

UKCS E&P costs must be cut to remain competitive

CHALLENGES HAVE ALWAYS been a way of life for North Sea explorers, drillers, and operators.

Now there is a new challenge: To maintain healthy levels of exploration, production, and investment in the medium and long term as the region matures.

Early in the North Sea's petroleum life, there were the technical challenges of exploration, drilling through difficult formations, and operating in a severe surface environment. All were met with innovation and creativity—and not a small capital investment.

In the mid 1980s, the challenges were economic. The precipitous fall of oil and gas prices then could have meant the end of viability for a high cost area like the North Sea.

Innovation at that time focused on process and organizational structure as well as on engineering. As a result, the region had some of its best years in the late 1980s and early 1990s.

YET ANOTHER CHALLENGE

The latest challenge is to maintain production while the region “comes of age.” It will again pit industry's ability to innovate against volatile markets, global competition for capital, and continuing cost pressure.

And of course, there is the ever-present challenge of geology. Field sizes have declined dramatically. With each passing year, more of the region is tested.

But despite some predictions that the North Sea is facing “terminal decline,” there is cause for optimism. Significant resource potential remains; technology steadily reduces the size of discovery that can be made commercial. And demand—especially for natural gas—moves steadily higher.

E&P spending, though it has been slow to follow oil prices upward during this cycle, is expected to increase this year.

The **Baker Hughes** rig count for March 2000 included 15 offshore rigs operating in the UK compared with 22 a year earlier. By May, the number of offshore rigs operating in the UK had slipped by one to 14.

But forecasters expect an increase this year in the number of exploration and appraisal wells drilled.

LOWER COST IS THE ANSWER

Geoff Dart, Director, Oil & Gas Directorate, **UK Department of Trade and Industry**, emphasizes that maintaining investment into the future on the UK Continental Shelf (UKCS) will require lowering the cost of finding and producing new fields to the level of competing areas around the world.

“The challenge is to increase recovery from existing fields, to find and produce remaining resources from ever smaller fields, and to develop challenging areas on the frontier margin,” Mr Dart told attendees at IADC World Drilling 2000.

He noted that the 31 exploration and appraisal wells drilled in 1999 on the UKCS was the lowest level since 1965. DTI is projecting a 22% increase this year to 38 wells, but a decline in the next two years. The outlook of the **UK Offshore Operators Association** (UKOOA) is more optimistic, calling for as many as 48 exploration and appraisal wells in 2000 and 54 in 2001.

E & A wells

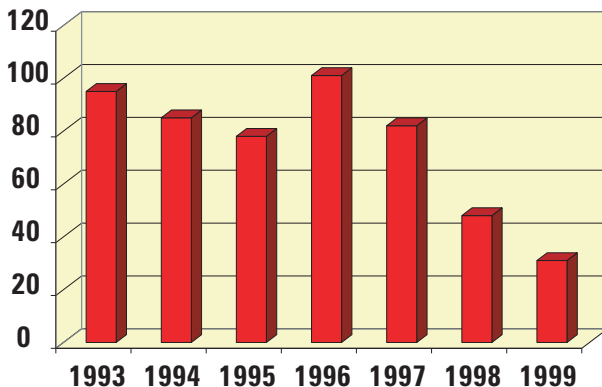


Figure 1: The 31 E&A wells drilled on the UKCS in 1999 is the lowest level since 1965. A 22% increase is forecast this year.

Despite the current activity slump, the opportunities of the UKCS are significant, said Mr Dart. DTI's estimate of the UK remaining potential includes 16-20 billion boe in production or under development and 13 billion boe yet to be found.

Citing a UKOOA 1999 Economic Report,

Mr Dart said potential new projects include 78 for incremental investment, 54 probably commercial fields, and 19 possibly commercial fields. In addition, he said there are 24 technical discoveries that are hard to commercialize, including 108 “fallow” discoveries. Fallow discoveries are those that are at least 6 years old.

To set specific goals, DTI organized an oil and gas industry task force last year including government and industry representatives and developed an Oil and Gas Industry Vision and Aspirations for 2010.

The vision calls for the UK oil and gas industry and government to work “in partnership to deliver quicker, smarter and sustainable energy solutions for the new century.”

Specifically, the task force identified six “prizes” for 2010:

- Investment from UKCS activity sustained at £3 billion per year;
- Production at 3 million boe/d;
- Prolonged self-sufficiency in oil and gas;
- A 50% increase in exports in oil and gas supplies products;
- £1 billion additional value from new businesses;
- Support for at least 100,000 jobs more than would otherwise have been available.

To do this, however, Mr Dart said it will be necessary to drive finding and production costs down from \$13 to \$8/bbl. Business processes must be streamlined and the regulatory environment modernized.

The existing infrastructure must be more fully utilized, for example, by ensuring full development of near-field satellites.

Modernizing the regulatory environment means reducing costs and administrative expenses and improving speed,

responsiveness, and flexibility of DTI's regulatory systems.

To maintain exploration levels, DTI intends to have an annual program of seaward licensing rounds with each covering half of available unlicensed acreage. Special rounds would also be held in frontier areas and "out-of-round" offers will be held "periodically."

Mr Dart challenged industry to do its part in meeting the challenge of the UKCS.

He urged operators to find a way to develop 108 "fallow" discoveries on the UKCS.

And he said a range of drilling rigs at competitive rates to stimulate exploration in the frontier areas is also needed.

IMPACT OF GLOBAL TRENDS

Nowhere in the North Sea is the competitive challenge greater than on the UK Continental Shelf.

Increasingly, E&P strategies are devel-

oped and decisions made in a global context. It means that regions must compete for investment and activity in an expanding field of opportunities.

"There are two current trends shaping the global upstream industry—specialization and scale," according to **Chris Rhodes**, Vice President, **BP Amoco**. He told attendees at IADC World Drilling 2000 that one group of companies prospers in narrowly defined niche markets where specialization gives a competitive edge.

"On the other hand, the mega mergers such as **Exxon Mobil**, **Total Elf/Fina**, and **BP Amoco/Arco** are creating a new class of company with advantages based on size and scale."

These companies can "reach out and take advantage of the best opportunities available globally."

BP Amoco's strategic focus will be on big, simple prospects. It wants to discover and develop high volume, low cost resources. It hopes to develop at least 1.5 billion boe of new reserves in the

Gulf of Mexico, offshore Angola, Azerbaijan, Trinidad and Vietnam this year. During 2000, it also is preparing another 1.5 billion boe in these regions and elsewhere. "The returns from these types of world class opportunity are what the North Sea has to match," Mr Rhodes said.

The challenge is well illustrated by considering just one aspect of North Sea maturity, the declining average size of new discoveries. These now represent just 1% of the size of early discoveries such as Forties and Brent, he said.

Exploration success rates in the UKCS have also fallen to only 21% and the value of reserves found per exploration well has declined to just over 4 million boe during 1999.

At the same time, UKCS finding and development costs remain relatively high compare with other regions.

"However, there is no doubt that the North Sea remaining resource base has considerable potential," said Mr Rhodes. "We're backing a long term

future for the UKCS, but one based on sound business sense and not sentiment.”

BP Amoco intends to invest \$650 million every year over the next 10 years in the UKCS to sustain production, “provided we can generate new investment opportunities which can compete globally.

“That is a target, not a promise,” said Mr Rhodes. Delivering will depend on improving productivity, applying technology, and restructuring processes. Collaboration will be an important key to being competitive.

RESERVE POTENTIAL

Cumulative production from the UKCS now stands at about 24 billion boe, which according to most estimates is less than half of the oil and gas resource.

BP Amoco thinks there could be up to 37 billion boe remaining including 24 billion boe yet to be produced and 13 billion boe yet to be found.

The yet-to-be-produced reserves category includes 17 billion boe that has been developed and 7 billion boe from undeveloped fields.

“Clearly . . . increasing basin and play maturity means the likely average pool size of future resources will continue to be on a decreasing curve,” said Mr Rhodes. Most of the yet-to-find category will be in pools of less than 50 million bbl.

The greatest potential lies in the North Sea Upper Jurassic play, the Tertiary play west of The Shetlands and the southern North Sea, according to BP Amoco’s view.

TECHNOLOGY, RELATIONSHIPS

During the 1990s, UK average lifting costs decreased from about \$3/bbl to below \$2/bbl. As volumes are reduced, unit lifting costs will increase unless ways are found to continue the downward trend.

Technology will have an important role in this effort. “It will have a dramatic impact on the links between our company and our suppliers and customers,” said Mr Rhodes.

For example, BP Amoco is one of 14 partners in a new global procurement exchange to cover procurement activi-

ties in all industry segments in which the company is involved. The 14 partners spend \$125 billion each year on procurement.

“This revolution is going to touch everyone with whom we do business now and in the future,” said Mr Rhodes.

He also described a global well service initiative established late last year, according to Mr Rhodes the first of its kind in the industry. It is designed to provide “a more collaborative way of working with contractors and to improve well operations around the world.” Initial phase of the initiative focuses on Baker Hughes, **Halliburton**, and **Schlumberger** which together account for 50-60% of BP Amoco’s wells budget. There are three key elements of the arrangement: performance management, technology development, and the establishment of global model contracts.

Extended reach drilling technology will

‘The greatest potential lies in the North Sea Upper Jurassic play, the Tertiary play west of The Shetlands and the southern North Sea’

—Chris Rhodes, BP Amoco

be a key to making small pool and infill projects viable. Mr Rhodes cited the record directional well drilled last year in the onshore Wytch Farm field that reached a horizontal distance of 10,728 m.

Using the through tubing rotary drilling technique in its Magnus field offshore resulted in a healthy production boost and cost savings, said Mr Rhodes. That well was completed for less than \$2 million.

Fresh 3D seismic information combined with through tubing drilling have reduced well costs and improved the efficiency of infill drilling in the Forties field. About 90% of production from Forties now comes from an infill well program begun in 1992 to access isolated pools in the reservoir. But targets are getting smaller and harder to find. Each new well averages 1,600 b/d compared with 4,000 b/d in 1992.

BP AMOCO’S FOCUS

The remaining potential for large field discoveries is in the area west of The Shetlands, said Mr Rhodes. Elsewhere, BP Amoco will focus on “infrastructure-led exploration” to find and develop small pools in the southern and central North Sea. To make these small finds commercial, a target of less than \$1/bbl finding cost and less than \$3/bbl development cost has been set.

“These criteria will determine the extent of our exploration activity over the next few years rather than a specific target for numbers of wells,” said Mr Rhodes.

BP Amoco is also bidding in the first oil and gas licensing round for exploration off the Faroe Islands. Awards are expected in September.

If successful in bidding, BP Amoco could drill the first exploration wells next year. ■

New interest is shown in onshore UK opportunities

Ten new companies are among 30 that have shown “a fresh wave of interest” in exploring onshore in the UK, according to the **Department of Trade and Industry**.

DTI said its latest licensing round produced what it describes as an “upsurge” in interest.

Energy Minister **Helen Liddell** said these newcomers will ensure “that there will be new ideas about our oil and gas resources and ways in which they can be explored.” Mrs Liddell said at the end of May that license awards would be made “as soon as possible.”

DTI says 30 companies made 57 applications to search 141 onshore areas. Just under half the blocks have a coal bed methane or vent-gas focus.

UK onshore fields number only 22, compared with more than 200 offshore fields.

BP Amoco’s Wytch Farm field accounts for more than three fourths of onshore production. It is now being extended offshore by extended reach drilling. ■