Petroleum developments in the Caribbean basin

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Vigorous efforts to reduce the decline in oil production are currently under way in the Caribbean's oldest hydrocarbons producer

The Caribbean archipelago, which stretches from Cuba in the north to Trinidad and Tobago in the south, contains three countries that produce oil and gas – the two mentioned above and Barbados.

For the purpose of this article, however, it makes sense to include Suriname, which is on the mainland of South America and Belize, which is on the mainland of Central America, because both are regarded as 'Caribbean' in a political and economic, if not geographic, sense, belonging as they do to the regional grouping known as the Caribbean Community and Common Market (CARICOM).

Trinidad and Tobago is by far the oldest hydrocarbons producer among the five, having first started to extract oil commercially in 1908, which makes the industry 102 years old this year. Belize, on the other hand, is the youngest: its first barrel began gushing out of the ground in 2005, a mere five years ago. Two other CARICOM member states are actively looking for hydrocarbons at the moment – Jamaica and Guyana (Suriname's neighbour in South America).

After producing oil for more than a century, it is perhaps little surprise that crude output in Trinidad and Tobago is falling and is now down to around 102,000 barrels per day (bbl/d), after having attained peak production of 229,589 bbl/d in 1978.

There are several reasons for this – no new discoveries of conventional oil since 2001, when BHPBilliton found a deposit of about 90 million barrels in Oligocene age rock in block 2c, off Trinidad's north-east coast, only a modest enhanced oil recovery (EOR) programme in existing known formations and little or no attention paid to the recovery of heavy oil (18 degrees API gravity or less), of which there is believed to be at least one billion barrels on land and nearshore Trinidad's west coast.

This collapse of oil production is particularly significant for Trinidad and Tobago because it means that the government has lost considerable amounts of income, especially in 2008, when prices zoomed up to US$147.50 a barrel: about 58 per cent of its tax revenue is collected from the energy sector.

Oil is also crucial to the maintenance of foreign exchange earnings: about 88 per cent of exports consist of oil, natural gas and petrochemicals. The country's major oil producer is actually the government itself or, rather, a state-owned entity called the Petroleum Company of Trinidad and Tobago (Petrotrin). Its current output is about 36,848 bbl/d, the majority of which, some 22,300 bbl/d, comes from nearshore fields in the Gulf of Paria off Trinidad's west coast, operated by its Trinmar subsidiary.

Other significant liquids producers are BHPBilliton Trinidad and Tobago (around 14,000 bbl/d) and BP Trinidad and Tobago (bpTT) with 21,000 bbl/d, although the vast majority of that is the very light oil called condensate, made available in conjunction with natural gas production.

Vigorous efforts to reverse the decline in oil production are currently under way, having been started by the previous People's National Movement (PNM) government, which lost the 24th May 2010 general election to a coalition of parties known as the People's Partnership, in which the dominant influence is the United National Congress (UNC), the official opposition in the last Parliament. It is widely expected that the incoming Minister of Energy and Energy Affairs (MEEA), the new government's re-designated name for the ministry, has indicated that she will continue the policy of her predecessor in this regard.

A key part of this effort is offering new acreage for exploration and the auction of seven blocks off Trinidad's north, east and west coasts, under production sharing contracts (PSCs), Trinidad and Tobago's preferred method of doing deals with petroleum companies, closed on September 8. All blocks, bar one, attracted bids, including three considered by the ministry to have oil potential.

On the same day, the MEEA formally opened the first deep water block round since 2006, when eight blocks attracted no uptake by companies. This time, 11 blocks are being offered and the auction will remain open until 18th February 2011. Deep water is regarded by the ministry as that ranging from 1,000 to 3,500 metres. Earlier exploration in the 'shallower' part of the deep water in the late 1990s by the likes of ExxonMobil, Shell and BP, identified no oil deposits, so this may act as a deterrent to potential bidders, although the ministry has acquired much improved imaging since then.

Deep horizon exploratory drilling on land is poised to commence early in 2011, based on PSCs signed in 2008-2009 and is also regarded as having oil potential. Deeper drilling – 10,000 feet and below – has never been undertaken to a significant extent on land in Trinidad and Tobago's century of oil, but it is believed there are new liquid accumulations awaiting discovery there.

An active EOR programme on land and a start on seriously tackling heavy oil are also new crude-winning initiatives that had been announced by the former administration. While oil production has been tumbling, natural gas production, by contrast, has been rising rapidly in Trinidad and Tobago.

In 1996, 679 million cubic feet a day (cfd) of gas was produced. By 2009 that had skyrocketed to 4.2 billion cfd. While new oil finds have been minimal, new gas discoveries have been plentiful – bpTT alone identified about seven new gas fields in the 1990s in the Trinidad east coast continental shelf area, where the majority of such discoveries have been made.

One major gas find was that made by BG Trinidad and Tobago and the US's Chevron in block 6d, near the maritime boundary line with Venezuela, south east of Trinidad. The Manatee discovery was estimated at around 2.7 trillion cubic feet (tcf). However, the reservoir runs under the maritime boundary into Venezuelan waters, where 7.3 tcf has been identified by the Loran discovery in the matching block 2 in the Plataforma Deltana region.

The existing treaty between Trinidad and Tobago and Venezuela requires such cross-border gas to be unitised and jointly exploited and, to that end, Ms Seepersad-Bachan signed a unitisation agreement with her Venezuelan counterpart, Rafael Ramiréz, on 16th August 2010. A unit operating company has to be chosen before any work can actually begin and the two countries will need to decide on the crucial question of how the gas is monetised.

While proven oil reserves have been stuck at 621 million barrels for some time, proven gas reserves have jumped from 8.2 trillion cubic feet (tcf) in 1993 to 15.3 tcf in 2008 (the most recent annual gas reserves audit by the Ryder Scott company that is available). Proven reserves hit their highest point of 20.7 tcf in 2002 but Trinidad and Tobago's greatly-admired ability to be able to monetise its P1 gas has taken place at a much faster rate than probable reserves have been able to be shifted over to the proven column or entirely new proven reserves added.

The country's gas commercialisation successes have centred principally on gas-based petrochemical

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One of the Caribbean's earliest oil wells, Trinidad, 1866

Suriname's crude output is now up to 16,000 bbl/d, all of it from three onshore fields under the control of state company Staatsolie

production (11 ammonia plants, seven methanol plants) and liquefied natural gas (LNG): Trinidad and Tobago is now placed seventh worldwide, after entering the business only 11 years ago.

The gas monetisation process will continue under the new People's Partnership government, though without the aluminium smelter the PNM had held so dear, which the PP has decided not to proceed with, on the grounds of "economic viability and the optimal use of gas." The minister has, however, still included "metals" in her list of acceptable downstream projects based on gas – presumably steel – while also opting for "petrochemicals, specialty chemicals, plastics and LNG." She has instituted a points system governing how gas will be allocated to projects.

Belize, the new kid on the Caribbean oil block, is still a very modest producer, as is to be expected, after only five years in the business.

Current crude output from the only producing field, Spanish Lookout, is around 5,000 bbl/d, a figure that is expected to rise this year when a second field, Never Delay, starts production. Both are operated by a company called Belize Natural Energy (BNE), 50 per cent owned by individual investors, mainly Irish.

At least 16 other companies are falling over themselves to join what they see as a potential Belize oil bonanza, with the enthusiastic support of the government. Current Belize Prime Minister, Dean Barrow, has said: "we want to encourage as many companies as possible to try and find the considerable amount of oil that we know Belize possesses."

Barbados, on the other hand, has actually been in the business for 27 years, although its output has tended to hover around 1,000 bbl/d for most of that time. This is refined in Trinidad by Petrotrin and returned to Barbados as fuel oil.

All crude is derived from land fields, under the control of the state-owned Barbados National Oil Company (BNOC) and only one exploratory well has ever been drilled offshore. BHPBilliton has been negotiating exploration rights to two offshore blocks from a 24-block auction which took place in 2007. The round attracted little international company interest, which may be a telling indication of how the petroleum world views Barbados' prospects.

Cuba is actually the second largest oil producer in the insular Caribbean, with about 52,200 bbl/d at the present time, having been around 62,000 bbl/d in 2003, so, like Trinidad and Tobago, its crude output has shown a declining trend. All of this comes from land and nearshore fields but the communist isle has placed its faith for the future in the offshore, where it has delineated 59 blocks in its portion of the exclusive economic zone (EEZ) in the Gulf of Mexico.

There are now 10 companies or consortia, including Spain's Repsol, Norway's Statoil, India's ONGC, Venezuela's PDVSA, Brazil's Petrobras and China's Sinopec holding offshore blocks in which they intend to drill. The few wells sunk in the offshore up to now have not been successful but companies are generally taking an optimistic view of Cuba's EEZ prospectivity.

Suriname's crude output is now up to 16,000 bbl/d, all of it from three onshore fields under the control of state company Staatsolie. Suriname prefers to leave the offshore to international companies, however, and four of them hold acreage in the Atlantic ocean – Repsol (block 30), Murphy Oil (block 37), Inpex (block 31) and Tullow (block 47). Repsol has had one disappointment so far, with the West Tapir dry hole in 2008 but it is likely to try again and Murphy is expected to drill one exploratory well late in 2010 and another in 2011, followed by Inpex with one well.

Guyana, Suriname's next door neighbour, with whom it had a long-standing maritime boundary dispute, mainly triggered by expectations of oil discoveries, but which is now settled, is also actively encouraging offshore exploration. Several offshore wells have been sunk in the 94 years that the country, home to CARICOM's headquarters, has been prospecting for oil but although there have been oil shows, no commercial discoveries have been made. The Horseshoe well, sunk by a small Canadian independent called CGX Energy in its Corentyne block in 2002, was a dry hole but CGX, which has displayed dogged faith in Guyana's prospectivity, is poised to try again in early 2011 with the Eagle One well.

Repsol is also in Guyana as well as Suriname and Cuba and is operator of the Georgetown block, where seismic has now been completed and drilling should commence soon. ExxonMobil and Shell have also acquired seismic in the Stabroek block. CGX also holds two other blocks – Corentyne Annexe and Pomeroon. Onshore Guyana, CGX also drilled three wells in its Berbice concession in 2005 but with no discoveries.

But Jamaica is undoubtedly the most aggressive of all the non-petroleum producing Caribbean archipelago states in its renewed search for oil and gas (either would be acceptable, since Jamaica is on an oil-substitution campaign for electricity generation and would be able to monetise any gas find almost immediately).

After one formal bid round in 2005 and a 'block road show' in 2007, the Petroleum Corporation of Jamaica (PCJ), the government-owned agency which handles all exploration arrangements with international companies, has now offered all the 19 remaining open offshore blocks as well as four onshore blocks up for auction under production sharing contracts (PSCs). The offshore acreage is located south, east and north of Jamaica.

Dr Raymond Wright, the country's 'Mister Energy,' who retired as group managing director of PCJ three years ago but has been retained as special projects manager in charge of the block auction, believes there is enough seismic and other data, particularly the 6,118 line km speculative 2D survey by CGGVeritas acquired in 2009, to convince companies of the exploration potential of Jamaica. He is even suggesting that the onshore blocks could contain 'shale gas resources'. He is convinced that, with oil prices having recovered, explorationists will once again be attracted to 'frontier petroleum provinces' and, he insists: "Jamaica very much falls into that category."

Like Guyana, Jamaica has long been attempting to find oil (for 55 years, in fact) but the Holy Grail has eluded it so far. The earlier bid round and road show did produce some interest from smaller companies, namely, Australia's Finder/Gippsland for blocks 6, 7, 10, 11 and 12, Canada's Rainville/Sagres Energy (blocks 9, 13 and 14) and Hong Kong's Proteam (1, 5, 8 and 17). No drilling in any of the 12 blocks has yet begun but Finder/Gippsland will probably be first off the mark in 2011. ■

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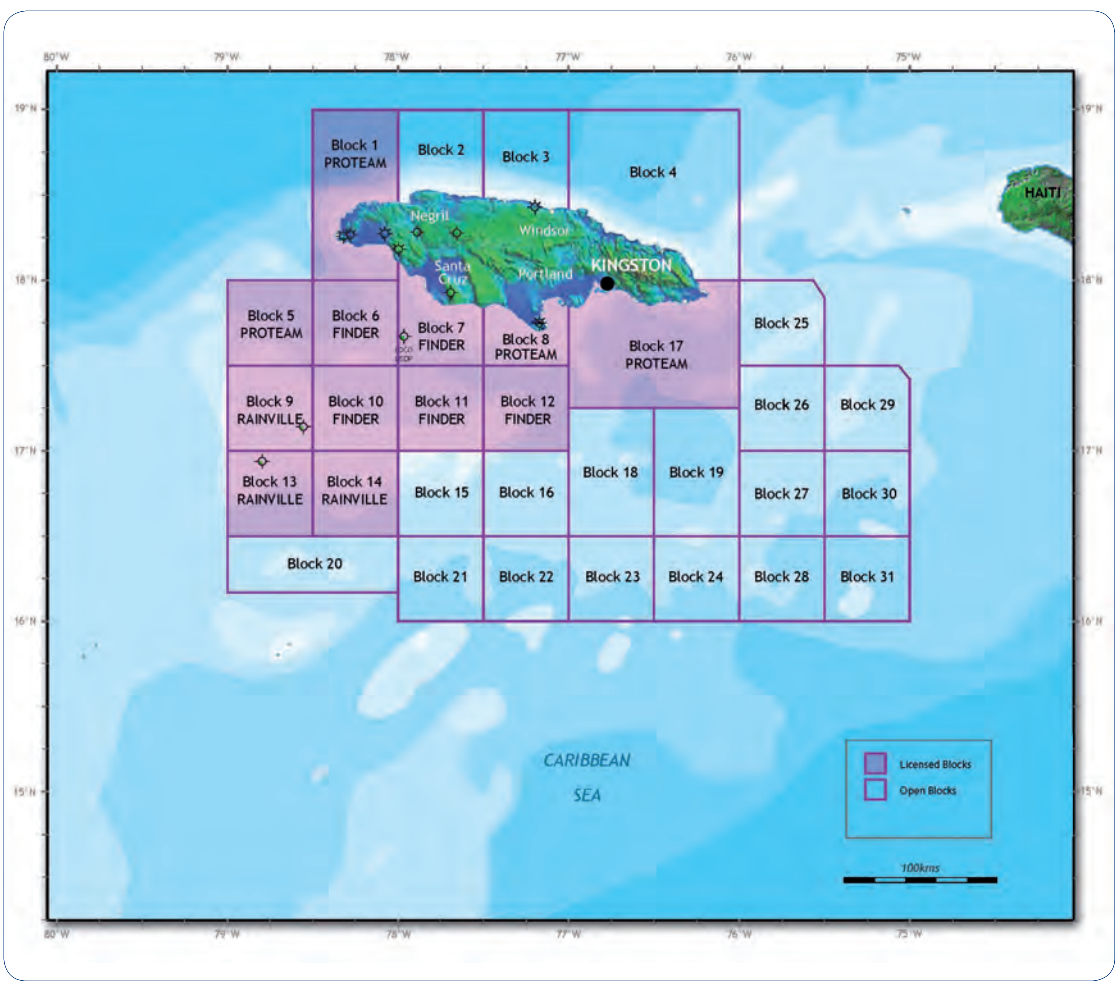

Jamaica: Exploration Block Map, 2010 (courtesy PCJ)