PREDATOR OIL & GAS HOLDINGS PLC

Stock Data

Share Price:	9.8p
Market cap.:	£28.7m
Shares in issue:	292.9m
Fully diluted equity:	325.1m

Company Profile

Sector:	Oil & Gas
Exchange:	LSE Standard List
Ticker:	PRD

Activities

Oil and gas exploration, development, production and CO_2 sequestration company with assets in Morocco, Trinidad and the Republic of Ireland.

Performance Data

Source: LSE

Directors

Dr Stephen Staley:	Non Exec. Chairman
Paul Griffiths:	Chief Executive Officer
Lonny Baumgardner:	Chief Operating Officer
Louis Castro:	Non-Exec. Director

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Novum Securities Ltd acts as joint broker to Predator Oil & Gas Holdings Plc.

Focus on Morocco in 2022

Near term activity is focused on Morocco, where Predator intends to perform a rigless test on the MOU-1 gas discovery and drill up to two appraisal wells on the MOU-4 submarine fan structure. A successful programme could confirm the recently reclassified gross contingent gas resources of 393 BCF as commercial whereupon Predator has outlined an attractive option for early monetisation in the form of a highly scalable CNG (Compressed Natural Gas) project. With Moroccan gas prices to industrial customers believed to be in excess of $11/mcf, we estimate that such an project could be worth at least $32m for a pilot project and up to $197m net to the company for a larger scale development.

Predator completed the drilling of the MOU-1 exploration well to test the western part of the MOU-4 Tertiary prospect on the Guercif Licence (PRD: 75%) in July 2021. Although an over-pressured reservoir prevented flow testing at the time, the company's priority is now to perform a rigless test in H1 2022, for which the company is fully funded, subject to its partner, ONHYM's approval. ONHYM holds the balance of 25% in Guercif.

Predator concluded that MOU-1 penetrated the extreme western edge of the MOU-4 prospect, which is confirmed to be a 32 km^2 submarine fan (the MOU-4 Fan). Based on post-well re-mapping, the company has concluded that the MOU-1 discovery has targeted a contiguous structural closure and that step-out appraisal drilling only 8 km to the east of MOU-1 could confirm substantial recoverable gas resources.

The company favours a two well back-to-back drilling programme comprising the MOU-4 and MOU-5 appraisal wells in order to maximise early exposure to potential gas resources. As ONHYM is carried through the exploration and appraisal phase, we anticipate that Predator could receive approval to drill within the next six months. As with MOU-1, onshore drilling costs are low in Morocco and we anticipate that both wells can be drilled within a budget of only $5-6m for which the company would require additional funding should the company wish to fund the wells independently rather than bring in a farm-in partner to fund the drilling.

Following the results from MOU-1, SLR Consulting published a re-classification of the Best Estimate net gas resources of 295 BCF attributed to the MOU-4 accumulation from 'prospective' to 'contingent' assuming that ONHYM retains its 25% interest through to development.

Through our own assumptions, we have verified SLR's conservatively risked valuation of $148m for a conventional development project of the MOU-4 discovery. However, in order to monetise the asset more rapidly, Predator favours a highly scalable pilot CNG (Compressed Natural Gas) project providing gas to Moroccan industrial market at attractive gas prices which have recently be reported to be in excess of $$11/mcf.

We have calculated that a pilot 5 mmcfpd (plateau production) CNG project could deliver net cash flow of over $10m per annum by 2024 and an NPV (10) of nearly $32m. On a similar basis, a 10 mmcfpd project could be worth over $71m net to the company with a larger scale 25 mmcfpd plan valued at over $197m.

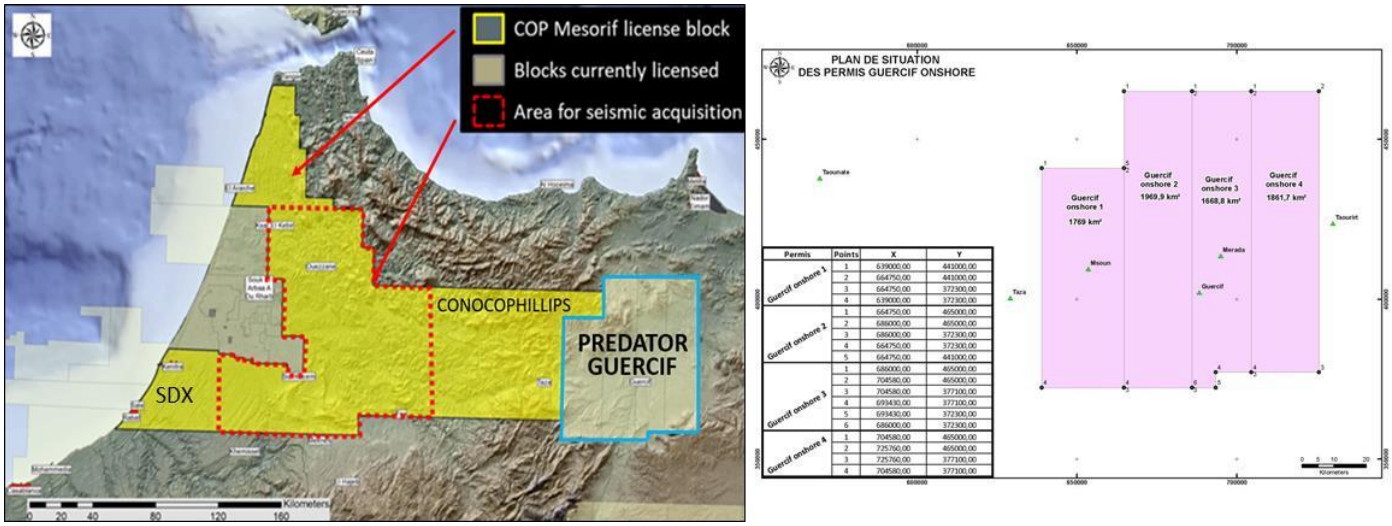
In Ireland, Predator's Floating Storage and Regasification (FSRU) and LNG project designated Mag Mell and designed to provide the country with peak energy demand management, longer term supply security and the delivery of greener gas from more transparent origins, is progressing well. The company has made public submissions and technical evaluations over recent months outlining the benefits of Mag Mell on Irish industries and communities and long term solutions to Ireland's tight energy market.

Morocco – the Guercif Licence

Predator Oil & Gas Holdings Plc holds a 75% interest in the Guercif Licence located onshore Morocco. The company's partner is Moroccan state oil company, ONHYM (Office National des Hydrocarbures et des Mines), which holds the balance of 25%.

A Petroleum Agreement between Predator and ONHYM was signed on 19 March 2019 covering four Exploration Permits; Guercif I, II, III and IV which cover an area of 7,269 km². Guercif is located approximately 250 km due east of, and on trend with, the highly prospective Rharb Basin where several operators including AIM-quoted SDX Energy Plc have been producing gas from shallow horizons for several years in nearby acreage (outlined on the left hand map below). Guercif is also located c.180km north-west of the Tendrara acreage where Sound Energy Plc has discovered gas in deeper horizons.

Location of the Guercif Licence in Morocco



Source: Company, SLR

Guercif Licence terms and conditions

The Guercif licence runs for a period of eight years and is split into three separate periods. We note that, as with most Moroccan hydrocarbon agreements, ONHYM is carried through the exploration phase and upon a Declaration of Commerciality for the licence, all further expenditure will expedited on a pro-rata share of all costs. The three periods are:

- An Initial Period of 30 months (extended by one year to 18 September 2022 as a result of the impact of the Covid-19 pandemic)
- A First Extension Period of 36 months
- A Second Extension Period of 30 months

After each licence period, there is an opportunity for Predator to withdraw from the licence without entering the next period. With regards to the Initial Period, the key feature of the work programme: the drilling of an exploration well and the estimated financial expenditure for the Initial Period of the Petroleum Agreement was completed in 2021, the results of which are discussed in more detail in this report. Predator also maintains that additional elements of the Initial Phase, including geological studies, well site training and gas market studies have also been expedited, therefore fulfilling many of the First Period requirements.

We note that Predator is planning to drill a further two appraisal wells on the licence in 2022, which while not specifically commitment wells, should count significantly towards the fulfilment of both the First Period and the First Extension Period terms and expenditure during discussions with ONHYM.

Terms of Predator's Petroleum Agreement with ONYHM

First period	30 months
250 km seismic reprocessing	150,000
Drilling one well to 2,000 metres	2,000,000
Guercif geological studies	125,000
Moroccan gas study	40,000
Licence G&A (30 months)	725,000
ONHYM training budget	104,000
Contingency @ 10%	314,000
Total cost	**3,458,000**

First extension period	36 months
Acquire and process 200 km² 3D seismic	2,500,000
Drill one well to 2,000 metres	2,000,000
Guercif geological studies	125,000
Development options for discovered gas in First Period	40,000
Gravity and magnetic modelling of data	60,000
Licence G&A (3 years)	870,000
ONHYM training budget	125,000
Contingency @ 10%	572,000
Total cost	**6,292,000**

Second extension	30 months
Acquire and process 400 km² 3D seismic	4,500,000
Drill one well to 2,750 metres	5,000,000
Guercif geological studies	50,000
Investigate scope for EOR (Enhanced Oil Recovery)	50,000
Licence G&A (30 months)	725,000
ONHYM training budget	104,000
Contingency @ 10%	1,043,000
Total cost	**11,472,000**
Aggregate cost	**21,222,000**
Predator interest	75%
ONHYM (on declaration of commerciality)	25%

Source: Company, ONYHM, SLR (Ireland)

Fiscal terms in Morocco

Fiscal terms in Morocco are attractive. The state royalty for gas production is only 5% and is applied after the first 10.6 BCF of net production to the operator. Corporation tax is levied at a rate of 31%. However, the Moroccan government also applies a 10-year 'holiday' before corporation tax is payable and any unused tax losses can be offset against the tax due.

There are no signature bonuses but production bonuses in the form of cash payments exist with a maximum one-off payment of US$5.0m on production greater than 30,000 boepd. Predator notes that a discovery bonus of US$1.0m is also payable upon confirmation of commerciality.

Gas prices in Morocco are very attractive and until recent events impacting European gas markets which we are regarding as temporary, are typically higher than UK National Balancing Point (NPB) prices for domestic delivery to the industrial gas market. We note that SDX Energy reported in 2021 that it had realised gas prices of US$11.40 per mcf for its Moroccan gas production which is supplied to the domestic market.

Recent exploration activity on Guercif

Predator completed the drilling of the MOU-1 exploration well to test the western part of the MOU-4 Tertiary prospect on the Guercif licence in July 2021. The well was completed within budget and completed for rigless testing in 2022. In addition, the site has been restored to a high environmental standard to preserve the pre-drill status of the natural environment.

Post drill MOU-1 site restored

Source: Company

Post drilling evaluation

By the end of 2021, post well evaluation studies and log analysis carried out by NuTech in Houston, Texas confirmed the company's initial conclusions that MOU-1 contains two zones targeted for perforating and potential gas flow. These zones are situated at true vertical depths (TVDs) between 1,231-1,241 metres (gross interval of 10 metres) and 1,276-1,300 metres (gross interval of 24 metres) and Predator notes that reservoir characterisation supports the presence of a submarine fan sequence with multiple thin-bedded higher permeability layers.

A key characteristic which prevented flow testing upon the completion of drilling in July 2021 was that the reservoir interval is over-pressured. In fact, MOU-1 encountered pressures not previously seen in the Rharb Basin within the MOU-1 reservoir. The company notes that the pressures at this depth were up to 500 psi higher than pre-drill expectations, a prognosis based on the offset well GRF-1 drilled in 1972 which is located only 1.25 km to the southeast of MOU-1 (See Appendix 2 at the end of this report for further details on previous exploration activity on Guercif). The presence of a basin-defining fault between the two well locations may provide explanation as to the significant disparity in reported reservoir pressures.

As a consequence of the unexpected pressures experienced whilst drilling MOU-1, Predator's rig team increased the mud weight to control and deliver the well successfully. This was in spite of a major pre-drill risk of the potential for stuck drill pipe which has been a historical problem in some earlier wells in the Rharb Basin.

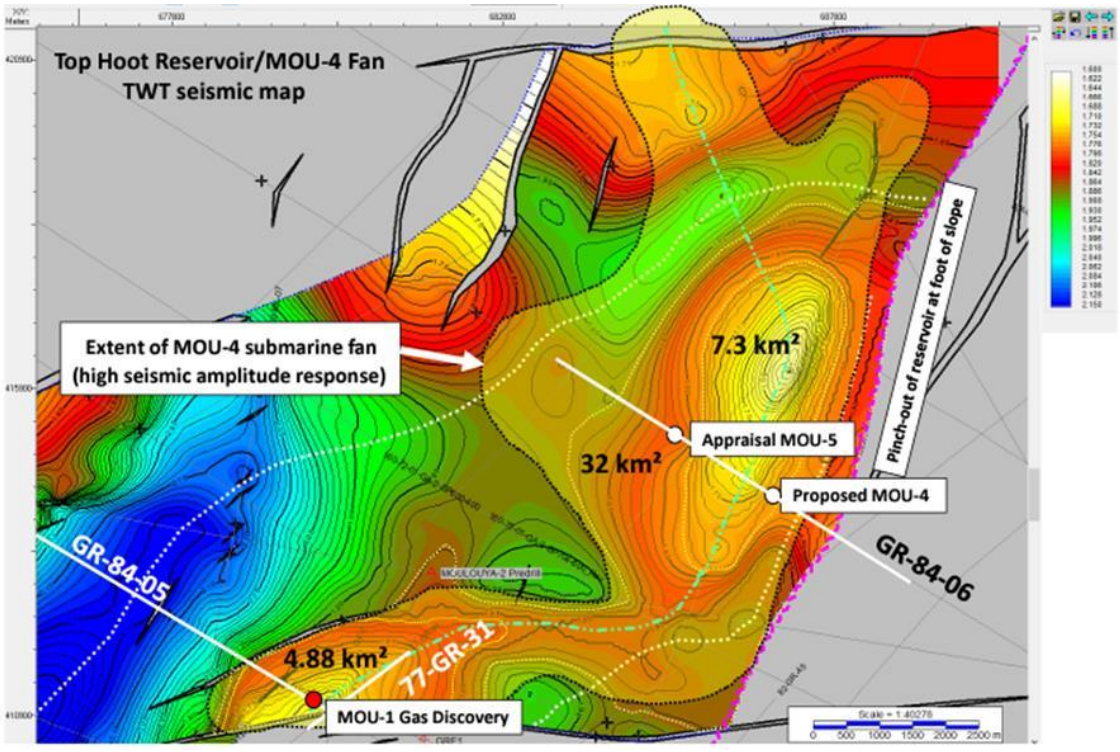
Conventional well logs delivered at the end of the well did not have sufficient resolution to correctly characterise the reservoirs penetrated by MOU-1 and additional logs were not run as the priority was to secure the well for rigless testing rather than risk logging tools getting stuck in areas of poor borehole integrity. NuTech's log analysis has identified permeable thin sands. However, high mud weights with some drilling mud invasion of the permeable zones are believed to have reduced the calculated gas saturations.

Appraisal drilling planned

Predator has concluded that MOU-1 penetrated only the extreme western edge of the MOU-4 prospect. This pre-drill seismic amplitude anomaly is confirmed to be a 32 km² submarine fan (the MOU-4 Fan) and independent third-party, post-well remapping has confirmed its connectivity with the MOU-1 gas discovery.

Based on the re-mapping of the MOU-4 Fan, Predator has identified that the next step-out drilling location will be the MOU-4 appraisal well, located only c.8 km east of MOU-1 but targeting the same structural closure as MOU-1. Outlined on the map below, the MOU-4 well will test the same seismic amplitude anomaly encountered by MOU-1 in an area where a maximum provisional thickness of gross reservoir interval is expected to be 293 metres compared to 60-70 metres as seen in MOU-1. As the map also implies, pending additional funding, the company is likely to favour a back-to back drilling programme incorporating a second appraisal well, MOU-5, in order to secure maximum early exposure to the potential gas resources within the MOU-4 Fan.

The MOU-4 submarine fan



Source: Company

The MOU-4 well will target a sub-area of the MOU-4 Fan with an independent 4-way dip closure covering 7.3 km² and characterised by a favourable seismic amplitude response, seismic flat spots potentially related to gas-water contacts and a potential "gas cloud" developed at the eastern limit of structural and possibly stratigraphic closure.

Company to confirm well locations based on final data

As with all drilling programmes, we acknowledge that final well locations may be adjusted slightly and the order of drilling MOU-4 and MOU-5 may be changed depending on the results of the Environmental Impact Assessment in addition to fine-tuning the ongoing seismic and geological studies designed to optimise the well locations.

Cash position

We estimate that Predator has cash at the bank of approximately $2.2m (the company is debt free) which we believe will be sufficient to conduct a rigless flow test on MOU-1. With regards to further appraisal drilling, which we estimate will cost $5-6m for two wells, Predator is currently unfunded for this purpose and we anticipate that the company will seek a partner to farm-in to the licence or otherwise would need to raise additional financing when ONHYM approvals look to be forthcoming.

As with all partnerships, such a scenario is will depend on whether the commercial proposition is sufficiently attractive to a third party.

Initial priority is rigless testing

Since the end of 2021, Predator has identified the specialist testing equipment and appropriate perforating guns it requires to commence rigless testing of MOU-1, subject to ONHYM approval. We note that this may be impacted in the short term by potential Covid related restrictions on personnel movement in Morocco. The primary objective of this test, for which the company is fully funded, will be to establish commercial gas flow rates and to analyse pressure data to estimate the volume of gas connected to the MOU-1 wellbore.

Early development options available

In order to monetise commercial volumes of gas in short order, Predator has already completed a pilot CNG (Compressed Natural Gas) study with regards to MOU-1. Depending on gas flow rates, the company's internal economics indicate that a pilot CNG project in the range 2-5 mmcfpd of gas is likely to be commercially viable based on the prices paid for gas in Morocco's industrial sector.

A fast track development is subject to the results of the MOU-1 testing programme and partner approval and we examine the economics of such a project in a later section of this report. Predator notes that a pilot CNG development would require at least two wells to be used as producers and the rigless testing of MOU-1 on its own will not establish the criteria for a commercial pilot CNG development.

Updated resources classification

Predator has made available an updated Competent Persons Report (CPR) published by SLR Consulting (Ireland) Ltd in January 2022 which comprises an independent re-assessment and valuation of the resources attributed to the Guercif MOU-4 prospect. This structure was initially evaluated by SLR in an earlier CPR published in October 2019 and is now defined as the 'Tertiary Moulouya Turbidite Fan Appraisal Project' following the incorporation of the MOU-1 drilling results.

The estimated volumes within the MOU-4 structure are unchanged from SLR's 2019 iteration. However, based on the results from the MOU-1 well, SLR has reclassified the gas resources within the MOU-4 structure from 'prospective' to 'contingent'. The net attributable resources in the table below assume that ONYHM maintains its ascribed 25% interest with Predator as the operator with a 75% interest.

Contingent gas resources (BCF)

			Gross			Net		
Prospect (BCF)	**GIIP**	**Recovery factor**	**Low**	**Best**	**High**	**Low**	**Best**	**High**
Guercif Tertiary (MOU-4)	595	66%	146	393	944	110	295	708

Source: SLR Consulting (Ireland)

Development options for MOU-4

We have noted that SLR has published a headline risked valuation for Predator's interest in the MOU-4 accumulation. On the basis of 66% recovery of the gas in place of 446 BCF net to Predator and a risk factor of 25% pertaining to the chance of commerciality, SLR has ascribed a valuation of US$148m to a net resource of 74 BCF (99 BCF gross implied). SLR has applied a production profile of 13 years, a conservative NPV discount rate of 12.5% and a flat Moroccan gas price of US$9.00 per mcf.

Taking these variables into account and assuming plateau gas production of approximately 32,500 mcfpd from 2024, we have reverse engineered and assessed the operating costs (opex) and capital expenditure (capex) assumptions within this valuation as a benchmark for the risked resource. This, in addition to numbers publically available and those provided by Predator from published literature in 2021 have enabled us to provide our own valuation metrics for several short term development options for MOU-4.

SLR illustrative valuation of MOU-4 gas resources

Variable		**Tertiary prospect (MOU-4)**
Gas in place	BCF	595
Predator interest	%	75%
Net to Predator	BCF	446
Recovery	%	66%
Unrisked recoverable	BCF	295
Chance of commerciality	%	25%
Risked resource	BCF	74
NPV per mcf	USD	1.99
Risked value	**US$m**	**148**

Source: SLR

SLR applied a modest 25% chance of commerciality to the MOU-4 asset to reflect a raft of outstanding production, technical, legal, contractual and environmental issues that would apply to a project as large as a full scale MOU-4 development. However, we believe that the chances for advancing commerciality for smaller pilot-sized CNG projects supplying gas to industrial customers is higher and also scalable as bite sized projects could demonstrate commerciality for a longer term roll of larger scale CNG projects.

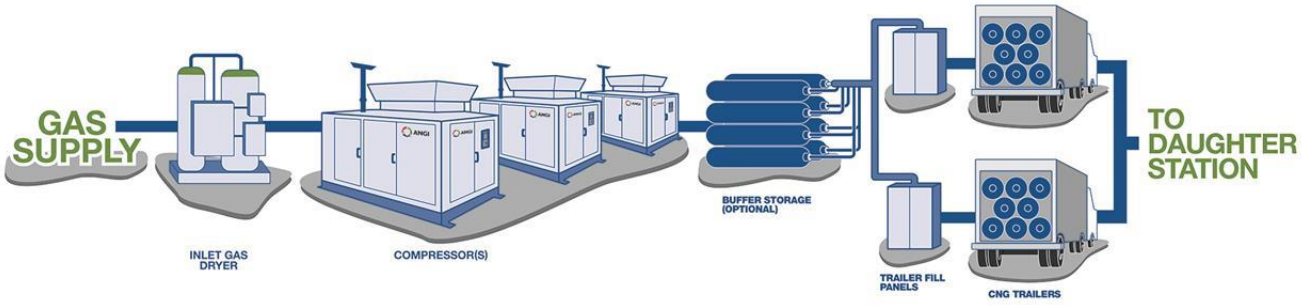
CNG development options

Predator believes that CNG projects represent a viable and scalable solution for early monetisation of gas production particularly if further appraisal drilling, including the MOU-4 and 5 wells in this case, proves to be successful.

CNG development is a proven technology and Predator has already illustrated and costed several development concepts that could be instigated using off the shelf, portable and skid mounted equipment. In particular, the MOU-1 site as evidenced by the earlier well site photograph is highly suitable for such a project given that it is flat and only 1.5 km away from the nearest major road.

In terms of equipment, a pilot CNG project would be sited near the well head gas supply. Produced gas would be delivered to site, whereupon it would be gathered, dehydrated and filtered of impurities before being compressed and stored on site. In the model proposed by Predator and outlined in broad terms in the illustration below, CNG delivery vehicles (trucks) could also run on CNG rather than diesel and deliver CNG to industrial customers or fixed CNG stations across Morocco.

Illustrative CNG project



Source: Angi Energy Systems LLC

Pilot 5 mmcfpd project

As outlined previously, should MOU-1 test commercial volumes of gas, it is feasible that this discovery alone could provide sufficient gas for a pilot CNG project. For such a venture, we have assumed several variables utilising Predator and SLR indicative guidance in addition to our own assumptions.

- 10 year production profile
- Plateau production of 5,000 mcfpd (833 boepd) for five years commencing in 2024
- Flat average gas price of US$11.00 per mcf
- 14 BCF of gross gas produced
- Gross capex of US$17m includes two appraisal wells (MOU-4 and 5) and a fleet of 16 trucks
- CNG and field opex of US$3.06 per mcf over life of project
- Moroccan fiscal terms as outlined previously
- ONHYM carried throughout appraisal drilling activity
- Abandonment charge of US$0.13 per BCF of gas
- NPV discount rate of 10%

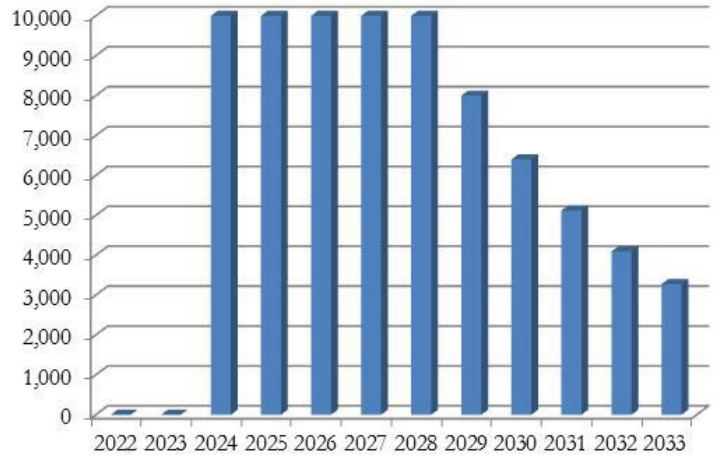
For this modest project, we have calculated an NPV (10) net to Predator of US$31.9m, equivalent to 8.1p per share based on 292.9 million shares currently in issue.

10 mmcfpd pilot project

On a similar basis to the 5 mmcfpd project, we believe that a project twice the size utilising higher gas production at 10 mmcfpd as outlined in the recent SLR CPR, could be worth US$69.7m (equivalent to 17.9p per share) net to Predator. At this size, the company begins to benefits from economies of scale from increased volumes of gas available from up to three wells over a ten year production profile (see chart below).

The capex requirement is marginally higher than the smaller project and unit opex remains similar to the 5 mmcfpd project. As such, the higher gas throughput volumes of approximately 3.65 BCF per annum on plateau at the same assumed gas price deliver highly attractive project economics.

Illustrative production profile of 10 mmcfpd CNG pilot project



Source: Research contact – Barney Gray

Larger scale 25 mmcfpd project could provide critical mass

In terms of critical mass, Predator has outlined the metrics for a considerably larger scale project of plateau production of 25 mmcfpd over 13 year period. We estimate that such a project is likely to require gross gas resources of approximately 76 BCF (57 BCF net to Predator's interest). We believe that this is highly attainable from the drilling plans outlined below given that SLR's outline development option factors in gross risked resources of almost 100 BCF. Our project assumptions also include:

- 13 year production profile – see chart below
- Plateau production of 25,000 mcfpd (4,166 boepd) for five years commencing in 2024
- Flat average gas price of US$11.00 per mcf
- 76 BCF of gross gas produced
- Gross capex of US$47m includes five additional wells and fleet of 80 trucks
- CNG and field opex of US$3.06 per mcf over life of project
- Moroccan fiscal terms as outlined previously
- ONHYM carried throughout appraisal drilling activity
- Abandonment charge of US$0.13 per BCF of gas in year 13
- NPV discount rate of 10%

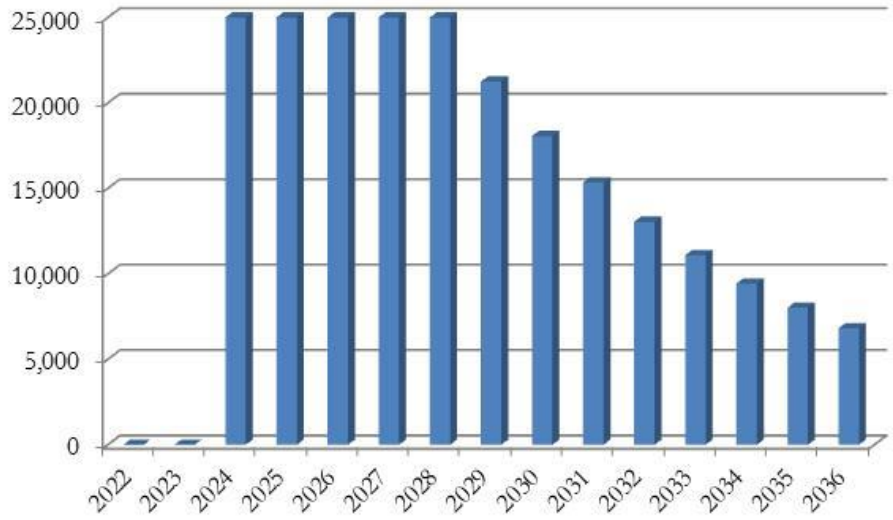
For such a project, we have generated an NPV 10 of over US$197m (49.7p per share) net to Predator's 75% interest, equivalent to US$3.30 per mcf of gas. Within this calculation, there are several variables including gas prices, project start time and the likelihood that such a project would be scaled from a smaller pilot development, and variations in cost assumptions. If one takes arguably the most difficult to predict variable of gas prices over the life of the project, the margins are such that such a development possesses very robust economics on the downside and very attractive upside should CNG prices escalate.

Project valuation matrix

Average gas price (USD/mcf)	US$7.00	US$9.00	US$11.00	US$13.00	US$15.00
NPV 10 (Net to Predator)	US$77m	US$137m	US$197m	US$257m	US$317m

Source: Research contact – Barney Gray

Illustrative production profile of 25 mmcfpd CNG pilot project



Source: Research contact – Barney Gray

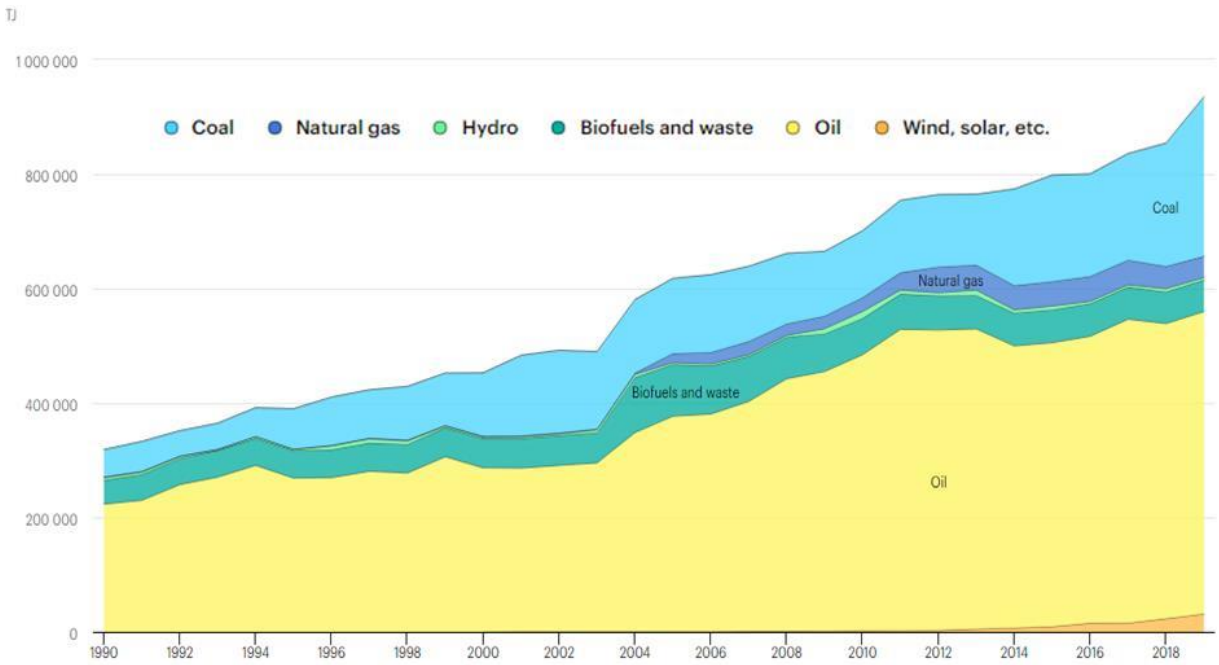
The Moroccan energy sector

Morocco produces marginal volumes of condensate, natural gas and refined petroleum products and is a major net importer of energy, specifically hydrocarbons. In this regard, the country's energy supply mix is comprised almost 30% of coal and nearly 57% oil with low carbon emitting sources representing less than 10% of the energy mix. Although natural gas is a considerably cleaner hydrocarbon than coal in particular and represents a key factor in the longer term global energy transition, gas consumption currently represents less than 5% of the energy supply in Morocco.

Unsurprisingly, Morocco is a major importer of natural gas and according to the several sources, including BP and Statista, the country consumed approximately 26-28 BCF of gas per annum in 2020, down considerably on the preceding years when annual consumption was in excess of 40 BCF. Although we expect that the country's economic recovery from Covid, which hit the country hard in 2020, is likely to boost demand from 2022 onwards, Morocco satisfies less than 10% of its annual gas consumption from domestic output in any given year. We also note that, following deterioration in relations with neighbouring Algeria, culminating in the expiration of an import deal in Q4 in 2021, Morocco no longer imports gas from Algeria.

According to Morocco's Minister of Energy, domestic gas production was 3.9 BCF in 2021, representing less than 10% of annual domestic consumption. This share is likely to get smaller given that the country's gas demand is expected to triple to over 106 BCF per annum by 2040 as part of a long term goal of reducing consumption of coal and oil and boosting capacity derived from natural gas and renewable sources.

Total energy supply by source in Morocco (TJ)



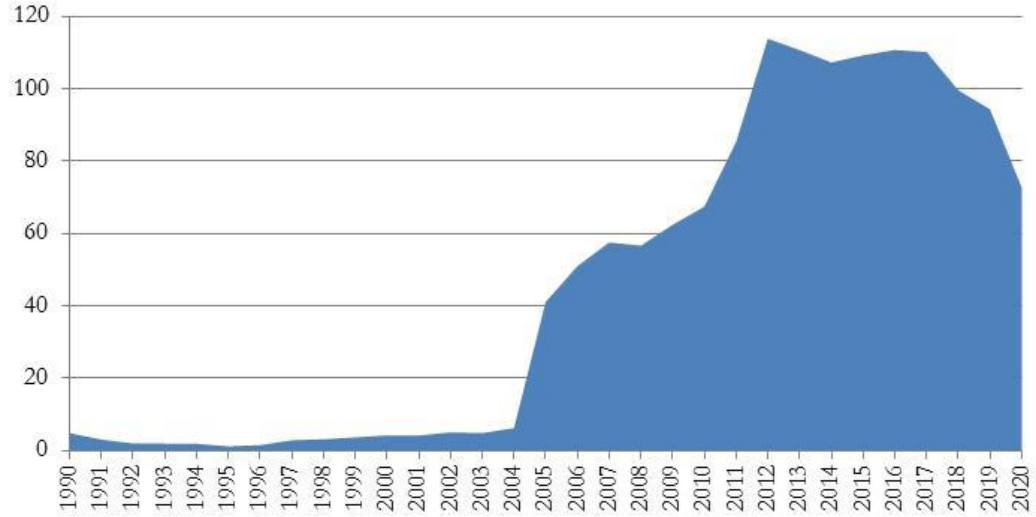
Source: IEA

Gas consumption increasing

Although gas represents a modest sliver of the Moroccan energy mix, we are able to zoom in on gas consumption; in particular the period after 2004 when natural gas was introduced to Morocco's energy sector in considerably greater volumes.

As can been seen for the chart below, baseline consumption in Morocco was represented by industrial users on a very modest scale prior to 2004. However, the commissioning of the Siemens-built 384 MW capacity gas fired power station in Tahaddart in 2004 boosted gas consumption exponentially. This was followed by the 450 MW-capacity Ain Beni Mathar plant commissioned in 2010 which increased Moroccan gas consumption to over 100 mmcfpd after 2012.

Moroccan gas consumption (mmcfpd)



Source: BP

Market structure represents attractive backdrop

As our earlier analysis indicates, a successful appraisal programme on Guercif leading to the potential for a 25 mmcfpd CNG project has the potential to satisfy over 20% of current Moroccan demand leaving substantial headroom for the commercialisation of additional gas resources. This is represented by the drilling of additional prospects on the Guercif licence in the longer term.

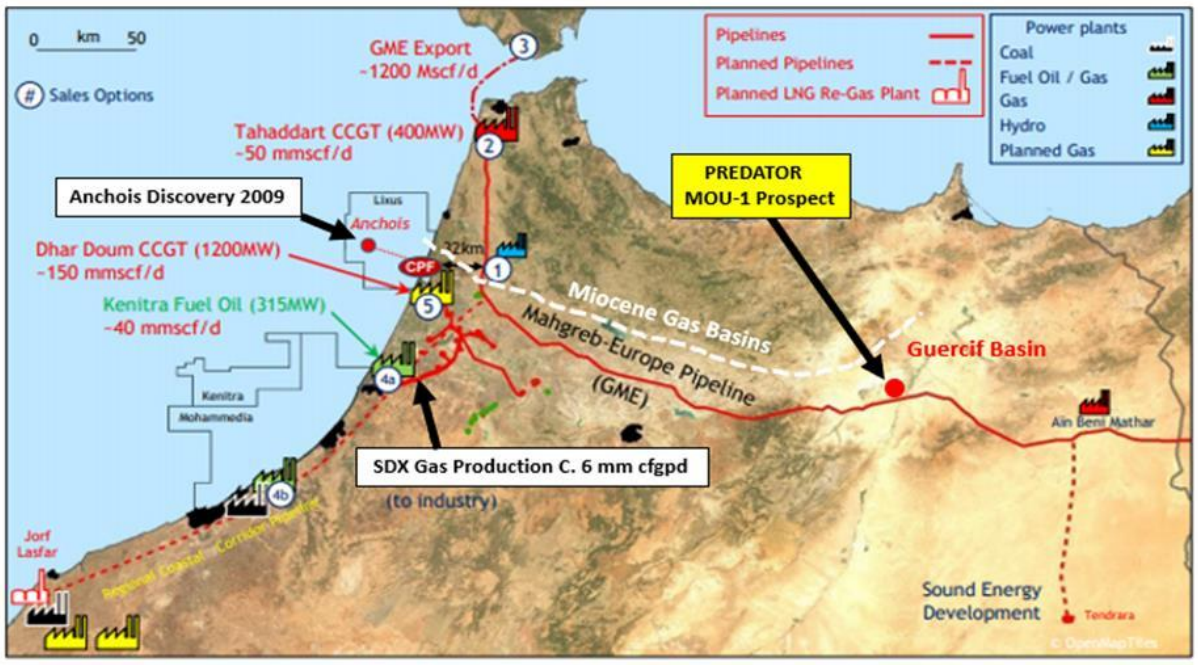
This demand gap is augmented by very attractive gas prices in Morocco, primarily as a function of imported fuel costs. As noted previously, SDX Energy which produced approximately 7.7 mmcfpd (5.8 mmcfpd net to its entitlement interest of 75%) from the Sebou Concession in the Rharb Basin in 2021, reported realised gas prices of more than US$11.00 per mcf in 2021 while SLR has been conservative employing a Moroccan Domestic Gas Price of US$9.00 per mcf in its calculations for the longer term.

Wider Moroccan infrastructure

In the wider context, we note that Predator's acreage is strategically located in the path of the Algerian-owned Maghreb-Europe gas pipeline where most of the gas produced in Algeria was transited through Morocco destined for markets in the European Union prior to October 2021. With an annual capacity in excess of 400 BCF, the Maghreb-Europe pipeline, which has the capacity to deliver nearly all of Morocco's gas imports from fields in Algeria, is located less than 10 km from the MOU-1 well site.

As indicated earlier, we understand that Algeria is currently re-routing gas supplies to Europe through an alternative pipeline landing in Almeria in southern Spain following a deterioration of relations between Algeria and Morocco prior to the expiration of the previous gas import deal on 31 October 2021. While we are unaware of any new short term gas supply contracts between Algeria and Morocco, it is likely that this ongoing dispute will have squeezed gas prices in Morocco significantly demonstrating the imperative for increased domestic production.

Location of the MOU-1 prospect in relation to the Mahgreb-Europe gas pipeline



Source: Company (Situation prior to drilling MOU-1)

Industrial customers a priority

Assuming that Predator follows the CNG route to market rather than deliveries of gas into the pipeline network, the company has highlighted the opportunities available in the Moroccan industrial sector. With a major road network connecting Morocco's significant urban and industrial regions and no pipeline access required for a CNG development, the lead times to first gas sales are likely to be considerably shorter than conventional delivery to the gas pipeline network.

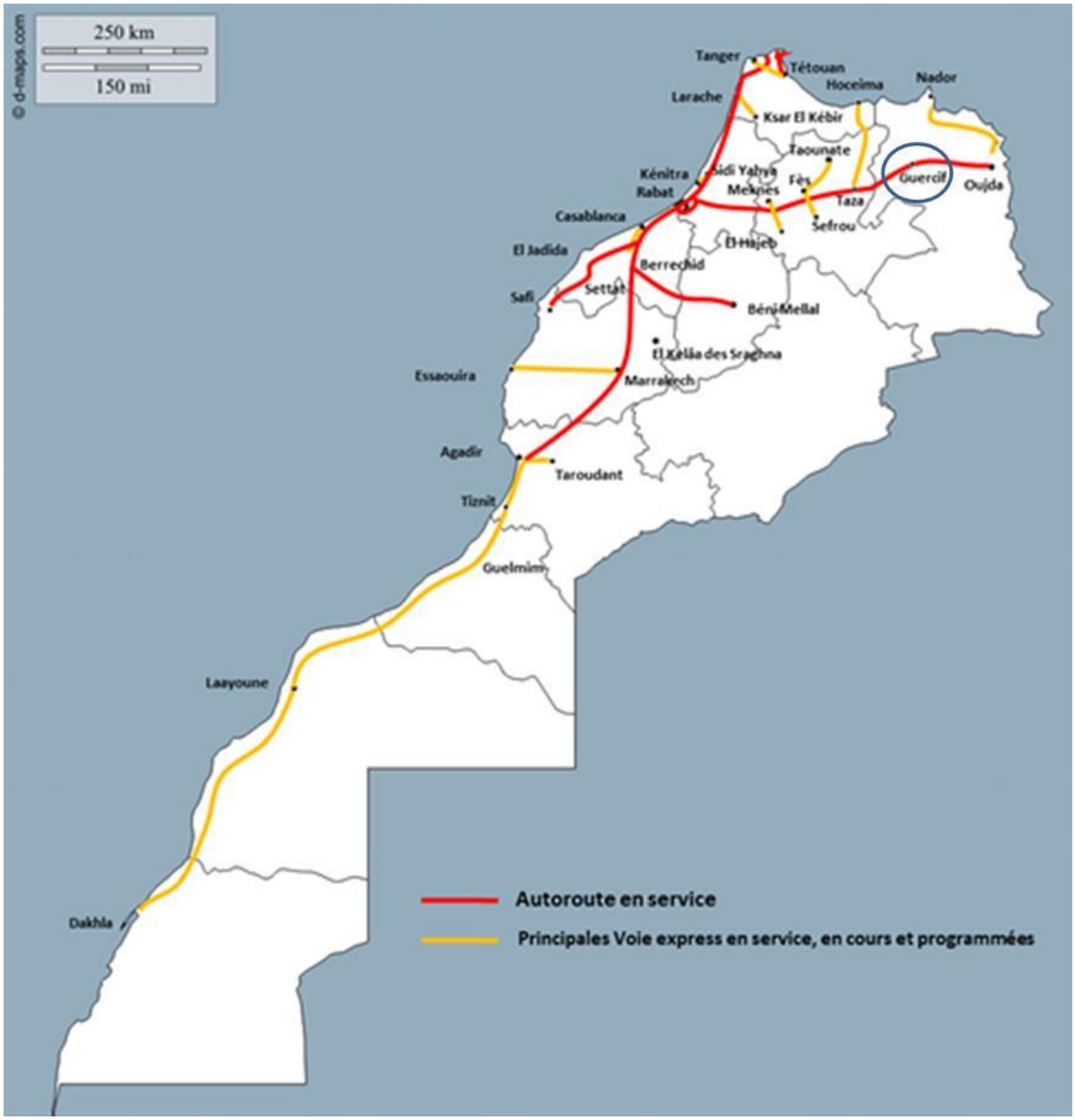
The company has identified a range of potential consumers for CNG in the phosphates, ceramics, steel and power sectors in additional to industrial locations around the country. With economic growth rebounding sharply after the impact of the global Covid pandemic, we anticipate that commercial demand for gas will increase rapidly over the next decade.

The Moroccan major highways network

As can be seen from the map below, the Guercif (alternatively Quercif) region of eastern Morocco where Predator's acreage is located is very well connected to all the major coastal cities in the country in addition to regions further inland. We believe that this is ideal infrastructure for a CNG project which connects customers anywhere in the country with gas supply using a dedicated fleet of CNG powered vehicles.

Predator also notes that local railway infrastructure also passes close to the MOU Fan providing a potential alternative transportation link to Morocco's industrial centres in the west of the country.

Morocco's developed highway network (PRD's location highlighted)



Source: Wikipedia

Mag Mell Energy Ireland Ltd

Mag Mell Energy is the name of a proposed Floating Storage Regasification Unit (FSRU) project which Predator plans to locate approximately 50 km off the Irish coast, offshore county Cork. (Mag Mell is named after the mythical Irish kingdom beneath the ocean). Mag Mell is intended to be a strategic offshore LNG (Liquefied Natural Gas) storage facility contributing to both security of energy supply and a significantly reduced environmental footprint (the facility would be located well beyond the horizon and tie into existing Irish gas infrastructure) as Ireland participates in the global Energy Transition.

Ireland has instigated the Climate Action Plan 2019 (augmented by the Climate Action Plan 2021), whose objective is to double the electricity generated from renewable sources to 70% of the nation's consumption, with most of the balance generated by natural gas from transparent origins (e.g. regions not dependent on fracking operations during the exploration and development phase of production).

Predator affirms that maintenance of energy security for Ireland within what is expected to be a significant transition period is dependent on the provision of a strategic natural gas storage facility such as Mag Mell to provide security of supply for the national network.

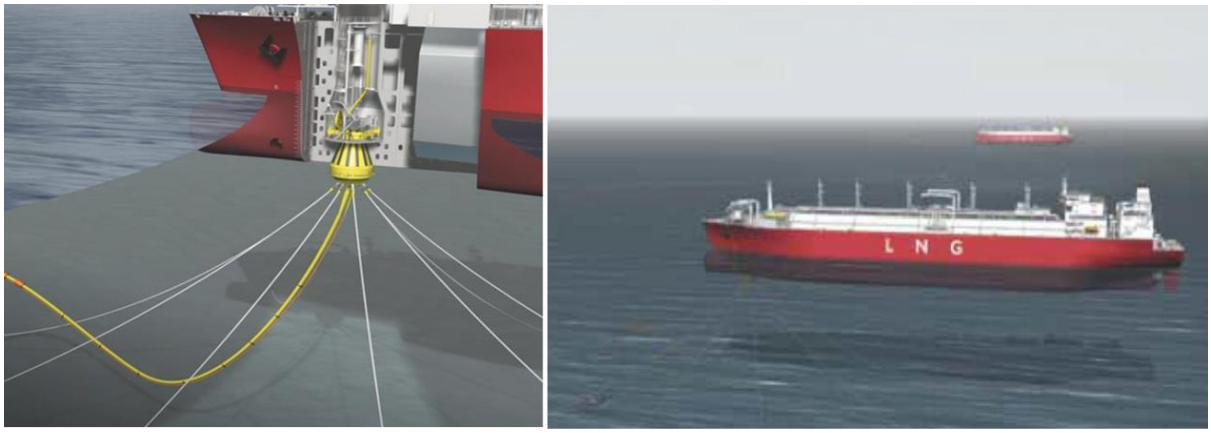
The company notes that an LNG import and gas storage option is in line with the European Commission's Sustainable Energy Security Package (16 February 2016), which includes a non-legislative strategy for LNG and gas storage aimed at improving the access of all EU member states to LNG as an alternative gas source to Russian or Algerian gas for example.

Floating Storage and Regasification Unit (FSRU)

Mag Mell Energy Ireland Ltd (formerly Predator LNG Ireland Ltd), was formed in June 2020 with the aim of progressing a strategic FSRU project for Ireland. An FSRU strategy has the potential to address the issue of long term energy security for the country while at the same time providing additional gas capacity suitable to address periods of peak demand.

An FSRU is a vital component required while transferring LNG from gas producing regions to end-markets through ocean channels. The FSRU is a highly specialised vessel in the supply chain for LNG transfer in that it has on-board regasification plant capable of taking delivery of LNG and returning it into a gaseous state before supplying it into the gas network. The illustration below depicts a typical LNG carrier alongside an FSRU which can be either mobile or in a fixed location. It is important to note that the Mag Mell FSRU concept does not involve any visible fixed surface infrastructure as implied by the example illustrations below.

An FSRU vessel with mooring and loading system



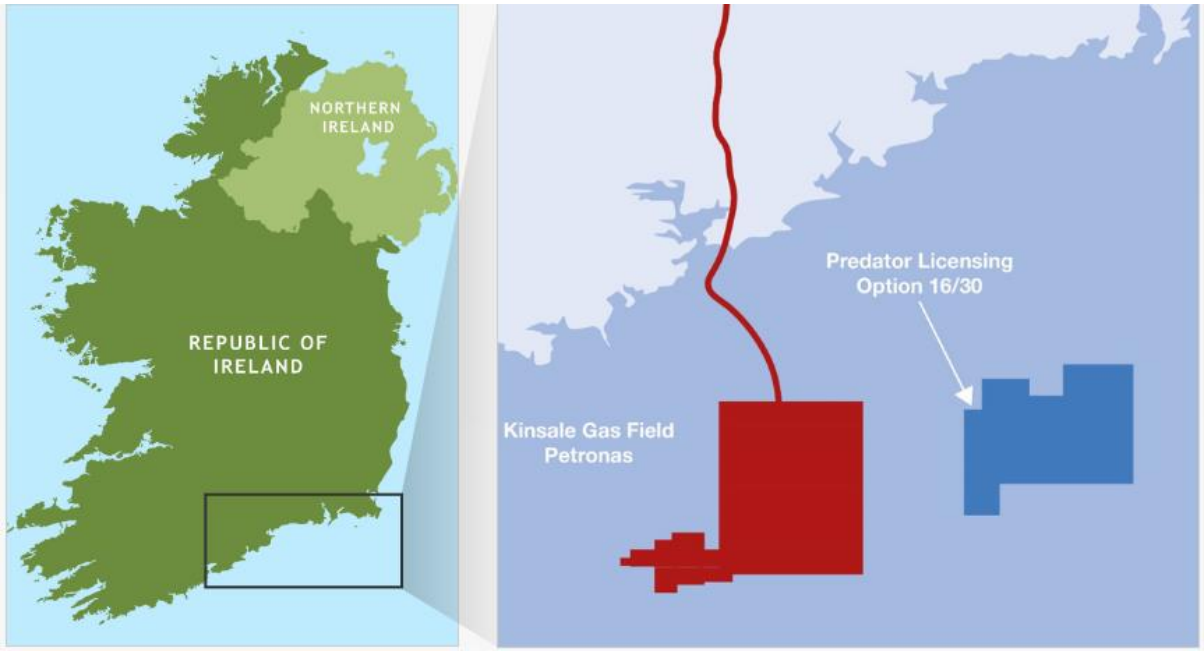
Source: APL Offshore

Progress over the last 12 months

In June 2021, Predator submitted the Mag Mell FSRU LNG project and its potential benefits for the industries and communities of Cork to the Cork County Council Development Plan. Mag Mell was also included in public consultation submissions for the proposed decommissioning of the now abandoned Kinsale Head gas field (location depicted on the map below) and onshore gas terminal facilities.

In the latter half of 2021, Predator generated a 'close out report' as requested by the Irish government's GeoScience Regulation Office of the Department for the Environment, Climate and Communications for its LO 16/30 (Ram Head) licensing option, which is the subject of an application for a successor authorisation. Predator holds a 50% interest in LO 16/30, which is located immediately the east of the now abandoned Kinsale gas field.

Location of Predator licence option LO 16/30 (Ram Head)



Source: Company

Gas storage options

Ireland does not possess any operational gas storage facility. However, Predator submitted a technical evaluation of Ram Head which included a potential solution to develop a 10-15 BCF gas storage facility in an existing gas discovery. Based on the management's two decades of experience identifying potential gas storage reservoirs and developing gas storage desktop projects in the Celtic Sea, Predator has suggested that such a storage facility could link up with a FSRU project to provide summer storage solutions and security of supply during peak gas demand or increased volatility in gas prices as Europe is currently experiencing.

In this regard, Predator is currently negotiating a Memorandum of Understanding (MOU) with a significant player in downstream gas marketing sector to form an exclusive relationship to determine the potential market for FSRU gas and seasonal gas storage options in order to optimise the technical specifications for both. Such a turnkey project could provide Ireland with an acceptable solution to managed domestic gas supply, particularly during periods of high demand, colder weather or volatile prices.

Gas is the transition fuel in Ireland

Ireland's Minister for the Environment, Eamon Ryan, stated in late 2021 that between four and seven new gas-fired power stations may be required to satisfy growing Irish energy demand and bridge the transition to renewables in the long term. Ireland subsequently announced that 2 GW (gigawatts) of new gas-fired power generation is planned to be built over the next decade to supplement this transition. With this, the government also outlined plans to develop up to 15 GW of renewable energy capacity in the form of offshore and onshore wind farms and solar energy to meet its ambitious targets outlined earlier.

Predator estimates that the gas required for full operation of 2GW of power plants would be 300 mmcfpd, equivalent to discovering another Corrib gas field which holds nearly 600 BCF of recoverable reserves and provides nearly all of Ireland's domestic gas production.

The company notes that only gas-fired power stations can provide certainty of electricity supply during periods of winter demand and unusually high intra-day demand. At these times, the demand for gas in Europe is also high and Ireland will compete against that demand for gas through the interconnector. As such, we believe that indigenous gas production and storage is critical to act as a buffer against volatile gas prices and lean supply in the coming years.

Predator Licensing Options

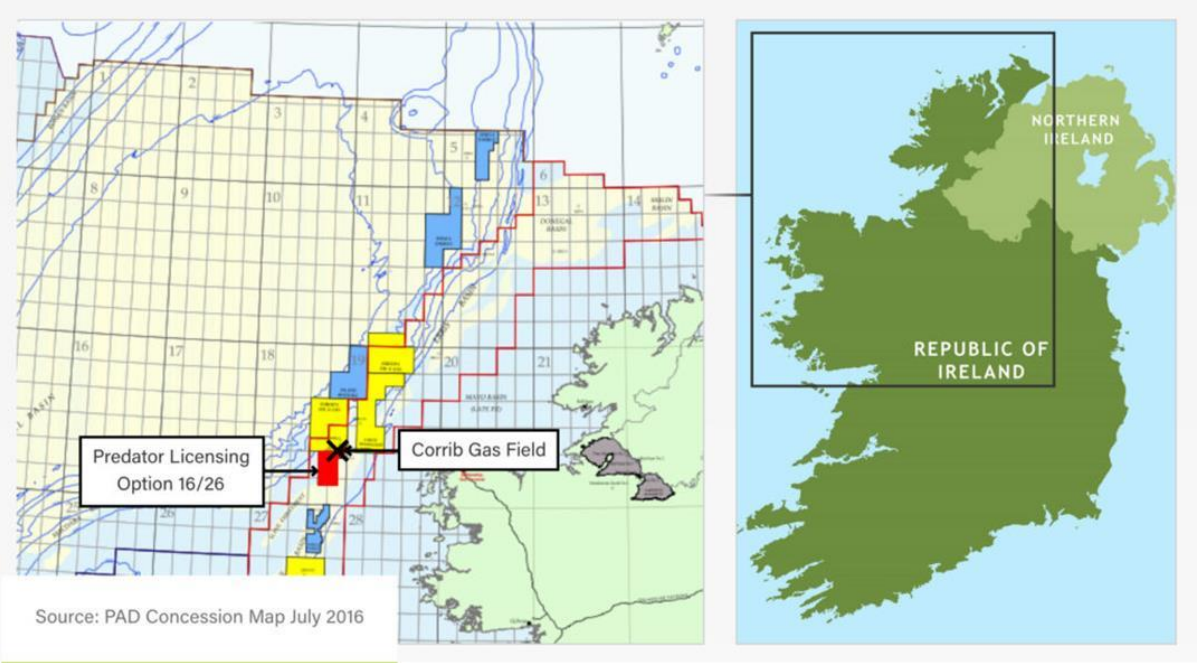
In addition to Ram Head, Predator also holds a 50% interest in Licensing Option LO 16/26, otherwise known as the Corrib South licence located in the Atlantic Margin offshore Ireland. The other 50% interest is held by the company's partner, Theseus. Corrib South is adjacent to the Corrib gas field which came on stream in December 2015, some 17 years after the first appraisal well on the field, following several planning delays.

Both the Corrib South and Ram Head Licensing Options are still being considered for the award of successor authorisations following applications made by Predator to the Department of Environment, Climate and Communications.

Although the period of the Licensing Options has expired, given the consequence of successor authorisation applications made by Predator, the company has a legal right to a successor authorisation until the Irish DECC (Department of Environment, Climate and Communications) refuses one (an event that has not occurred in the last three years). No new licences can be awarded now in Ireland by law but successor authorisation applications can be honoured implying that this is a unique and potentially valuable real estate position for the company. In addition, significantly larger players intending to exploit the tight Irish gas market may see this as a strategic opportunity.

Predator's Licensing Options could provide exciting potential upside for the company in the event that at least one opportunity can be progressed under a farm-out agreement with a third party and although we believe that these assets have been non-core to Predator in terms of conventional gas exploration activities since the company announced its FSRU project strategy with regards to its activities in Ireland, recent statements by the Irish government have moved Licensing Options up the energy agenda.

Location of Predator Licensing Option LO 16/26 (Corrib South)

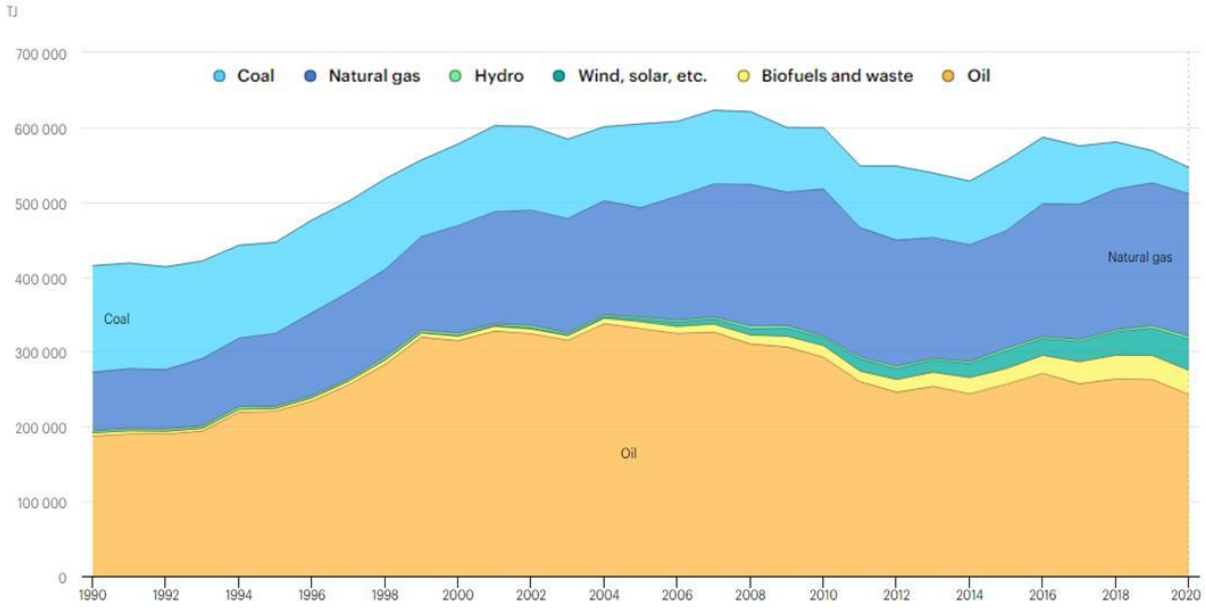


Source: PAD Concession Map (July 2016)

Mag Mell characterises the Energy Transition

The chart below outlines the role of gas in Ireland's energy transition. Over the last 30 years, coal and oil comprised a significant proportion of the energy mix, particularly in the 2000s as the economy experienced accelerated economic growth rates. Recent years have witnessed the decline in coal consumption in particular and the growth of renewable energy from a negligible base. However, it is notable that the consumption of natural gas has grown at a steady pace over the same period and constitutes an increased proportion of the energy mix, particularly over the last five years.

Total energy supply by source in Ireland (Terra Joules)



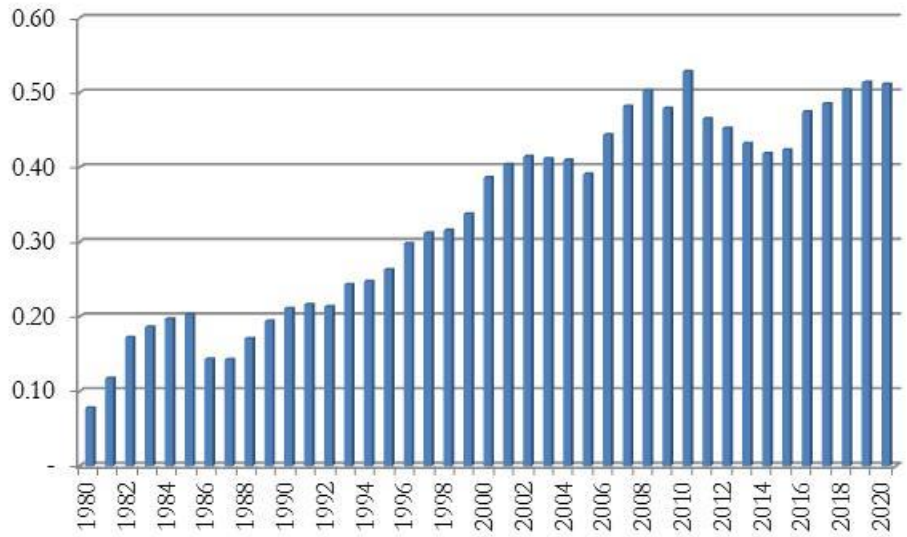
Source: IEA

Gas dynamics

Until 1994, Ireland was self-sufficient in gas supplied by the Kinsale Head gas fields. However, Kinsale had been on production since 1978 and by 2015, Ireland's imported 96% of its gas consumption from the UK via undersea pipeline as Kinsale output declined. The Corrib field, located 83km offshore county Mayo in northwest Ireland, came on stream in 2015 and gas from UK imports subsequently fell to c.40-45%. However, with no future development and production projects scheduled to come on stream and Corrib production expected to decline over the next five to ten years, the Energy Institute of Ireland expects that Ireland will once again be dependent on imports via the UK for at least 90% of its gas consumption within this period.

With relatively small population of 5 million people, Irish gas consumption is modest at approximately 0.5 BCF per day in recent years. As such, individual projects such as Mag Mell have the potential to make a significant impact on the Irish energy mix.

Irish gas consumption (BCF per day)



Source: BP

Mag Mell rationale

We note that in December 2020, electricity consumption in Ireland, of which around 60% is generated from gas, reached a record peak of 5,112 MW, nearing Ireland's total capacity of c.5,510 MW. However, in early 2021, a key electricity generator with a capacity of 445 MW was forced to shut down until the end of June 2021. Although this is a relatively short period, Ireland derives an increasing proportion of its energy from renewable sources, primarily wind. Given the fluctuating nature of wind power, we observe that Ireland could be exposed in the event of major spikes in demand in the future.

In fact, Ireland's state owned electricity distribution company, EirGrid reported that three power stations were temporarily out of action in October 2021 with a fourth operating at reduced capacity. Although these interruptions to electricity supply were only temporary, the government is reported to have drawn up contingency plans for blackout scenarios which would take large energy consuming data centres offline while prioritising private homes and the healthcare sector.

The government has repeatedly reassured consumers that these will be no blackouts this winter and senior ministers have acknowledged that the Irish electricity network does possess significant capacity pressures.

In light of the rejuvenation of the Irish economy since the global financial crisis, energy demand has increased significantly, particularly driven by usage from data processing centres, which represent an important sector of the Irish economy. Consequently, we believe that the FSRU and LNG project option, providing both peak demand energy management and a longer term solution to greener energy is a very strong contender for a key pillar or Ireland's state energy policy.

Trinidad on hiatus

During the first half of 2021, Predator was continuing with its CO_2 EOR (Enhanced Oil Recovery) operations continued on the FRAM Exploration (Trinidad) Ltd operated Inniss-Trinity oil field despite COVID restrictions. FRAM is a wholly owned subsidiary of AIM-quoted Challenger Energy Group.

However, in July 2021, Challenger decided unilaterally to terminate the CO_2 EOR operations at very short notice. This was an unforeseen event and Predator is evaluating its different options to seek redress.

During H1 2021, Predator reviewed several options with local operators and presented a commercial model for partnering on CO_2 EOR operations to each of these operators based on a sale of Predator Oil & Gas Trinidad Ltd into a new in-country CO_2 EOR services operator. These discussions are continuing in 2022. However, in the meantime, the company has stated that it does not wish to be burdened with operating expenses in Trinidad at a time when the company's assets in Morocco and Ireland could provide significantly more attractive upside.

Looking ahead, we note that Predator favours maintaining an equity position in a dedicated CO_2 EOR services company with the company acting as a technical advisor role, particularly given the ongoing uncertainties of operating in Trinidad as the Covid pandemic persists.

Predator continues to regard Trinidad as important from an ESG perspective and the company has outlined that there are several options for the company to pursue with the appropriate operator and commercial model in the longer term.

Appendix 1: Director biographies

Dr. Steve Staley – Non-Executive Chairman

Steve has over 35 years of management, technical and commercial experience in the international oil, gas and power sectors. He is a non-executive director of 88 Energy Limited, an ASX and AIM quoted oil & gas company with assets onshore Alaska. Dr Staley co-founded and brought to AIM both Fastnet Oil & Gas plc and Independent Resources plc.

He was both a technical consultant to and non-executive director of, Cove Energy plc; the successful East Africa focused explorer that was sold to PTTP for £1.2bn in 2012. Dr Staley is also owner and founder of Derwent Resources Limited, an upstream consultancy advising on oil and gas opportunities. Prior to this, he has worked for Cinergy Corp., Conoco and BP.

He holds a BSc (Hons.) in geophysics from Edinburgh University, a PhD in petroleum geology from Sheffield University and an MBA from Warwick University. He is a fellow of the Geological Society and a member of the European Association of Geoscientists & Engineers, the Petroleum Exploration Society of Great Britain and The Arc.

Paul Griffiths – Chief Executive Officer

Mr Griffiths has over 40 years' oil and gas industry experience, including with the Libyan National Oil Corporation and Gulf Oil and as CEO of both Island Oil & Gas plc and Fastnet Oil and Gas plc. During this time, Paul has managed 2D and 3D seismic data acquisition and processing projects onshore and offshore; drilling and testing programmes, both onshore and offshore and geological and reservoir simulation desk top studies.

He is also experienced in business development in respect of licence acquisitions, farm-ins, farm outs, gas marketing and gas sales contracts and negotiations with government agencies. In 2006, he put together and led the team that drilled the first successful exploration well in offshore southeast Ireland in 16 years. In 2008, he assembled the team that generated and submitted the plan of development for the Amstel Field in the Netherlands. In 2014, he also put together and led the team that carried out the Tendrara gas field re-evaluation prior to a successful appraisal drilling programme by Sound Energy. He is a geology graduate of the Royal School of Mines (London) and an Associate of the Royal School of Mines.

Lonny Baumgardner – Chief Operating Officer

Lonny is a petroleum engineer by training and has more than 30 years of experience within oil and gas operations, over 25 years of which has been internationally across all aspects of upstream operations in numerous locations including several years based in Morocco, Egypt, Tanzania, Australia, Saudi Arabia (with Saudi Aramco), Canada, and the USA (with ExxonMobil). He has a proven track record in managing multifaceted operations across joint ventures, government agencies, geographic challenges and multicultural differences, to ensure business needs are achieved.

He has been highly successful operating within small to medium-sized exploration and production companies at Board level delivering value to shareholders by applying a dynamic and effective management style to daily and longer-term strategic requirements. Lonny will have a strong focus on delivering business goals for Predator capable of creating long-term value.

Since 2015, Lonny has been Country Manager and General Director for SDX Energy Inc, Morocco and London. He is highly experienced in the upstream and downstream gas sector in the Rharb Basin and is therefore in a position to apply his experience to further develop from the positive results achieved through the drilling of the MOU-1 well in the Guercif Basin.

Louis Castro – Non-Executive Director

Louis has over 30 years in the industry and the City and was most recently CFO at Eland Oil and Gas plc (a shallow water offshore Nigeria oil producer acquired by Seplat Petroleum Development Company plc for £382m in December 2019). He has worked in corporate finance and the capital markets in diverse geographic areas from the UK to the Far East, South America and Africa, including the execution of complex M&A transactions from initiation through due diligence to negotiating and financing.

He is experienced in audit, tax and financial analysis and strategic planning and marketing and has chaired audit committees and remuneration and nomination committees in several public companies, where he has also advised on corporate governance. He is a Fellow of the Institute of Chartered Accountants and formerly a London Stock Exchange Nominated Advisor, including FCA registrations.

Appendix 2: Historical exploration activity on Guercif

The seismic inventory on Guercif includes 3,291km of 2D data acquired between 1968 and 2003. The 2003 portfolio includes a more recent 300km 2D survey acquired by ONAREP (now ONYHM since 2005) in 2003. This inventory was reprocessed by TransAtlantic Petroleum in 2006 which also acquired an aeromagnetic and aerogravity survey comprising 10,000 line kilometres in the same year.

Exploration drilling on Guercif has been very light with only four deep wells drilled to date. These are outlined in the table below which does not include two additional shallow stratigraphic wells drilled by BRPM for coal exploration in the 1950s.

Historical exploration was focused on the Jurassic interval and was completed before a more recent shift in focus took place that resulted in shallower (Tertiary) gas production in the Rharb Basin and successful deep (Triassic) gas drilling at Tendrara to the south of Guercif. As such, Guercif has yet to be explored for these more recent targets which represent Predator's current focus.

We note that in 2008, TransAtlantic re-entered, logged and tested the MSD-1 well, originally drilled in 1985 although the logs and test failed to establish the presence of hydrocarbons in the Jurassic. Nevertheless, we note that Predator's re-examination of TransAtlantic's wireline logs in wells with Miocene (GRF-1) and Lower and Upper Jurassic (TRF-1x) intervals suggested that several gas sands may have been missed in previous drilling and also indicate an additional Jurassic exploration play.

Summary historical exploration well data on the Guercif licence

Name	Year	Company	Target formation	Result
GRF-1	1972	Elf	Top Jurassic	Gas
TAF-1X	1979	Phillips	Paleozoic	Calculated on well logs
MSD-1	1985	ONAREP	Bajocian	Calculated on well logs
KDH-1	1985-86	ONAREP	Toarcian	Calculated on well logs

Source: SLR (Ireland)

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