

Exploration watch

2019 exploration wells

Worldwide exploration continued to be dominated by ExxonMobil's ongoing success offshore Guyana, with five discovery wells and the opening up of two new plays. In 2019, this activity will continue, but will be joined by two separate efforts led by Tullow Oil and Repsol that will look to extend this success to the inboard Orinduik and Kanuku blocks. In Latin America attention will also be focused on Mexico, as drilling extends into deeper waters alongside further exploration of the shallower Sureste Basin. In the North Sea, potential high-impact wells in the Barents Sea and West of Shetland were deferred into 2019 and activity looks set to increase in these areas this year. Onshore, we look at high-impact wells in the Nanushuk trend of Alaska's North Slope and the frontier region of Western Mongolia.

Latin America and North Sea dominate

Of the 13 wells highlighted in this report, six are located in Latin America, with three each in Guyana and Mexico. The **Jethro** prospect together with a further **Orinduik** prospect and a **Kanuku** block prospect are all located inboard of the Stabroek discoveries offshore Guyana. After a hiatus in 2018, Mexico returns to the spotlight with three shallow water wells across **Block 7** and **Block 9**, the most contested blocks of Round 2.1. The remaining offshore wells are concentrated in the North Sea. We feature four wells in the UKCS: **Blackrock** and the two fractured basement **Warwick** wells are located West of Shetland, and **Chimera** is in the North Sea targeting a reservoir more usually associated with Norway. In Norway, we highlight **Presto** in the Norwegian North Sea. Notably absent from our list this year are any wells offshore Africa, after disappointing results from Morocco and Namibia in 2018. Two high-impact North Sea wells from 2018, **Lyon** and **Rowallan**, have been deferred into 2019. For details, see our [2018 report](#).

Our final two wells are both high-impact onshore wells: **Winx-1** sits in the Nanushuk trend of Alaska's North Slope and **Velociraptor/Fox** are located in Western Mongolia. All the wells featured are targeting resources over 100mmboe and include the participation of independent companies.

Improved sentiment as expenditure stabilises

Exploration and appraisal expenditure is stabilising in 2019, with Wood Mackenzie estimating a level just below \$40bn, marginally up from 2018's \$37bn. The focus on Latin America and the North Sea for offshore activity points to a more considered approach to exploration following budget cuts and the readjustment of portfolios.

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EXPLORATION WATCH

A periodic look ahead from Elaine Reynolds, our in-house petroleum engineer, focusing on interesting exploration activities with a significant potential impact on E&P equities.

Wells to watch in 2019

Exhibit 1: Summary of wells in Exploration watch

Prospect	Region	Operator	Resource estimate*	Estimated spud 2019
Winx-1	Alaska	88 Energy	400mmbbl	February
Presto	Norway	Equinor	160mmboe	February
Blackrock	West of Shetland	Siccar Point	200mmbbl	Q2
Jethro	Guyana	Tullow Oil	100mmbbl	May/June
2 nd Orinduik prospect	Guyana	Tullow Oil	TBA	After Jethro
Warwick (x2)	West of Shetland	Hurricane Energy	935mmboe	Q2/Q3
Kanuku prospect	Guyana	Repsol	TBA	Q3
Chimera	North Sea	Cairn Energy	154mmboe	Q3
Block 7	Mexico	ENI	>100mmbbl	Q3
Block 9	Mexico	Cairn Energy	>100mmbbl	Q3
Block 9	Mexico	Cairn Energy	>100mmbbl	Q4
Velociraptor/Fox	Mongolia	Petro Matad	201/206mmbbl	Q4

Source: Edison Investment Research *Operator estimate where available

Guyana: Activity beyond Exxon in 2019

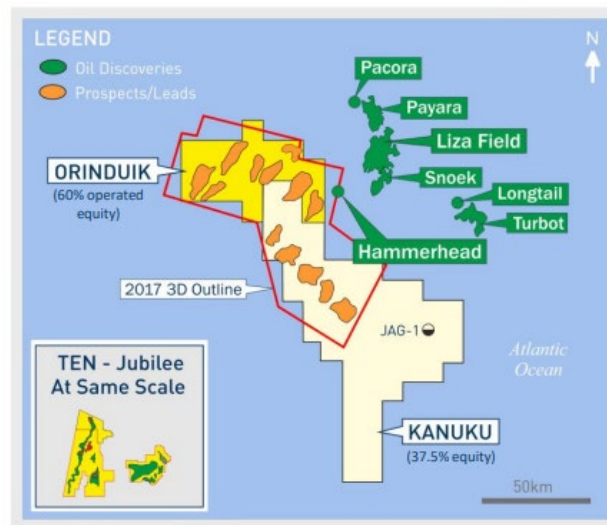
ExxonMobil continued finding oil in the prolific Stabroek block offshore Guyana in 2018, with resources currently estimated at over 5bnboe after 12 exploration wells. Six of these were drilled in 2018, with Ranger-1, Pacora-1, Longtail-1, Hammerhead-1 and Pluma-1 all encountering significant hydrocarbons and only Soribum-1 being non-commercial. Prior to 2018, the discoveries were Lower Cretaceous turbidite fans or channelised sands, but new plays were discovered during the year. Ranger-1 discovered a carbonate play to the north-east of Liza, while the Hammerhead discovery opened a new Tertiary sandstone play, younger and distinct from the previously successful Cretaceous aged reservoirs. The most recent discovery, Pluma-1, is located in the south-east of the block and could be combined with the Longtail and Turbot discoveries to form a new development area. Haimara-1, c 31km to the east of Pluma-1 has been drilling since early January and Tilapia-1, to the west of Longtail-1, is expected to spud imminently. The first phase of the Liza development is due onstream in 2020, with the potential for production to rise to 750,000bopd by 2025.

In this report, we look at the Orinduik and Kanuku blocks located inboard of Stabroek where three exploration wells are expected to be drilled in 2019.

Orinduik and Kanuku: Adjacent to Stabroek

Orinduik is operated by independent Tullow Oil (60%), and partnered by Total (25%) and Eco Atlantic Oil & Gas (15%), while the Kanuku licence is operated by Repsol (37.5%) with partners Tullow (37.5%) and Total (25%). The blocks contain multiple prospects across both Cretaceous and Tertiary reservoirs and it is also possible that the Hammerhead discovery extends into the Orinduik block as the Aurituk prospect (Exhibit 3). Tullow is planning to drill two wells in Orinduik in Q319 and a further well is expected in the adjacent Kanuku block around the same time. The first well to be drilled has been confirmed as the Jethro-Lobe prospect, an Upper Tertiary canyon turbidite located in the north-east of the Orinduik licence.

Exhibit 2: Tullow Guyana prospects map

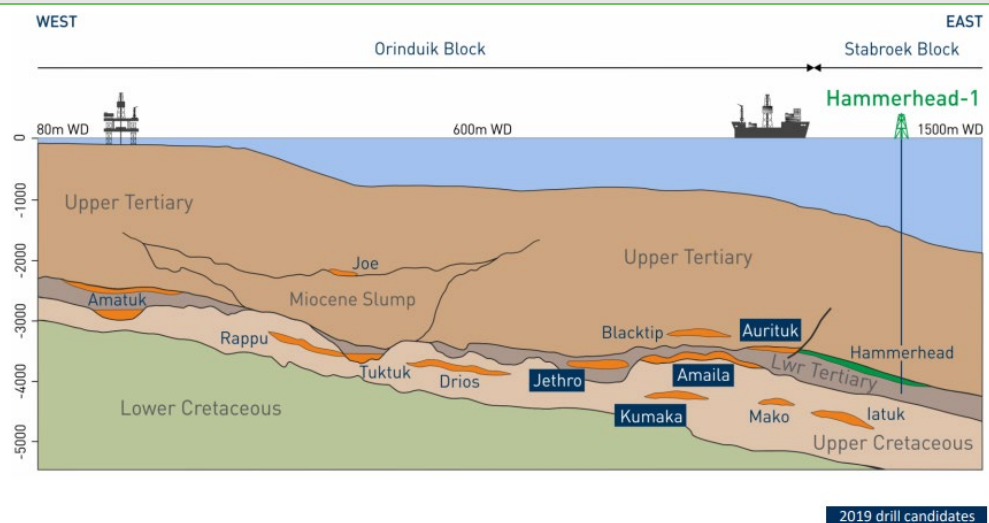


Source: Tullow Oil

The prospect exhibits seismic characteristics similar to those seen in Hammerhead (the seismic was acquired by Tullow over Orinduik and extended into Stabroek and was used by Exxon in its selection of Hammerhead as a drilling candidate). As the Tertiary is a shallower horizon than the Cretaceous, it is hoped that the reservoir quality will be better than seen in Liza, since the sands could be less compacted and have experienced less degradation. The key risk in the well, as is common to all stratigraphic prospects, is in the trap. Eco estimates that Jethro contains gross prospective resources of 250mm bbl and assigns a COS of 44%. Tullow sees this figure as representative of the greater Jethro complex and is targeting closer to 100mm bbl in the well. The prospect sits in 1,350m of water, but Tullow expects this to be the deepest water depth encountered when drilling across these licences due to Jethro's location at the outboard edge of Orinduik.

Jethro is planned to spud in late May to early June 2019 and will be followed by a second well, though the drill candidate has yet to be confirmed by the JV. The well is expected to cost around \$50m. Tullow is also planning to drill a well in its adjacent Kanuku block in Q3. The well will target the Cretaceous in the Carapa prospect, though further details of the well are not yet available.

Exhibit 3: Orinduik Geoseismic section schematic



Source: Tullow Oil

Mexico: Drilling extending into deepwater

Since Mexico began opening up to international oil companies with its first licence round in 2015, subsequent activity has focused on shallow water exploration, with the 2017 Zama discovery the most notable success to date. The appraisal of Zama has been underway since December 2018 with the Zama-2 well, which encountered oil as expected and will now be sidetracked up-dip and tested. This will be followed up with Zama-3, which will test the southern part of the field. Meanwhile Pemex is due to spud its Asab-1 appraisal well in March 2019 with the Tiger-1 drillship, which will test the extent to which Zama extends into its adjacent block.

2019 will also see exploration extend into deepwater, mainly in the Perdido fold belt close to US waters, but also in the unexplored deeper waters of the Salina del Istmo basin, as companies start to drill in deepwater blocks awarded in 2016's Round 1.4. In the Perdido, BHP commenced drilling the Trion 2DEL appraisal well with partner Pemex in November 2018, and announced in January 2019 that it had encountered oil. A down-dip sidetrack is currently underway to further appraise the field and with an emphasis on identifying the oil-water contact. The first well to be drilled in the region without Pemex involvement is likely to be the Total/Exxon (50:50) Etzil-1 exploration well in Block 2 in early 2019. The well is targeting 916mmmbbl in the Middle Miocene. CNOOC is also expected to drill one well each in Blocks 1 and 4 in the Perdido. In the Salina del Istmo, Murphy Oil is planning to drill the Cholula well in Block 5 in this unexplored basin in Q1. The Cholula prospect (previously known as Palenque) will target mid-case resources of 200mmboe in the Middle and Lower Miocene with an upside of 500mmboe. The block was the most competitive of the 2016 deepwater round, and Murphy is partnered here by Ophir, PC Carigali and Sierra.

Independent companies are more prevalent in the shallow water areas, and for 2019 we highlight three wells being drilled here by UK independent Cairn Energy.

Sureste Basin: Three wells in most contested blocks

Cairn entered Mexico in 2017, when it picked up two blocks in the shallow Sureste Basin in 2017's licensing Round 2.1. Cairn holds 65% WI and is operator of Block 9, and holds a 35% WI in Block 7, operated by Eni (35%). Two exploration wells are planned in Block 9 together with one well in Block 7. Block 9 was the most contested in Round 2.1, attracting six bidders. The eastern edge of the block is adjacent to the block where Zama is located in Block 7 (this block was awarded in Round 1.1 and is separate and different to Cairn's Block 7 awarded in Round 2.1).

Exhibit 4: Cairn licence locations offshore Mexico



Source: Cairn Energy

The wells will be drilling Pleistocene through Miocene targets and some are amplitude supported. The water depth in the area is up to 450m in Block 7, but is shallower in Block 9 where the depths at the drill locations are between 140m and 170m. The well depths in Block 9 are currently planned at 2,300m and 5,300m. Cairn has yet to release resource estimates for the wells, but all are

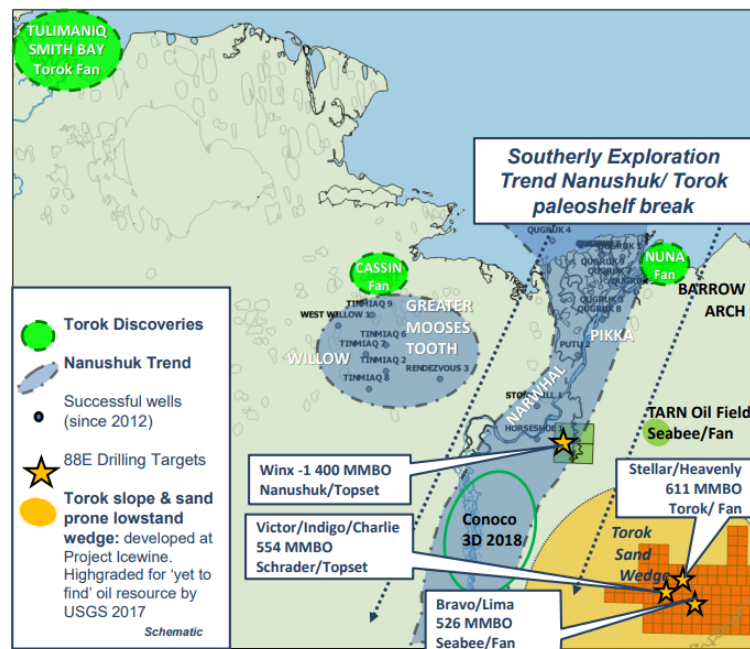
expected to hold over 100mmbbl. The Block 9 wells are scheduled to spud in Q3 and Q4, while the Block 7 well is planned for Q3.

Alaska North Slope: Focus on Nanushuk play

The Nanushuk play fairway in Alaska's North Slope has become a focus of industry attention since Repsol and Armstrong Energy's 2013 Pikka discovery established the presence of commercial hydrocarbons in the Cretaceous formation. In 2017 the Horseshoe-1 well extended the play 20 miles to the south of the Pikka Unit, and in 2018 ConocoPhillips announced its discoveries at Putu and Stony Hill in the Narwhal trend between the Pikka Unit and Horseshoe. ConocoPhillips also made a Nanushuk discovery to the west of Horseshoe in 2016 at Willow, where the Tinmiaq-2 well tested 44° API oil at 3,200bopd. Willow is currently estimated to hold 300mmbbl contingent resources, while Pikka/Horseshoe holds 1.2bnbl and is currently due to come onstream in 2024 with an expected plateau production of up to 120,000bopd. In 2018, Oil Search became the operator of Pikka and Horseshoe after a \$400m deal with Armstrong to acquire a 25% interest in Pikka and 37.5% in Horseshoe. The company has recently confirmed that hydrocarbons have been encountered in its Pikka B appraisal well, and this is currently being cored and logged prior to sidetracking. In December 2017, the US Geological Survey (USGS) assessed the undiscovered conventional resource in the Nanushuk and Torok to be 8.7bnbl of oil.

In 2019, a consortium of independent companies will drill the Winx-1 exploration well, four miles to the east of Horseshoe and targeting 400mmbbl across several targets including the Nanushuk. The well will be operated by 88 Energy (WI 36%) and partnered by Otto Energy (22.5%), Red Emperor Resources (31.5%) and Pantheon Resources (10%). Pantheon entered the JV after acquiring the Great Bear companies for US\$49m. The acquisition was approved in January 2019 by the Department of Natural Resources of the State of Alaska.

Exhibit 5: Alaska North Slope map showing Nanushuk trend and Winx-1 location

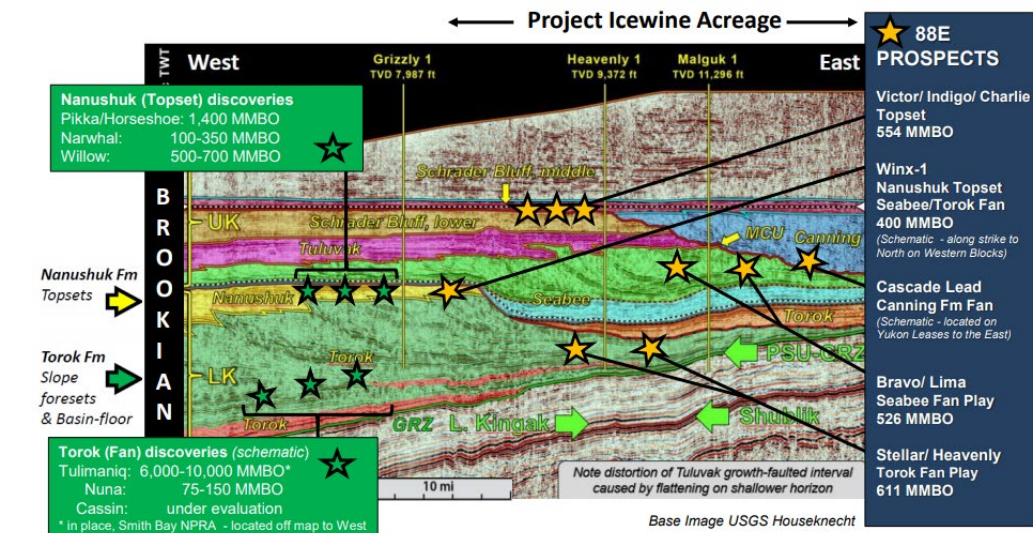


Source: 88 Energy

The Nanushuk formation is part of the Brookian sequence of multiple formations that filled the Colville foreland basin during the Cretaceous and Tertiary. The Nanushuk is known as the topset, which refers to the top of the beach front, consisting of deltaic, shoreface and fluvial sandstones while the deeper Torok formation consists of turbidite channels and slope and basin floor fans. Together the formations form a huge wedge of deposited sediment. The prospectivity has only

become clear in recent years with the acquisition of modern 3D seismic and the application of advanced interpretation techniques. Seismic of older vintage did not produce clear images as there were difficulties in imaging through the thick permafrost that is present here in the same way that salt deposits hindered seismic interpretation elsewhere. In addition, the prospects are stratigraphic traps, requiring 3D seismic for proper identification and modelling.

Exhibit 6: North Slope seismic schematic



Source: 88 Energy

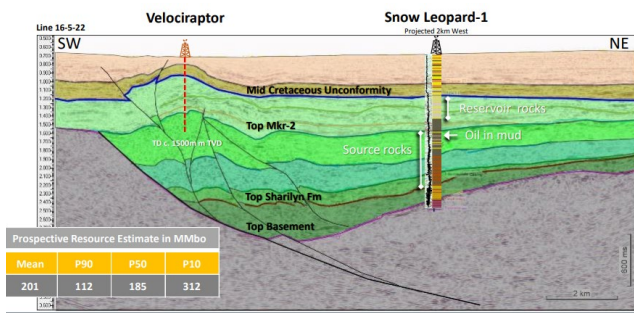
Winx-1: On trend with Horseshoe discovery

Winx-1 sits four miles to the east of Horseshoe and will target 400mm bbl of oil in the stacked Nanushuk, Torok, and the shallower Schrader and Tulevak formations. 88 Energy estimates that around 60% of the resources will be in the Nanushuk. Horseshoe encountered oil in Sequence 3 of the Nanushuk. Winx-1 is targeting Sequences 4 and 5 where there is a similar amplitude response to that seen in Horseshoe. The company assigns a geological chance of success to Winx-1 of 25% and sees the key risk as seal. The prospect relies on a pinch out on the clinoform shelf edge to form an effective seal.

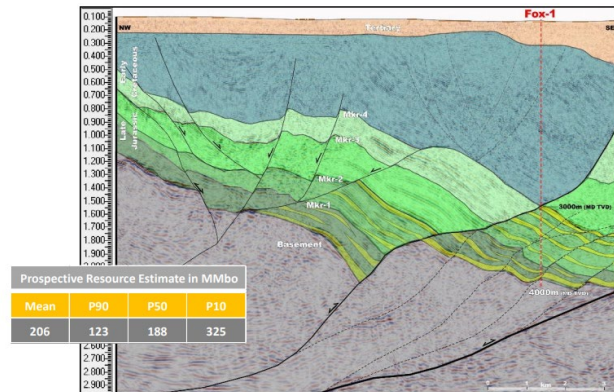
The well is currently scheduled to spud sometime in February 2019 and is expected to take around four weeks to drill to a TD in the region of 6,500ft and at a dry hole cost of \$15m. In the event of success, the well would also have sidewall coring, logging and testing carried out. The operator believes that these activities can be completed within the winter season (when ice roads are solid), which normally ends between mid-April and mid-May.

Mongolia: One high-impact frontier well

[Petro Matad](#) drilled the first ever exploration wells in the frontier Blocks IV and V in Western Mongolia in 2018. Snow Leopard-1 and Wild Horse-1 did not produce a discovery, however the evaluation of the data gathered from Snow Leopard-1 has highlighted three new structures in Block V in the Taats basin. The 'Raptors' are estimated by the company to hold total prospective resources of 400mm bbl, with 201mm bbl in the Velociraptor prospect. The company is currently evaluating whether to drill one of the Raptor prospects or the 206mm bbl Fox prospect in Block IV. Drilling is expected to take place in Q4 following on from the drilling of three exploration wells in the low-risk Block XX, analogous to producing fields in the north-east of Mongolia. In the case of success in Block XX, Petro Matad will review its priorities going forward as the establishment of commerciality in Block XX will be an important goal.

Exhibit 7: Velociraptor 3D seismic schematic


Source: Petro Matad

Exhibit 8: Fox prospect 3D seismic schematic


Source: Petro Matad

Velociraptor: Largest of the Raptors

The Raptors form a trend of three four-way dip closed inversion anticlines that sit 6km to the south of Snow Leopard. Although reservoir sands were not present in the shallow target in Snow Leopard, gases were observed together with the presence of an oil sheen in the drilling mud. Petro Matad believes that the gas is indicative of an active petroleum system and that the light oil has migrated from a mature source rock. The deeper target found good sand development, with an interval of over 400m, but the sands here were interpreted as being water bearing.

The prospects are located over a thick depocentre and the source intervals seen in Snow Leopard-1 thicken into this depocentre with short vertical migration pathways into the Raptor Trend. The prospects are expected to be well located for the presence of thick reservoir units, based on the shallow, good-quality sandstone reservoirs seen in Snow Leopard-1 and on the expectation of being sourced from basin bounding fault scarp. Velociraptor is the largest of the structural closures with potential mean prospective resources 201mmmbbl, and can be drilled with a low-cost, shallow well. The total resource potential of the Raptor trend is estimated to be c 400mmmbbl.

Fox: Benefits from core hole data

The Fox prospect sits in the Tugrug Basin in the east of Block V and is estimated to hold mean recoverable resources of 206mmmbbl across interbedded Jurassic and Cretaceous reservoir over six pay intervals. The structure is a tilted fault block and is a three-way dip closure against a fault defined on high-quality 3D seismic from 2017. Located in the centre of the basin, it is ideally located to receive charge from the Tugrug source kitchen. The key risk has been identified as trap effectiveness, however there is a large offset on the bounding faults, which the company believes will promote sealing. Fox sits 8km south-east of a stratigraphic core hole drilled to 1,600m, which provided evidence of live oil staining in the reservoir section, porous sands, good permeability and source rock with total organic content of 2–5%. Tests on extracted oil showed that it was not biodegraded and lacustrine source derived. In the success case, Petro Matad has identified seven prospects and leads within a 10km radius of Fox that would be partially de-risked by success in the Fox-1 well.

The well is expected to cost c \$9m and would be drilled to a depth of 4,000m, which would make it one of the deepest wells to be drilled in Mongolia.

UKCS: Exploration set to rise in 2019 after low point in 2018

Nine exploration wells were drilled in the UK sector of the North Sea in 2018, the lowest figure for over 40 years and down from the 2017 figure of 14. This was partly due to the slippage of several wells into 2019, including our highlighted wells for 2018, the 1.4tcf Lyon prospect West of Shetland and the HPHT Rowallan prospect in the Central North Sea (Rowallan was spudded on 31 December 2018). The most notable success in 2018 was Total's 1tcf Glendronach discovery West of Shetland, and the region was a key focus of activity during the year. Siccar Point Energy's Cambo appraisal well confirmed a high-quality reservoir and sustained flow and the company is now planning a phased development with the first phase targeting over 100mmbbl. The company, together with partner Shell, also expanded its acreage in the Greater Cambo area in the 30th licensing round. Meanwhile Equinor acquired Chevron's 40% WI and operatorship in Rosebank. Discovered in 2004, the 300mmboe field is one of the largest undeveloped discoveries in the North Sea and Chevron had been working on a development concept targeting first oil by the end of 2024.

Beyond West of Shetland, Azinor Catalyst announced recoverable resources of 15–50mmboe in its Agar/Plantain appraisal/exploration well. The discovery, in which Azinor is partnered by Faroe Petroleum and Cairn Energy, is expected to be commercial as it is close to existing infrastructure. Infrastructure-led exploration during 2018 also resulted in Apache's 10mmboe Garten discovery, 6km to the south of the Beryl field. While the discovery is relatively modest, Apache's focus on near field exploration has resulted in the discovery of over 85mmboe near Beryl since 2015.

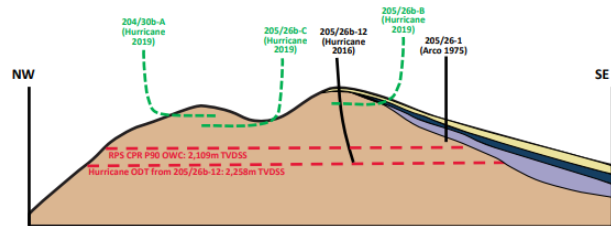
At the beginning of 2019, 18 exploration wells are being planned to drill during the year, but it remains to be seen if these will be delivered or if there will continue to be deferrals as experienced in 2018. West of Shetland will continue as a focus of activity in 2019, as [Hurricane Energy](#) brings its Lancaster EPS onstream during the first half of the year. The company will also carry out a three-well drilling programme in the Greater Warwick Area (GWA), adjacent to Lancaster, and we take a closer look at the two Warwick exploration wells in this report. In addition, we highlight Siccar Point's Blackrock prospect, located near Cambo and Rosebank. In the Northern North Sea, we look at Cairn's 154mmboe Chimera prospect.

Warwick: Two fractured basement wells in 2019

Hurricane has been focusing on progressing the development of its 523mmbbl (2P +2C) Lancaster field to first oil on schedule from its Early Production System (EPS) in H119. The EPS is targeting between 37.3mmbbl for a six-year period and 62mmbbl for a 10-year duration. The Aoka Mizu FPSO is currently in the Cromarty Firth and hook up operations are ongoing. In September 2018 the company announced that it had farmed out 50% of the Greater Warwick Area (GWA), immediately adjacent to Lancaster and covering its Lincoln and Warwick licences, to Spirit Energy. This provides additional funding that will allow Hurricane to accelerate the de-risking of the GWA, commencing with a three-well drilling programme in Q2/Q319, including two exploration wells in Warwick.

Exhibit 9: 2019 well locations


Source: Hurricane Energy

Exhibit 10: Schematic of proposed locations


Source: Hurricane Energy

The GWA encompasses Lincoln, discovered by Hurricane's 2016 well, 205/26b-12, together with Warwick, which has yet to be drilled. 205/26b-12 established that Lincoln was a separate accumulation to Lancaster, based on the large differences (>500m) seen in the interpreted oil water contact depths of the two structures. Hurricane attributes the barrier effect between Lancaster and Lincoln to the Brynhild Fault Zone, and has also identified a splay system of large-scale faults that may further intersect the GWA. Warwick has been independently assessed by RPS to hold P50 prospective resources of 935mmboe with a COS of 77%.

The two Warwick wells, together with an appraisal well in Lincoln will be located so that one well will be drilled in each potential fault compartment, allowing drill stem test (DST) pressure data to be used to determine whether the large-scale faults are acting as pressure barriers. Each of the wells will have a 1km horizontal section through the reservoir and will be logged and tested. The wells will all be drilled at different reservoir depths, ranging between 1,770m and 1,900m, and this should also allow an oil gradient to be defined from DST pressures if no fault compartmentalisation is seen (Hurricane's experience in collecting pressure data and samples using wireline tools in basement reservoirs is that it is challenging, and no such pressures or samples were recovered in 205/26b-12). One of the Warwick wells, 205/26b-C, will be drilled below structural closure to demonstrate oil flow from this deeper section.

Hurricane is fully carried up to a maximum of \$180.6m gross on its share of work programme and the Transocean Leader semi-submersible has been contracted to carry out the work.

Blackrock: Between Cambo and Rosebank fields

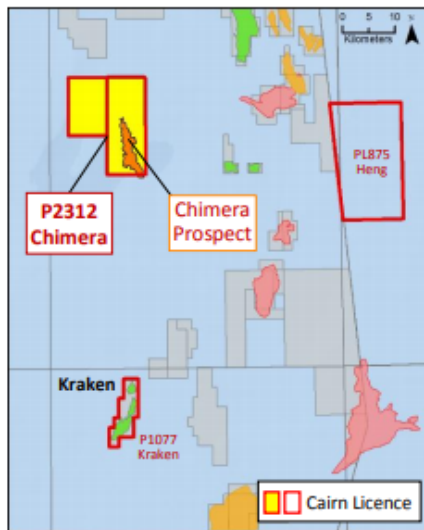
The Blackrock prospect sits in the Corona Ridge to the north of Cambo, and south of Rosebank. The geological high is believed to contain multiple different plays and privately backed Siccar Point estimates that there is potential for more than 1.5bnbbbl in its acreage in addition to the discovered resources in Cambo. Blackrock will be the first well to test these potential resources and will target more than 200mmbbbl in the same reservoirs as seen in Cambo and Rosebank: the Tertiary Colsay sands and the deeper Upper Jurassic sands. The well is scheduled to spud in March 2019. Siccar Point holds a 52.5% WI and is operator with partners Ineos (25%) and Shell (22.5%).

Chimera: Using Norwegian experience in the UK

The Chimera prospect is a large stratigraphic structure located in Blocks 3/16a and 3/17a in the Northern North Sea. The well, due to be drilled in Q3, sits in 135m of water and is targeting gross

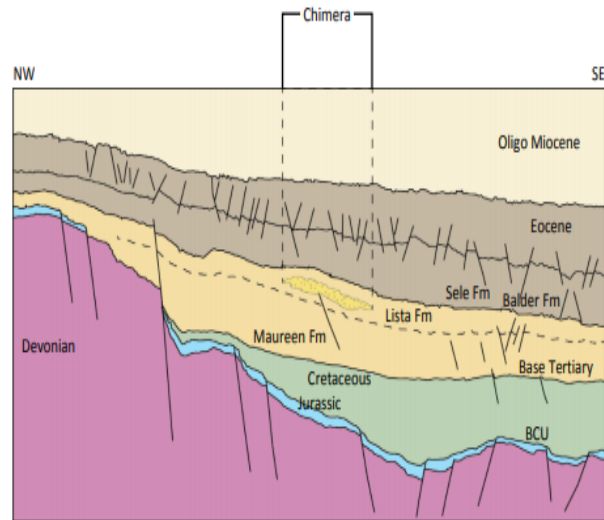
resources of 154mmboe. Cairn holds a 60% WI having farmed down 40% to an as yet unnamed company at the end of 2018.

Exhibit 11: Chimera location



Source: Cairn Energy

Exhibit 12: Chimera schematic



Source: Cairn Energy

The primary target is the Paleocene Heimdal sandstone, which is not generally drilled in the UK but is commonly produced in the Norwegian sector. The well will also target turbidite sands in the Eocene. Cairn was able to image the sands as a result of new 3D seismic. The reservoirs are encased in Lista shales and this could influence the hydrocarbon charging of the sands, so this is seen to be the key risk for the well. Drilling is expected to take around 25 days.

Norway: Exploration activity to significantly increase in 2019

Exploration activity is forecast to increase significantly on the Norwegian Continental Shelf (NCS) in 2019, with Wood Mackenzie forecasting that 40 exploration wells will be drilled this year, up from 27 in 2018. The programme is dominated by state company Equinor and independents Aker BP and Lundin Petroleum, all of which have yet to provide details of their 2019 exploration programmes. Many of the prospects are likely to be infrastructure led, but there are still expected to be a number of wildcat wells, including several in the frontier Barents Sea.

2018 did not yield the expected exploration well programme in the Barents, with only one of the three planned frontier south-eastern Barents wells, Gjøkåsen, spudding at the end of the year and the remaining two, the Equinor-operated Korpffjell Deep and Stagnestind wells delayed into 2019. Similarly the 274mmboe Inca prospect (formerly Shenzhou) has been deferred from 2018 to 2020. Aker BP gives a pre-drill range of 26–1427mmboe for Gjøkåsen, so that the well has the highest potential impact of all the wells currently planned in the region in 2019. Drilling is currently suspended at Gjøkåsen due to an unintentional disconnection of the blowout preventer on the West Hercules semi-submersible. The delay will also have an impact on the drilling of follow-on well Gjøkåsen Deep.

Beyond the Barents, OMV discovered 48–245mmboe in the Iris/Hades HPHT gas condensate prospect in the Norwegian Sea, with independent Faroe Petroleum holding a 20% WI.

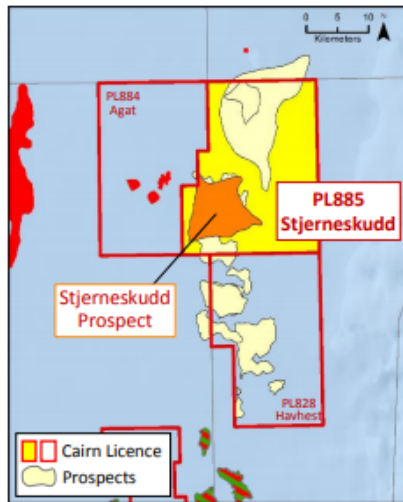
The region continued to see the consolidation of companies active on the NCS, most recently with DNO's acquisition of Faroe Petroleum, but also with the merger of Point Resources into ENI to form Vår Energi and Neptune Energy's integration with VNG Norge. Also notable is the increasing influence of private companies in the region. The successful 2018 APA awards saw a record 83 licences awarded in January 2019, of which 40 included interests from private companies.

Here we highlight the 160mmboe Presto prospect being drilled by UK independent Cairn Energy in the Norwegian North Sea.

Presto: 160mmboe with follow-on potential

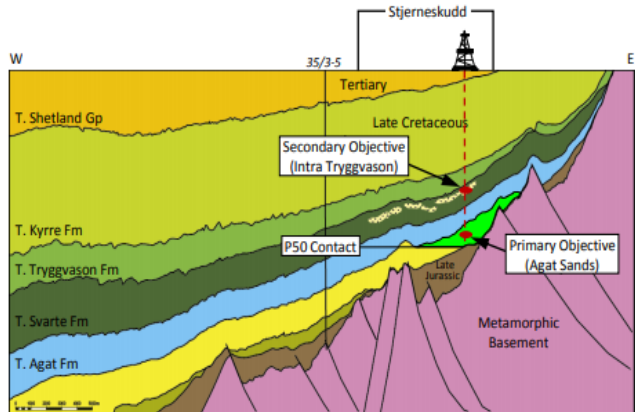
Cairn holds a 30% WI in the Presto prospect (previously known as Stjerneskudd), which is operated by Equinor (30%). The well is due to spud in February 2019, and is targeting 160mmboe gross mean resources in the Lower Cretaceous Agat sandstones with a secondary objective in shallower stacked channelised turbidite fan complexes in the Upper Cretaceous.

Exhibit 13: Presto location



Source: Cairn Energy

Exhibit 14: Presto schematic



Source: Cairn Energy

Presto is a large stratigraphic trap and the success of the prospect relies on the sands pinching out to form an effective updip seal. Success would de-risk the Havhest prospect in PL828 immediately to the south of Presto and in which Cairn holds 40% WI.

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