

DISCOVERED IN THE EARLY 1960s, THE NORTH SEA OIL AND GAS FIELD MAY BE A MATURE ONE, BUT IT IS NOW ENTICING CANADIAN EXPLORERS



NORTH SEA OIL

by Ellsworth Dickson

Photo courtesy GlobalSantaFe Corp.

As many a sailor will tell you, the North Sea can be a very unfriendly place with howling winds and 30-metre-high waves. Nevertheless, the region, which hosts most of Europe's oil reserves, has been and continues to be an important source of gas and oil.

Studies have shown that North Sea oil production peaked in 2000 at about 6.4 million barrels per day, representing 9% of global production and 22% of OPEC production. Even though exploration continues, it is expected that overall oil production from the North Sea will continue to decline, resulting in Europe becoming increasingly dependent on Persian Gulf supplies. By 2010, European oil produc-

tion, mostly from the North Sea, could fall to 2.3 million barrels per day (International Energy Agency).

The North Sea's Brent crude is used as a standard reference in determining the price of oil. The North Sea is also a significant producer of natural gas with close to 10 trillion cubic feet produced in 2001. Oil and gas are recovered from a number of traps in source rocks of various ages, including Carboniferous, Permian, Triassic, Middle Jurassic, Upper Jurassic, Lower and Upper Cretaceous and Paleocene.

The North Sea Field is divided into five country sectors: the United Kingdom, Norway, Denmark, Germany and the Netherlands. A number of Canadian com-

panies are currently targeting prospects in the North Sea.

"The reason the North Sea is still so attractive is because the majors primarily held all the licenses in the UK," says Pat Boswell, president and CEO of **International Frontier Resources Corp.** [IFR-TSXV]. "Many have now departed for greener pastures and juniors are now taking up what are considered to be fallow discoveries.

"A fallow discovery would be, say, a pool of 10-25 million barrels that the majors were not prepared to bring to production," explains Boswell. "I think many juniors, including ourselves, are chasing prospects like that. There is also the deeper potential that is being evaluated by a number of

juniors in the North Sea.”

Boswell says the Canadian companies are primarily exploring in the UK sector. However, some recent changes in the Norway tax regime has attracted some juniors to that area.

Promote Licenses are issued to explorers for a two-year term with a work commitment attached, such as shooting new seismic or reprocessing existing seismic with a view to generating a drillable prospect. If a drillable prospect is generated, the Promote License can be converted to a traditional license which has a four-year term and usually has a well commitment attached.

International Frontier has four projects in the North Sea and is awaiting results of the 24th licensing round to see if it has two additional projects. At the Laurel Valley Project, located in Quad 14 in the Outer Moray Firth area of the UK North Sea, Int'l Frontier farmed out an interest to operator **Oilexco Inc.** [OIL-TSX, AIM] and expects drilling to commence in the first quarter of 2007. The Laurel Valley interests are held as follows: **Britcana Energy Ltd.** (a UK subsidiary of Int'l Frontier) 10.45%, **Oilexco** 45%, **Gulf Shores Resources Ltd.** [GUL-TSXV] 9.3%, **Palace Exploration Company Limited** (private) and **Challenger Minerals**, the geoscience subsidiary of **GlobalSantaFe** [GSF-NY] 16%, **Lundin Petroleum AB** [LUPE-Stockholm] 10%, and **Eternal Energy Corp.** [EERG-OTCBB] 9.2%.

“The second project is the Ridgewood prospect where we initially held a 50% interest (25% after farm-out) in Block 12/17b where we will be drilling in the third quarter of 2007,” says Boswell. “Ridgewood has been farmed out to Lundin which will be the operator. **Monarch Energy Ltd.** [MNL-TSXV] and **Gulf Shores Resources Ltd.** can each earn a 10% interest in the Ridgewood prospect if they exercise an option to farm in. Our third project hosts the Lytham and St. Anne's prospects in the southern sector of the UK where drilling is scheduled for the fourth quarter of 2007 with Lundin Petroleum as operator.” The Lytham prospect is located

within the Zechstein carbonates of the Upper Permian at a depth of 6,000 feet with a deeper secondary objective at 7,000 feet in the Carboniferous-aged Westphalian sands.

“The first Laurel Valley well will probably cost about \$17 million to drill, log, test and case, if the well is completed for production you can basically double these numbers. This is why there are so many partners,” explains Boswell. “This lessens the downside risk and allows the partners to spend less while still maintaining good exposure to a significant prospective resource. We are lucky in that we can use the Sedco 712 rig under contract to Oilexco at a cost of US \$145,000 a day compared to current rig rates that range from US \$350,000 to US \$450,000 per day.”

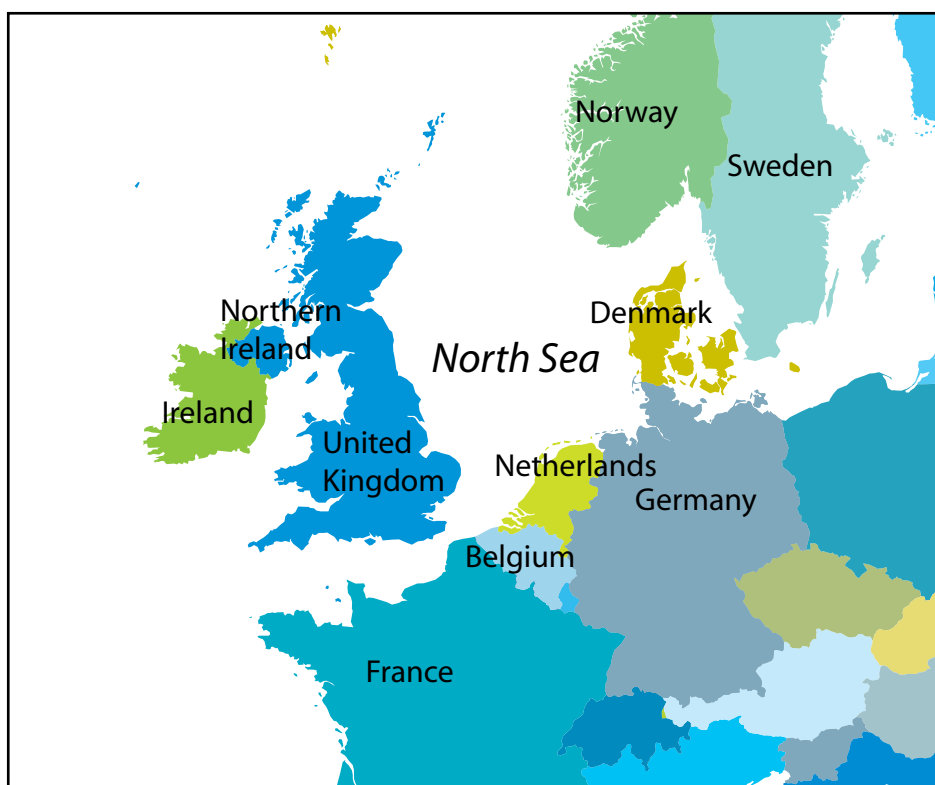
Boswell says that drilling and production technologies have greatly improved since the first North Sea discoveries in the 1960s. In particular, seismic imaging technology has improved. “We are now able to see a great deal more with long-offset 2D seismic and 3D seismic than we could in the past,” he says.

In a separate development, appraisal

operations at Oilexco's 100% owned Shelley Project, located in Block 22/2b in the UK central North Sea should be completed by the time you read this. Eight appraisal well bores (first main hole and seven sidetracks) have been drilled to appraise the 1984 22/2-2 oil discovery that flow tested at 2,416 barrels of oil/day from the Paleocene Forties sand. The eighth Oilexco appraisal well is 22/2b-13t, an extended reach well bore in excess of 13,850 feet which is being readied for testing.

Operations at Oilexco's Brenda/Nicol Field development were curtailed in November and early December due to a prolonged period of severe weather following the settlement of a labour strike by divers on November 10. Subsea operations have resumed and it is now anticipated that first oil from the project will be recovered mid to late January. Oilexco's capital budget for 2007 is US \$410 million.

Antrim Energy Inc. [AEN-TSX; AEY-AIM] recently signed a letter of intent to contract a drilling rig for the Antrim-operated 2007 multi-well Causeway drilling program in the UK North Sea Block 211/22a



(Antrim 65.5%). The semi-submersible rig has been contracted for three wells to be managed by AGR Peak Well Management, the company that managed Antrim's East Causeway well in June 2006. The East Causeway discovery, located on the Osprey Ridge Trend, tested 14,500 barrels of oil equivalent per day (BOPD) from the Causeway Tarbert and Ness sandstones. This test rate did not include the 8,100 BOPD on the previously drilled and now suspended well 211/23b-11.

The first appraisal/development well planned for 2007 is expected to be drilled approximately two miles southwest of the East Causeway discovery and is scheduled to start drilling in May. The well will be drilled to about 3,500 metres and is intended to appraise each of the Jurassic Tarbert, Ness and Etive sandstones.

In September 2006, Antrim agreed to acquire a 75% working interest in Block 21/28a in the Central North Sea which hosts the Fyne and Dandy oil fields that were delineated with eight wells drilled between 1971 and 1998. For 2007, Antrim plans include seismic acquisition, processing and interpretation. A decision on additional drilling will be reached by the fourth quarter of 2007 with a target of early 2008 for drilling the first development well.

Bow Valley Energy Ltd. [BVX-TSX] has received approval from the UK government to develop the Chestnut field in which the company has a 15.125% interest. The first oil is expected to be recovered by mid 2007. The Chestnut field is expected to produce more than 10,000 barrels per day (gross) of oil, or 1,512 barrels per day (net) to Bow Valley. The Chestnut field was discovered in 1986 and has been appraised by six wells. The last well, 22/2a-11x, was drilled in 2001 and placed on an extended well test that produced about 1 million barrels of oil at rates of more than 13,500 barrels per day (gross) and 2,000 barrels per day (net). The well was suspended and will be used as a production well in the current field development along with a new well. Depending on the production and reservoir performance, the second

well is expected to be converted to a water injection well at a later date.

The field development will use a new concept floating production vessel, the Seven Marine SSP300, which is a lower cost alternative. Total capital to develop the Chestnut Field is \$51.8 million.

Robert Moffat, president and CEO of Bow Valley, says, "The Chestnut Field development is the third field development in the UK North Sea in which Bow Valley is participating. This field, combined with new production from Blane and Enoch, will increase Bow Valley's North Sea production from current levels of 800 BOED to approximately 5,000 to 6,000 BOED by mid 2007." He adds, "Bow Valley is also pursuing an accelerated development of the Ettrick Field, which could see first production in early 2008."

Grove Energy Ltd. [GRV-TSXV, AIM] announced in October 2006 that it is selling the majority of its UK North Sea property interests to **EnCore Oil PLC** [EO-AIM]. However, Grove will retain a 10% interest in the most productive 42/13 Block and the surrounding protective acreage in the 42/8, 42/9, 42/12 and 42/14 blocks. The 42/13 Block contains a 140-metre gross gas column that was encountered in 1997 by a well drilled by Mobil. Proceeds from the sale should more than fund Grove's commitment towards an appraisal well on 42/13 during the second quarter of 2007. Partners are **Sterling Resources**, **Faroe Energy** and **EnCore**.

In the Dutch North Sea, Grove has been awarded the Horizon West (P8a) Production License, which hosts the Horizon West oil field. The license provides for development from the **Chevron Corp.** [CVX-NY] P9 Horizon Platform and for participation of the Dutch State via EBN which will result in the following interests: Grove 48%, EBN 32%, Chevron 16% and Dutch State Mining 4%. The partners will fund the project pro rata. The 15-year license covers 26.17 square kilometers.

Discovered in 1982 when Mobil drilled three wells at Horizon West with test rates up to 900 BOPD of 38.4 API quality crude, it is believed the field contains 50-70 mil-

lion barrels of Stock Tank Oil Initially in Place (STOIIP). Historical data suggests recoverable reserves of between 8% and 12% of STOIIP. An independent reserve report is being prepared compliant with NI 51-101.

Ithaca Energy Inc. [IAE-TSXV, AIM] recently raised more than \$50 million to fund development of its Athena oil project, exploration of its UK exploration assets and general working capital. The company has received an independent engineering evaluation of its 70% owned oil discovery at Athena on Block 14/18b-15 in the Outer Moray Firth area of the North Sea. The evaluation was conducted to confirm the test results of up to 1,330 BOPD from the Upper Leek reservoir.

Having evaluated the data, Sproule International confirmed the Stena accumulation represented 27.99 million barrels of gross recoverable probable undeveloped reserves, or 19.59 million barrels net to Ithaca's interest. Ithaca is in consultation with government authorities in preparation to filing a field development plan. Ithaca management is of the view that Athena has upside potential to be evaluated by future drilling, giving rise to additional gross possible reserves of 12.042 million barrels, or 8.4 million barrels net to the company.

Nexen Inc. [NXY-TSX, NY] has been active in the UK North Sea since December 2004 when the company acquired the following assets for US \$2.1 billion: a 43.2% operated interest in the Buzzard development, operated interests in the Scott and Telford producing fields, the Scott production platform, interests in several satellite discoveries and more than 700,000 net undeveloped exploration acres. For 2007, estimated production from the UK North Sea after royalties is expected to be 90,000-100,000 BOPD. The BG Group has a 21.73% interest in the project where oil production from the Buzzard Field, located 100 kilometres northeast of Aberdeen in the Outer Moray Firth, central North Sea, began January 7, 2007.

Petro-Canada [PCA-TSX; PCZ-NY] reports it has planned a \$4.1-billion capital program for all its projects during 2007. The

planned growth for 2007 production is largely due to the ramping up of projects such as the Buzzard, De Ruyter and L5b-C in the North Sea. In October 2006, Petro-Canada reported recovering the first oil from the De Ruyter development, located in the southern part of the North Sea on the Dutch Continental Shelf. In 2007 and 2008, production is expected to average approximately 18,500 barrels per day, of which more than 90% will be oil and the remainder will be natural gas. Petro-Canada has a 54.07% interest in the field and is a partner with **Energie Nederland**, which holds the remaining interest. The De Ruyter field straddles Blocks P10a and P10b, both operated by Petro-Canada.

Serica Energy PLC [SQZ-TSX, AIM] has successfully completed testing of the Columbus well 23/16f-11 and confirmed the presence of a potentially commercial gas and condensate reservoir. The well is suspended for possible future use in a development program. The well, a near-vertical exploration well located in the UK Central North Sea, encountered a gross gas column of at least 125 feet in the Paleocene Forties sands. A total of 85 feet of the reservoir was tested and the stabilized average production rates on a 56/64-inch choke during a five-hour flow period were 17.5 million cubic feet of gas per day and 1,060 barrels per day of 47.5 degrees condensate.

Serica is now talking with its partners to determine the appraisal program for the Columbus discovery and the full extent of the reserves. It is expected that further drilling could take place in 2007 in order to bring the discovery into production as rapidly as possible. Interests held in Block 23/16f-11 are Serica, operator, **BG International Limited** [BRG-NY; BG-London], **Endeavour Energy UK Limited** and **EOG Resources United Kingdom Limited** [EOG-NY]—each holding a 25% interest.

Serica has other North Sea interests, including Block 48/16B-P898 in the Southern North Sea (100%); Blocks 48/16A and 47/20B-P1240 in the Southern North Sea (100%); Blocks 23/16E and 23/17B-P1180 in the Central North Sea (50%);

Block 23/16F-P1314 in the Southern North Sea (50%); Blocks 54/1B-P1253 in the Southern North Sea (100%); and well 54/1b-6 (Oak) in the UK Southern Gas Basin, held 50/50 with **Centrica Resources Limited** [CNA-London].

Sterling Resources Ltd. [SLG-TSXV] has interests in both onshore and offshore UK. In October 2006, the company reported that the appraisal drilling program at the offshore Sheryl had been completed. Located on Block 21/23a in the UK North Sea, Sterling holds a 35% interest. The appraisal drilling consisted of seven well penetrations from a single surface well bore. The last well bore was drill stem tested under open hole conditions through sand screens. Oil flow during the test was recorded at a maximum rate of 1,915 barrels per day, through a 36/64-inch choke, with 23 degree API oil recovered. Sterling and partners are currently assessing potential development options.

Stratic Energy Corp. [SE-TSXV] has built an extensive acreage position in the North Sea mainly through participation in the annual licensing rounds supplemented by acquisition of other interests. The company's entry into the North Sea has been facilitated by the introduction of the Promote License in 2003 as part of the 23rd Round Initiative by the UK licensing authorities that was offered to reinvigorate North Sea exploration with a new tier of exploration-oriented companies.

Stratic's North Sea interests include the West Don Blocks 211/12b and 211/13b, held in a 50/50 partnership with **Nippon Oil Exploration and Production UK Limited**, where the base case potential for the field is considered to be about 14 million barrels from about 50 million barrels of oil in place. First oil is targeted for mid 2008. Stratic and 50/50-partner Nippon also hold Block 16/2b and the contiguous block to the east, Block 16/3d, in the Cairngorn Field where exploration drilling is expected to take place in late 2007. The gross recoverable reserve potential from Cairngorn is about 17 million barrels. At the Crawford Field, in which Stratic has a 5.58% interest, studies done in 2004 and 2005 identified remain-

ing oil-in-place of some 189 million barrels. The Crawford Field is located in Block 9/28a (Area B). An appraisal well to test the productivity of the Triassic reservoir is slated for the first half of 2007. Stratic also holds Block 3/22 in the Northern North Sea and has a 50/50 partnership with Nippon Oil on Blocks 210/18, 210/19a and 210/20a, also in the Northern North Sea. Stratic is also taking steps to acquire more North Sea interests that cover discovered reserves and low risk exploration prospects near the company's existing acreage.

Talisman Energy Inc. [TLM-TSX] plans to develop commercial hubs around core operated properties and infrastructure in the North Sea. In 2007, the company intends to complete several development projects and the integration of the Auk/Fulmar assets. Key development projects, which Talisman expects to complete, include Tweedsmuir, Duart, Enoch, Wood Blane and Affleck, as well as the tie-back of the Galley Field to Tartan. Exploration and development spending in the North Sea is expected to total \$1.6 billion.

TransAtlantic Petroleum Corp. [TNP-U-TSX] holds two Promote Licenses, P.1325 and P.1326, comprising a total of six offshore blocks, covering 1,200 square kilometers in the Auk Basin 150 kilometres east of the Scottish mainland. These shallow water blocks contain a sub-salt Permian gas prospect at moderate depth with significant reserve potential. The company may farm out working interests in the prospect.

In addition to the Canadian interests in North Sea petroleum prospects and producing wells, there are a number of American and other foreign participants in the region. For a complete list of North Sea participants and a great deal of other related information, go to www.oilvoice.com. ■