back to Heimdal. A possible development depends on cost-effective phasing-in as a satellite to Heimdal.

25/5-4 Byggve

Block and production licence	Block 25/5 – production licence 102. Awarded 1985.	
Operator	TotalFinaElf Exploration Norge AS	

Licensees	Den norske stats oljeselskap a.s (SDFI 30%)	50%
	TotalFinaElf Exploration Norge AS	20%
	Total Norge AS	20%
	Norsk Hydro Produksjon a.s	10%
Resources	Gas: 2.4 bn scm Condensate: 0.7 mill scm	

Plans call for Byggve, proven in 1991, to be developed together with Skirne using a subsea installation tied back to Heimdal. A possible development depends on cost-effective phasing-in as a satellite to Heimdal.

35/9-1 Gjølå

Blocks and production licence	Blocks 35/9 and 36/7 – production licence 153. Awarded 1988.	
Operator	Norsk Hydro Produksjon a.s	
Licensees	Den norske stats oljeselskap a.s (SDFI 30%)	50%
	Norsk Hydro Produksjon a.s	30%
	A/S Norske Shell	12%
	RWE-DEA Norge AS	8%
Resources	Oil: 7.6 mill scm Gas: 19.9 bn scm NGL: 1 mill tonnes	

The Gjølå field was proven in 1989 west of Florø and about 42 km north of Fram. Various development options are currently under consideration, including a possible unitisation with other resources in the Sogn area.

35/11-4 Fram

Blocks and production licences	Block 35/11 – production licence 090. Awarded 1984.		
	Block 31/2 – production licence 191. Awarded 1993.		
Operator	Norsk Hydro Produksjon a.s		
Licensees		PL 090	PL 191
	Den norske stats oljeselskap a.s (SDFI)	50% (30%)	60% (45%)
	Norsk Hydro Produksjon a.s	25%	30%
	Mobil Development Norway A/S	25%	10%
Resources	Oil: 30.8 mill scm Gas: 11.3 bn scm NGL: 0.6 mill tonnes		

Production	Planned plateau production is 63 000 b/d of oil
-------------------	---

Proven in 1987, the Fram discovery lies 24 km north of Troll. The partners in production licences 090, 248 and 153 have jointly assessed a unitised development of resources in the Greater Sogn area, which embraces production licence 090 (Fram), production licence 153 (Gjøa) and resources proven in production licence 248. However, these studies failed to find sufficient profitability in the project. This prompted the licensees to opt for a staged development of the Sogn area.

The Fram discovery embraces the F/C complex and the H structure. The licensees in production licence 090 submitted a plan for development and operation of Fram West (the H structure) to the authorities for approval on 21 December 2000. This proposal calls for the installation of two templates tied back to Troll C, where the wellstream would be processed and the oil sent to Mongstad through Troll Oil Pipeline II. Associated gas would be injected into the reservoir.

35/8-1

Blocks and production licence	Blocks 35/8 and 35/11 – production licence 248. Awarded 1999.	
Operator	Norsk Hydro Produksjon a.s	
Licensees	Den norske stats oljeselskap a.s (SDFI 40%)	60%
	Norsk Hydro Produksjon a.s	20%
	Mobil Development Norway A/S	20%
Resources	Gas: 20.8 bn scm NGL: 3.1 mill tonnes Condensate: 3.7 mill scm.	

A find containing gas and condensate. Alternative development solutions are under consideration, including unitisation with other resources in the area.

6407/6-3 Mikkel

Blocks and production licences	Block 6407/6 – production licence 092. Awarded 1984.	
	Block 6407/5 – production licence 121. Awarded 1986.	
Operator	Den norske stats oljeselskap a.s	
Licensees	PL 092	PL 121
	Den norske stats oljeselskap a.s (SDFI)	50% (30%)
		70% (40%)
	Norsk Hydro Produksjon a.s	10%
	Mobil Development Norway A/S	10%
		40%
		20%

Resources	Oil: 1 mill scm Gas: 20.4 bn scm NGL: 6.3 mill tonnes Condensate: 4.1 mill scm
------------------	---

Proven in 1987, Mikkel lies in 220 metres of water on Halten Bank East, about 40 km south of Åsgard's Midgard deposit and 40 km north of Draugen. Development planning is under way with a view to commencing gas deliveries in 2003. The production concept embraces two subsea templates with a total of four production wells, and the licensees plan to tie these back to the subsea installations on Midgard for onward wellstream transport to the Åsgard B gas platform. Plans call for the rich gas to be piped through the Åsgard Transport trunkline to Kårstø for separation of the NGL. Plans for development and operation and for pipeline installation and operation are due to be submitted in the second quarter of 2001.

6406/2-3 Kristin

Blocks and production licences	Block 6506/11 – production licence 134B. Awarded 2000. Block 6406/2 – production licence 199. Awarded 1993.		
Operator	Den norske stats oljeselskap a.s		
Licensees		PL 134B	PL 199
	Den norske stats oljeselskap a.s (SDFI)	48% (25%)	73% (45%)
	Norsk Hydro Produksjon a.s	12%	12%
	Norsk Agip A/S	30%	
	Mobil Development Norway A/S		15%
	Total Norge AS	10%	
Resources	Gas: 35.4 bn scm NGL: 8.5 mill tonnes Condensate: 40.4 mill scm		

Kristin was discovered in 1997, and lies about 20 km south-west of Åsgard's Smørbukk deposit. Work is under way on a possible development of the fields in the area, with Kristin as a possible centre and other nearby discoveries – Ragnfrid, Lavrans and Erlend – phased in towards it.

One concept under consideration is a floating production facility on Kristin with later subsea tie-ins from other fields. Plans call for rich gas to be piped through Åsgard Transport to a land terminal (Kollsnes/Kårstø) for separation of NGL, while condensate could be piped to the Åsgard C storage ship and loaded from there into shuttle tankers together with Åsgard condensate. Development timing will depend on a sales solution for the gas. A plan for development and operation could be submitted in June 2001 at the earliest.

6406/2-1 Lavrans

Block and production licence	Block 6406/2 – production licence 199. Awarded 1993.		
Operator	Den norske stats oljeselskap a.s		
Licensees	Den norske stats oljeselskap a.s (SDFI 45%)		73%
	Mobil Development Norway A/S		15%
	Norsk Hydro Produksjon a.s		12%
Resources	Gas: 28.3 bn scm NGL: 4.4 mill tonnes Condensate: 7.6 mill scm		

Discovered in 1994-95, Lavrans lies about 20 km south of Åsgard's Smørbukk deposit in 270-290 metres of water. The field could be developed together with Kristin and other fields in the area. One concept under consideration is a floating production facility on Kristin with subsea tie-ins from other fields. Plans call for rich gas to be piped through Åsgard Transport to a land terminal (Kollsnes/Kårstø) for separation of NGL, while condensate could be processed on the Åsgard A production ship and loaded into shuttle tankers together with Åsgard condensate. Development timing will depend on a sales solution for the gas.

6407/1-2 Tyrihans

Blocks and production licences	Block 6407/1 – production licence 073. Awarded 1982. Block 6406/3 – production licence 091. Awarded 1984		
Operator	Den norske stats oljeselskap a.s		
Licensees		PL091	PL073
(rounded off to two decimal places)	Den norske stats oljeselskap a.s (SDFI)	55% (30%)	54.67% (30.00%)
	Total Norge AS		33.33%
	Norsk Hydro Produksjon a.s	12%	12.00%
	Mobil Development Norway A/S	33%	
Resources	Gas: 24.5 bn scm NGL: 4.6 mill tonnes Condensate: 15.5 mill scm		

This field comprises two structures – Tyrihans North and Tyrihans South – located about 40 km south of Åsgard in roughly 285 metres of water. The Tyrihans South gas field was proven in 1983. Tyrihans North, which also contains oil, followed in 1984. The southern structure extends into block 6406/3 in production licence 091. A direct subsea tie-back to existing infrastructure on Åsgard is being considered. Plans call for rich gas to be piped through the Åsgard Transport system to a land terminal (Kollsnes /Kårstø) for separation of the NGL. Development timing will depend on spare capacity in existing infrastructure as well as a sales solution for the gas.

7121/4-1 Snøhvit (incl Albatross and Askeladd)

Blocks and production licences	Blocks 7121/5 and 7120/5 – production licence 110. Awarded 1985. Block 7120/6 – production licence 097. Awarded 1984. Block 7121/4 – production licence 099. Awarded 1984. Block 7120/8 – production licence 064. Awarded 1981. Block 7120/7 – production licence 077. Awarded 1982. Block 7120/9 – production licence 078. Awarded 1982. Block 7121/7 – production licence 100. Awarded 1984.		
Operator	Den norske stats oljeselskap a.s		
Licensees (rounded off to two decimal places)	Den norske stats oljeselskap a.s (SDFI 30.00%)		64.29%
	Total Norge AS		18.40%
	Norsk Hydro Produksjon a.s		10.00%
	Amerada Hess Norge AS		3.26%
	RWE-DEA Norge AS		2.81%
	Svenska Petroleum Exploration AS		1.24%
Resources	Oil: 11.4 mill scm Gas: 167.2 bn scm NGL: 5.8 mill tonnes Condensate: 19.7 mill scm		

Discovered in 1984, Snøhvit is the largest field proven on the Tromsø Patch in the Barents Sea. Its licensees are seeking liquefaction-based marketing solutions for the gas in the area. Plans call for the field to be developed with a subsea solution and multiphase transport to land. They also embrace a land-based treatment and gas liquefaction plant. The earliest date when a development plan could be submitted to the authorities is July 2001.

6305/5-1 Ormen Lange

Blocks and production licences	Block 6305/7 – production licence 208. Awarded 1996. Blocks 6305/ 4 and 5 – production licence 209. Awarded 1996. Block 6305/8 – production licence 250. Awarded 1999.			
Operators	Norsk Hydro Produksjon a.s (development phase) A/S Norske Shell (production phase)			
Licensees		PL 208	PL 209	PL 250
	Den norske stats oljeselskap a.s (SDFI)	30% (30%)	50% (35%)	53.87% (45.00%)
	Norsk Hydro Produksjon a.s		25%	14.78%
	Esso Expl & Prodn Norway A/S		10%	5.91%
	BP Amoco Norge A/S	45%		9.44%
	A/S Norske Shell	25%	15%	16.00%

Resources	Gas: 400 bn scm Condensate: 23.7 mill scm
------------------	---

Proven in 1997, the Ormen Lange gas discovery extends across production licences 208, 209 and 250. It lies about 140 km west of Kristiansund. Preliminary resource assessments indicate that Ormen Lange is Norway's second largest offshore gas discovery. The earliest date for submitting a plan for development and operation is December 2002, with gas production starting in 2006.

6507/5-1 Skarv

Blocks and production licences	Blocks 6507/5 and 6 – production licence 212. Awarded 1996. Block 6507/3 – production licence 159. Awarded 1989.
---------------------------------------	---

Operator	BP Amoco Norge AS
-----------------	-------------------

Licensees	PL 159	PL212
BP Amoco Norge AS		30%
Den norske stats oljeselskap a.s (SDFI)	50% (20%)	30% (30%)
Enterprise Oil Norwegian A/S	40%	25%
Mobil Development Norway A/S		15%
Norsk Hydro Produksjon a.s	10%	

Resources	Oil: 20.9 mill scm Gas: 69.1 bn scm Condensate: 10.1 mill scm
------------------	---

Skarv lies about 200 km off the Norwegian coast. The operator's estimates for resources in the field remain uncertain. The earliest date when a plan for development and operation could be submitted to the authorities is the first quarter of 2002.

2/4-17 Tjalve

Block and production licence	Block2/4 – production licence 018. Awarded 1965
-------------------------------------	---

Operator	Phillips Petroleum Norsk A/S
-----------------	------------------------------

Licensees		
Phillips Petroleum Norsk A/S		35.11%
Total Norge AS		31.87%
Norsk Agip A/S		12.39%
TotalFinaElf Exploration Norge AS		8.03%
Norsk Hydro Produksjon a.s		6.65%
Den norske stats oljeselskap a.s (SDFI 5.00%)		5.95%

Resources	Oil: 1 mill scm Gas:1.6 bn scm NGL: 01 mill tonnes
------------------	--

This discovery is being considered for development with transport via Tor to Ekofisk II. This could be achieved either with a subsea installation and a pipeline or with a production well drilled from Tor, which lies about seven km away. Phasing in with Ekofisk II is under consideration.

3/7-4 Trym

Block and production licence	Block 3/7 – production licence 147. Awarded 1988.	
Operator	A/S Norsk Shell	
Licensees	A/S Norske Shell	50%
	Den norske stats oljeselskap a.s (SDFI 30%)	30%
	Dong Efterforskning og Produksjon A/S	20%
Resources	Gas: 3.3 bn scm Condensate: 0.8 mill scm	

A small gas find located close to the boundary with the Danish sector, Trym is being considered for development with a subsea installation. Gas production would be piped eight km to Denmark’s Harald platform.

6608/10-6 Svale

Block and production licence	Block 6608/10 – production licence 128. Awarded 1986.	
Operator	Den norske stats oljeselskap a.s	
Licensees	Den norske stats oljeselskap a.s (SDFI 25.0%)	65.0%
	Norsk Hydro Produksjon a.s	13.5%
	Norsk Agip A/S	11.5%
	Enterprise Oil Norwegian A/S	10.0%
Resources	Oil: 18.5 mill scm	

Located about 10 km north-east of Norne, the small Svale oil find was proven in 2000 and will probably be developed as a satellite of Norne. The probability of making finds in several nearby prospects has increased following the Svale discovery.

30/6-18 (Kappa)

Blocks and production licences	Block 30/6 – production licence 053. Awarded 1979. Block 30/9 – production licence 079. Awarded 1982.	
Operator	Norsk Hydro Produksjon a.s	
Licensees (rounded off to two decimal places)	Den norske stats oljeselskap a.s (SDFI 50.78%)	64.78%
	Norsk Hydro Produksjon a.s	22.23%
	TotalFinaElf Exploration Norge AS	5.77%
	Mobil Development Norway A/S	4.33%
	Total Norge AS	2.88%
Resources	Oil: 1 mill scm Gas: 2.7 bn scm	

Kappa is an oil discovery with a gas cap in a Statfjord formation structure west of Oseberg. A possible development solution would be a well drilled from Oseberg B. The find could also be developed in conjunction with other possible discoveries in the area using horizontal production wells from a subsea template and wellstream transfer to Oseberg for processing.

25/11-16

Block and production licence	Block 25/11 – production licence 169. Awarded 1991.	
Operator	Norsk Hydro Produksjon a.s	
Licensees	Den norske stats oljeselskap a.s (SDFI 35%)	50%
	Norsk Hydro Produksjon a.s	40%
	Esso Expl & Prod Norway A/S	10%
Resources	Oil 3.6 mill scm	

This oil discovery lies south-west of Grane. Development is planned with subsea-completed wells tied back to Grane after production from that field goes off plateau.

30/9-19 (Delta)

Blocks and production licences	Block 30/8 – production licence 190. Awarded 1993. Block 30/9 – production licence 079. Awarded 1982.															
Operator	Norsk Hydro Produksjon a.s															
Licensees	<table><thead><tr><th></th><th>PL190</th><th>PL079</th></tr></thead><tbody><tr><td>Den norske stats oljeselskap a.s (SDFI)</td><td>50% (50%)</td><td>73.5% (59.5%)</td></tr><tr><td>Norsk Hydro Produksjon a.s</td><td>30%</td><td>26.5%</td></tr><tr><td>Total Norge AS</td><td>10%</td><td></td></tr><tr><td>TotalFinaElf Exploration Norge AS</td><td>10%</td><td></td></tr></tbody></table>		PL190	PL079	Den norske stats oljeselskap a.s (SDFI)	50% (50%)	73.5% (59.5%)	Norsk Hydro Produksjon a.s	30%	26.5%	Total Norge AS	10%		TotalFinaElf Exploration Norge AS	10%	
	PL190	PL079														
Den norske stats oljeselskap a.s (SDFI)	50% (50%)	73.5% (59.5%)														
Norsk Hydro Produksjon a.s	30%	26.5%														
Total Norge AS	10%															
TotalFinaElf Exploration Norge AS	10%															
Resources	Oil 2.3 mill scm Gas: 6.8 bn scm															

Delta was proven in 1998 as a gas find with a thin oil zone in the Tarbert formation. This structure is most likely to be developed with a long production well from the Oseberg field centre.

34/7-23 S (H West/H North)

Block and production licence	Block 34/7 – production licence 089. Awarded 1984.												
Operator	Norsk Hydro Produksjon a.s												
Licensees	<table><tbody><tr><td>Den norske stats oljeselskap a.s (SDFI 51.00%)</td><td>58.22%</td></tr><tr><td>Norsk Hydro Produksjon a.s</td><td>13.28%</td></tr><tr><td>Esso Expl & Prod Norway A/S</td><td>10.50%</td></tr><tr><td>Idemitsu Petroleum Norge AS</td><td>9.60%</td></tr><tr><td>TotalFinaElf Exploration Norge AS</td><td>5.60%</td></tr><tr><td>RWE-DEA Norge AS</td><td>2.80%</td></tr></tbody></table>	Den norske stats oljeselskap a.s (SDFI 51.00%)	58.22%	Norsk Hydro Produksjon a.s	13.28%	Esso Expl & Prod Norway A/S	10.50%	Idemitsu Petroleum Norge AS	9.60%	TotalFinaElf Exploration Norge AS	5.60%	RWE-DEA Norge AS	2.80%
Den norske stats oljeselskap a.s (SDFI 51.00%)	58.22%												
Norsk Hydro Produksjon a.s	13.28%												
Esso Expl & Prod Norway A/S	10.50%												
Idemitsu Petroleum Norge AS	9.60%												
TotalFinaElf Exploration Norge AS	5.60%												
RWE-DEA Norge AS	2.80%												
Resources	Oil: 4.3 mill scm Gas: 0.5 bn scm												

Plans call for this discovery to be developed with a subsea solution tied back to Snorre via Tordis or Statfjord via Statfjord East.

30/6-17 (Alpha Cook)

Block and production licence	Block 30/6 – production licence 053. Awarded 1979.	
Operator	Norsk Hydro Produksjon a.s	
Licensees (rounded off to two decimal places)	Den norske stats oljeselskap a.s (SDFI 50.78%)	64.78%
	Norsk Hydro Produksjon a.s	22.23%
	TotalFinaElf Exploration Norge AS	5.77%
	Mobil Development Norway A/S	4.33%
	Total Norge AS	2.88%
Resources	Oil: 0.3 mill scm Gas: 1.7 bn scm	

Alpha Cook is a small oil find with a gas cap in the Cook formation beneath the main reservoir in Oseberg. It could be produced with a long well drilled from Oseberg B.

25/5-5

Block and production licence	Block 25/5 – production licence 102. Awarded 1985.	
Operator	TotalFinaElf Exploration Norge AS	
Licensees	Den norske stats oljeselskap a.s (SDFI 30%)	50%
	TotalFinaElf Exploration Norge AS	20%
	Total Norge AS	20%
	Norsk Hydro Produksjon a.s	10%
Resources	Oil 4.3 mill scm	

This discovery lies about six km east of Heimdal. Development with a subsea facility tied back to other installations is under consideration.