Horizon Energy
UK Licences

Investment Opportunity

Horizon Energy Companies
United Kingdom Offshore Licences
Mid North Sea High

Opportunity Highlights

- New Zechstein oil play opportunity in Mid North Sea High
- Licences P2329, P2427, P2486 & P2557 area extends 2,400 km², equivalent to 10 UKCS blocks
- Horizon Energy holds 77.5% interest in licences P2329, P2427 & P2486 and a 87.5% interest in P2557
- Five robust structural prospects and eight leads mapped with 273 mmbbl (P50) recoverable resources with an upside of 524 mmbbl (P10)
- Shallow water, jack-up drilling and shallow reservoir targets
- Situated up-dip from 2019 Ossian oil discovery operated by Spirit Energy
- New regional ION 3D seismic survey enables high-quality interpretation of Z2 Haupt dolomite main prospective reservoir
- Recently drilled (2020) onshore West Newton oil discovery well confirms potential of Haupt dolomite play that is also in a carbonate platform/slope position, further de-risking prospects and leads
- Exploration well planned for 2022/23
- Carbon capture and storage following an oil or gas field development and cooperation with the planned nearby wind farms are investment opportunities
- Horizon is seeking additional funding to acquire the ION 3D seismic survey and a technical work programme ahead of drilling.

June 2021
Horizon

Horizon Energy Partners Limited and Horizon Energy Acquisition Limited (Horizon) have been awarded a substantial participation interest in five key licences in the last five UK offshore bid rounds. The licences are located in the core of the Mid North Sea High (“MNSH”) offshore Permian (Zechstein) and Carboniferous play trend. The contiguous blocks are approximately 5km east of the 2019 Ossian Zechstein oil discovery. Multiple structural prospects have been mapped in the Horizon licences on existing 3D and 2D seismic data. The existing prospects will be further de-risked and additional prospects identified with the integration of a large ION 3D seismic survey which has been recently acquired over the Horizon licences and the initial Phase 1 of this survey will be delivered in Q2 2021.

Since commencing assembling its licence position in the Mid North Sea High (MNSH), Horizon has expended close to US$ 5MM in exploration costs, including underwriting the TGS 668 sq. kilometer multi-client 3D survey in 2019.

Horizon is seeking additional funding to acquire the ION 3D seismic survey and a technical work programme ahead of drilling.

Barrel revenue split (50 mmbbl case)

Overview

Horizon Energy’s licence area comprises approximately 2,400 km², equivalent to 10 UKCS blocks. Five robust structural prospects and eight leads have been mapped with individual prospect STOIIP ranges up to 300 mmbbl and individual prospect Prospective Resources up to 90 mmbbl. Cumulatively, the STOIIP and Prospective Resources for structural and stratigraphic cases are shown in the table below. An upside stratigraphic case is also possible with multi-billion barrel potential. Economic evaluation for a 50 mmbbl development yields $306 million (NPV10) at $50/bbl with an IRR of 49%. At $70/bbl, NPV10 increases to $580 million and the IRR to 73%.

Multiple Structural Prospect mapped with substantial Prospective Resources (mmbbl)

<table>
<thead>
<tr>
<th>Oil in Place (mmbbl)</th>
<th>P90</th>
<th>P50</th>
<th>P10</th>
<th>Mean</th>
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<td>Structural Prospects &amp; Leads</td>
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<td>Stratigraphic Prospect</td>
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</table>

<table>
<thead>
<tr>
<th>Prospective Resources</th>
<th>P90</th>
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<tr>
<td>Structural Prospects &amp; Leads</td>
<td>121</td>
<td>273</td>
<td>524</td>
<td>303</td>
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<tr>
<td>Stratigraphic Prospect</td>
<td>1,525</td>
<td>3,938</td>
<td>8,138</td>
<td>4,492</td>
</tr>
</tbody>
</table>

Post-tax economic forecast for a 50 mmbbl barrel development, based on $50 oil.

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**Database**

The seismic database consists of 668 km² of 2019 3D data, acquired on behalf of Horizon and legacy 2D data totalling over 25,000 kms. In addition, Horizon is in discussions with ION to purchase 1,586 km² from the Phase 1 2020 3D survey and 1,757 km² from the Phase 2 2021 3D survey. These datasets together will provide full 3D seismic coverage over the entirety of the Horizon licences. Over 50 wells were used in the technical evaluation, together with data on analogous Zechstein fields and discoveries in the UK, Netherlands, Denmark, Germany and Poland. Horizon has also conducted and sponsored geoscience studies, including burial histories, source identification, hydrocarbon migration and timing, geochemistry and petrophysics.

**Exploration Potential**

The highly prospective Upper Permian Zechstein carbonate play has recently become the center of renewed exploration activity. Horizon’s licences are in the heart of this play. The recent successes at the offshore Ossian well 42/4-1, 1Z (Spirit / ONE-Dyas) and the onshore West Newton (Rathlin) oil discovery have confirmed the oil potential of the Zechstein. The prospect inventory comprises multiple structural and stratigraphic traps.

“Rystad Energy analysis indicates that on a worldwide basis the UK offers operators best profit conditions to develop big offshore fields, Kuwait, Canada follow.”

**Zechstein Platform. Regional overview with key wells**
The Z2 Zechstein carbonate reservoir

The Z2 Haupt Dolomite is a proven producing interval for both oil and gas across the Southern Permian Basin where it produces as the main interval in over 51 fields. These span Poland, Germany, The Netherlands and the UK. With P1 reserves for the fields in excess of 1.8 TCF of gas and over 750 million barrels of oil. An additional 9 discoveries in the UK (the most recent of these being Ossian and West Newton) offer significant additional resources to the UK sector that has historically not focused on the potential of the Zechstein.

Barnówko-Mostno-Buszewo (BMB) Oil and Gas Field in Poland

The BMB complex is the largest oil and gas field in Poland and is an excellent analogue to prospects mapped on the carbonate platform within the Horizon licences. The field has Oil in Place of 488 mmbbl and 1038 bcf of Gas in Place with recoverable reserves of 90 mmbbl of oil and 860 BCF of gas. The Main Dolomite Z2 reservoir has average thickness of 48m with good quality reservoir properties of 17% average porosity. The carbonate platform structure and Plattendolomite karstification characteristics seen on seismic show strong similarities to Horizon Energy’s prospects.

Ossian oil discovery

The 2019 Ossian well 42/4-1, 1Z oil discovery has been reported as having a Hauptdolomite reservoir with recorded flow rates of 3,500 barrels per day, with both oil and water, indicating significant reservoir potential. The well appears downdip of the Horizon licence acreage and was not optimally placed for a Zechstein carbonate platform structure as it was targeted primarily for a Carboniferous prospect.

West Newton oil and gas discovery

The 2020 wells following on from the original discovery have confirmed the potential of the Hauptdolomite reservoir on a main carbonate platform with hydrocarbons also encountered in a slope position. The reported reservoir thickness is 62m gross, a hydrocarbon column of 118m and average porosity of 14%. Early indications suggest a substantial stratigraphic trap with Oil In Place of 146 mmbbl and Gas In Place of 212 bcf. Testing of the wells is planned and approval has been granted for this in 2021.
New 3D Seismic Data

A large ION Geophysical 3D seismic survey over the Mid North Sea High was acquired as a Phase 1 survey in 2020 over part of the Horizon licences. Phase 2 currently being acquired will give full coverage over all the licences with planned availability in mid 2022.

Except for the existing Horizon-sponsored TGS 3D survey and the Ossian/Darach 3D survey a lack of regional high-quality 3D seismic data over the MNSH Zechstein carbonate platform play has hindered exploration efforts. The initial Phase 1 ION 3D seismic survey shows a dramatic improvement in image quality compared to 2D seismic.

Acquiring this new 3D data is critically important to:

- Provide high quality interpretations of the entire complex Z2 and Z3 reservoir prospects;
- Differentiate platform reservoir facies from less prospective basinal facies;
- Gain a clear understanding of the lateral variability of reservoir distribution and prospectivity;
- De-risk current prospects and confirm prospective resource potential.

The regional 3D seismic data is key to unlocking the true potential of this overlooked Zechstein carbonate play over the Mid North Sea High and Horizon’s substantial licence position.
Prospectivity

Regional geochemistry and burial history studies indicate that there are **five oil source rock families in both the Zechstein and Carboniferous** which could supply oil into Horizon’s acreage. Burial history analysis indicates this oil source potential is operating at maximum burial in the Tertiary and available to source the Zechstein carbonate platform within the Horizon licences. The Ossian oil discovery provides evidence that oil is generated locally and has charged the carbonate platform including the Horizon licences.

Reservoir parameters for all prospects have been calculated based on P50 parameters of 40 metres reservoir thickness, 75% net to gross, 17.5% porosity, 1.6 formation volume factor (40 API Oil) and a 30% recovery factor.

The Zechstein Hauptdolomite carbonate play has historically been overlooked due to the prolific and more easily imaged traditional plays, with reservoirs in Rotliegend, Bunter and Carboniferous sandstones. Until recently, the confidence of the Zechstein has been constrained by the absence of 3D seismic data. Recent palaeogeographical Zechstein maps highlight the carbonate platform ‘sweet spot’ areas for development of reservoir sequences over the Horizon licences. These carbonate platform areas are located over the southern margin of the MNSH in those parts of the basin with limited well control and, until recently, lack of 3D seismic data.

**Licence Work Programmes**

The initial licence commitments have been satisfied by the acquisition of the 3D seismic acquired in 2019 and the technical work carried out to date. The acquisition of the new ION 3D seismic data, along with the planned work programmes, will significantly improve the understanding of the prospects, volumes and risks prior to drilling.

The Horizon work programme envisages a successful exploration well in 2022/23.