

Majors eye Arctic drilling as crude prices continue to rise

If oil prices remain above \$90 per barrel production from the harsh Alaskan regions could become economically viable



Barry Parker — New York

WITH prices for crude oil now inching above \$90 per barrel, the economics of less accessible deposits, and oil produced from non traditional sources, are worth considering.

Using estimates from the International Energy Agency, Petrobras investment presentations recently offered a comparison of the fuels spectrum, ranging from legacy oilfields, profitable at prices of \$20 per barrel, through to oil derived from shale and even coal where breakevens can exceed \$100 per barrel.

Deepwater drilling varies widely. In theory, a big field produced by an oil major can meet corporate hurdle rates at around \$40 per barrel, while an independent might require \$60 per barrel or more.

At \$80 per barrel (in 2008 dollars), extracting oil from the pre-salt regions of Brazil and, probably, West Africa will also be profitable — hence, Petrobras's emphasis on

PROPOSED DRILLING DURING 2011 — SIVULLIQ PROSPECT



Source: Shell Offshore Inc

these economics. Forward curves for two grades of crude oil, West Texas intermediate and Brent, are now flattened and are both reflecting traders' expectations of longer-term crude prices around \$90 per barrel. At such levels, if sustained, production from the Arctic regions, the harshest of offshore environments, becomes economically viable.

The 2010 edition of the IEA's World Energy Outlook points to a crude oil price of \$113 per barrel (in 2009 dollars), in 2035. At that time, oil demand is estimated to be 99m barrels per day against 85m bpd in 2009. If the IEA and the oil swaps markets are correct, then Arctic projects will

increasingly feature in oil companies' capital plans.

The Obama administration is now considering a late 2010 revision in Shell's applications to explore in the Camden Bay area of the Beaufort Sea, above the North Slope and about 50 miles east of BP's prodigious Prudhoe Bay field.

The Department of the Interior reinstated a Clinton-era moratorium on exploration in the Eastern Gulf of Mexico near Florida and the offshore Atlantic.

However, drilling in the Alaskan Arctic, which also includes the Chukchi Sea to the north of the Bering Straits, is still open to consideration. In mid-December 2010, the

Bureau of Energy Resource Management was soliciting public comment on Shell Offshore's revised plans for proposed drilling during the summer of 2011, in about 100 ft-150 ft of water, at the Sivulliq prospect, 15 miles off Alaska's coast.

In accordance with BOERM rules issued in the wake of the Macondo spill, the revised plan provides special attention is given to spill containment and prevention of a blowout.

Shell documents indicate plans to drill two wells for approximately 30 days each, to depths of 7,000 ft.

The Ice Class-5 drillship *Noble Discoverer* (ex *Frontier Discoverer*; Noble acquired Frontier in 2010), was originally built in 1976 as *Sonat Discoverer* and, upgraded for Arctic work in 2007, has been contracted by Shell through end-2011 at dayrates of around \$160,000.

Regulatory submissions for previous drilling seasons provide a glimpse into the composition of the armada to be assembled by Shell to support its exploratory efforts. Spill response plans show that the drillship will be supported by the icebreaking offshore support vessel *Tor Viking II* owned by Trans Viking, now wholly owned by Rederi AB TransAtlantic — best known for its recent rescue of Golden Ocean's *Golden Seas*.

Also in line for the field are an Arctic-capable storage tanker, *Affinity* (doubling as a diesel oil supply ship), a spill response vessel, *Nanuq*, and a response barge *Endeavor*.

Alongside these will be associated spill response workboats. Previous plans have mentioned *Kvichak 1* and *Kvichak 2* and tugboats will also be on station with the drillship. Murmansk Shipping's Canada-built anchor handling tug supply/icebreaker *Vladimir Ignatjuk* is also likely to be on station.

In the event that *Noble Discoverer* is unable to drill a relief well, cylindrical drilling rig *Kulluk*, owned by Shell since 2006, will be pressed into service.

The *Kulluk*, which drilled in the Arctic in the mid-1980s under ownership of Gulf Canada Resources, before a decade-long lay-up period, was recently mobilised to Shell's spill response hub in Unalaska, in the Aleutian chain.

The rig was towed by Pacific Coast Maritime/Harley Marine's *Gryfalcon* from Dutch Harbor, where it had been based pending work in the Chukchi Sea, which did not materialise.

Shell's efforts to drill in the Beaufort Sea last year were stifled by the drilling moratorium, and approval of its 2011 programme is far from guaranteed.

The Resource Development Council, a pro-drilling group responding to the BOERM's call for comments, stated its case: "The Alaska Outer Continental Shelf is an important future source of US energy supply with up to 29bn barrels and over 200trn cu ft of natural gas potentially in place. The potential recoverable reserves offshore Alaska is more than all the current total proven US oil reserves of around 21bn barrels." ■



Arctic-capable storage tanker *Affinity* is set to be commissioned by Shell for work in its Arctic Alaskan drilling projects.

Dietmar Hasenpusch

IEA outlook predicts surge in Caspian Sea oil production

ACCORDING to historians, the offshore oil industry began in the Caspian Sea deep within central Asia, long before onshore drillers waded into the waters of the US Gulf, writes Barry Parker.

The region will play an important role going forward. In looking ahead, the International Energy Agency's 2011 Energy Outlook, says: "[Organisation of the Petroleum Exporting] countries account for a growing share of global production, with the biggest increases coming from Saudi Arabia and Iraq. Production in and exports of oil (and gas) from the Caspian region will also grow substantially."

The IEA notwithstanding, the region's potential as energy exporter is tied to its infrastructure. Its landlocked geography, in a volatile region, presents a myriad of intertwined political and logistical challenges. Region-leader Kazakhstan's 2009 crude production was 1.7m barrels, while Azerbaijan's output was 1m barrels.

The BTC Pipeline linking Azerbaijan to Ceyhan, with a capacity of 28m tonnes per year, is already working beyond its maximum.

State Oil Company of Azerbaijan Republic data shows 2010 throughput on course to exceed 33m tonnes of crude oil. Exports from Novorossiysk, in the Black Sea, are fed by a different pipeline, CPC, serving the Tengiz field in Kazakhstan and operated by a Chevron affiliate.

Both pipelines are eyeing big expansion projects. In late December, CPC announced a \$5.4bn project that would double capacity to 1.4m barrels per day.

Another project, Trans Caspian Transportation System, aims to provide a tanker link from Kuryk, Kazakhstan, into Baku. Oil would then be exported through the BTC system directly into the Turkish Mediterranean, bypassing terminals at Kulevi, Poti, Supsi and Batumi, in Georgia.

As oil production has increased, offshore production in the Caspian's shallow waters has also grown. Industry reports show Caspian Drilling's semi-submersibles *Dada Gorgud* and *Istiglal* working for Azerbaijan Investment Company in shallow waters, while Maersk Drilling's semi-submersible *Maersk Explorer* is employed by Total nearby.

A pair of Socar-owned jack-ups, *Khazar 5* and *Khazar 6*, are drilling in shallow waters, while three Socar jack-ups and two semi-submersibles are cold-stacked.

Growth in export-oriented Kazakhstan will be led by its western region (Tengiz), and by offshore oil led by the Kashagan and associated fields in the northeastern Caspian, beginning production in 2013 and forecast to reach 2m bpd overall by 2030. Last October, oil major BP signed a production deal with Socar that will enable it to drill in shallow waters near Baku in the western Caspian, on the Azerbaijani side.

Another challenge facing the offshore sector has been support craft. In late 2010, Singapore's Keppel signed a deal with both Socar and AIC, creating the Baku Shipyard Factory, set to come on-stream in 2013.

The yard will also have the capability for building small tankers for the cross-Caspian trades, should the Trans-Caspian project come to fruition. ■

Sabre-rattling over Noble Leviathan gasfield find

POLITICAL pundits, who are usually on vacation in late December, were working overtime analysing the implications of a large gas discovery announced by Noble Energy, operator of the Leviathan gasfield, in the eastern Mediterranean about 80 miles off the Israeli coast, writes Barry Parker.

Noble, together with a group of Israeli partners, including a consortium that owns New York's Plaza Hotel, have estimated the aptly named Leviathan's size at 16trn cu ft of gas, and 4.2bn barrels of oil. An adjacent gasfield, Tamar, has been sized at 8trn cu ft of gas.

Databases show Noble, along with partners, have hired Transocean's semi-submersible *Sedco Express* at a dayrate of \$530,000. There was a suggestion that the *Pride North America*, set to finish work for BP offshore Egypt, might be brought in to

assist. Noble Energy has booked *Pride's* unit at \$275,000 per day, well below the \$496,000 dayrate in BP's contract, through March 2011.

Israel, which puts a high price on energy independence, faces a new set of challenges as it contemplates its offshore bonanza.

One issue that has emerged is the Israeli plan to retroactively impose a high tax — reports have mentioned 60% — on Noble and its Israeli partners. Adding to the drama is Noble Energy's choice of an ambassador/lobbyist to defend its interests — reported to be former US President Bill Clinton.

Christopher Helman, a Houston-based Forbes editor behind the blog Southwest Bureau, has offered a theory that the talk of high royalties is designed to "scare the minnows out of the water and clear the

LEVIATHAN PROSPECT — ABOUT 80 MILES OFF ISRAELI COAST



Source: Various

way for the government to make a development deal with the big guys".

The gas will meet Israel's needs and offer the potential for export.

"Analysts estimate that building out the infrastructure to chill and liquefy Leviathan's gas for export as liquefied natural gas would cost around \$8bn," Mr Helman said.

Similarly to the saga of the Caspian region, international politics will play an integral role in the development and transportation stories for the Leviathan and Tamar fields.

With sabre-rattling already starting from Lebanese interests, New York shipping/energy consultant Jonathan Feffer suggested: "The possibilities of similar finds in waters contiguous to Israel might pave the way to ameliorating relationships with its neighbours." ■