EDISON

Hurricane Energy

Valuation update

Big fields get bigger - 523mmbbls and counting

Oil & gas

Hurricane Energy's 2016/17 drilling programme has significantly increased understanding of the Greater Lancaster Area (GLA) and Greater Warwick Area (GWA) hydrocarbon accumulations. Initial data analysis suggests that the GLA is one large accumulation including the Halifax and Lancaster basement oil discoveries contained between the Westray Fault Zone and Brynhild Fault Zone. RPS resource estimates for Lancaster alone range from 157-1,166mmbbls recoverable (P50 523mmbbls), making it a giant oil field and one of the largest discoveries on the UKCS over the last decade. Incorporating wider GLA and GWA resource is likely to take this figure to upwards of 1bnbbls, 100% owned by Hurricane. Management expects first oil from a Lancaster early production system (EPS) in 2019, with the company looking at equity and debt funding options. We assume a 60/40 equity to debt split in our latest Lancaster NAV of 102p/share, rising to 134p/share including risked Halifax/Lincoln upside.

Year end	Revenue (£m)	PBT* (£m)	Capex (£m)	Net cash** (£m)	Debt (£m)
12/15	0	(5.5)	(3.4)	9.9	0.0
12/16	0	(4.7)	(46.8)	82.2	0.0
12/17e	0	(5.7)	(72.1)	243.1	(159.1)
12/18e	0	(17.7)	(140.2)	85.3	(159.1)

Note: *PBT is normalised, excluding amortisation of acquired intangibles, exceptional items and share-based payments. **Assumes equity issue in 2017. Includes restricted cash.

2017 CPR significantly upgrades resources

The updated RPS CPR has increased Lancaster P50 reserves and resources by 162% from 200mmbbls to 523mmbbls. This has been possible based on data gathered from the drilling and testing carried out by Hurricane since the 2013 CPR. The pilot well 205/21a-7 has confirmed the presence of oil significantly below closure, while the testing of the 205/21a-6 and 7z horizontal wells has demonstrated that the field can produce at commercial rates (9,800b/d and 15,375b/d respectively), without water ingress and under low pressure drawdowns. Ultimately, this provides Hurricane with confidence to proceed with the EPS phase of field development.

EPS development – 39% point forward IRR

Based on our assumptions, which include an additional 10% cost contingency to management forecasts, a schedule delay of six months and a 70$/bbl long-term Brent oil price, we estimate a 39% point forward IRR for Lancaster EPS. $NPV_{12.5}$ payback is estimated at 2.5 years or recovery of 15.6mmbbls.

Valuation: Market ascribing minimal value beyond Lancaster

Our Lancaster NAV stands at 102p/share for Lancaster and 134p/share including risked resource at Halifax and Lincoln. On the basis of Lancaster alone, we believe the market is implying a long-term oil price of sub-50$/bbl Brent.

16 May 2017

Price	**54.25p**
Market cap	**£653m**

Estimated net cash (£m) at 31 December 2016	48.2
Shares in issue	1,203.0m
Free float	53%
Code	HUR
Primary exchange	AIM
Secondary exchange	N/A

Share price performance

%	1m	3m	12m
Abs	(6.5)	2.4	274.8
Rel (local)	(8.0)	(0.3)	209.7
52-week high/low		67.0p	15.5p

Business description

Hurricane Energy is an E&P focused on UKCS fractured basement exploration. It owns 100% of the 523mmbbl (RPS 2P reserves plus 2C resources) Lancaster oil discovery, West of Shetland.

Next events

Lancaster EPS FID	Q217

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Edison profile page

Investment summary

UKCS fractured basin specialist

Hurricane positioned itself as a specialist in the discovery, appraisal and development of fractured basement reservoirs, with an initial focus on UKCS. Over the last eight years the company has discovered 523mmbbls (RPS 2017 CPR) of recoverable oil at the Lancaster field and is in the process of appraising material upside along the Rona Ridge play fairway. Management expects to progress the first phase of development of Lancaster through to first oil by 2019.

Valuation: 39% point forward IRR for EPS

Our base case valuation is on the basis of RPS reserve and resource estimates, management estimates of project cost plus a 10% cost contingency and an Edison long-term oil price of 70$/bbl (real). Our valuation of Lancaster EPS and full field development, excluding upside for Lincoln and Halifax resource, stands at 102p/share. We include an additional 32p/share for resource under appraisal at Lincoln and Halifax in our RENAV of 134p/share. Key areas of uncertainty other than commodity prices include the ability to deliver Lancaster EPS in line with management estimates of capital cost and schedule, and reservoir performance for full field development. We note that we assume first oil at the start of 2020 (management H119) and an additional 10% cost contingency (we note that the bulk of capex costs are contracted on a lump-sum basis) in our base case. Hurricane has mitigated schedule slippage through the use of an existing FPSO with minimal modification scope; as such the critical path is driven by the delivery and installation of a purpose-built buoy and mooring system to be installed in the 2018 summer weather window.

Financing options: EPS debt/equity funded

We expect Hurricane to fund the EPS phase of Lancaster development through a combination of debt and equity, and management estimates debt capacity of c 40% of development costs. Management is pursuing numerous forms of debt including, senior secured debt, project finance and export credit facilities; funding via farm-out has also not been ruled out. In our base case, we assume that 40% of Lancaster capex to first oil is debt funded and that the company pursues equity to fund the remaining 60% or c $280m. This would be a sizeable fund-raise for Hurricane and clearly the price at which equity is available will be an important consideration for shareholders – we assume funds are raised at 60p/share in our base case valuation.

Sensitivities: Oil price, EPS cost and schedule sensitivity

Our valuation is sensitive to oil price assumptions (base case Edison 70$/bbl real long-term Brent), capex cost estimates for EPS, and full field development and delivery schedule. We estimate that the EPS phase of development is break-even ($NPV_{12.5}$=0) at 31$/bbl Brent and can deliver a return above 20% IRR even if the capex cost is 40% above management estimates, with first oil in 2022 based on a $70/bbl oil price assumption, ie project economics are protected to the downside in the event of poor project execution. We believe the simplicity of the development concept, which uses an existing FPSO with relatively small structural modifications and a lump sum-biased contract structure, limits Hurricane's exposure to project cost overruns and delays.

UKCS fractured basements: From concept to first oil

Hurricane Energy exists to discover, appraise and develop oil from fractured basement reservoirs. Management was early to recognise the potential for significant recoverable oil volumes in UKCS basement discoveries given the presence of prolific source rock, large basement structures and access to the shelf's mature service sector. Since incorporation in 2005, Hurricane has acquired a series of basement prospective UKCS licences, drilled a total of 10 exploration and appraisal wells, discovering up to 1bnbbls of oil (Lancaster, Lincoln and Halifax management estimates) to date. Management estimates first oil from the Lancaster EPS is expected in 2019, taking Hurricane's basement concept to reality.

Fractured basements: A material new play type for the UKCS

Hurricane's management recognised the potential for oil in overlooked fractured basement reservoirs. Initial studies focused on the West of Shetland, where historic well results had encountered oil in the basement. Over the course of the proceeding years Hurricane has managed to open up a material new play type West of Shetland, with over 523mmbbls discovered at Lancaster (RPS 2P reserves plus 2C resource) excluding the wider Greater Lancaster Area (GLA) and Greater Warwick Area (GWA) resource. The largest of these discoveries, Lancaster, is currently under development.

Full field development and GLA analogues

Hurricane is in the process of embarking on the company's first development: the early production system (EPS) development phase of the Lancaster field. This development, consisting of a two-well tieback to FPSO, will enable Hurricane to demonstrate the long-term performance of basement production providing additional data on reservoir connectivity, pressure regime and fluid flow. The EPS phase will provide Hurricane with information required to optimise Lancaster full field development concepts. Beyond Lancaster the company continues to pursue the appraisal of resource along the Rona Ridge, including the Halifax and Lincoln oil discoveries, with the potential to use in-house basement expertise to explore for further oil on the UKCS.

Management: Lean experienced team

Hurricane is managed by a small team of experience professionals, led by Dr Robert Trice, the company's founder and technical lead. With just over 15 employees the company utilises a selection of top-tier contractors to manage the engineering and development components of field development. Biographies for senior management are provided later in this note.

Hurricane asset summary and reserve progression

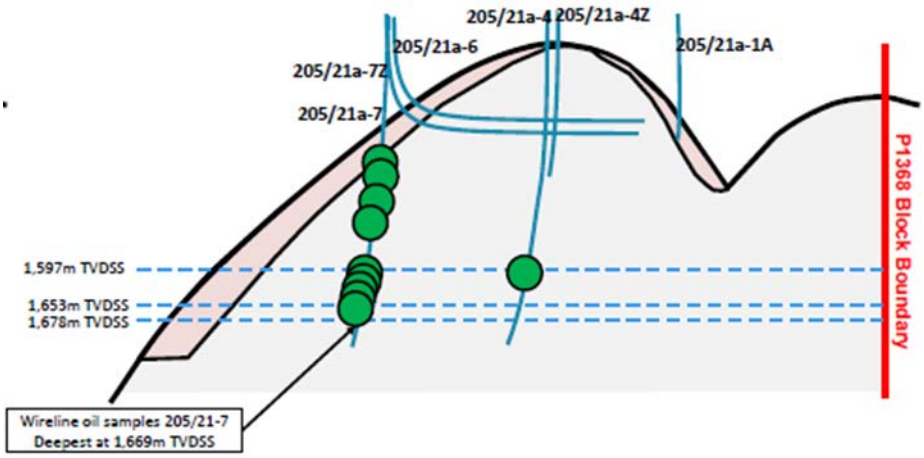
What are fractured basement reservoirs?

Hurricane targets naturally fractured reservoirs in rock formed over two billion years ago. These huge basement structures have been pushed up violently by earthquakes and tectonic forces. Over time, these brittle rocks have formed seismic scale faults and highly connected micro fracture networks that form the basis for basement reservoirs that are able to trap and contain significant volumes of oil. Fractured basement reservoirs contain around 20% of the world's remaining oil and gas resources and have been successfully exploited internationally, but remain a relatively unproven play on the UKCS.

Lancaster drilling history

The Lancaster field was first drilled by Shell in 1974 (205/21-1a) discovering oil in fractured Precambrian basement but with impaired flow. Hurricane returned to the Shell discovery in 2009, using modern drilling techniques targeting the crest of the structure and an area of dense fracturing. Over the subsequent five years, Hurricane developed technical understanding of the Lancaster basement and appropriate well architecture and drilling techniques to maximise flow under test. DST (drill stem test) testing of 205/21a-6 in 2014 achieved a rate of 9,800b/d under electrical submersible pump (ESP) and demonstrated that commercial flow rates were achievable under low pressure drawdown and without water ingress.

Exhibit 1: RPS 2017 CPR Lancaster geological cross-section



	Contacts / ODT	Rationale
P90	1,597m TVDSS	Swab in 205/21a-4 circulating oil to surface
P50	1,653m TVDSS	FWL defined by interception of fluid gradients from MDT and fluid analysis by RPS
P10	1,678m TVDSS	OWC inferred from resistivity log in well 205/21a-7, consistent with deepest wireline sample and GC Tracer gas analysis in that well. This depth is comparable with Hurricane's analysis of FWL

Source: Hurricane Energy

In 2016, Hurricane returned to Lancaster to drill the 205/21a-7 pilot well and the 205/21a-7z horizontal well. 205/21a-7z was successfully tested at a maximum rate of 15,375b/d with an ESP. The rate, as in the 6 well, was constrained by equipment. The 205/21a-6 and 205/21a-7z horizontal wells have been suspended as future producers and management expects both wells to produce at an initial production rate of c 10mbopd with minimal decline over the first few years of production.

The key uncertainty prior to drilling the pilot well was in the OWC (oil water content). The 2013 CPR 2C case of 200mmbbls assumed an OWC of 1,597m based on mobile oil encountered at this depth in the 205/21a-4 well. The updated 2017 CPR assumes a deeper OWC of 1,653m based on the intersection of the oil gradient based on modular formation dynamis tester (MDT) pressures from the 4z well (no valid measurements were obtained from 205/21a-7) with a water gradient taken from a 4z water sample. Hurricane believes that the OWC is deeper than this, at 1,678m, based on the resistivity log in 205/21a-7 and a 10cc oil sample taken in the well at 1,669m. RPS used this deeper OWC for its 3C case. By demonstrating a deeper OWC than estimated in the 2013 CPR, a continuous oil column can be assumed across the structure (the 2013 CPR assumed 50% oil and 50% water below 1,597m).

The confirmation of a significantly deeper OWC, together with an increase in assumed recovery factor (RF) from 19% to 22.5%, has resulted in an uplift in Lancaster mid-case reserves plus resources from 200mmbbls to 523mmbbls. In the latest Lancaster CPR, RPS include 6 years of EPS production as 2P reserves (37.3mmbls of the 523mmbbl total) whilst the remainder of recoverable volumes as 2C resource. RPS note that extended EPS duration to ten years would increase 2P recoverable reserves from 37.3mmbbls to 62.1mmbbls.

Exhibit 2: Updated recoverable resources (mmbbls)

	2013 CPR			2017 CPR		
Recoverable resources	STOIIP	RF	Contingent resources	STOIIP	RF	Reserves + resources
Low/1C	471	13%	60	1,571	10%	157
Best/2C	1,056	19%	200	2,326	22.50%	523
High/3C	2,076	21%	437	3,333	35%	1,166

Source: Hurricane Energy

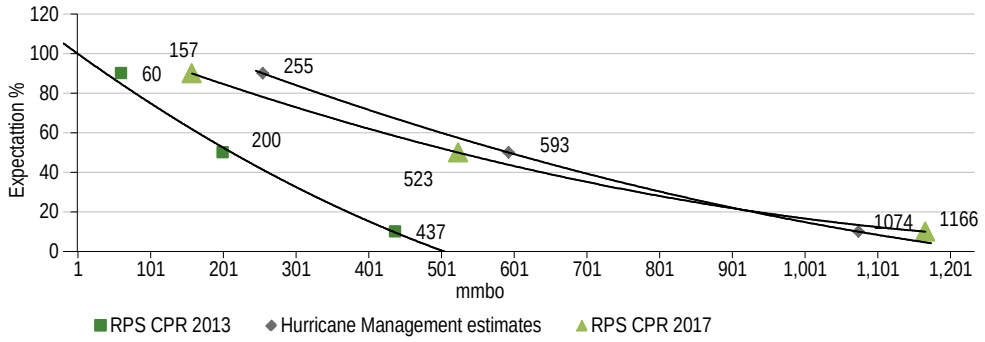
A recovery factor of 30% to 50% is achievable in fractured basement reservoirs, with Bach Ho (Vietsovpetro operated) in Vietnam achieving over 40% to date. RPS has increased the RF in the 3C case to 35%, taking recoverable volumes to 1,166mmbbls.These figures are based on primary recovery, so that higher recoveries could be achieved if secondary recovery were to be implemented.

Beyond Lancaster, Hurricane has proven oil columns along the Rona Ridge with similar quality oil and reservoir characteristics at Lincoln and Halifax. Management estimates that Lancaster contains recoverable oil of 593mmbbls P50 (RPS 523mmbbls), but sees material upside to this resource estimate on the inclusion of Lincoln and Halifax.

Lancaster reserve progression

At 523mmbbls of recoverable oil West of Shetland, Lancaster is a ‘giant’ oil field with significant further upside in the GLA along the Rona Ridge. Despite the discovery being a basement play, excellent productivity has been demonstrated through DST; long-term production data are to be collated through the EPS phase of development. We would expect a field of this size to attract the interest of major international oil companies, putting Hurricane in a strong position to farm down its 100% equity before or after EPS.

Exhibit 3: Lancaster reserve progression

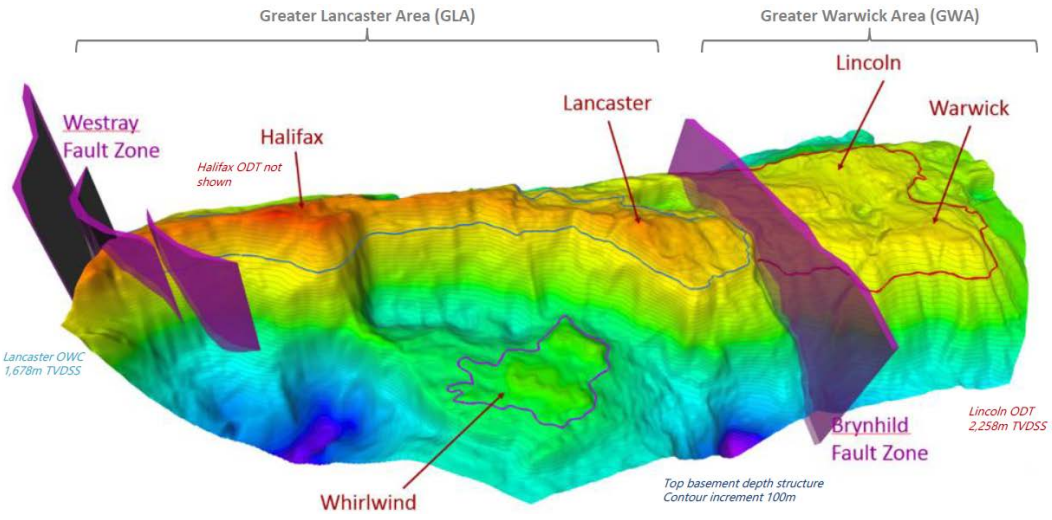


Source: Edison Investment Research

Adding further resource along the Rona Ridge

Further resource exists along the Lancaster basement play, the GLA existing between the Westray Fault Zone and Brynhild Fault Zone bookends and in Lincoln/Warwick, a separate accumulation to the north-east in the GWA. Two additional wells were added to the original drilling campaign to investigate this further. The first of these, the 205/26b-12 Lincoln well, resulted in a revised ODT (oil down to) of 2,258m, 123m deeper than the pre-drill estimate. This deeper ODT at Lincoln suggests that Lincoln and Warwick have the potential to be a single large accumulation. The second well was drilled on Halifax, in the GLA, and established ODT at a minimum of 1,846m. Issues with the drilling fluid reacting with the basement fines resulted in damage to the reservoir and difficulty in cleaning up the well during the DST. The well has been suspended and Hurricane will return for further testing at a later date; however, the company interpreted Halifax as having similar reservoir characteristics to Lancaster, albeit with a slightly deeper ODT. The company has interpreted this deeper ODT as indicating that there is a tilted OWC in the GLA in the order of 1/2^{o} to 1^{o} across 35km. This is commonly a result of hydrodynamics and occurs elsewhere in the North Sea, although further appraisal wells will need to test this. Hurricane has not disclosed internal estimates of the total pool of resource across GLA and GWA, but we see potential for this to be well in excess of 1bnbbls recoverable, subject to further appraisal.

Exhibit 4: Greater Lancaster Area (GLA) and Greater Warwick Area (GWA)



Source: Hurricane Energy

Lancaster EPS development

The EPS phase of development of Lancaster is to utilise the 6 and 7z horizontal wells, recovering 62mmbbls (P50) of oil over a 10-year field life. As it stands, this first phase of development is to be funded by Hurricane Energy (100% working interest) at an estimated capex cost of c $467m and with first oil in H219.

Early production system – simple development concept

Hurricane has set out three objectives for the EPS development phase of Lancaster:

- To provide long-term production data to enhance understanding of reservoir characteristics.
- Commence development of resources in a phased manner – manage uncertainties over reservoir characteristics and associated development risks.
- Deliver an acceptable return on investment.

The company's EPS case, as it stands, looks to capture base case 62mmbbls of oil (85% uptime) at field plateau of 17mbopd based on a two-well development utilising dual ESPs. Management sees potential for EPS recovery and production rates to exceed this base case once reservoir performance has been established with the selected Aoka Mizu FPSO, which is capable of processing up to 35mbopd of fluids.

Management stresses that the EPS phase of development is relatively simple, in particular compared to recent small/mid-sized North Sea FPSO/ West of Shetland developments (Alma Galia, Solan, Kraken, Catcher). The project is designed to utilise an existing purpose-built FPSO, the Aoka Mizu, which was most recently operational on the Blackbird and Ettrick fields with high uptime. Vessel upgrade scope has been minimised to limit the potential for schedule/cost creep and contracts have been structured to incentivise on-time delivery and high vessel uptime.

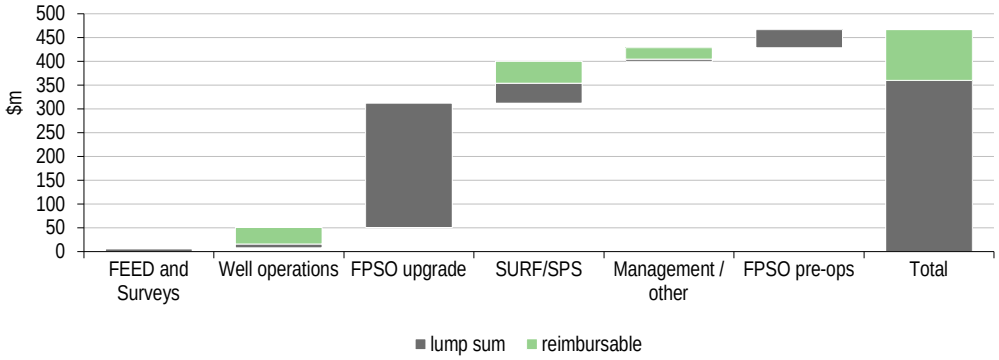
Contracting structure – minimising contractor interfaces

Hurricane has looked to secure competitive pricing and attractive terms from its key contractors. Contractor interfaces have been limited through the selection of main contractors: Bluewater, TechnipFMC, and Petrofac.

Bluewater is to provide the Aoka Mizu FPSO on the basis of an initial bareboat contract (low fixed day rate), with incentive payments on production rate and oil price aligning the contractor's interests with those of Hurricane. Bluewater will be responsible for maintaining vessel and subsurface equipment for life of field and incentivised to maintain high uptime. Upgrades to the vessel, buoy fabrications and pre-operational works are being carried out under a lump sum contract ($299m), minimising Hurricane's exposure to cost creep but not schedule delays. Mitigating the impact of schedule delays is the simplicity of upgrade works and the fact that they are largely mechanical in nature and therefore relative easy to oversee.

Company guidance for the EPS development phase is for a total capex cost budget of $467m, split $360m lump sum and $107m reimbursable. We understand that this includes a material level of contingency for waiting on weather for West of Shetland. As discussed later in this note, in our base valuation we add an additional 10% cost contingency (this equates to 44% contingency on the reimbursable costs) and assume 2020 first oil – our caution is based on recent UKCS developments that have exceeded operator P10 (high case) budget estimates.

Exhibit 5: Lancaster EPS phase capex to first oil (management estimates)



Source: Hurricane Energy, Edison Investment Research

EPS development risks, uncertainty and mitigating factors

Subsurface risks

a) water breakthrough and aquifer support

Early water breakthrough can occur in fractured reservoirs if not managed correctly. This has occurred in basement reservoirs such as Bach Ho in Vietnam and Zeit Bay in Egypt, where the wells were produced at high rates under high drawdowns and water injection was implemented. Hurricane is aware of these issues and has prepared a Reservoir Management Plan to minimise water cut from the outset.

The particular reservoir characteristics of Lancaster should also help mitigate against early water breakthrough. Producing wells are to be positioned on the crest of the field and 540m above the OWC. The use of 1km horizontal sections and the high productivity index (PI) of the wells mean that production rates can be achieved at low drawdowns. The company's current reservoir modelling indicates that water coning is not expected to occur during the EPS phase; nevertheless, the FPSO will have water processing capacity in the event that any water is produced. FPSO facilities will be capable of handling up to 20,000bwpd. The longer-term production period provided by the EPS will allow the company's reservoir model to be refined and should improve understanding of water movement and aquifer support within the reservoir.

The strength of aquifer support will influence the rate of decline in reservoir pressure. In Lancaster, the reservoir pressure is around 300psia higher than the fluid bubble point pressure (the temperature and pressure point at which natural gas starts to come out of solution). Since the two horizontal wells have high PIs, it is estimated that they can each initially produce 10,000bopd at drawdowns between 62psia and 68psia, well above the bubble point. As production continues, reservoir pressure will drop and likely reach the bubble point unless there is aquifer support or additional pressure support such as gas injection.

b) connectivity of reservoir

The interconnectivity of the reservoir can only be established with longer production periods than established to date in the Lancaster wells. To monitor connectivity during the EPS, both 205/21a-6 and 205/21a-7z are fitted with pressure gauges and are close enough together for any interference between the wells to be detected.

Schedule risks

Hurricane views the design and build of a new disconnectable buoy and mooring system as the key component on the development critical path. Buoy delivery is scheduled for H218, with installation

expected over the summer weather window – a two-day calm sea condition is required for installation. Weather will have greater influence on the project's critical path if buoy installation is not completed during summer 2018. We note that the RPS CPR refers to a potential risk to schedule in the event FPSO tank internals need remediation (we expect this risk to be mitigated through Bluewater tank inspections).

Operational risks

a) wax

Hurricane has carried out flow assurance studies to address any potential issues that could occur as a result of the wax content of the crude (18% wt). The bulk wax appearance temperature is between 33°C and 37°C, and below the Lancaster reservoir temperature of 56°C. Studies indicate that wax will not be deposited in flow lines if flow is maintained above 6,000bbld. However, in the event of a system shutdown, it is possible for the electric submersible pumps (ESPs) to be able to flow and clean up the wells. The subsea equipment, flow lines, risers and manifold piping will all be insulated and two separate subsea flow lines are to be installed so that round-trip pigging can be carried out. In addition, it is planned to inject wax inhibitor downhole. Pigging frequency is currently assumed to be once every six weeks, although this may change based on operational performance.

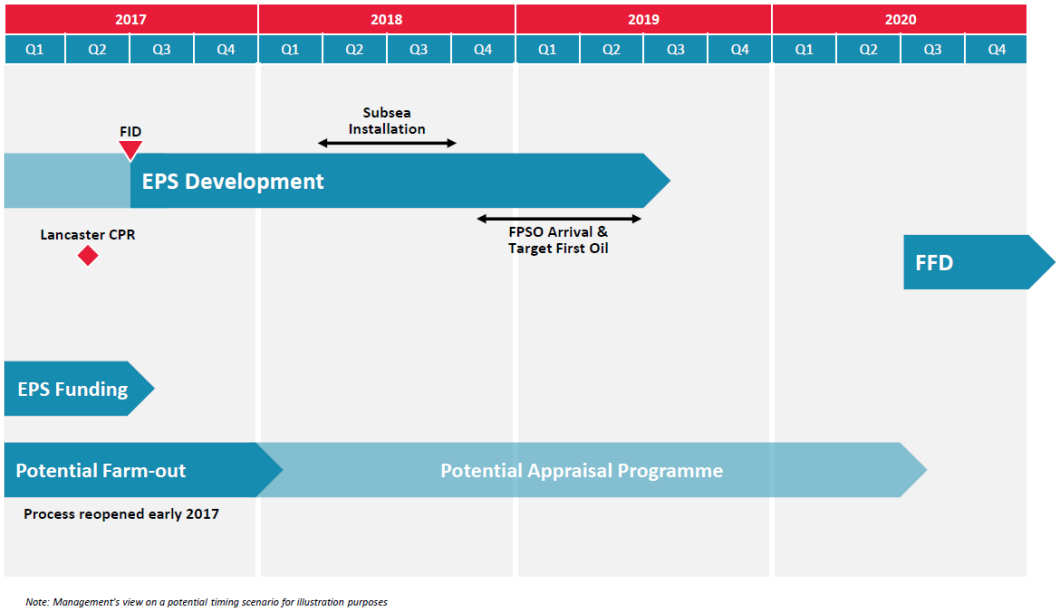
b) ESPs

Artificial lift in Lancaster will be provided by dual ESPs with variable speed drive. ESP reliability has been improving; however, industry experience points to a two- to three-year mean time before failure (MTBF). The use of dual ESPs provides redundancy while the variable speed drive reduces the shock load to the pump and should extend the life of the ESPs. We note that two fields in the North Sea are currently experiencing issues with dual ESP systems. In Premier's Solan, one of the two producing wells had to be completed with a single ESP following mechanical problems during installation of a dual system, while EnQuest has reported reliability issues with its dual ESPs in Alma/Galia. However, Hurricane estimates that the Lancaster wells can produce at around 6,000bopd each without artificial lift, therefore, ESP failures are unlikely to be terminal and failed pumps can be replaced during workovers.

EPS funding

Management expects to make a final investment decision (FID) in H117 and is currently pursuing funding options. All options currently remain on the table including equity, debt, farm-out and asset sale or a combination of the above. In our base case, we assume a combination of debt and equity for funding the EPS phase of development prior to farm-out of full field development. For the purpose of our model we reflect this in a notional $282m (60% of EPS capex) equity issue at the current share price (60p) and $187m of debt funding in 2017. Farm-out remains an option but management is keen to ensure the process does not affect the EPS project schedule. Debt instruments open to the company for the EPS phase include project finance, export credit, and senior secured debt.

Exhibit 6: Hurricane indicative schedule for EPS funding and FID



Source: Hurricane Energy

Management

Dr Robert Trice (CEO): as Hurricane's founder, Robert has over 25 years' experience in the oil industry. He has combined specialist technical expertise in the characterisation and evaluation of fractured reservoirs. He has a PhD in Geology from Birkbeck College, University of London and gained the bulk of his geoscience experience with Enterprise Oil and Shell. He has worked in field development, exploration, well site operations and geological consultancy. Robert has held the position of visiting professor at Trondheim University (Norway) and has published and presented on subjects related to fractured reservoirs and exploration for stratigraphic traps. It is Robert's vision that lies behind Hurricane, providing clear strategic direction as the company develops and he takes the lead in all aspects of the scientific and technical heart of the company.

Alistair Stobie (CFO): Alistair Stobie has significant capital markets and oil and gas industry experience. He was previously director of finance at AIM-listed Zoltav Resources and CFO at Oando Exploration & Production. Prior to this, Alistair founded both Volga Gas, where he was CFO and led its IPO to raise US$135m, and Pan-Petroleum, which acquired an interest in the multi-billion barrel oil in place Mengo-Kundji-Bindi licence in Congo-Brazzaville. During his career Alistair has been actively involved in numerous corporate transactions including fund-raisings, M&A and the acquisition and disposal of licence interests.

Neil Platt (COO): Neil has more than 20 years' experience in the oil industry and has worked for Amoco, BG and Petrofac. He has completed assignments both in the UK and internationally, working in a variety of engineering, commercial and management roles including production asset manager (NSW) for BG and VP for project delivery in Petrofac Production Solutions. Neil joined Hurricane in 2011 and was appointed to the board in 2013. As chief operations officer, he is responsible for daily operations and asset delivery (drilling and projects).

Valuation

After a successful 2016/17 drilling campaign, the focus now shifts towards Hurricane's ability to deliver on the first phase of development of Lancaster. The EPS phase is a commercial project in its own right, and has multiple appraisal aims. We estimate that on a point-forward IRR basis (excluding sunk costs) a 10-year EPS would deliver a 39% IRR. Ahead of EPS first oil, we expect the market to be focused on management's ability to deliver on a first oil target of H219 and pre-FID cost estimate of $467m. UK equity investors remain wary of small/mid-cap E&P green field development project execution after several recent disappointments (Alma Galia, Solan, Stella). Lancaster EPS is clearly a much simpler project than the development analogues mentioned above – crucially, Lancaster EPS utilises an existing FPSO with minor structural modifications rather than a new-build or tanker conversion.

Schedule and cost risks: Additional contingency in base case valuation

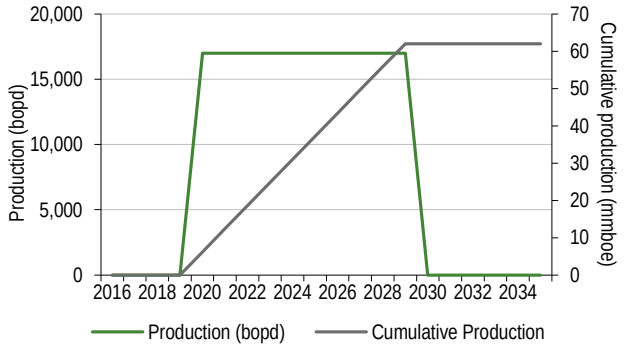
As discussed earlier in this note, Hurricane views the design and build of a new disconnectable buoy and mooring system as the key component on the development critical path. Buoy delivery is scheduled for H218, with installation expected over the summer weather window – a two-day calm sea condition is required for installation. We note that the RPS CPR refers to a potential risk to the schedule in the event FPSO tank internals need remediation (we expect this risk to be mitigated through Bluewater tank inspections). In our base case we assume first oil in early 2020, relative to management guidance of mid-2019 adding in an element of schedule contingency.

Despite 75% of costs contracted on a lump-sum basis, we assume an additional 10% cost contingency in our base case – under this scenario EPS development generates a 39% IRR. We expect to 'release' this contingency in our valuation closer to the point of first oil, assuming the Lancaster EPS development tracks management estimates of schedule and cost.

EPS development production profile

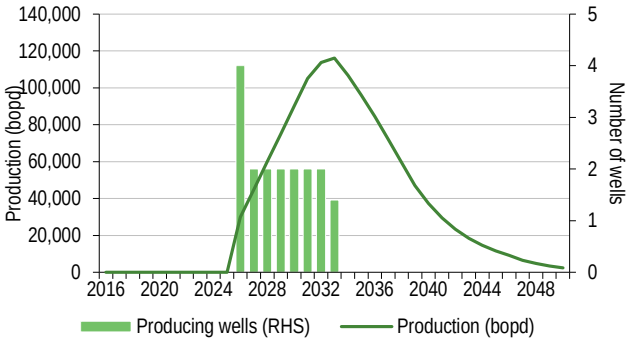
Our base case valuation assumes an EPS production profile in line with RPS assumptions assuming 85% operational uptime and maximum flow rate per well of 10mbopd. RPS assumes that both producers are capable of maintaining a 10mbopd flow rate over the 10-year EPS life (six-year FPSO contract plus four-year extension).

Exhibit 7: Modelled EPS production profile



Source: Edison Investment Research

Exhibit 8: Modelled full field development (FFD) production profile



Source: Edison Investment Research

Edison Lancaster EPS valuation versus RPS estimates

Exhibit 9: Edison Lancaster EPS valuation versus RPS

	Gross NPV ($m)			EPS NPV (p/share)		
	RPS	Edison		RPS	Edison	
Discount rate	6-year EPS	6-year EPS	10-year EPS	6-year EPS	6-year EPS	10-year EPS
10%	525	521	843	25.2	25.1	40.6
12.50%	444	424	669	21.3	20.4	32.2
15%	374	342	530	18.0	16.5	25.5

Source: Edison Investment Research

Edison Lancaster EPS sensitivity to capex cost contingency and year of first oil

The tables below provide the sensitivity of EPS project returns to capital cost contingency and timing of first oil. In our base case, we calculate the point-forward IRR for the Lancaster EPS project (70$/bbl Brent long term) at 39%, and see this rising to 42% excluding Edison's 10% incremental cost contingency. We expect the project to make a mid-teen return even at 40$/bbl Brent and a cost contingency of 30-40%.

Exhibit 10: EPS point-forward IRR sensitivity to oil price and capex cost contingency

	40	50	60	70	80
0%	21%	29%	36%	42%	47%
10%	19%	27%	33%	39%	44%
20%	17%	25%	31%	36%	41%
30%	16%	23%	29%	34%	38%
40%	14%	21%	27%	32%	36%

Source: Edison Investment Research

Project economics are clearly sensitive to delays, and a combined cost overrun and significant delays could reduce project returns to c 22%.

Exhibit 11: EPS point-forward IRR sensitivity to capex cost contingency and year of first-oil

	2020	2021	2022
0%	42%	34%	28%
10%	39%	31%	26%
20%	36%	29%	25%
30%	34%	28%	23%
40%	32%	26%	22%

Source: Edison Investment Research

Outside project execution, key sensitivities to EPS valuation include oil price, the ability to maintain high levels of production uptime (management assumes 85%), ESP availability, water management in the event of breakthrough, flow assurance and workover frequency. Hurricane has several contractual and facility-related mitigating factors in place including a contractual arrangement with Bluewater in relation to FPSO operational efficiency, spare FPSO liquids handling capacity and dual ESPs. While we have not carried out a sensitivity to EPS oil recovery, Hurricane estimates that the project would be break-even (NPV_{10} = 0) at a minimum recovery of 16mmbbls at the forward curve, which would equate to 2.6 years of production at 17mbopd. Including our additional cost and schedule contingencies, and using a 12.5% discount rate and Edison's 70$/bbl long-term Brent price forecast, we estimate that break-even would be 15.2mmbbls.

Hurricane Energy RENAV and oil price sensitivity

Our Hurricane RENAV is provided below, split into a core valuation, which includes the Lancaster EPS development (based on a 10-year field life), contingent upside for Lancaster full field development and prospective upside for Halifax and Lincoln. The cash included in our valuation and share account reflect a notional potential fund-raising in 2017 to cover 60% of Lancaster EPS

development costs (we assume the project is 40% debt funded). We assume full field development is funded via farm-down – our key assumption here is that the farminee requires a 25% IRR and cost-carries Hurricane through to first oil.

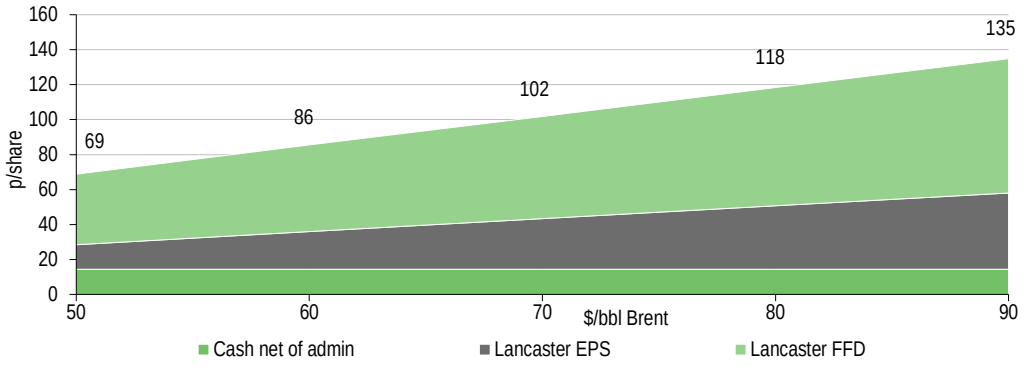
Exhibit 12: Hurricane Energy valuation summary ($NPV_{12.5}$)

				Recoverable reserves / resources			Net risked	Value per share
Asset	Country	Diluted WI	CCoS	Gross	Net	NPV/boe	value	Risked
Number of shares: 1,600m		%	%	mmboe	mmboe	$/boe*	$m	p/share
Net/(debt) cash at end FY17		100%	100%				316	15
SG&A (2 years)		100%	100%				(15)	(1)
Lancaster EPS - 10y	UK	100%	90%	62	62	10.8	602	29
Core NAV							903	43
Contingent								
Lancaster FFD (post-EPS)	UK	47%	73%	462	217	7.7	1,215	58
Contingent RENAV				462	217		1,215	58
Lincoln		47%	48.8%	250	118	6.1	347	17
Halifax		47%	45.0%	250	118	6.1	320	15
Total inc exploration RENAV				962	452		2,785	134

Source: Edison Investment Research. Note: NPV/boe assumes a farm-out will be full capex carry for Hurricane. FX $1.3/£.

At this stage, we do not include value from other discoveries and prospects, as there is no clarity on when appraisal/exploration wells will be drilled and/or funded. Assuming the market is not including value for assets beyond Lancaster, we believe the share price embeds a c 50$/bbl long-term Brent crude price.

Exhibit 13: Edison RENAV sensitivity to oil price



Source: Edison Investment Research

Risks and sensitivities

Hurricane is subject to several sector-specific and company specific risks. We highlight the key risks below.

Sector risks

Generic sector risks include:

- commodity price volatility,
- geological risk and uncertainty and reservoir performance uncertainty;
- recent studies on project execution in the upstream oil and gas sector suggest that up to 60% of projects incur delays and capex overruns versus FID expectations;
- small/mid-cap availability of funding: while we include the potential dilutive impact of equity funding and farm-outs in our valuation, if the cost of capital implied by equity financing or farm-outs is higher than our estimates, this would lead to additional equity NAV/share dilution; and

- volatility in service sector availability and pricing.

Company-specific risks

- Asset concentration: the bulk of Hurricane's value is based on one large asset. If this asset were to be impaired for any reason, it would have a material impact on Hurricane's share price.
- Geographical concentration: Hurricane is 100% exposed to the UKCS and petroleum fiscal terms, which have been volatile over the last decade. While tax terms and capital allowances are currently favourable versus other mature basins, there is no certainty that these will not change if oil prices were to rise significantly from current levels, potentially reducing equity holder leverage to a rising oil price.
- Funding risks: Hurricane is reliant on being able to attract additional capital to progress the Lancaster EPS and FFD and as such valuation will be sensitive to the financing availability and terms.

Financials

Financial forecasts for Hurricane incorporate Lancaster EPS first oil in 2020; prior to this we assume this first phase of development is funded through a combination of debt and equity.

Earnings and cash flow

Earnings are limited prior to Lancaster EPS first oil; however, we expect to see a material step-up in both earnings and operating cash flow beyond this date. Free cash flow will depend on Hurricane's funding structure for FFD – here we currently assume Hurricane farms down its 100% equity in Lancaster to a partner (assuming farminee 25% IRR) and is cost carried through to FFD first oil.

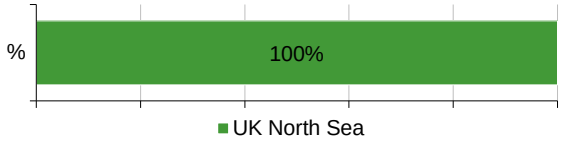
Balance sheet

The forecast evolution of Hurricane's balance sheet includes equity and debt funding for the EPS phase of Lancaster development – we assume a 60/40 equity to debt split in line with management guidance. Debt could come from numerous sources including project finance, export credit, forward oil sales or senior secured debt; an alternative form of EPS financing could be through farm-out, although this would involve dilution of Hurricane's interest in both the EPS and FFD development phases. We expect Hurricane to select a capital structure that management believes will maximise shareholder returns.

Exhibit 14: Financial summary

£ '000s	2015	2016	2017e	2018e	2019e
Dec	IFRS	IFRS	IFRS	IFRS	IFRS
PROFIT & LOSS					
Revenue	0	0	0	0	0
Operating Expenses	(5,366)	(6,500)	(7,230)	(7,230)	(7,230)
EBITDA	(5,366)	(6,500)	(7,230)	(7,230)	(7,230)
Operating Profit (before amort. and except.)	(5,448)	(6,540)	(7,325)	(7,325)	(7,325)
Exploration expenses	0	0	0	0	0
Exceptionals	0	0	0	0	0
Other	0	0	0	0	0
Operating Profit	(5,448)	(6,540)	(7,325)	(7,325)	(7,325)
Net Interest	(75)	1,839	1,598	(10,370)	(10,799)
Profit Before Tax (norm)	(5,523)	(4,701)	(5,727)	(17,695)	(18,124)
Profit Before Tax (FRS 3)	(5,523)	(4,701)	(5,727)	(17,695)	(18,124)
Tax	0	5,365	0	0	0
Profit After Tax (norm)	(5,523)	664	(5,727)	(17,695)	(18,124)
Profit After Tax (FRS 3)	(5,523)	664	(5,727)	(17,695)	(18,124)
Average Number of Shares Outstanding (m)	632.2	889.5	1,401.7	1,600.6	1,600.6
EPS - normalised (p)	(0.9)	0.1	(0.4)	(1.1)	(1.1)
EPS - normalised and fully diluted (p)	(0.9)	0.1	(0.4)	(1.1)	(1.1)
EPS - (IFRS) (p)	(0.9)	0.1	(0.4)	(1.1)	(1.1)
Dividend per share (p)	0.0	0.0	0.0	0.0	0.0
Gross Margin (%)	NA	NA	NA	NA	NA
EBITDA Margin (%)	NA	NA	NA	NA	NA
Operating Margin (before GW and except.) (%)	NA	NA	NA	NA	NA
BALANCE SHEET					
Fixed Assets	176,231	247,621	319,661	459,731	646,890
Intangible Assets	176,012	245,146	245,146	245,146	245,146
Tangible Assets	89	15	72,055	212,125	399,284
Investments	130	2,460	2,460	2,460	2,460
Current Assets	10,771	86,152	406,078	248,313	43,030
Stocks	410	359	359	359	359
Debtors	420	5,893	5,893	5,893	5,893
Cash	9,941	79,900	399,826	242,061	36,778
Other	0	0	0	0	0
Current Liabilities	(271)	(21,341)	(21,341)	(21,341)	(21,341)
Creditors	(271)	(21,341)	(21,341)	(21,341)	(21,341)
Short term borrowings	0	0	0	0	0
Long Term Liabilities	(3,221)	(4,829)	(163,906)	(163,906)	(163,906)
Long term borrowings	0	0	(159,077)	(159,077)	(159,077)
Other long term liabilities	(3,221)	(4,829)	(4,829)	(4,829)	(4,829)
Net Assets	183,510	307,603	540,492	522,797	504,673
CASH FLOW					
Operating Cash Flow	(2,558)	(4,115)	(5,632)	(17,600)	(18,029)
Net Interest	0	0	0	0	0
Tax	0	0	0	0	0
Capex	(3,407)	(46,773)	(72,135)	(140,165)	(187,254)
Acquisitions/disposals	0	0	0	0	0
Financing	22	121,338	238,615	0	0
Dividends	0	0	0	0	0
Net Cash Flow	(5,943)	70,450	160,849	(157,765)	(205,283)
Opening net debt/(cash)	(15,856)	(9,941)	(82,230)	(243,079)	(85,314)
HP finance leases initiated	0	0	0	0	0
Other	28	1,839	0	0	0
Closing net debt/(cash)	(9,941)	(82,230)	(243,079)	(85,314)	119,969

Source: Company accounts, Edison Investment Research

Contact details	Revenue by geography
Hurricane Energy The Wharf, Abbey Mill Business Park Godalming United Kingdom +44 1483 862 820 ww.hurricaneenergy.com	

Management team

CEO: Dr Robert Trice

Dr Robert Trice is Hurricane's founder and has over 25 years' oil industry experience. He has a PhD in Geology from Birkbeck College (University of London) and gained the bulk of his geoscience experience with Enterprise Oil and Shell. He has worked in field development, exploration, well site operations and geological consultancy. Robert has published and presented on subjects related to fractured reservoirs and exploration for stratigraphic traps.

CFO: Alistair Stobie

Alistair Stobie has significant capital markets and oil and gas industry experience. He was previously director of finance at AIM-listed Zoltav Resources and CFO at Oando Exploration & Production. Prior to this, Alistair founded both Volga Gas, where he was CFO and led its IPO to raise US$135m, and Pan-Petroleum, which acquired an interest in the multi-billion barrel oil in place Mengo-Kundji-Bindi licence in Congo-Brazzaville. During his career Alistair has been actively involved in numerous corporate transactions including fund-raisings, M&A and the acquisition and disposal of licence interests.

COO: Neil Platt

Neil is has more than 20 years' experience in the oil industry and has worked for Amoco, BG and Petrofac. He has completed assignments both in the UK and internationally, working in a variety of engineering, commercial and management roles including production asset manager (NSW) for BG and VP for project delivery in Petrofac Production Solutions. Neil joined Hurricane in 2011 and was appointed to the board in 2013.

Principal shareholders	(%)
Kerogen	29.5%
Crystal Amber	11.7%
Hargreaves Lansdown	4.6%
Netherton Investments	3.1%
Aval Bank	2.9%
USB	2.3%
Robert Trice	2.2%

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