

Exploration watch

Porcupine Basin: Phase 2 - Independents Day

19 July 2016

Interest in the underexplored Porcupine Basin offshore Ireland remains strong, with a record number of applications received in the recent 2015 Atlantic Margin Irish licensing round. The Phase 1 awards were announced in February 2015 and saw a number of major companies picking up significant positions in the basin, including ExxonMobil and Statoil, both companies with large interests in the analogous Flemish Pass Basin. This update looks at the most recent awards made in June 2016 under Phase 2 of the 2015 round, where 11 licence options were awarded entirely to independent companies including Cairn Energy, Europa Oil & Gas, Petrel Resources and Providence Resources. Meanwhile, a number of substantial 3D seismic surveys are due to be completed over the summer, driven by the majors, which could lead to exploration drilling in 2018/19.

Independents dominate Phase 2 awards

14 new licensing options were awarded to 11 independent companies as part of Phase 2 of the 2015 Atlantic Margin round. With the total number of 43 applications for the 28 options awarded, there was some overlap between applications and some areas were highly contested. The Phase 1 awards were concentrated in the Southern Porcupine, while in Phase 2 this shifted further north and away from the basin edges into the centre.

Focus on studies in short term

While the Phase 1 awards went to companies with firm seismic plans, the work obligations for Phase 2 only involve desktop studies. This has allowed small independents low-cost entry to the basin, so investors should not expect to see activity over these licence options in the short term. However, Europa and Providence are both currently looking to secure farm-outs and the conclusion of the round will now have provided a full picture to potential partners.

3D seismic in 2016

A number of the majors awarded acreage in Phase 1 are already carrying out 3D seismic surveys in the Porcupine Basin. Woodside has completed a 1,600km² 3D seismic survey in the basin and is currently carrying out a further 2,932km² survey. ExxonMobil and Statoil are also expected to carry out a 5000km² survey during the course of the summer. We expect that given the timeframes required to process and interpret seismic data, any resulting exploration drilling will occur from 2018 at the earliest. In addition, Providence is looking to drill its Druid prospect as early as 2017.

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COMPANIES IN THIS REPORT

Europa Oil & Gas

Petrel Resources

Providence Resources

AzEire

Scotia Oil & Gas

EXPLORATION WATCH

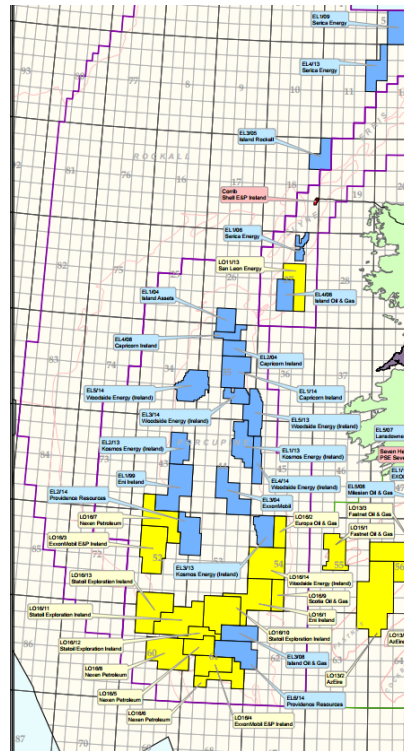
A periodic look ahead from our in-house petroleum engineer, Elaine Reynolds, focusing on interesting exploration activities with significant potential impact on E&P equities.

Porcupine Basin: Independents dominate Phase 2

The Porcupine Basin is an exploration hotspot, driven both by the interest in Jurassic plays similar to those found in the analogous Flemish Pass basin offshore Canada and in Cretaceous stratigraphic prospects similar to those encountered offshore West Africa. As such, the 2015 Atlantic Margin licencing round has been the most successful to date, with a record number of 43 applications from 17 companies. With Phase 2 of these awards announced in June 2016, we are providing an update to our Exploration Watch on the Porcupine basin published in April 2016. For a more detailed introduction to the basin, please refer to our original [note](#).

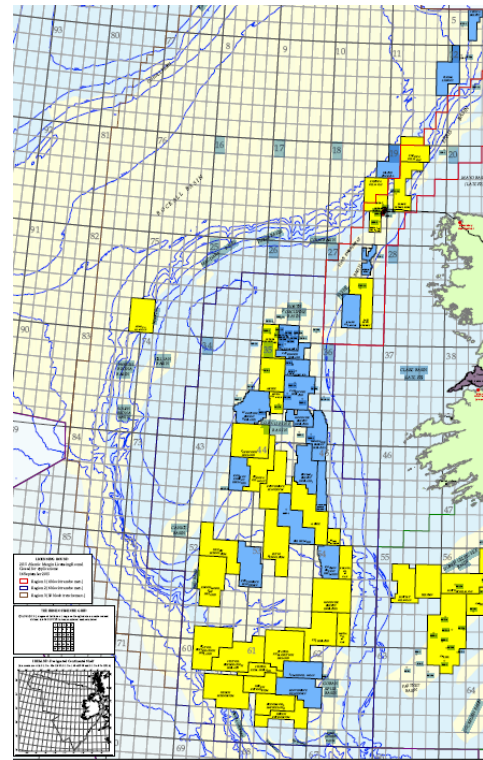
While a significant number of the Phase 1 awards went to majors interested in the Southern Porcupine Basin, the 14 licence options awarded in Phase 2 have gone to 11 independent companies. Concentrated to the north of the Phase 1 awards, a number of Phase 2 licences have been awarded away from the basin edges and with a separate area of interest appearing around the Corrib gas field in the Slyne Basin to the north-east of the Porcupine Basin.

Exhibit 1: Concession map after Phase 1 (licence options shown in yellow)



Source: DCENR

Exhibit 2: Concession map after Phase 2 (licence options shown in yellow)



Source: DCENR

Europa Oil & Gas was awarded four licence options and AzEire and Petrel Resources received two, with the remaining eight companies picking up one licence option each. A number of companies have entered the Atlantic Margin for the first time, including Faroe Petroleum, Predator Oil & Gas, Theseus and Ratio Petroleum. The work obligations for these awards mainly involve desktop studies and so offer a low-cost entry to the area for small independents. The licence options terms vary between two to three years before a company must decide whether to convert to a frontier exploration licence (FEL) and commit to more expensive activity such as 3D seismic acquisition and exploration drilling.

The Phase 1 awards were allocated earlier in the year to companies with firm seismic acquisition plans and this has allowed some surveys to be carried out over the summer seismic window in 2016. Woodside has already completed a 1,600km² 3D survey over its LO 16/14, known as Granuaile, in the Southern Porcupine Basin and covering blocks 54/11, 54/12, 54/13, 54/16, 54/17 and 54/18. The company has now shifted its attention north and is in the process of acquiring 2,400km² 3D seismic across an area known as Bréannan, covering its licences FEL 3/14 (in which Petrel holds a 15% WI) and FEL 5/14 (with partner AzEire, 40% WI). In addition, Statoil and ExxonMobil are expected to carry out a 5000km² 3D survey over their six licences in the Southern Porcupine over the course of the summer. This would bring the total seismic acquired in the Porcupine in 2016 to 9000km², a significant increase on the previous record for the basin of 3,500km² in 2013.

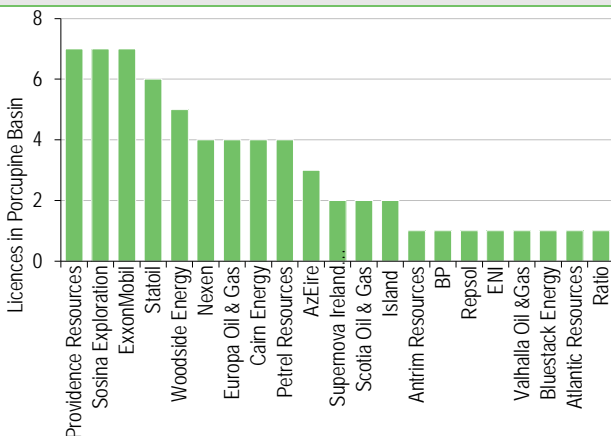
Slyne Basin: Renewed interest

Four of the licence awards are clustered around Shell’s Corrib gas field, opening up a new area of exploration interest. Two of these licence options were awarded to Europa, with Faroe and Predator picking up one licence each. Any future discovery here could benefit from being tied back to nearby infrastructure.

Companies with exposure to the Porcupine Basin

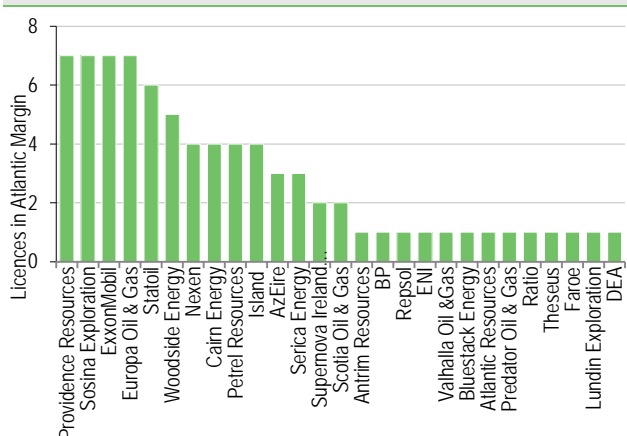
Phase 1 of the 2015 Atlantic Margin round saw a number of major companies either increase their positions in the Porcupine Basin, with for example ExxonMobil picking up six new licences, or entering the basin for the first time, as in the case of Statoil and Nexen. In Phase 2, it was the turn of the independents to bolster their positions in the region with Europa, Cairn, Petrel and AzEire now sitting just behind the majors at between three and four licences each. Providence still holds the largest independent position, although it has not increased its total number of licences, having relinquished FEL 1/99. Sosina sits alongside Providence with seven licences, although it holds a minority interest in all its licences (ranging from 2% to 20%).

Exhibit 3: Licence positions in Porcupine Basin



Source: DCENR, Edison Investment Research

Exhibit 4: Licence positions in Atlantic Margin



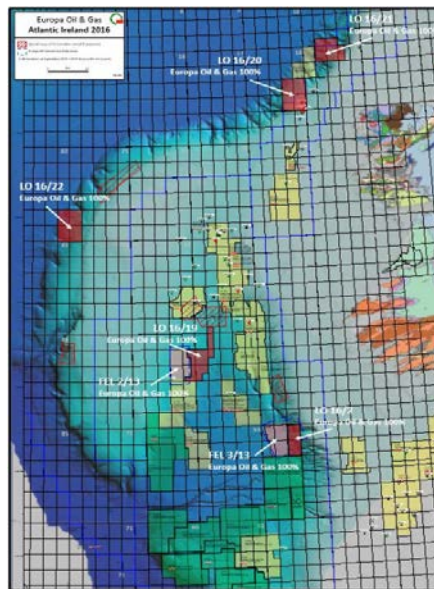
Source: DCENR, Edison Investment Research

Expanding the area to include the whole of the Atlantic Margin sees Europa sitting with the largest number of licences alongside Providence and ExxonMobil with seven licences each and new entrants Faroe and Theseus with one licence each, predominantly due to picking up new licence options in the Slyne Basin. Here we look in more detail at five independents with new acreage as a result of Phase 2: Europa, Petrel, Providence and private companies AzEire and Scotia.

Europa: Largest award diversifies portfolio

Europa was awarded 100% interest in four licence options in Phase 2. This was the largest number of licences awarded to any company in this phase and brings its total number of licences in the Atlantic Margin to seven. The new licence options include one in the Porcupine Basin, two in the Slyne Trough and one in the Padraig Basin, providing Europa with a more balanced and diversified portfolio and combined gross mean un-risked prospective and indicative resources of over 4bnboe and 1.5tcf.

Exhibit 5: Europa licence map highlighting Phase 2 awards



Source: Europa Oil & Gas

LO 16/19 sits in the South Porcupine basin and lies immediately to the east of FEL 2/13, which is also held by Europa. Cretaceous channel prospects were clearly identified in FEL 2/13 on 3D seismic and the company believes that these channels are feeding several fans to the east in LO 16/19, which have the potential to contain 300mmboe-1bnboe gross mean un-risked indicative resources. These fans have been identified based on 1800km of historical 2D data and Europa is planning to mature the prospect inventory here and to expedite the acquisition of 3D seismic by looking to secure a farm-in partner.

LO 16/22 is located 160km to the west of the Connemara and Spanish Point oil and gas discoveries in the Padraig Basin. Although this sits outside the Porcupine Basin and is considered to be a frontier exploration region, Europa believes that this area, rather than the Southern Porcupine, may have lined up with the analogous Flemish Pass basin before the North Atlantic break-up. Europa estimates that LO 16/22 contains gross mean un-risked indicative resources of 300-600mmboe based on historic 2D seismic data

Slyne Trough: Infrastructure-led exploration

Europa was also awarded two licence options in the Slyne Trough, in the vicinity of Shell's Corrib gas development, which came on stream in December 2015. LO 16/20 is adjacent to Corrib and contains the Triassic gas play. Europa has identified a Triassic horst block around 16km north-west of Corrib and has mapped mean un-risked prospective resources of 1tcf here based on historic 3D seismic. The 3D data need to be reprocessed.

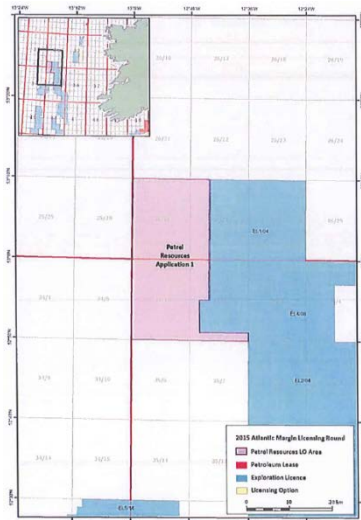
LO 16/21 is located around 40km north-east of the Corrib and also contains the Triassic gas play. Europa has identified Triassic tilted fault blocks from historic 2D and 3D seismic and estimates that they contain gross mean un-risked indicative resources of up to 0.5tcf.

Europa is now concentrating on securing a farm-in partner for its assets offshore Ireland. The company has reported interest from major and mid-cap companies since the data room opened in January 2016, although it is likely that potential partners would have waited for the conclusion of the licensing round to have full sight of Europa's newly awarded licence options.

Petrel: Doubling its position and 3D seismic underway

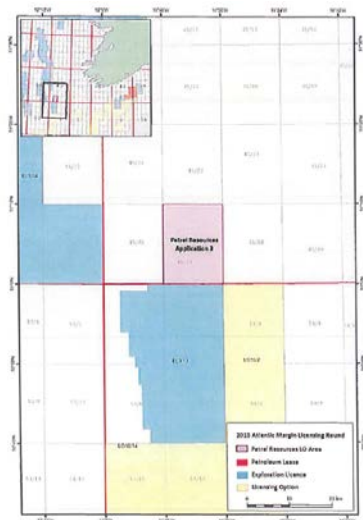
Petrel has been awarded 100% WI in two new licence options, LO 16/24 and LO 16/25, to add to its existing two frontier exploration licences, FEL 3/14 and FEL 4/14, in which it holds a 15% WI, with partner and operator Woodside Petroleum holding the remaining 85%.

Exhibit 6: Petrel LO 16/24



Source: Petrel Resources

Exhibit 7: Petrel LO 16/25



Source: Petrel Resources

LO 16/24 covers 664km² and sits in the Northern Porcupine Basin, immediately to the west and north-west of the Connemara oil field and close to the Burren and Spanish Point discoveries. Petrel sees the potential for both Cretaceous and Jurassic prospects across the acreage. The company has identified Lower Cretaceous 'pinch-out plays' in the southern section of the licence option covering 35/01 and part of 35/02 and based on historic 2D seismic. Petrel estimates that these plays could contain up to 310mmbog gross mean un-risked indicative resources. The northern section of LO 16/24 covering 26/26 and part of 26/27 contains promising Apto-Albian plays; however, the existing 2D seismic needs to be reprocessed and reinterpreted before any resource estimates can be given. Additional 3D data are available for this northern section, which will also need to be acquired, reprocessed and reinterpreted.

LO 16/25 covers 260km² and the entirety of Block 45/27. It is located in an embayment on the eastern edge of the Southern Basin and to the south-west of existing FEL 4/14. Petrel believes that sand was fed into this area during the Lower Cretaceous from the Celtic Platform to the east. The

company has also identified Lower Cretaceous units here and its interpretation of legacy 2D seismic data indicates potential for closure, although it is too early to estimate recoverable volumes here. Kosmos Energy acquired 3D seismic over this area in 2013.

Finally, partner Woodside commenced a 2,392km² 3D seismic survey, known as the Bréanann survey, on 27 June 2016. Around 40% of this survey will cover Petrel's FEL 3/14, with the total programme expected to take five weeks. Petrel is fully carried for the seismic expenditure.

Providence: New prospect Avalon

Providence was awarded one new licence in Phase 2, taking its total number of licences in the Porcupine Basin to seven. The company now holds an 80% WI in and is operator of LO 16/27, adjoining the north-west edge of Providence's existing FEL 3/04, which contains Dunquin. The licence sits away from the basin edges in around 1300m of water. Based on vintage 2D seismic, the company has identified a Paleocene basin floor channel and fan system, Avalon. The system appears to be similar to the company's Druid prospect in FEL 2/14, with Providence having mapped a similar AVO anomaly here that is depth consistent. The company believes that oil may have channelled out of Dunquin and up into LO 16/27. Providence will now focus on purchasing, reprocessing and interpreting existing 2D seismic over the licence, although 3D seismic will be required in the future, with any survey likely to also cover Dunquin North in FEL 3/04 to the south.

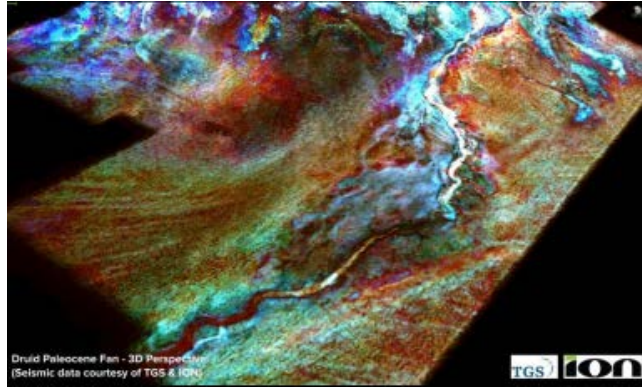
Exhibit 8: Providence licence map



Source: Providence Resources

Since our original note, Providence has announced that it has raised \$70m, subject to admission, through a Placing Offer and Open Offer and intends to use part of this to fund the drilling of a well on Druid, potentially in 2017 and at a company estimated gross cost of \$47m, reflecting a dramatic reduction in deepwater rig day rates. Druid contains two fans estimated by the company to contain in place un-risked prospective resources of 3.18bnbbbls. A farm-out process for Druid and Drombeg has been ongoing since March 2016.

Exhibit 9: Druid fan



Source: Providence Resources

In July 2016, the company also provided an update on its Newgrange prospect, as part of its collaborative project with Schlumberger. Most of Newgrange sits in FEL 6/14 in the southern part of the Porcupine Basin, known as the Goban Spur basin and is a Cretaceous target. From 2D seismic data the prospect is estimated to contain un-risked mean prospective resources of c 13.6tcf GIIP or c 9.2bnbbbl STOIP, reflecting the uncertainty of the hydrocarbon phase present.

AzEire

AzEire is a private E&P company backed by Seacrest Capital. The company has access to an extensive seismic database, allowing it to take a basin-wide approach to exploration.

AzEire was awarded two licence options in Phase 2, LO 16/16 and LO 16/17, to add to its existing 40% WI in FEL 5/14, operated by Woodside. FEL 5/14 sits on the north-western edge of the basin and Woodside is currently acquiring 3D seismic in the area as part of its 2,392km² Bréannan survey. LO 16/16 adjoins the northern edge of FEL 5/14, while LO 16/17 sits in the Southern Basin and extends from the eastern edge towards the centre.

Scotia

Scotia is a private company, which was awarded one licence option, LO 16/29, as part of Phase 2 and a further licence option, LO 16/9, in Phase 1. LO 16/9 is located over blocks 54/23 and 54/28 on the eastern edge of the Southern Porcupine. LO 16/29 sits in a more central position in the Northern part of the basin covering blocks 35/16, 35/17 and 35/22.

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