

## Corporate

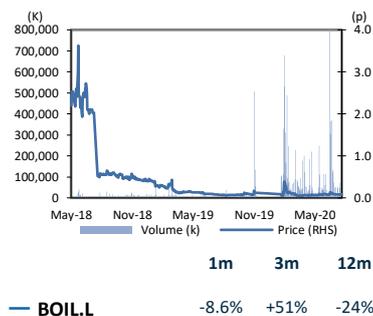
 Current price **0.085p**

 Sector **Oil & Gas**

 Code **BOIL.L**

 AIM **AIM**

### Share Performance



Source: Thomson Reuters, Allenby Capital

### Share Data

 Market Cap (£m) **3.8**

 Shares in issue (bn) **4.43bn**

 52 weeks **High** **Low**
**0.39** **0.05**

 Financial year end **31 December**

Source: Company Data, Allenby Capital

### Key Shareholders

 JIM Nominees **19.50%**

 Interactive Investor Services **5.41%**

 Barclays Direct Investing **5.19%**

 Vidacos Nominees **5.16%**

 Pershing Nominees **4.89%**

Source: Company Data, Allenby Capital

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## Baron Oil plc (BOIL.L)

### Transformational potential

Baron Oil, an AIM-listed oil and gas exploration junior, has performed disappointingly in recent years but we believe is now entering a transformational phase. This primarily reflects Baron obtaining in November 2019, as part of an earlier accord with the operator, a 25% indirect interest in the high-impact Chuditch natural gas project in the Bonaparte Basin, an established hydrocarbons province. Chuditch is based on a discovery made by Shell in 1998 and is in close proximity to Santos's Bayu-Undan field and the Woodside operated giant Greater Sunrise project. A Chuditch seismic reprocessing and evaluation programme is underway which, we believe, could lead to appraisal drilling in late 2022/early 2023. Baron also has a potential near-term drilling opportunity at the El Barco oil and gas prospect in the onshore Sechura Basin, NW Peru. El Barco offers a relatively low risk moderate resource potential project with few development complications.

- Chuditch PSC:** The Chuditch operator, Singapore-based SundaGas, was granted a PSC in November 2019 by ANPM, the Timor-Leste oil and gas authority. Chuditch lies in the Timor Sea about 185 km south east of the southern Timor-Leste coast and 400 km north west of Darwin in Australia's NT. In principle, Chuditch could be linked relatively easily to Santos's Bayu-Undan to Darwin LNG facility pipeline. The Chuditch PSC's ownership is as follows: SundaGas 75% (including Baron's indirect 25%) and the Timor-Leste NOC 25%.
- Chuditch discovery:** Shell's Chuditch discovery was made in the Jurassic Plover sandstone formation at around 2,900m on the flank of a large faulted structure. The gas in place was put by Shell at 2.32 tcf which would imply 1.62 tcf assuming a typical 70% recovery rate. There should also be significant liquids potential as at Bayu-Undan and there may be gas potential in deeper Triassic and Permian formations. According to Baron, the key risks are the volume of gas in place, the liquids content and the recovery rate.
- SundaGas:** SundaGas is less than well-known in oil and gas circles but the company is highly experienced in SE Asia and we believe comfortably financed. The founders, Dr Andy Butler and Paul Ebdale, previously occupied senior roles with the SE Asia exploration play, Mitra Energy. This was founded by Paul Ebdale in 2005 and floated on the TSX-V in 2015. It is now listed on AIM as Jadestone Energy (JSE) and has a capitalisation of around £340m.
- Financials:** Baron is comfortably financed near term thanks to a £2.5m raise in February 2020. At end May Baron reported a free cash position of £1.87m and we forecast £1.28m on this basis at end 2020. Cash demands are likely to rise significantly in 2021. Assuming the El Barco well is drilled, we look for a swing by end 2021 to net debt of £0.23m.
- Valuation:** Our risked valuation for Baron is £14.1m reflecting £10.8m for Chuditch and £3.3m for the Peru Block XXI and Inner Moray Firth projects. The valuation is based on the resources for each project, a valuation quotient of \$0.5/boe and a subjective probability for commercial chances of success. After diluting for our forecast cash outflow in 2021 our risked and diluted valuation is 0.14p/share.

Year End: 31 December

(£'000)	2018	2019	2020E	2021E	2022E
EBITDA	(549)	(442)	(460)	(510)	(612)
NET CASH/(DEBT)*	1,709	347	1,276	(227)	(4,639)

Allenby Capital acts as Nomad &amp; Broker to Baron Oil plc (BOIL.L). \*Free cash definition

Please refer to the last page of this communication for all required disclosures and risk warnings.

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## Corporate profile and background

### Profile

**Two key projects offshore Timor-Leste and onshore northern Peru:** Baron Oil is a London-based, AIM-listed oil and gas exploration junior (AIM: BOIL). The company currently has four projects, but the focus is on two. These are the offshore Timor-Leste Chuditch gas production sharing contract (PSC) and the onshore Block XXI gas and oil play in northern Peru. In the case of the former, Baron has an indirect 25% interest in a joint-venture with the privately-owned Singapore-based SundaGas Pte Ltd and Timor Gap, the NOC (national oil company). Chuditch is potentially a major, high-impact gas project in terms of resources and ultimately production. Block XXI in Peru is currently 100% owned but will probably require a farm-down for development. The project is smaller in scope and resource potential than Chuditch but has the virtue of being ready for early appraisal and potentially development.

**UK interests in the Wessex Basin and Inner Moray Firth:** Outside Timor-Leste and Peru, Baron has UK exploration interests in the Dorset Wessex Basin and the Inner Moray Firth. The Wessex Basin interests look like being relinquished on or before the expiry of the licences in January 2021. In the Moray Firth Baron has a 15% working interest in licence P2478 which contains the large Dunrobin prospect. Exploration here is at an early stage.

### Genesis of the company and strategy

**Name change from Gold Oil in July 2013:** Baron has its origins in Gold Oil PLC. This was listed on AIM in 2004 and focused on South American oil and gas exploration and development activity and production. Assets were largely concentrated in Colombia and Peru. Block XXI in Peru is the last remaining vestige of the earlier South American strategy. Corporately Gold Oil's name was changed to Baron Oil in July 2013.

**Exit from Colombia in 2015/16:** Exposure to Colombia was substantially reduced following a decision in 2014 to spin-off 50% of its NBM production interests to a local concern. This was followed by relinquishing the NBM licence in late 2015 and in 2016 the closure of the Bogota office and the disposal of the residual exploration interests in Colombia. The decision to exit Colombia ultimately reflected an inability to extend the NBM licence but operational conditions along with relations with the joint venture partner had perhaps proven more challenging than expected by earlier managements. Historically, the Colombian operations also required hefty overhead of up to around \$3.5m pa.

**Offshore Peru licence Z-34 relinquished in 2017:** The Peruvian interests included a deep-water exploration licence Z-34 in addition to Block XXI. A decision was made by Baron to relinquish Z-34 in late 2017. This followed several years of disputes with the farm-in partner over finance and delays by the Peruvian authorities in defining the regulatory requirements for drilling in a deep-water environment. Consistent with the licence terms Baron, however, was able to retrieve the entire \$3.6m work programme guarantee bond. This significantly bolstered the balance sheet in 2017. A decision was also made to close the Lima office in 2016 and instead use a consultant manager, which helped trim overhead expenditure.

Prior to the decision to exit Colombia, Baron's strategy had been to combine within a South American context cash flow generating assets with high-impact, high-risk exploration plays, notably Z-34 in Peru. Following the death in early 2015 of the South American orientated Chairman and CEO, Rudolph Berends, and the decision to exit Colombia Baron needed to find a new strategy. The adopted approach was to focus on low-risk exploration opportunities geologically and regulatorily and which offered the potential for low-cost, short lead time development and did not require a heavy local G&A commitment. This approach implied minority interests in farm-ins.

**Developing relationship with SundaGas post 2015 and award of a 25% interest in the Chuditch PSC in November 2019:** Since 2015 the major strategic move has been the developing relationship with SundaGas and particularly participation in the Chuditch offshore Timor-Leste gas project. The key development was participating in a joint study group in September 2016 with SundaGas to evaluate exploration projects in South East Asia. The breakthrough came in November 2019 with the announcement that SundaGas Resources Pte Ltd, a subsidiary of parent SundaGas Pte Ltd, had been awarded by the Chuditch PSC. Importantly, Baron had supported SundaGas in its application in October 2016 for a PSC which entitled it to an interest in any subsequent award. According to the accord, Baron received a 33.33% shareholding in SundaGas (TLS) Pte Ltd leaving the balancing 66.67% owned by SundaGas Resources. The only asset of SundaGas (TLS) is 100% ownership of the Chuditch operator, SundaGas Banda Unipessoal Lda which holds a 75% interest in the PSC. Through its holding in SundaGas (TLS) Baron obtained a 25% indirect stake in the Chuditch PSC.

**Participation in five UK oil and gas projects 2015-2019:** Between 2015 and 2019 Baron participated in five UK oil and gas projects. In 2015 Baron provided £1.3m of bridging loan finance for InfraStrata's Islandmagee gas storage project in Northern Ireland. The loan, with an 8% coupon, was repaid on schedule but a decision was made not to exercise an option to take a 15% stake in the Islandmagee project. During 2015 Baron also farmed into the Infrastrata operated onshore Northern Ireland licence PL 1/10 for a 12.5% working interest. The Woodburn Forrest well drilled on PL 1/10, however, proved dry.

**Farm-in into the P1918 Colter project SE of Wytch Farm:** In 2018 Baron farmed into privately held Corallian Energy's P1918 offshore licence to the south east of the Dorset Wytch Farm oilfield. The farm-in gave Baron an 8% working interest in P1918. The Colter vertical well and side-track drilled in early 2019 discovered the presence oil with commercial potential but the operator decided that more appraisal drilling is required before development can take place. As a result of the P1918 farm-in, Baron was also awarded an 8% interest in the PEDL330 and PEDL345 onshore licences south of Wytch Farm.

**Foray into the Inner Moray Firth:** The Inner Moray Firth has also been an area of interest of late for Baron. The first move was via a farm-in on P2235 which contained the Wick prospect. Drilling in early 2019 to test this however proved unsuccessful. Following the 31st UK Offshore Licensing Round a Corallian Energy led consortium, including Baron, was awarded licenses PL2470 and PL2478. The latter contains the interesting Dunrobin oil prospect, in which Baron's interest is 15%.

#### **Abortive takeover of SundaGas**

Baron announced a major strategic move in November 2019 in the form of a reverse takeover (based on AIM rule 14) of the privately held Singapore-based SundaGas (Holdings) Pte Ltd. The transaction would have been an all paper deal based on two shares in Baron for one in SundaGas. Significantly, Baron's name would also have been changed to SundaGas Plc and the new entity would have become overwhelmingly a South East Asia energy play. We believe the proposed takeover, in principle, made eminent sense given the following:

- The opportunity to consolidate the two company's interests in the Chuditch joint venture in Timor-Leste.
- Access to SundaGas's Telen project offshore Kalimantan (Indonesia) containing the drill-ready and sizeable Hiu Marah oil and gas prospect. The prospect lies in a mature hydrocarbons province and is considered by SundaGas as low-risk. The independently audited best estimate of prospective resources is 161mm boe.

- Increased exposure to one of the world’s largest and highest growth gas markets and also a source of LNG for Asian Rim markets.
- Addition of a highly experienced and proficient technical and commercial team well connected in SE Asia.
- Creation of a potentially major SE Asia energy play which could prove attractive to investors. As the Baron Executive Chairman, Dr Malcolm Butler pointed out the deal would be ‘transformational’ for shareholders. We believe greater critical mass could also have assisted in capital raising.

**Thwarted for technical reasons:** Baron announced on January 28, 2020 the ‘amicable’ termination of the proposed takeover of SundaGas. The reasons given were technical in nature. Baron suggested that there were uncertainties surrounding the deal in terms of capital requirements and restructuring the SundaGas subsidiaries. Resolution of these issues would have involved additional costs and time and given rise to a material risk that the reverse takeover would not have been completed in the required time frame under AIM rule 41 of the AIM rules for companies.

We believe that given the compelling underlying logic for a deal, that Baron and SundaGas may revisit a merging of interests at a more auspicious time.

## Management, headcount and shareholders

Baron Oil on average in 2019 had a very small headcount of four all based in the UK. This compares with three in the previous year. The breakdown of the headcount was three directors and one administrative head. Despite the headcount increase, total payroll costs of £258,000 in 2019 were down 20% on 2018. Biographical details for the directors are given below.

**Dr Malcolm Butler, Executive Chairman:** Dr Butler was appointed Baron's Executive Chairman in February 2018 having previously been the CEO. He joined the company as a non-executive director in May 2015. Dr Butler has considerable experience of the oil and gas industry in operational, senior managerial and non-executive director roles in junior and mid-tier concerns. Examples include CEO of Brabant Resources and CEO of Houston-based Energy Development Corporation before its c \$800m sale to Noble Energy. Dr Butler has also had a career in investment banking in corporate finance and advisory roles with HSBC and Seymour Pierce. In the case of the former he was responsible for advisory mandates in the UK, Libya, Russia and China. Dr Butler holds a BSc in geology from Aberystwyth and has a PhD in geology from Bristol University. Interestingly, Dr Butler is the uncle of Dr Andy Butler, the CEO of SundaGas (Holdings) Pte Ltd. Dr Butler owns 1.4% of Baron's ordinary shares outstanding.

**Andy Yeo, Managing Director:** Andy Yeo was appointed Managing Director of Baron in late March 2019 having joined the company as a non-executive director in April 2018. He has had significant oil and gas sector experience through a variety of roles in private equity and as the CFO of the AIM junior, Wessex Exploration PLC. Prior to entering the oil and gas industry Andy had a 20-year investment banking and broking career with UBS, ABN Amro Hoare Govett and Evolution Securities. He was a founding member of Evolution Securities and held the positions of Board member and Executive Director. Currently Andy owns 2.4% of Baron's ordinary shares outstanding. He subscribed £50,000 in the February 2020 placing.

**Jonathan Ford, Non-Executive Director:** Jon Ford is a very experienced oilman with over 38 years' in the business in a variety of geological and senior management roles. He joined Baron at the end of March 2019. Following an initial ten years with BP in the UK, Netherlands, Italy and Indonesia, Jon Ford moved to the junior and mid-tier sectors. He held senior technical positions with Clyde Petroleum, Paladin Resources and Stratic Energy and advised multiple clients as a consultant. Jon Ford has a BSc in Geology and Geophysics from Durham University and is a Fellow of the Geological Society. He subscribed in the February 2020 share placing and owns 0.17% of the stock.

The financial control and company secretary functions are undertaken by Geoffrey Barnes on a part-time basis. Until his resignation from the Board in March 2019 he had been the Finance Director since 2016.

### Share-holder structure

Baron Oil stock is distributed widely. According to the Baron website the top ten shareholders are all nominee accounts with the largest being JIM Nominees with a 19.5% interest. No single shareholder holds more than 3%. Insiders in the form of Malcolm Butler, Andy Yeo and Jon Ford own about 4% of the stock.

## Project Review: Timor-Leste Chuditch PSC

### PSC working interest

**Baron has a 25% indirect interest in SundaGas’s Chuditch project:** Baron Oil has an indirect 25% working interest in Chuditch through its 33.33% ownership of the SundaGas (Holdings) Pte Ltd subsidiary, SundaGas (TLS) Pte Ltd. SundaGas (TLS), which owns 100% of SundaGas Unipessoal Ltd, the operator has a 75% interest in the project. The Timor-Leste NOC (national oil company), Timor Gap, owns the balance and is free-carried through development. SundaGas and Baron will split expenditure pro-rata to their shareholding interests in SundaGas (TLS). Earlier in 2020, SundaGas set up an office in the Timor-Leste capital, Dili.

### SundaGas background

**Singapore headquartered:** SundaGas (Holdings) Pte Ltd is headquartered in Singapore and was incorporated there in 2016. It was founded and is owned 50:50 by the CEO, Dr Andy Butler and the Executive Director Paul Ebdale. The aim was to create a SE Asia focused oil and gas exploration and development vehicle targeting low-risk projects in proven hydrocarbons basins. In this context it should be noted that a characteristic of SE Asia is a large number of what might be termed fallow discoveries. These can offer interesting pickings for experienced and knowledgeable operators.

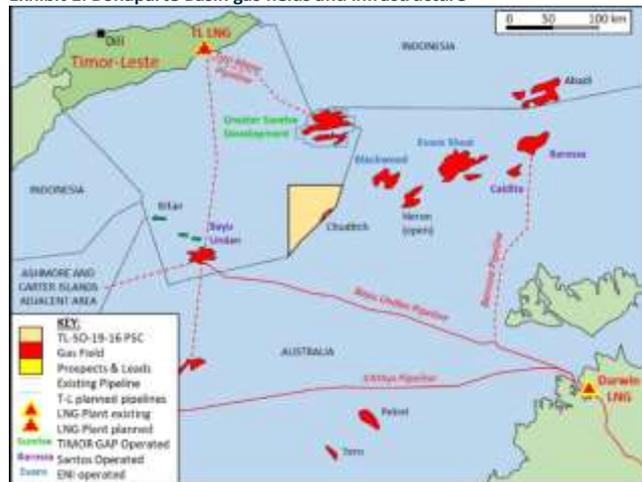
### Paul Ebdale previously established Mitra Energy which is now AIM-listed Jadestone Energy

**Paul Ebdale had previously founded Mitra Energy, a Singapore-based SE Asia and Pacific exploration vehicle, in 2005.** Dr Andy Butler held the position of VP Business Development in the same organisation. Importantly, Mitra had an impeccable HSE (health, safety and environmental) record drilling 18 wells, discovered around 3.2 tcf of gas and achieved 10 farm-outs, including with majors. Mitra was floated on the TSX-V in 2015 and renamed Jadestone Energy. The company was redomiciled on AIM in March 2020 where it trades under the symbol JSE. As of mid-July 2020, its market capitalisation was around £340m.

### Very experienced oil and gas team

SundaGas has a headcount of six professionals all with considerable operational experience in technical and commercial capacities in SE Asia. Company experience of the six historically has included ConocoPhillips, Hess, Serica Energy and Mitra Energy. Sundagas has offices in Singapore, Jakarta and Dili, Timor-Leste. It has two projects currently. These comprise the 100% owned Telen oil project offshore Kalimantan, Indonesia and the Chuditch gas project offshore Timor-Leste.

Exhibit 1: Bonaparte Basin gas fields and infrastructure



Source: SundaGas

**Location and regional geological setting**

**185 km south east of Timor-Leste coast and 400 km north west of Darwin:** The Chuditch PSC covers 3,571 km<sup>2</sup> in the Timor Sea and lies about 185 km south east of the southern Timor-Leste coast and 400 km north west of Darwin in Australia's Northern Territory. The southern boundary of the PSC lies in close proximity to the maritime demarcation line between the Timor-Leste and Australian sectors of the Timor Sea. Water depths in the Chuditch PSC are not challenging from a hydrocarbon's exploration perspective at around 70m. This should enable jack-up rather than considerably more expensive semi-submersible rigs to be used for drilling.

**Bonaparte Basin is an established hydrocarbons province:** Geo-physically the Chuditch PSC is located towards the northern frontier of the Bonaparte sedimentary basin which stemmed from rifting associated with tectonic activity between the Cambrian and Cretaceous periods (500-60mya). Successive periods of uplift and erosion have resulted in deep sedimentation in the basin which host major hydrocarbons reservoirs. Reflecting discoveries going back to the 1970's, the Bonaparte Basin is now an established hydrocarbons province with the emphasis on natural gas and condensate. However, a number of major discoveries such as Barossa, Greater Sunrise, Petrel and indeed Chuditch have yet to be developed reflecting the relative remoteness of the basin, maritime boundary issues, disputes concerning development options, technical challenges, the withdrawal of major operators and recently depressed commodity prices.

**Regional development activity and production**

**Bayu-Undan:** To date, the largest hydrocarbons development in the Bonaparte Basin has been the Bayu-Undan condensate and natural gas field. Located about 200 km south east of the Timor-Leste coast close to the maritime demarcation with the Australian sector of the Timor Sea, Bayu-Undan was discovered by ConocoPhillips in early 1995 with the Bayu-1 well. Water depth was a modest 80m. Chuditch lies about 150 km north east of Bayu-Undan.

Bayu-1 revealed a 155m hydrocarbons column in Middle Jurassic sandstones at a depth of 897m. The well flowed strongly at 2.54m<sup>3</sup>/d of gas and 5,250 b/d of condensate. The Bayu discovery was subsequently confirmed with Bayu-2 which revealed a 52m hydrocarbons interval and more impressive flow rates on test. In July 1995 BHP drilled the Undan-1 well 10 km northwest of Bayu-1 again with impressive results. These included a 139m hydrocarbons column and flow rates of for gas of 45,300m<sup>3</sup>/d and 3,900 b/d of condensate.

The Bayu-Undan discovery ranks well within the petroleum industry giant field definition of over 500mm boe. According to ConocoPhillips, the recoverable reserves were originally 3.4 tcf of gas and 400mm barrels of hydrocarbon liquids for 967mm boe in total. Production commenced at Bayu-Undan in 2004 using a FPSO (floating, processing, storage and offloading facility) to process the liquids while the gas was reinjected. In early 2006 natural gas shipments began along a 500km 26-inch pipeline to the ConocoPhillips operated LNG facility at Wickham Point, Darwin. It should be noted that the operator of both the Bayu-Undan field and the LNG is now Santos Ltd, Australia's second largest oil and gas producer and possibly the most influential operator in the Bonaparte Basin.

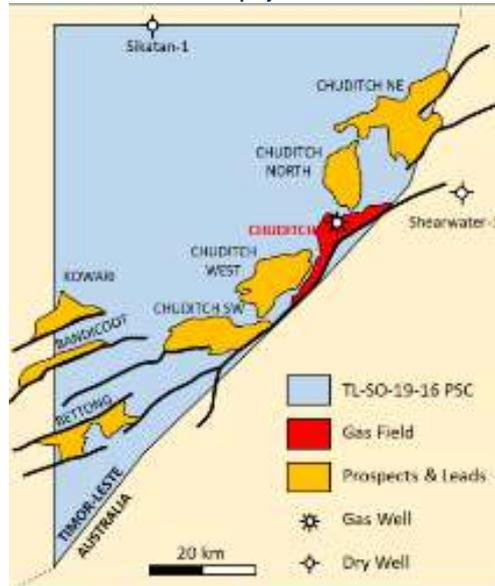
**Barossa:** Importantly, Bayu-Undan is now at a late stage in its life with production expected to end in 2022. This will leave the Wickham Point LNG facility short of feedstock. To overcome this, Santos has considered developing the Barossa project about 300 km north of Darwin in the Bonaparte Basin. A final investment decision, however, on whether to go ahead with the \$7bn project has been deferred reflecting depressed commodity prices and elevated levels of general business uncertainty. Santos has suggested a 2024 start-up for Barossa, but we think this is optimistic.

**Greater Sunrise:** Greater Sunrise is potentially a major natural gas and condensate project operated by the Australian mid-tier E&P concern, Woodside with a 33.4% interest. Following the acquisition of the interests of Conoco and Shell in the Greater Sunrise consortium, the Timor-Leste NOC, Timor Gap, now has a 56.6% stake in the project and is driving commercialising plans.

Greater Sunrise comprises the Sunrise and Troubadour fields which were discovered by Shell in 1974. The project lies about 150 km south east of the Timor-Leste coast and 100 km north of Chuditch. According to industry sources, the resource base is substantial comprising 2C contingent resources of 5.13 tcf for natural gas and 226mm barrels for condensate. This would imply 1,081mm boe.

Timor Gap’s vision is to commercialise Greater Sunrise by constructing a pipeline to the Timor-Leste’s coast as part of a grand plan to establish a petrochemical complex and LNG plant. The alternative approaches would be to either construct a pipeline to the Santos LNG plant at Darwin or establish a floating LNG facility at Greater Sunrise. A key drawback to the Timor Gap plan is the need to cross the Timor Trough which parallels the coast and is up to 3,000m deep.

Exhibit 2: Greater Chuditch project area



Source: Baron Oil and SundaGas

**Chuditch discovery**

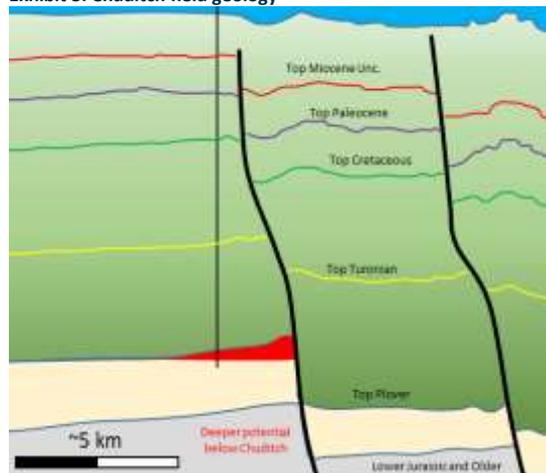
**Shell discovery in 1998 in Jurassic Plover sandstone:** The Chuditch development project is located broadly midway between Greater Sunrise and Bayu-Undan and close to the Eastern Timor-Australia line of marine demarcation. Shell made the discovery in 1998 with its Chuditch-1 well. This encountered a 25m natural gas interval in the Jurassic Plover sandstone formation at around 2,900m on the flank of a large faulted structure. Note, the Plover sandstones occur widely across the Bonaparte Basin. The Chuditch-1 well was drilled in a relatively shallow 64m of water, took 25 days to drill and cost \$8m, according to Baron based on records originally provided by Shell Development (Australia).

**Gas-in-place 2.32 tcf plus possibly a substantial volume of liquids:** Based on Shell data supplied by SundaGas, the resource at Chuditch appears meaningful and points to the project offering development potential. For the Greater Chuditch play zone Shell put the mean gas-in-place at 2.32 tcf. Taking a typical recovery rate of 70% mean prospective recoverable resources would therefore be 1.624 tcf or 271mm boe. As we have noted elsewhere in the Bonaparte Basin, the gas is likely to be liquids prone, although

preliminary analysis on Chuditch-1 and regional trends suggest that the liquid content will be less than that of Bayu-Undan. If one were to use the liquids: boe ratio for Bayu-Undan of about 40% there could be liquids of 181mm barrels which would take mean prospective resources to 452mm boe. Significantly, SundaGas has identified exploration upside in the greater Chuditch zone reflecting several leads and prospects to the north and south of the Chuditch 1 discovery. SundaGas also believes that deeper prospects exist below the Jurassic in Triassic and Permian formations.

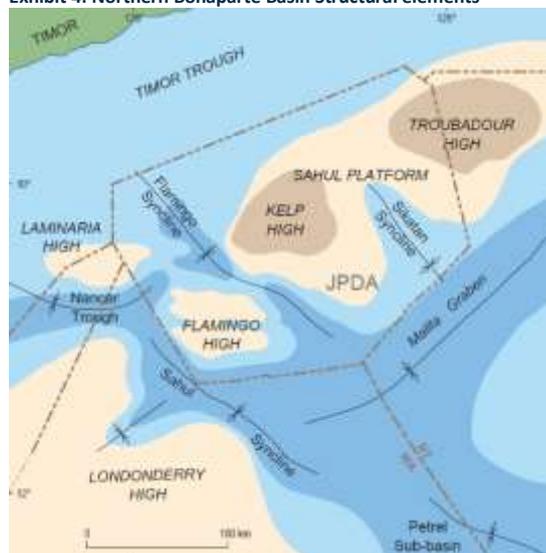
**Minimal risks associated with trap, reservoir and charge:** Interestingly, following the drilling of Chuditch-1, Shell believed that the risks associated with trap, reservoir and charge for the Greater Chuditch closure were minimal. According to Baron, the remaining uncertainty surrounds the volume of gas in place, the liquids content and the recovery rate. To provide greater precision on these aspects, detailed geophysical work to determine the size of the structural closures and ultimately drilling will be required.

Exhibit 3: Chuditch field geology



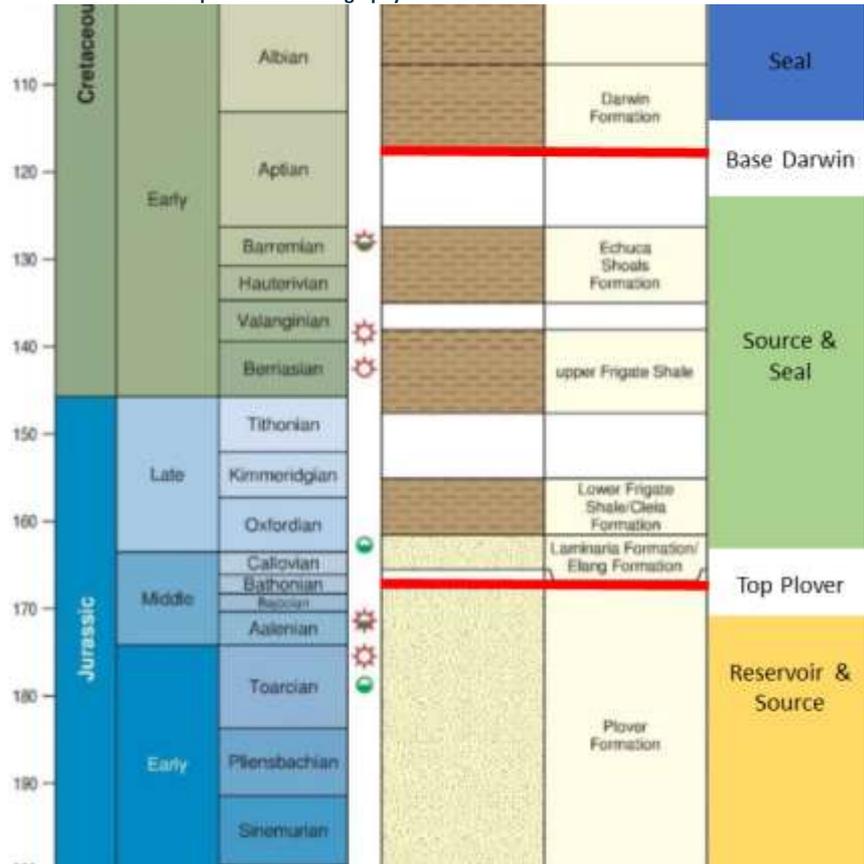
Source: Baron Oil and SundaGas

Exhibit 4: Northern Bonaparte Basin Structural elements



Source: Baron Oil and SundaGas

Exhibit 5: Northern Bonaparte Basin Stratigraphy



Source: Baron Oil and SundaGas

**Development strategies**

SundaGas has identified four strategies for a prospective Chuditch development project. These are as follows:

- Tie into a Greater Sunrise gas gathering hub for onward shipment by pipeline to a Timor-Leste coastal terminal and LNG plant. This, we believe, would be the preferred option of the national oil company Timor Gap.
- Tie into the existing Bayu-Undan to Darwin pipeline. We suspect this would be the most cost-effective solution but is inconsistent with Timor-Leste’s desire to use more of its hydrocarbon production domestically in downstream industries.
- Tie into a planned Barossa to Darwin pipeline.
- Establish a floating LNG facility at Chuditch.

All four Chuditch strategies would, in our view, require establishing either an FSPO or fixed platform and liquids processing facility. This reflects the likelihood that the gas will be wet and may contain a rich mix of condensate and natural gas liquids.

**Work programme**

**Seismic reprocessing and appraisal:** SundaGas’s near-term work programme is focused on obtaining, appraising and reprocessing existing 2-D and 3-D seismic data. The programme is aiming to reprocess 800 km2 of 3-D and 2,000-line km of 2-D. Key objectives

are to define the structural extent of the Chuditch discovery and adjacent features and to identify exploration prospects. Baron has indicated there is no obligation to drill on Chuditch before 2022.

**Drilling phase post 2021:** Following the seismic analysis in 2020 and 2021 and contingent on supporting evidence concerning the presence of a suitable structure, it is likely that SundaGas will move into the exploration/appraisal drilling phase at Chuditch in 2022/23. We believe two wells, one appraisal and one exploration, will be drilled back to back to test targets in the Plover formation. Based on the earlier experience of Shell, we tentatively believe this could cost in the region of \$20m including well design and the procurement of OCTG (oil country tubular goods).

**FEED (front-end engineering design):** Subject to promising drilling results and the availability of finance a prospective Chuditch development project would probably move into the FEED phase. This would focus on such factors as the scope of the project, project planning, conceptual design work, defining technical specifications, project cost and project feasibility. We think that this work would take at least six months and probably nearer a year and would involve third party consultants. During this phase it is also likely that more wells would be drilled.

The final stages of the project would be the FID (final investment decision) and the EPC (engineering, procurement and construction). The EPC contractor would be responsible for the delivery of the completed project at a pre agreed price. We think that a project of the potential scale and scope of Chuditch is unlikely to be completed before 2026.

**How much might a Chuditch project cost?** The answer to this depends in large part on the scope of the project particularly regarding export strategies and liquids processing. However, we believe we can draw some insights from the experience of ConocoPhillips with Bayu-Undan. According to the trade journal, Offshore Engineering, the first and second phases of Bayu-Undan which included the commissioning of both the condensate/natural gas liquids and natural gas production streams cost \$3.3bn. In our view, it would not be unreasonable to expect a similar investment cost for a Chuditch project, although it is not clear if the \$3.3bn included the pipeline to Darwin.

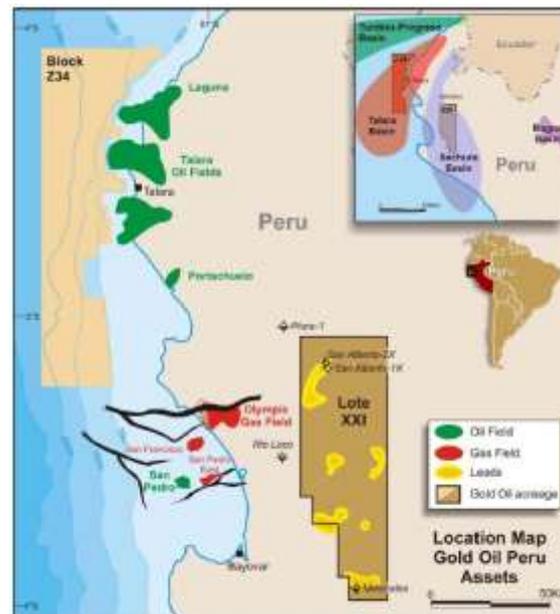
Typically, large-scale offshore energy projects such as potentially at Chuditch are undertaken by oil and gas majors. This reflects the heavy inputs of project management and engineering expertise required and the need to have ready access to sources of capital. Given that both Baron and SundaGas are juniors, we think it unlikely that either concern will be involved in a leading operational role in a potential Chuditch project post the initial de-risking stage.

## Project review: Peru Block XXI

### Location

**Around 900 km north of Lima and 100 km south of the town of Piura:** Block XXI is 100% owned by Baron Oil through its Peruvian subsidiary Gold Oil Peru SAC. Covering a sizeable 2,425 km<sup>2</sup> it is located in north western Peru about 900 km north of the capital Lima. The El Barco drilling prospect lies on a plain towards the south of the block, 19 km east of the Pan American Highway and around 100 km south east of Piura. This is the capital of the region of the same name and has a population of c 485,000. The location, therefore, is not particularly remote. A desert landscape characterises the block with annual rainfall of less than 125 mm or 5 inches. Vegetation is therefore sparse. Physical conditions other than perhaps a lack of water should pose few impediments to exploration/development on Block XXI.

Exhibit 6: Gold Oil Peru Block-XXI location



Source: Gold Oil Peru

### Geological setting

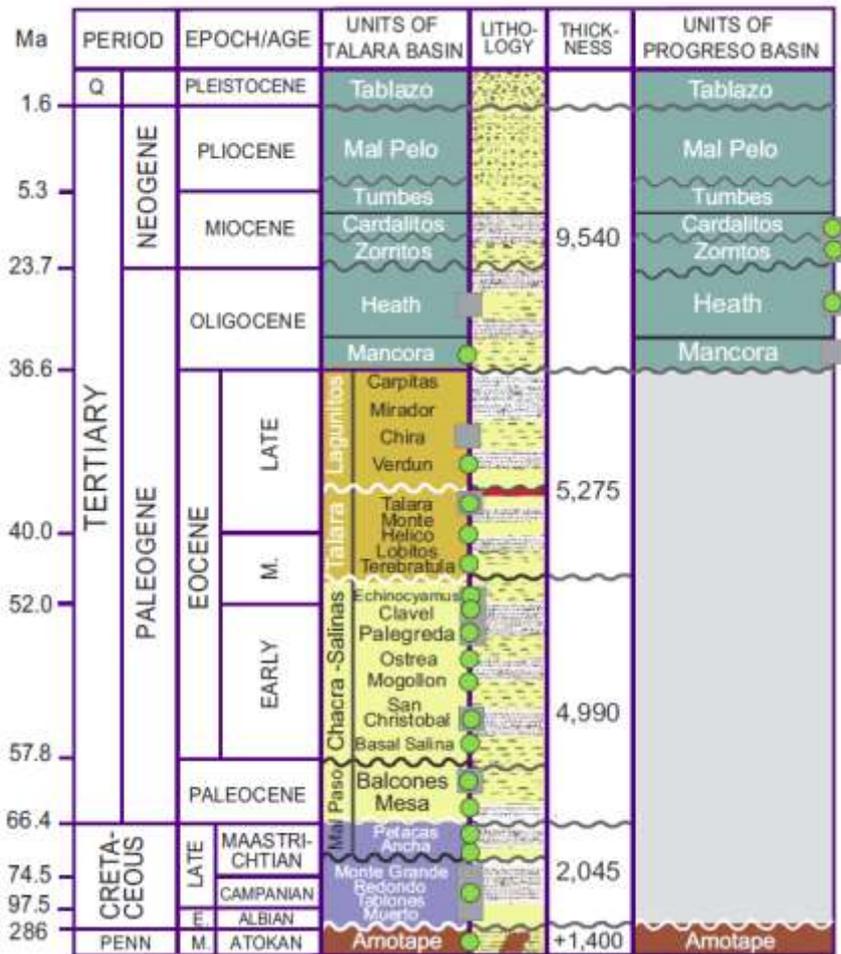
**Sechura Basin setting analogous to the nearby prolific Talara Basin:** Geo-physically Block XXI lies in the Sechura Basin which adjoins the better known Talara Basin oil and gas province to the north west. Both are examples of forearc basins (basins occurring in the margin between an ocean trench caused by tectonic plate subduction and an associated volcanic arc) and both have a common history stemming from tectonic activity between the Cretaceous and mid Tertiary periods or broadly 100mya to 20mya. Baron’s underlying hypothesis is that the Sechura Basin is analogous to the Talara Basin. We believe that the hypothesis has solid foundations.

**Talara petroleum system based principally on Upper Cretaceous to Miocene sandstones--:** The petroleum system in the Talara Basin is based principally on Upper Cretaceous through to Miocene sandstones of fluvial, deltaic and marine origin. Although the most prolific reservoirs are Eocene sandstones, which are probably not present in the southern part of Block XXI, at least one nearby offshore field, the Piedra Ronda, produces oil from the Oligocene Mancora sandstones. These are a target for Baron at the El Barco prospect on Block-XXI.

----but oil is also produced from fractured Pennsylvanian basement rock: Interestingly, oil is also produced in the Talara from much older Pennsylvanian Amotape basement rock where this has been fractured. A case in point is Petro Tech’s offshore San Pedro field about 50 km west of Baron’s San Antonio-1X well drilled on Block XXI in July 2006. The oil produced in the Talara Basin is of medium gravity with a median grade of 31.8° (range 16-41°), according to the USGS (United States Geological Survey).

**Talara has produced over 1.68 bn barrels of oil:** Reflecting intensive tectonic activity and the associated faulting and rifting, hydrocarbon trapping systems are readily apparent. Source rocks are believed to be organic rich shales of Cretaceous and Tertiary origin. According to the USGS, the Talara Basin has produced over 1.68 bn barrels of oil and 1.95 tcf of gas in over 100 years. The USGS puts the mean recoverable resources from undiscovered fields for the Talara Basin at 1.71bn barrels of oil, 4.79 tcf of gas and 255 barrels of natural gas liquids respectively.

Exhibit 7: Talara Basin Stratigraphy



Source: USGS. Wavy lines and grey zones bracket period of erosion or nondeposition. Primary reservoir formation names are marked with green dots. Possible source-rock intervals are labelled with a small grey box. Modified from AIPC (no date), Gonzales Torres (1999), Kingston (1994), Kraemer and others (1999), Perupetro (1999), Petroconsultants (1996), and Seranne (1987).

**Block XXI exploration and the El Barco prospect**

**Presence of gas and oil shows in the 1954 Minchales well:** Block XXI has been subject to relatively little exploration activity. In 1954 the Minchales well was drilled in the extreme south of the Block. Following the digitisation and reprocessing of the original logs, the

presence of gas and possible oil has been confirmed in Tertiary sands by independent analysis.

**San Antonio-1X drilled in 2007 showed evidence of hydrocarbons----** Gold Oil drilled two exploration wells in the north west of Block XXI without supporting seismic data. The first, San Antonio-1X, was drilled in July 2007 following regional magnetic and gravity studies. The targets were the Eocene Verdun sands which yield gas at Olympic's Las Casita field 20 km to the east of San Antonio-1X and the deeper Pennsylvanian basement which produce oil at the San Pedro field on the margin between the Talara and Sechura Basins approximately 50 km to the south west. The well was drilled to 5,113 ft and the results appeared encouraging. Potential hydrocarbon-bearing intervals of 315ft were interpreted from logs across the Verdun sands and a further 250 ft across the underlying igneous basement. However, no significant oil and gas shows were encountered in the mud and cuttings and an extensive testing programme produced only water. It seems likely that the log interpretations were incorrect.

**-----but San Antonio-2X was clearly dry:** The San Antonio-2X well was drilled in July 2008 a kilometre north of 1X to test Tertiary sandstone formations, including the Verdun sands and the Palaeozoic igneous rocks. The well site was located by applying gravimetric and DNME technology developed in Russia but again without seismic data. The results proved disappointing in that hydrocarbons were not identified. The well was plugged and abandoned in September 2008.

**El Barco prospect:** The El Barco prospect lies slightly to the north east of the Minchales well. It was identified following a 170 km 2-D seismic shoot made in late 2015 and a review of aeromagnetic, airborne gravity and Minchales log data. Significantly, Baron has indicated that amplitude anomalies have been identified in the shallow intervals. Gas chimneys are also apparent from the seismic with the gas probably emanating from deeper reservoirs.

**Two El Barco targets the Mancora sandstones and the fractured Amotape basement:** Baron is targeting two formations with the planned El Barco-3X well. These are the Oligocene Mancora sandstones and the fractured Amotape basement. Baron has estimated the following recoverable prospective resources for the two targets:

- Mancora sandstones, 14 bcf of gas with a geological chance of success (GCOS) of 55%.
- Amotape basement, 8.5 mm barrels of oil with a 27% GCOS.

We regard the Mancora GCOS as reflecting a low-risk project given the current stage of appraisal. It is at least, in part, indicative of the Mancora formation being a hydrocarbons reservoir elsewhere. The Amotape GCOS, we believe, looks reasonable for this stage of appraisal pre-drilling and bearing in mind that, although naturally fractured, the basement may need additional stimulation to boost hydrocarbons flow. It should be noted that good shows of oil and gas were encountered when the Minchales well encountered the top of the basement at which point drilling was halted.

**Recoverable resource of 10.8mm boe is modest but could be very profitable in an oil success case:** The overall recoverable resource of 10.8mm boe arguably is modest but it needs to be remembered, firstly, that the prospect is onshore and secondly that there could be exploration upside. Note, onshore oil even at current prices of around \$40/barrel for WTI can result in very interesting economics assuming production of perhaps 500 b/d. Very approximately, we believe, cash operating costs probably would not be more than \$10/barrel while local cash overheads, excluding workovers, might be in the region of \$10,000/month. The cash margin on this basis abstracting from depletion, workovers and

corporate overhead would be over \$5m/year assuming 100% ownership. As is generally the case around the world, gas would be considerably less lucrative.

**Modest well and civil engineering cost of \$1.2m:** At El Barco Baron is planning to drill a well to a total depth of about 1,850m. The dry well cost is put by Baron at \$1.2m including site preparation and the construction of a graded track to link to the Pan American Highway. We understand the necessary permitting for the well has been completed. Baron has also identified an experienced local drilling operator. The El Barco project has been subject to force majeure with the agreement by Perupetro over an extended period, firstly, due to a series of disruptive events including adverse weather, local objections to the drilling, bureaucratic delays and most recently the covid-19 lockdown. Following the lifting of force majeure Baron will have a six-month window to undertake the El Barco drilling. Importantly, however, Baron has agreed with Perupetro that it will have an option to a three-year licence extension once the well has been drilled.

**Baron is looking to farm down to 50-70%:** Another issue surrounding El Barco is financing. Baron has indicated that it intends farming down its stake to 50-70%. As yet, no farm-in partner has been announced. Uncertainties concerning force majeure and financing clearly indicate, as suggested by Baron, that drilling will not take place until 2021.

**El Barco export strategies:** In the event of a success case for El Barco involving oil the export strategy is apparently simple. Oil can be shipped very easily by tanker truck the 150 km to the Petroperu refinery at Talara. Assuming production of 500 b/d, four or five truck loads might be required per day. In the event of a large oil discovery it should be noted that the Oleoducto Norperuano (North Peru pipeline) from the Amazonas oilfields to the export terminal at Bayovar runs within about two kilometres of the El Barco site. In the case of a gas success case the commercialisation of a discovery would either be by generating electricity near the wellsite for the local market or by building a link to existing pipelines to the northwest.

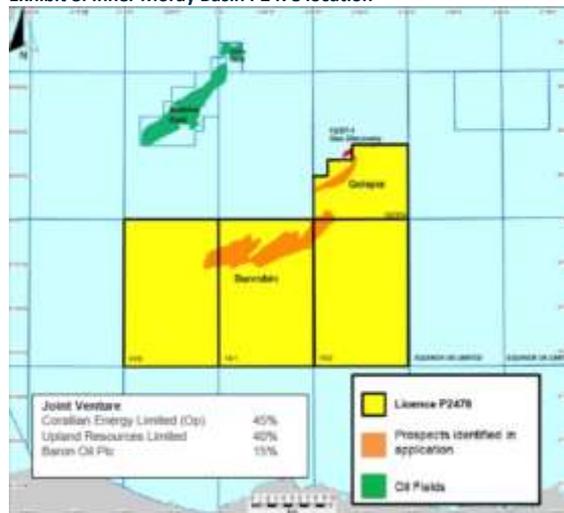
## Project review: Inner Moray Firth

### Geological background

**Part of the Mesozoic North Sea rift system:** The Moray Firth is part of the North Sea Mesozoic rift system, one of the world’s most prolific oil and gas producing provinces. Rather than the SW-NE trending grabens of the Central North Sea and Northern North Sea the Moray Firth is characterised by an east-west structural trend.

**Beatrice only major Inner Moray Firth field to date:** The only major development in the Inner Moray Firth has been the Beatrice Field which came on-stream in 1981. Oil was produced from Jurassic sands until 2017 at about 1,850m and in a modest 49m of water. At the time of development recoverable reserves, according to industry sources, were put at 162mm barrels, implying a medium sized field. Oilfield development in the Moray Firth has been very much more intensive in the Outer zone close to the boundary with the SW-NE trending Central Graben.

Exhibit 8: Inner Moray Basin P2478 location



Source: Company

### P2478 licence structure and location

**8 km south of now defunct Beatrice field:** Baron obtained a 15% working interest in two Inner Moray Firth licences, P2470 and P2478 following the 31<sup>st</sup> North Sea Licencing Round. Privately held Corallian Energy is the operator of both licences and has a 45% working interest. The third member of the consortium is another private concern, Upland Resources Ltd, with a 40% interest. The focus of attention is P2478 situated about 8km south of the Beatrice Field and 30 km south of the northern shore of the Moray Firth.

### Interesting Dunrobin prospect

The attraction of P2478 is the Dunrobin prospect. Based on 3-D seismic three large rotated fault blocks have been identified. Reservoir targets are the Jurassic Beatrice and Dunrobin sands. Corallian believes they could host 174mm boe of mean prospective resources with the potential (P10) for 396mm boe. P2478 also contains the smaller Golspie prospect 4 km or so north east of Dunrobin. Corallian estimates that Golspie, which is based on a separate fault block, has mean prospective resources of 21.5mm boe. P2478 is located in shallow water of about 75m which should enable a low-cost jack-up drilling rig to be used.

P2470 contains some small prospects and a discovery close to the earlier unsuccessful Wick well on P2235. Seismic evaluation work on this licence was not ‘encouraging,’ according to Baron. The licence was relinquished at the end of March 2020.

**Potential farm-in partner**

At the end of April 2020 Corallian announced a work sharing and confidentiality agreement with a large European E&P concern for P2478. As part of the agreement, Corallian will cease marketing a farm-out for the licence until September 30, 2020. Until then the E&P will undertake its own technical appraisal of the licence. The exclusivity period could be extended to December 31, 2020 should the E&P concern wish to negotiate farm-in terms for the licence. Based on the earlier well to test the Wick prospect on nearby P2235, the cost of drilling Dunrobin could be about £7m gross. We believe it is unlikely that Dunrobin could be drilled before 2022.

## Project review: Wessex Basin licence interests

**Wessex Basin hosts the prolific Wytch Farm field:** The Wessex Basin is a major petroleum producing province in southern England mainly overlapping the coastline in Dorset and Hampshire. It hosts the largest onshore oilfield in Western Europe in the form of Wytch Farm, 7 km south of Poole. Wytch Farm was discovered in 1974 and has been producing since 1979. Industry source suggested recoverable reserves were originally 500mm boe (mainly oil) with the principal oil-bearing reservoirs being Jurassic and Triassic sandstones. Oil production reached a peak of 110,000 b/d in 1997 but according to industry sources is now down to about 14,000 b/d. Perenco, the French independent, is the operator of Wytch Farm.

Barron's assets in the Wessex Basin comprise the offshore licence P1918 (Colter) and two onshore licences PEDL 330 and PEDL 345. Baron has an 8% working interest in the licences. Privately held Corallian Energy is the operator for all three. P1918 is located in Poole Bay south of Bournemouth and east of the Wytch Farm field.

**Drilling the Colter prospect east of Wytch Farm in 2019 was partially successful----**In February and March 2019 Corallian drilled vertical (98/11a-6) and side-track (98/11a-06z) appraisal wells on the Colter prospect to test the extent of a discovery made by British Gas in 1986. The exercise was successful in that oil was discovered in the vertical well in the Triassic Sherwood Sands at Colter South. This is the main producing formation at Wytch Farm and was also penetrated by earlier British Gas wells on the block. Hydrocarbons were encountered with 98/11a-6 over a 9.4m interval and the net pay of 3m was apparently similar to that interpreted in a nearby well by British Gas.

**-----but modelling suggested lower resources than originally estimated:** Based on modelling, Corallian estimated un-risked recoverable resources for Colter South of 15mm barrel. This was under the earlier 26mm barrel originally estimated but Corallian believes that the Colter South discovery could still have commercial potential. The downside is that further appraisal drilling is required to determine the scale of the resource prior to development. Significantly, given the expiry of the Colter licence in January 2021 and the current depressed commodity price backdrop, Colter consortium believes that it will be unable to secure a farm-in partner for a second Colter South well at this juncture. The licence is expected to be allowed to expire in January 2021.

**Wessex Basin licences likely to be timed out:** The two onshore Wessex Basin licences PEDL 330 and PEDL 345 located to the south of the Wytch Farm field. PEDL 345 contains the Purbeck prospect. In 1990 BP drilled the Southard Quarry-1 well on the prospect and discovered the presence of oil and gas. According to Baron, depressed commodity prices and environmental issues probably preclude exploration or appraisal activity before the licences expire in July 2021.

## Financials

Since the divestment of the Colombian oil production interests in 2015, Baron Oil has been a pure exploration concern and therefore has no revenues. The work programme is typically financed by a combination of equity raises and farm-ins at the corporate level and project level respectively. In 2017 Baron's financial position was substantially boosted by management's success in achieving release by Perupetro of the \$3.6m licence guarantee bond on licence Z-34.

**£2.50m raise in February 2020:** Baron has raised £2.71m net in new equity since 2016. The most recent was in February 2020 when £2.50m gross (£2.31m net) was raised at £0.001/share. This sharply increased the shares in issue by 2.3X to 4,426,409,576. At the end of 2019 partly due to the financing needs of the Colter drilling programme the cash position, excluding the licence guarantee bond on Peru Block-XXI, was down to a marginal £347,000. This together with growing work programme commitments on Chuditch and Block XXI in Peru drove the decision for the February raise. In April 2020 Baron paid \$521,149 (£417,000) to SundaGas as consideration for work undertaken on the Chuditch project between November 2019 and February 2020. This included Baron's 33.3% share of the \$1m licence bank guarantee and its 33.3% shareholding in SundaGas TLS.

**Cash needs comfortably underpinned through 2020:** At the AGM in June 2020 Baron indicated that the free cash position, excluding the performance bonds for Timor-Leste and Peru Block-XXI of \$333,300 and \$169,000 respectively, was £1.87m at the end of May. As suggested by Baron, cash needs over the balance of 2020 and possibly into early 2021 for the work programme and G&A appear comfortably underpinned. Our forecast for the year end 2020 free cash position is £1.28m which would imply an average monthly cash outflow over the last seven months of the year of about £59,000. For 2020, we look for a cash outflow, pre the February raise, of £1.38m, split £0.46m operational, £0.65m intangibles and £0.27m the Chuditch performance bond. We expect Chuditch to be the largest contributor to intangible outlays and have allowed £0.52m for this factor.

**Rising cash needs in 2021:** For 2021 we are looking for a significant increase in cash requirements driven by potential work programme commitments on Chuditch and especially Peru Block-XXI. We would also expect higher G&A reflecting rising activity. In the case of Block-XXI we have assumed that the El Barco prospect is drilled based on a 50% farm-in and a \$1.2m gross cost, including civil engineering. For Chuditch we look for rising outlays in advance of drilling a well in 2022. All told, our forecasts call for a cash outflow in 2021 of £1.50m split £0.47m operational and £1.15m intangible additions partly offset by an assumed reimbursement of the £0.13m El Barco performance bond. The intangible additions contributions are El Barco £0.48m, Chuditch £0.62m and Inner Moray Firth £0.05m. The cost of the El Barco well reflects the gross cost of \$1.2m and an assumed 50% farm-out. On our scenario Baron would have a net debt position of £0.23m at FY21.

**Potentially a year of heavy cash outflow in 2022:** Tentatively we believe 2022 could be a year of heavy cash outflow reflecting possible drilling at Dunrobin in the Inner Moray Firth and Chuditch. Overall, we look for an outflow of £4.41m with operational spending contributing £0.60m and outlays on intangibles of £3.81m. Our forecast assumes one well at Chuditch and one at Dunrobin in the Inner Moray Firth. In the case of the former, we have assumed Baron's share of gross well and related costs of \$10m. For Dunrobin we have assumed Baron's share of well and related costs of £7m. On our scenario at end 2022 there would be a net debt position of £4.64m. The cash outflows for 2021 and 2022 would imply the need for equity raises of about £5.50m in these two years.

Clearly, the cash flow outlook for 2021 and particularly 2022 is very much contingent on the timing of major decisions on drilling. It should also be noted that for Chuditch it would

be ideal from a cost perspective to drill two wells back to back. If this was to occur in 2022 the cash outflow would be £7.1m.

#### Exhibit 9: Summary Financials

##### Income statement (£'000)

Year End December	2016	2017	2018	2019	2020e	2021e	2022e
EBITDA	-700	-510	-549	-442	-460	-510	-612
Exploration and evaluation expenditure	-739	-109	-1526	-160	0	0	0
Intangible asset impairment	-356	-1837	-1360	-1047	0	0	0
Receivables impairment	73	43	-54	16	0	0	0
Deconsolidation of Colombia	31	831	0	0	0	0	0
Administration expenses	-700	-510	-549	-442	-460	-510	-612
(Loss)/profit on exchange	1131	-508	130	-41	0	0	0
Other operating income	319	21	83	0	0	0	0
Operating loss	-241	-2069	-3276	-1674	-460	-510	-612
Finance cost	-35	-8	-10	-1	0	0	0
Finance income	101	19	6	1	0	0	0
Loss on ordinary activities before tax	-175	-2058	-3280	-1674	-460	-510	-612
Income tax credit/(expense)	-113	519	785	0	0	0	0
<b>Loss on ordinary activities after tax</b>	<b>-288</b>	<b>-1539</b>	<b>-2495</b>	<b>-1674</b>	<b>-460</b>	<b>-510</b>	<b>-612</b>

##### Balance sheet £'000

Year End December	2016	2017	2018	2019	2020e	2021e	2022e
<b>Assets</b>							
<b>Non-current assets</b>							
Property, plant and equipment	3	0	0	0	0	0	0
Intangibles	1325	1260	66	5	657	1811	5625
Goodwill	0	0	0	0	0	0	0
<b>Total</b>	<b>1328</b>	<b>1260</b>	<b>66</b>	<b>5</b>	<b>657</b>	<b>1811</b>	<b>5625</b>
<b>Current assets</b>							
Trade and other receivables	2070	18	503	49	49	49	55
Cash	5231	3992	1838	472	1401	500	500
Other	0	0	0	0	265	265	265
<b>Total</b>	<b>7301</b>	<b>4010</b>	<b>2341</b>	<b>521</b>	<b>1715</b>	<b>814</b>	<b>820</b>
<b>Total assets</b>	<b>8629</b>	<b>5270</b>	<b>2407</b>	<b>526</b>	<b>2372</b>	<b>2625</b>	<b>6445</b>
<b>Current liabilities</b>							
Trade payables	1054	195	594	64	64	100	120
Taxes payable	1502	812	23	7	7	7	7
Debt	0	0	0	0	0	727	5139
<b>Total</b>	<b>2556</b>	<b>1007</b>	<b>617</b>	<b>71</b>	<b>71</b>	<b>834</b>	<b>5266</b>
<b>Net assets</b>	<b>6073</b>	<b>4263</b>	<b>1790</b>	<b>455</b>	<b>2301</b>	<b>1791</b>	<b>1179</b>
<b>Net cash/(debt)</b>	<b>5231</b>	<b>3992</b>	<b>1838</b>	<b>472</b>	<b>1401</b>	<b>-227</b>	<b>-4639</b>

##### Shareholders' equity

Share capital	344	344	344	482	1107	1107	1107
Reserves	5729	3919	1446	-27	1194	684	72
<b>Total equity</b>	<b>6073</b>	<b>4263</b>	<b>1790</b>	<b>455</b>	<b>2301</b>	<b>1791</b>	<b>1179</b>
<b>Total equity and liabilities</b>	<b>8629</b>	<b>5270</b>	<b>2407</b>	<b>526</b>	<b>2372</b>	<b>2625</b>	<b>6445</b>
Shares in issue end year m	1376.4	1376.4	1376.4	1926.4	4426.4	4426.4	4426.4

Source: Company; Allenby Capital

**Exhibit 10: Summary Financials****Cash flow statement £'000**

<b>Year End December</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020e</b>	<b>2021e</b>	<b>2022e</b>
Loss attributable to controlling interests	-32	-1539	-2495	-1674	-460	-510	-612
Depreciation, amortisation and impairments	331	2	1360	1047	0	0	0
Share based payments	0	41	33	0	0	0	0
Finance income	-101	-19	-6	-1	0	0	0
Tax benefit	113	-519	-785	0	0	0	0
Foreign exchange translation	-1319	512	-73	-4	0	0	0
Other	-257	-347	0	0	0	0	0
Operating cash flow before working capital	-1265	-1869	-1966	-632	-460	-510	-612
Receivables (increase)/decrease	-440	2052	-485	454	0	0	-6
Tax paid	71	-4	-53	0	0	0	0
Payables (decrease)/increase	-692	-859	400	-546	0	36	20
Net cash flow from operating activities	-2326	-680	-2104	-724	-460	-474	-598
Acquisition of intangibles	-493	-298	-66	-1047	-652	-1154	-3814
Cash previously not available now released	0	2674	0	0	0	125	0
Sale of intangible assets	1784	0	0	0	0	0	0
Other	183	19	6	1	-265	0	0
Share issues	0	0	0	408	2306	0	0
Net cash flow	-852	1715	-2164	-1362	929	-1503	-4412
Opening cash	3010	2158	3873	1709	347	1276	-227
Closing net cash/(debt)	2158	3873	1709	347	1276	-227	-4639
Peru licence commitment guarantees	3073	119	129	125	125	0	0
Net cash/(debt) as per balance sheet	5231	3992	1838	472	1401	-227	-4639

<b>Capital expenditure</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020e</b>	<b>2021e</b>	<b>2022e</b>
Chuditch East Timor 33.3%					520	624	2664
Block-XXI Peru 100% (2020), 50% thereafter					100	480	100
P2478 Inner Moray Firth 15%					30	50	1050
Colter Wessex Basin 8%					2	0	0
<b>Total</b>					<b>652</b>	<b>1154</b>	<b>3814</b>

Source: Company and Allenby Capital

## Risks and challenges

Exploration oil and gas juniors are an intrinsically high-risk investment class reflecting high capital intensity, uncertainty relating to the sub-surface, long lead times and exposure to volatile commodity prices and the vagaries of different regulatory regimes. In the case of Baron Oil, we see three particular areas of risk. These relate to the gas-in place at the Chuditch discovery, financing issues particularly regarding Chuditch and LNG prices. Our views on these risks are as follows:

- **Chuditch gas in place and recovery rate:** Baron has indicated that based on Shell's records of the original discovery there is little risk surrounding the existence of reservoir, trap, charge and seal at Chuditch but there is uncertainty concerning the volume of gas-in-place, liquids content and recovery rate. Reprocessing of 3-D data from the original field tapes is a critical element in reducing the uncertainty and these have not yet been released to SundaGas. To justify development and therefore the interest of joint-venture partners Chuditch will need multiple tcf resource potential. The current 1.62 tcf recoverable resource base (assuming 70% recovery rate) may not be adequate for development particularly if the current depressed LNG price regime is expected to persist.
- **Chuditch financing issues:** Chuditch has heavy capital expenditure needs even in the early appraisal stages of the development programme. It should be noted that the operator SundaGas, a private company, has no obvious access to the capital markets. We understand, however, that it is comfortably financed at least for the first stage of the appraisal programme. Once the programme moves into the drilling phase, we suspect that SundaGas will need to seek a farm-in partner to share the expenditure burden and risk. This is unlikely to be easy in the absence of a radical improvement in the commodity price backdrop and bearing in mind that major players in the region, such as ConocoPhillips, have either exited or downgraded their presence. Arguably, the most obvious partner would be Santos given its control of infrastructure and production assets in the Bonaparte Basin.
- **LNG prices:** We believe that it is likely that any natural gas development at Chuditch will aim to supply feedstock to either Santos's LNG facility at Darwin or possibly a new facility in Timor-Leste. The economics of such a project are therefore dependent on expectations of future LNG prices, particularly in the Asian Rim. Currently, spot LNG prices are historically depressed at around \$2/mmBtu reflecting soft global demand and plentiful supply. While the LNG supply/demand balance should tighten over the next few years as the global economy strengthens, a new gas field development would probably need LNG prices to be at least \$6/mmBtu for fully accounted viability. At this price the netback to the producer of natural gas would be about \$2/mmBtu after allowing \$3/mmBtu for liquefaction and another \$1/mmBtu for logistical costs.

An extended period of depressed LNG prices could clearly deter potential farm-in partners from investing in a new natural gas project. As we have noted, however, we think it unlikely a prospective Chuditch field would come on-stream before 2026.

## Share price performance and valuation

**Decidedly downward trend over five years-----:** Baron's share price performance over the past year has been broadly flat while on a five-year view the trend has been decidedly downward. As of mid-July 2020, the stock was trading at 0.08p/share well towards the low end of the 52-week range of 0.04p to 0.39p/share. The high point was reached in early February 2020 around the time Baron announced the potential scale of the Chuditch discovery based on Shell's original reports. The run-up in the price in early February was, however, very much a spike. By early March Baron plumbed at least a five-year low of 0.04p/share. At a price of 0.08p in mid-July 2020 Baron's market capitalisation is £3.65m which defines it very much as a junior. At this capitalisation the stock is trading at 2.6X our estimate of Q3 2020 book value of £1.40m.

**-----reflecting drilling disappointments and deeply discounted raises:** The lacklustre performance over an extended period reflects two key factors. Firstly, drilling disappointments in late 2018 and early 2019 and secondly the deeply discounted equity raises in June 2019 and January 2020. In terms of the former the key events have been the dry hole in the Inner Moray Firth and the inconclusive results of the Colter drilling. Effectively, the strong financial position at the end of 2017 following the reimbursement of the Peru Z-34 guarantee bond was dissipated to no avail. Subsequently, this has made raising new funds challenging particularly given what has been a less than enthusiastic market for junior exploration plays.

The key question now for Baron is the extent to which investors will be prepared to overlook a disappointing past and look forward to the arguably interesting potential surrounding the Sechura Basin project in Peru and particularly the Chuditch gas project in the Timor Sea. As always, this will depend on news flow.

### Valuation methodology

**Risked and diluted sum-of-the parts calculation:** Our valuation approach reflects a risked and diluted sum-of-the-parts calculation for Baron's four projects. The key metric used is price per unit of resource or in this case dollars/boe. We then apply this to the estimated resource base for each project having adjusted the working interest where appropriate for anticipated early stage farm-outs. The un-risked project valuations have been risked based on two criteria. These are firstly, the geological and secondly the commercial chances of success. In the case of the short cycle projects notably El Barco Block-XXI in Peru, we have taken the geological and commercial chances of success to be synonymous. For the Chuditch project, however, which is characterised by a long lead time and heavy capital requirements through appraisal and development we have applied a subjective probability of 40% as our risking factor.

**Valuation quotient of \$0.5/boe reflecting early stage projects pre-drilling:** In the case of the price/boe we would ideally have liked to have benchmarked against comparable projects or transactions in the marketplace. This is difficult to do in practice, so we have conservatively used \$0.5/boe of mean net prospective to reflect the early stage nature of Baron's projects. Logically the price/boe should rise as projects are de-risked. We believe a valuation quotient of about \$2/boe might be plausible following de-risking but before full development.

**Recent Jadestone deal in Indonesia reflected \$0.7/boe:** Providing some perspective, we note that Jadestone Energy is currently selling on \$4.2/boe (2P reserves+2C resources 101mm boe, market capitalisation \$425m). In this context it should be borne in mind that Jadestone has significant production of about 13,500 boe/d so is not directly comparable to Baron. Arguably more relevantly Jadestone recently acquired the Lemang PSC in Indonesia on a multiple of \$0.7/boe (2C resources 17.4mm boe, initial consideration \$12.0m).

**Dilution of valuation/share for prospective cash outflows:** Reflecting long lead times and high capital intensity one of the key issues surrounding oil and gas project exploration and development for a junior is shareholder dilution. In practice, an absence of revenues over extended periods tends to preclude financing other than via equity raises and/or farm-ins at the project level. To allow for this feature we dilute per share valuations for cash outflows over a two-year period unless finance has already been raised to underpin expenditure in advance. For Baron spending needs in 2020 have, indeed, been underpinned by last February's £2.5m gross equity raise. Our dilution calculation therefore only takes into account the extra shares required to finance the 2021 cash outflow. Based on our forecast outflow of £4.41m the implied dilution is heavy. Using the mid-July price of 0.08p the shares in issue would rise by 5.52bn to 9.936bn.

#### Our valuation estimate

**Risk-adjusted absolute valuation £14.1m:** Our absolute risk-adjusted valuation for Baron using the above methodology is £14.1m. This compares with a market capitalisation as of mid-July of £3.6m. Not surprisingly, easily the largest contributor to the valuation is the offshore Timor-Leste Chuditch project which we estimate at £10.8m. The contributions of Peru Block-XXI and the Inner Moray Firth licence P2478 are relatively small at £1.4m and £1.9m respectively. We have assigned no value to the Wessex Basin licence interests given that Baron believes these will be timed out in January 2021.

**Risk and diluted valuation 0.142p/share:** Our risk and undiluted valuation per share is 0.319p/share. This drops to 0.142p/share after diluting for prospective share issues as described above. The diluted valuation is 1.8X the mid-July price of around 0.08p/share.

**Exhibit 11: Baron Oil risk and diluted valuation summary**

Basin	Project	Working interest	Net un-risked mean resources		Risking factor	Net risked mean resources	Valuation quotient	Un-risked valuation			Absolute	Undiluted	Diluted
		%	befe	boemm	%	boemm	\$/boe	\$m	\$m	£m	p/share	p/share	
Bonaparte	Timor-Leste – Chuditch	25.0	405	67.5	40	27.0	0.5	33.8	13.5	10.8	0.244	0.109	
Sechura	Peru – Block XXI	50.0	65	10.8	33	3.6	0.5	5.4	1.8	1.4	0.032	0.014	
Moray Firth	UK P2478	8.0	94	15.6	30	4.7	0.5	7.8	2.3	1.9	0.042	0.019	
Wessex	UK P1918	8.0	7	1.2	50	0.6	0.0	0	0	0	0	0	
Wessex	UK PEDL – 330/345	8.0	0	0	0	0	0.0	0	0	0	0	0	
<b>Total</b>			<b>571</b>	<b>95.1</b>		<b>35.8</b>		<b>47.0</b>	<b>17.6</b>	<b>14.1</b>	<b>0.319</b>	<b>0.142</b>	

Source: Allenby Capital.

Note: Working interests have been adjusted where appropriate for anticipated farm-ins for the first stage of appraisal/exploration. Adjustments have been made to Peru Block-XXI and Inner Moray Firth P2478.

Risking factors are Allenby inhouse probability estimates of commercialising projects at this stage.

We dilute to reflect the need to finance cash outflows in 2020/21. Given that financing needs for 2020 have already been underpinned by the January 2020 raise, we have only diluted for 2021's forecast cash outflow of £4.41m. We have assumed that new money is raised at 0.08p/share resulting in the issue of 5.51 bn shares.

The fully diluted shares in issue used in the calculation is 9.936 bn.

Exchange rate: £1=\$1.25.

#### Share price catalysts

Over the balance of 2020 no drilling is scheduled. Potentially we see the key items of news flow over the period as being as follows:

- **El Barco farm-in partner:** Obtaining a farm-in partner for the El Barco well on Block-XXI in Peru. This may also be combined with timing on drilling a well, although this probably won't be until the second half of 2021 in our view. Announcements concerning Peru will probably in part, at least, be contingent on a trend improvement in the coronavirus contagion in the country.
- **Chuditch seismic processing results:** Progress on data retrieval, seismic reprocessing and evaluation regarding the Chuditch project.

- **Dunrobin farm-in partner:** Obtaining a farm-in partner and finance for drilling the Dunrobin prospect in the Inner Moray Firth. An announcement may also include timing on spudding a well. News on a farm-in partner could crystallise in September 2020 following the completion of due diligence by the European E&P concern that has expressed interest in the Dunrobin project.

Potentially we see scope for drilling two wells in 2021 comprising El Barco and Dunrobin. Given the lead times involved we would however not expect drilling to occur before the fourth quarter. Particularly in the case of Dunrobin a decision on drilling would need to be made by end 2020 for a well to be drilled by end 2021. We believe to drill an offshore well in the North Sea the lead time is an absolute minimum of six months and more usually nearer a year to allow for permitting, well design, rig mobilisation and OCTG purchases. This assumes that all the necessary work on selecting a well location has been completed in advance.

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