

# Hurricane Energy

Capital markets day

Further data needed ahead of next stages

In April 2020, Hurricane Energy provided an update on Lancaster early production system (EPS) data gathered since first oil. The company announced that productivity from the two producing wells is over 10.0kbod per well. Aggregate water has been higher than initial expectations; however, this has been identified as being perched water and is expected to stabilise with time. Management expects that a longer period of data gathering will be required before the next stages of development. Given the need for additional data and the current commodity price environment, Hurricane is reviewing its capital allocation for 2020–21. Although the capital markets day did not confirm the next steps required to be able to confirm the upside case for the company's asset base, Hurricane's balance sheet is strong and the EPS keeps on delivering. Our mid-case risked valuation has slightly decreased to 70.4p/share from 73.0p/share (-4%) as we adjust our short-term oil price assumptions and our core NAV stands at 21.9p/share, a premium of 99% to the current share price.

Year-end	Revenue (\$m)	EBITDA (\$m)	Operating cash flow (\$m)	Capex* (\$m)	Net debt (\$m)
12/18	0.0	(12.6)	(4.4)	(209.9)	99.5
12/19	170.3	(11.7)	112.2	(55.4)	38.2
12/20e	183.9	55.4	70.4	(108.9)	73.6
12/21e	268.7	140.3	126.1	(213.8)	161.3

Note: \*Capex is net of carried investment by Spirit Energy.

## Lancaster productivity supports 18kbod guidance

Deliverability from the two producing Lancaster wells continues to be excellent at over 10kbod production from each well individually. Production guidance for the remainder of 2020 is 18kbod, giving an expected average daily production for the year of 17kbod. A longer period of data gathering will be required before confirming the next stage of development. Water production from the wells is identified as being perched water and is expected to stabilise with time.

## Capital allocation underpinned by Lancaster

Hurricane is reviewing and updating its capital allocation in light of the current macro environment and this will be underpinned by maintaining cash flow from Lancaster and meeting licence commitments. Currently this will require the P&A of the GWA Lincoln Crestal well in Q320, and the drilling of commitment wells on Lincoln in 2020 and on Lancaster in 2021. In this note we defer our GWA FFD 2021 capex estimate. We stress test Hurricane's ability to proceed with Lancaster-8 and see some headroom to go forward. However, Hurricane's free cash flow generation sensitivity to commodity prices and absence of oil hedges might deter management from allocating additional capital in the short term.

## Valuation: Core NAV at 21.9p/share

Our risked valuation stands at 70.4p/share, or 21.9p/share excluding any value beyond Lancaster EPS. We have updated our short-term Brent price expectations based on EIA forecasts, while our long-term (2022 onwards) Brent assumptions remain in line with our last note. Hurricane is currently trading at a 50% discount to our core NAV, which only takes Lancaster EPS into consideration and no upside.

Oil & gas

20 May 2020

Price **11.0p**

Market cap **£219m**

US\$1.28/£

Net debt (\$m) at 31 December 2019 38.2

Shares in issue 1,991.9m

Free float 81%

Code HUR

Primary exchange AIM

Secondary exchange N/A

### Share price performance



% 1m 3m 12m

Abs 2.7 (22.3) (78.6)

Rel (local) (0.8) (2.2) (74.0)

52-week high/low 61p 8p

### Business description

Hurricane Energy is an E&P focused on fractured basement exploration and development in the West of Shetland region. The company's 100%-owned Lancaster oil discovery (523mmbbl 2P reserves + 2C resources) achieved first oil on target in H119.

### Next events

Lincoln Crestal P&A Q320

Lincoln commitment well 2020

Lancaster CPR Early 2021

Lancaster commitment well 2021

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## Investment summary

### Fractured basement productivity under evaluation

Hurricane specialises in the discovery, appraisal and development of fractured basement reservoirs and has discovered 523mmbbl of 2P reserves and 2C resources (RPS 2017 CPR) of recoverable oil at the Lancaster field, West of Shetland. Since Lancaster came onstream in May 2019, the UK's first fractured basement field has demonstrated excellent productivity and a well-connected fracture network. A minimum connected volume of 500mmbbl has been established and is expected to increase with time. Reservoir behaviour has been more complex than anticipated, so that a longer period of steady production will be required to confirm Hurricane's geological model and define reservoir characteristics sufficiently before the next stages of development can be considered.

### Valuation: 4% decrease in RENAV to 70.4p/share

We value Hurricane's asset base using a conventional risked net asset value (NAV) approach, based on a risked valuation for proven reserves, and contingent and prospective resources. Key assumptions include estimates of production profiles, asset development costs and operational costs, in addition to realised commodity prices. We have updated our forecasts to reflect our updated short-term Brent assumptions to \$34.1/bbl in FY20 and \$47.8/bbl in FY21, based on May 2020 EIA forecasts. Our mid-case risked valuation has decreased to 21.9p/share excluding any value beyond Lancaster EPS, double the current share price.

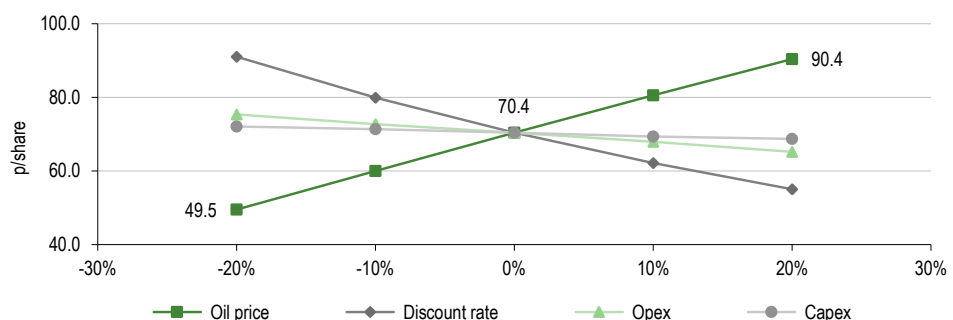
### Financials: Headroom to progress with Lancaster-8 and WOSPS

In this note, we stress test Hurricane's ability to fund capital commitments including the Lancaster EPS residual capex, 2020/21 E&A wells and possibly the Lancaster-8 well and tie-back costs. Short-term financial forecasts will be driven by the performance of the Lancaster EPS and Brent price; however, we believe that at an average yearly production of 17kbod, Hurricane is able to cover its capital commitments from existing cash resources, and cash flow from EPS even at a 10% discount to our short-term price estimates.

### Sensitivities: EPS cash flows exposed to short-term volatility

Our valuation of Hurricane is highly sensitive to oil price assumptions, unlike some industry players with exposure to gas and fixed price contracts. Additionally, since the EPS was designed for data gathering with the wells being tested at different rates with alternate planned shut-ins, oil production is currently not hedged, exposing Hurricane to the current near-term volatility in commodity prices; however, the company is considering hedging for the future, post the data gathering phase.

**Exhibit 1: Hurricane sensitivity analysis**



Source: Edison Investment Research

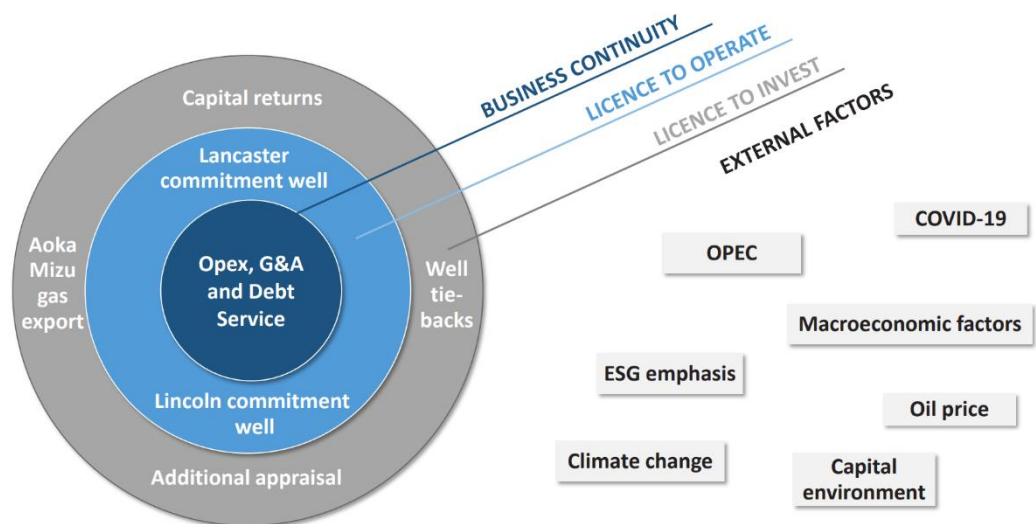
## Capital markets day key takeaways

The Lancaster EPS has demonstrated that fractured basement development works, with 4.4mmbbl of Lancaster oil sold and individual wells capable of producing over 10kbod, reinforcing Hurricane’s model of a well-connected fracture network. Production guidance for the remainder of 2020 is 18kbod, giving an expected average production for 2020 of c 17kbod, in line with our previous estimates. Data analysis shows that the existing wells are connected to c 500mmbbl and that this figure should increase with production. Further data gathering will be needed to progress to further development.

## Capital allocation framework underpinned by Lancaster

The current macro environment of low oil prices and COVID-19 is challenging for the industry. Restrictions on working practices due to COVID-19 have not affected production at Lancaster, with only the testing and commissioning of electrical submersible pumps delayed. Hurricane’s low operating costs of \$17/bbl and strong cash balance of \$152m as at 1 April 2020 puts it in a good position, though an improvement in market conditions will be necessary to generate returns. Against this backdrop, the company is reviewing and updating its capital allocation framework. The priority will be to continue to generate cash from existing infrastructure and to maintain a licence to operate by meeting licence commitments.

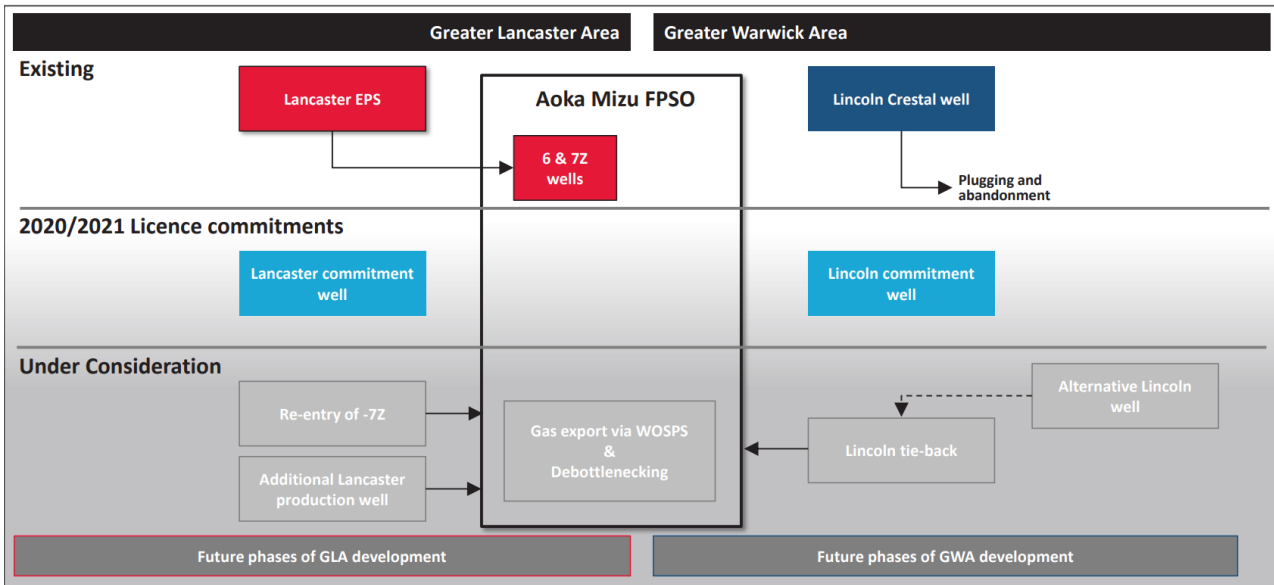
**Exhibit 2: Capital allocation framework**



Source: Hurricane Energy CMD 27 April 2020

Beyond continued production from Lancaster, licence commitments currently require the plugging & abandonment (P&A) of the Lincoln Crestal well in the Greater Warwick Area (GWA) by the end of September 2020 and the drilling of a licence commitment well on Lincoln in 2020 and Lancaster in 2021. Further value-add operations, summarised in Exhibit 3, are now under consideration.

**Exhibit 3: GLA and GWA roadmap**



Source: Hurricane Energy CMD 27 April 2020

## Publication of inaugural ESG report

Hurricane published its first standalone Environmental, Social and Governance (ESG) Report alongside its 2019 Annual Report as part of its commitment to operate responsibly and to drive continual improvement. The report was prepared in accordance with the Global Reporting Initiative (GRI) Standards, a broad and well recognised framework that complies with the best-practice reporting of peers. A key consideration of the report is the company's ability to reduce its business impact on climate change through the management and reduction of its carbon footprint. Future reports will be published annually.

## Lancaster EPS continues to deliver

Since coming onstream in May 2019, Lancaster has continued to deliver, with world-class well productivity providing up to 20kbod from the two production wells. The Aoka Mizu FPSO has achieved an excellent uptime averaging 96% since start-up, and over 4.4mmbbl of oil have been sold over 11 cargoes. Hurricane has provided forward production guidance of 18kbod for the remainder of 2020, equivalent to an average net expected production of c 17kbod for the year.

An initial assessment of the data gathered to date points to a minimum connected reservoir volume of half a billion barrels. Reservoir behaviour has however been more complex than anticipated, so that a longer period of steady production will be required to confirm Hurricane's geological model and define reservoir characteristics sufficiently before the next stages of development can be considered.

Water production, which had not been expected during the EPS phase, has been increasing since production start-up and is interpreted by the company to be from a zone of perched water. The Aoka Mizu facilities can safely process the produced water and the delivery of oil is not affected at the current aggregate water cut of 26%. The FPSO has capacity to process up to 20,000bbl of water per day, 30,000bbls of oil per day and 35,000bbls of total liquids per day. Water production rates do not have a meaningful impact on current operating costs of \$17/bbl, provided the vessel's oil production is not affected.

**Exhibit 4: April 2020 well performance**

Well	Oil production (bbls/d)	Water production* (bbls/d)	Water cut (%)	Liquids production* (bbls/d)
205/21-6	12,200	918	7%	13,118
205/21a-7z	6,300	5,367	46%	11,667
<b>Total</b>	<b>18,500</b>	<b>6,285</b>	<b>26%</b>	<b>24,785</b>

Source: Hurricane Energy CMD 27 April 2020, Edison Investment Research Note: \*Edison calculated values from CMD data to illustrate April 2020 water and liquids production levels.

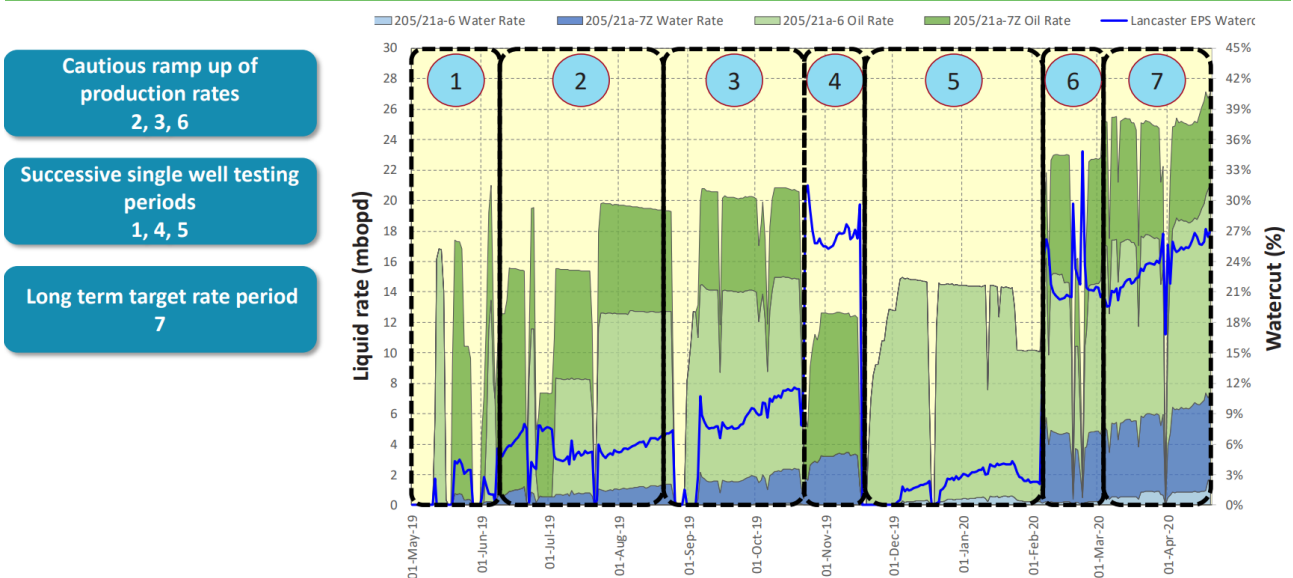
The performance of the FPSO has been exceptional, with uptimes exceeding pre-start-up expectations and have been close to 100%. The company is guiding to an ongoing uptime of 90%. A thorough hazard prevention process prior to start-up has to date prevented any risks being realised. In particular, effective preventative measures have diminished the appearance of wax in the system, so that the frequency of pigging the flowline has been reduced from every four weeks to every 15 weeks, thereby increasing uptime, reducing chemical usage and lowering operating costs.

### Data gathering phase: Extension required

The EPS has been providing dynamic reservoir data to enhance Hurricane’s understanding of the Lancaster reservoir characteristics so that the company can develop an appropriately risked full field development scenario before committing to the next phase of development. Prior to start-up, it was anticipated that a production period of between six and 12 months would be required to determine which of the company’s three simulated cases (of base, high and low case) was most relevant. However, due to a combination of commissioning activities, unplanned shutdowns and subsurface testing, only five months of steady production data has been obtained. In addition, reservoir behaviour has been more complex than expected and so a longer period of steady production will be needed to evaluate sustainability and long-term trends. The data gathered to date does however give Hurricane sufficient confidence to provide forward guidance of net 18kbod.

The EPS has been cautiously ramping up to a combined rate from the two Lancaster wells of up to 20kbod (excluding downtime) since May 2019, with a period of single well testing occurring between October 2019 and February 2020. Exhibit 5 shows that there have been six completed test phases, with the seventh ongoing, and that each test can last for weeks or months.

**Exhibit 5: Lancaster reservoir testing stages**

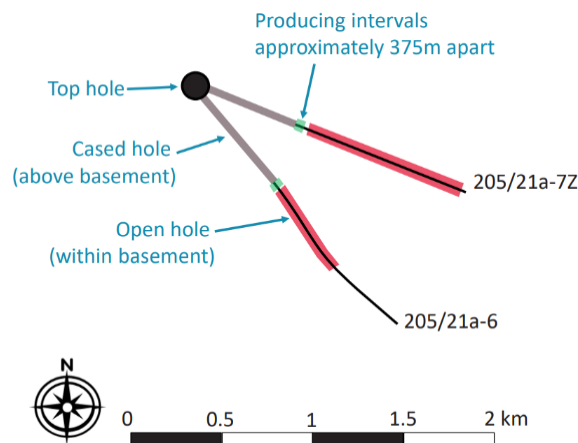


Source: Hurricane Energy CMD 27 April 2020

The test data has confirmed the world-class productivity of each well with both 205/21a-6 and 205/21a-7z exhibiting an initial productivity index (PI) of over 200stb/d/psi (cf to the Saudi super giant Ghawar field PI of c 140stb/d/psi). Production is confined to a short interval of 40–60m close to the heel, but petrophysical and drilling data indicates that there are higher potentially productive zones further along the horizontal section, so that the upside potential of the wells has yet to be tested. To test this, the company can either wait for the currently producing fractures to deplete or would need to re-enter the wells and isolate the preferred production interval.

The producing intervals in the wells are located approximately 375m apart, and this proximity means that the production from the wells interfere with each other instantaneously, contributing to the complexity in analysing the data and the need to extend the data gathering period.

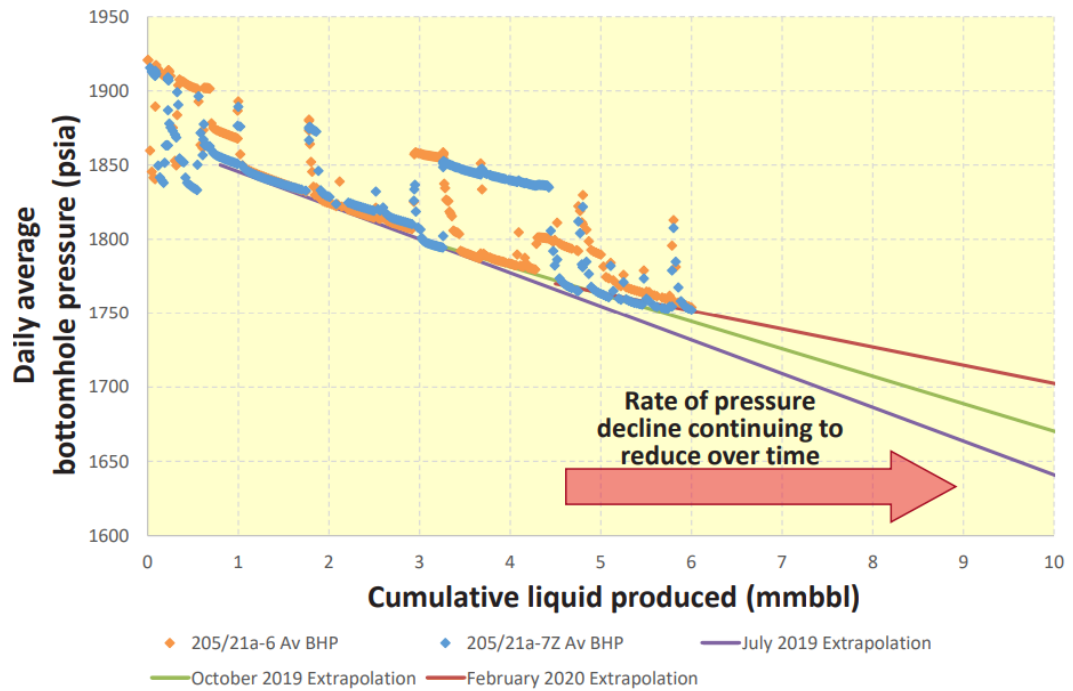
**Exhibit 6: Lancaster interference between wells**



Source: Hurricane Energy CMD 27 April 2020

Hurricane’s pre-start-up reservoir model assumed that each well would produce independently and that the full horizontal section would contribute to flow. Pressure data analysis shows an initial rapid pressure decline, which is a function of both wells accessing the same reservoir volume. Exhibit 7 shows that this rate of decline is reducing over time and this trend is expected to continue as more distant fractures feed into the fracture network and contribute to production. Bottom hole pressure data from individual well tests is indicative of this flattening decline being sustainable and reinforces the company’s belief that this response is a function of well interference rather than well performance. Initial analysis from material balance estimates that the wells are currently communicating with c 500mmbbl and that this volume should increase with time.

**Exhibit 7: Lancaster indications of connected reservoir volume**



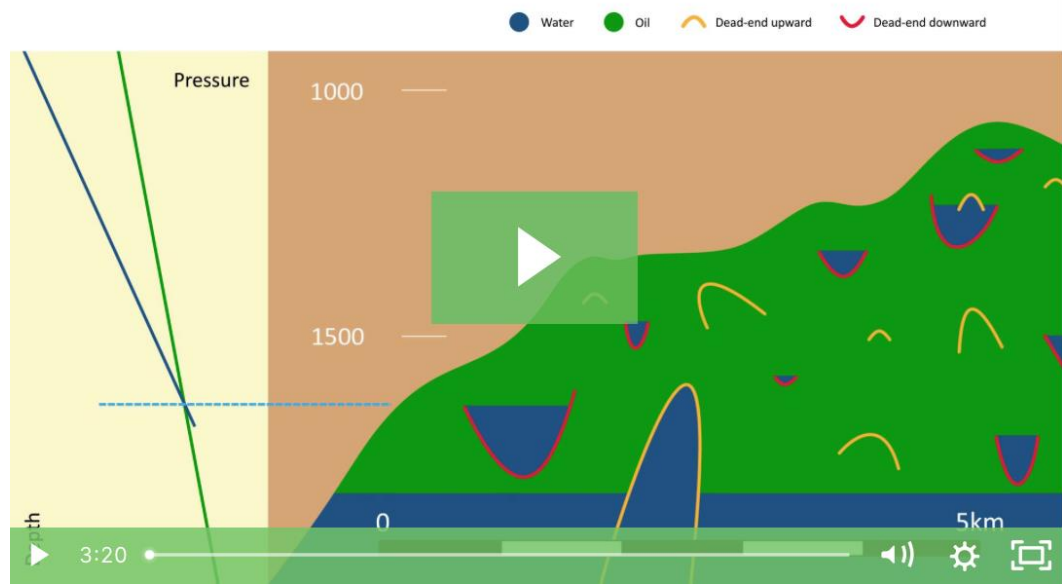
Source: Hurricane Energy CMD 27 April 2020

The flowing bottom hole pressure (BHP) is lower than originally predicted but is still around 150psi above bubble point. Should the BHP continue to decline below bubble point, the company believes that the gas may move to the gas cap given the high angled nature of the fractures.

### Water production: Perched water

Water production was not expected during the EPS phase, but 205/21a-7z has been producing water since start up, increasing to 46% (affected by the high water cuts seen immediately after a shut-in period) as of April 2020, while water was first seen in 205/21a-6 at the end of 2019 and is currently at 7%, giving an aggregate water cut of 26%. Hurricane has analysed a combination of EPS, petrophysical and drilling data to narrow down the source of the water to a 10m zone of perched water within the 40m producing interval of the 7z well. A 10m interval has also been identified in the 6 well, but the water produced here is also attributed to the perched water zone penetrated in 7z given the proximity of the two wells. Ongoing testing will look to gain an understanding of the long-term trend of water cut behaviour and will be a key focus of the data analysis.

Lancaster was originally filled with water, which was displaced as oil filled in from the top down and this process left isolated pockets of perched water that are isolated from the underlying aquifer. A more detailed explanation of this perched water in Lancaster can be seen in the video in Exhibit 8 below.

**Exhibit 8: Perched water explanation by Hurricane Energy**


Source: Hurricane Energy CMD 27 April 2020

Once production is constant, the water production levels should stabilise over time and could eventually decline. There is also scope to isolate the interval though this is not envisaged under the current committed spend programme. Future Lancaster wells could identify any further intercepted perched water zones from the drilling and logging data and then be completed with the affected zone and least favourable fractures isolated to allow production from the best producing zones.

### Next steps: Lancaster well activity now under consideration

In light of the current macroeconomic environment, future confirmed activity at Lancaster will focus on continuing to evaluate and optimise production and meeting licence commitments (see Exhibit 3), specifically:

- Continuing the existing testing plan on the two Lancaster EPS wells.
- A volumetric review including a CPR in early 2021, reporting reserves and resources as at 31 December 2020.
- Drilling the Lancaster licence commitment well in 2021.
- The decision whether to proceed into the next phase of the Aoka Mizu FPSO contract.

The commissioning of the electrical submersible pumps (ESPs), planned for commissioning during Q220, has been delayed as a result of restrictions in manning levels due to COVID-19. This will be carried out as soon as practicable and is an aspiration for 2020.

Further activities at Lancaster are now being reviewed in light of the current oil price. Hurricane had been evaluating the drilling of a third production well, Lancaster-8, at Lancaster to increase production and to de-risk volumes. The well, if drilled, would additionally provide security if it became necessary to replace an existing well due to reservoir management or economics. As per our [previous note](#), Edison estimates a provisional first oil date in Q122; however, any activity will be contingent on the oil price environment. Hurricane is also considering a re-entry of 205/21a-7z to isolate the heel and access a more productive zone. This would reduce the interference between the 6 and 7z wells and has the potential to increase productivity without the need to drill a new well or invest in new subsea infrastructure.

Work to progress the export of gas through the West of Shetland Pipeline System (WOSPS) together with system debottlenecking is also under review. The benefits of reducing the company's



carbon footprint and increasing further growth opportunities provided by a gas export option will be considered alongside licence commitments, the oil price and partner preferences. Some of the long lead items for installation of a gas export link into WOSPS have been purchased by the GWA joint venture as part of Phase 1 of the Spirit farm-in and are available when required.

## GWA: Lincoln considered commercial

Phase 1 of the GWA work programme was carried out in 2019 and was fully carried by Hurricane's partner, Spirit Energy. This included the drilling and testing of three exploration and appraisal wells and long lead items and engineering for the tie-back of a GWA well to the Aoka Mizu FPSO and tie the FPSO into WOSPS.

The three-well 2019 drilling programme delivered the successful Lincoln Crestal well, producing oil at 9,800bod using an ESP, albeit with a lower PI than seen in Lancaster. The Warwick West and Warwick Deep wells were significantly less successful. A summary of the well results can be found in our [January 2020 update note](#).

The well results demonstrated that productivity in the GWA is significantly less than that seen in Lancaster and point to less well-developed reservoir qualities. Although the wells confirmed the majority of the faults identified pre-drill, providing confidence in the company's seismic interpretation, the fault zone thicknesses were found to be c 50% lower than those encountered in Lancaster. This was evidenced by the lower flow rates and PIs exhibited by the GWA wells, together with the reduced mud losses experienced during drilling.

GWA fluids were also found to be lighter and gassier than those found in Lancaster. Oil in Lincoln is 41–42° API and the gas-oil ratio (GOR) is 630–650scf/bbl, while Warwick oil is 44–45° API and the GOR is 730–750scf/bbl (Lancaster oil is 38° API, with a GOR 365–397scf/bbl).

### Exhibit 9: GWA comparison with Lancaster

	Warwick Deep	Warwick West	Lincoln Crestal	Lincoln 2016	Lancaster
Gas peak and ratios indicate mobile oil	✓	✓	✓	✓	✓
Physical oil sample; evidence of light oil	✓	✓	✓	n/a	✓
Sporadic oil shows on cuttings and/or core	✓	✓	✓	✓	✓
Image log picked fractures distribution and character	✓	✓	✓	✓	✓
Logging while drilling (LWD) porosity in line with expectation	✓	✓	✓	✓	✓
Commercial flow rate	✗	✗	✓	n/a	✓
World class PI	✗	✗	✗	n/a	✓
Major losses	✗	✗	✗	✓	✓
Fault zones match pre drill model	✗	✗	✗	✓	✓
Pressure-transient analysis (PTA) indicates Lancaster-like fracture system dynamic behaviour	✗	✗	✓	n/a	n/a

Source: Hurricane Energy CMD 27 April 2020

The 2016 Lincoln well, which was not tested, did encounter fault zone characteristics more similar to Lancaster, indicating that these vary across the field, but also providing sufficient encouragement that the discovery is commercial for development.

## Next steps: Field determination for Lincoln

The GWA JV has applied to the Oil and Gas Authority (OGA) for approval of field determination over the Lincoln structural closure, an area that may be able to be used for tie-back of the Lincoln Crestal well or an alternative shallower producer. These would be subject to further consents and require additional applications. If successful, the Lincoln Crestal P&A, currently required by 30 September 2020, would not be necessary. If this option is not approved, the JV would consider an alternative horizontal producer for tieback. Hurricane expects a response from the OGA within weeks. The JV is also working on the objectives and well plan for the Lincoln commitment well, to be drilled by the end of 2020.

## Management

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**Steven McTiernan (chairman)** has over 45 years of oil and gas industry and investment banking experience. He was a non-executive director of Tullow Oil for 11 years until December 2012 and served as its senior independent director. His oil and gas industry experience includes roles at Iraq Petroleum, Amoco, BP and Mesa, and his banking experience includes senior roles leading energy teams at the Chase Manhattan Bank, NatWest Markets and CIBC. He has served as an independent director at First Quantum Minerals and Songa Offshore SE and is chairman of Kenmare Resources. He holds an MA in natural sciences from the University of Cambridge.

**Dr Robert Trice (CEO)**, Hurricane's founder, 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.

**Richard Chaffe (acting CFO)** has been head of finance at Hurricane since 2016 and intrinsically involved in all its finance activities. He was with Ernst & Young (E&Y) for nine years and has been in the oil and gas industry in senior finance roles, including Hurricane, for more than a decade after E&Y. At E&Y his role was split between client-facing audit work and working as part of an audit quality team at the London office. He left E&Y in 2009 to become finance manager in the UK subsidiary of EOG Resources, an independent oil and gas exploration and production company with a market value of over \$35bn. In 2015, he was promoted to finance director, prior to joining Hurricane in 2016 as head of finance. Richard holds a BSc in Physics from Durham University.

**Neil Platt (COO)** 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 for BG and vice president for project delivery at 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).

## Sensitivities

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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;
- small-/mid-cap availability of funding: while we include the potential dilutive impact of equity funding and farm-downs in our valuation, if the cost of capital implied by equity financing or farm-downs 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

Company-specific risks include:

- Asset concentration: the bulk of Hurricane's value is based on one large asset. If this asset were impaired for any reason, it would have a material impact on Hurricane's share price. In addition, Lancaster production is delivered by two wells, so is highly dependent on each well continuing to deliver in order to maintain production levels unless and until a third well is drilled.
- Geographical concentration: Hurricane is 100% exposed to the UK Continental Shelf (UKCS) and petroleum fiscal terms, which have been volatile over the last decade.
- Funding risks: in this note we stress test the company's ability to fund the WOSPS installation on a sole basis and fund the Lancaster-8 tie-back. Under our current oil price assumptions, the cash generated in FY20–21, in addition to existing cash, is enough to cover such expenditures; however, generated cash is highly sensitive to commodity price fluctuations, and such developments could leave the company balance sheet in a more vulnerable position. Hurricane also is reliant on being able to attract additional capital to progress the Lancaster full field development (FFD) and, as such, valuation will be sensitive to financing availability and terms.

## Valuation

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We value Hurricane's asset base using a conventional risked net asset value (NAV) approach, based on a risked valuation for proven reserves, and contingent and prospective resources. Key assumptions include estimates of production profiles, asset development costs and operational costs, in addition to realised commodity prices. We have updated our forecasts and NAV to reflect Hurricane's current priorities in relation to capital allocation and deferred our GWA FFD 2021 capex assumption to the following years. We maintain our estimate of GWA FFD first oil for 2025. We also deferred Lancaser-8 first oil from Q122 to H222 and we now assume WOSPS to be 100% funded by Hurricane instead of being carried by Spirit. As per the GWA Joint Venture Agreements Update announced in March 2020, Hurricane can proceed with the WOSPS installation on a sole basis and bear 100% of the costs. This would unlock the additional four years of Lancaster production accounted for in our core NAV. We also revised our valuation to reflect our updated short-term Brent assumptions change from \$43.3/bbl to \$34.1/bbl in FY20, and from \$55.4/bbl to \$47.8/bbl in FY21, based on EIA forecasts as published on 12 May 2020. Our long-term oil price assumptions remain in line with our [last note](#), in which we presented three different scenarios:

- Low case scenario with Brent in 2022 at \$42.0/bbl, calculated from a 2020 Brent price of \$40.0/bbl escalated at 2.5% per year.
- Mid-case scenario with Brent in 2022 of \$52.5/bbl, calculated from a 2020 Brent price of \$50.0/bbl escalated at 2.5% per year.

- High case scenario with Brent in 2022 of \$63.0/bbl, calculated from a 2020 Brent price of \$60.0/bbl escalated at 2.5% per year.

Given the current oil price volatility, we will continue to monitor market conditions closely and may revisit these assumptions in due course.

**Exhibit 10: Changes to the short-term oil and top-line forecasts**

	Actual	New		Old		Change	
	2019	2020	2021	2020	2021	2020	2021
Production (kbd)	7.6	17.0	17.0	17.0	17.0	0%	0%
Brent (\$/bbl)	64.36	34.13	47.81	43.30	55.36	-21%	-14%
Revenue (\$m)	170.3	183.9	268.7	240.8	315.6	-24%	-15%

Source: Edison Investment Research

We have not updated our resource base estimate since this is under evaluation. We expect to have further details on Lancaster volumetric review including a CPR in early 2021, reporting reserves and resources as at 31 December 2020. Our risked valuation has decreased marginally to 70.4p/share, or 21.9p/share excluding any value beyond Lancaster EPS. The NAV table below provides a breakdown of our current valuation by asset.

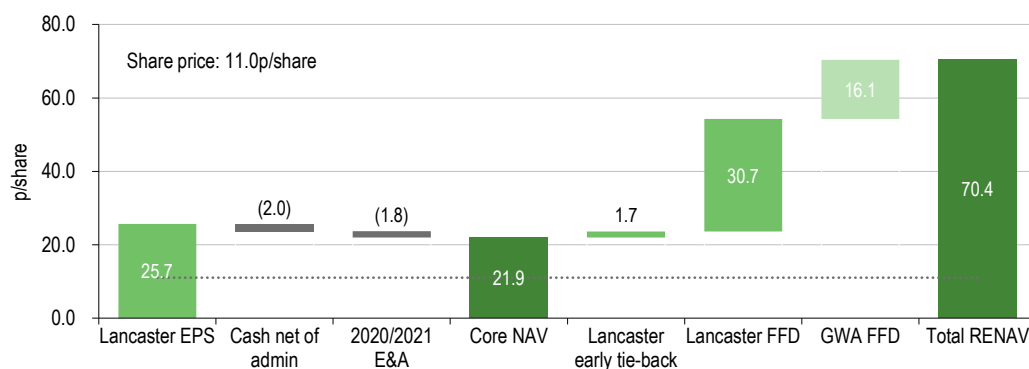
**Exhibit 11: Edison breakdown of Hurricane NAV**

Asset	Country	Diluted WI %	CCoS %	Recoverable reserves		NPV/boe	Net risked value	Low case (\$40/bbl)	Mid case (\$50/bbl)	High case (\$60/bbl)
				Gross	Net			Net risked value per share		
				mmboe	mmboe	\$/boe	\$m	p/share	p/share	p/share
Net debt at 31 December 2019							(38)	(1.2)	(1.2)	(1.2)
SG&A (3 years)							(24)	(0.8)	(0.8)	(0.8)
2020/21 E&A wells							(55)	(1.8)	(1.8)	(1.8)
Lancaster EPS – 10 years	UK	100%	100%	56	56	14.4	802	20.1	25.7	30.6
<b>Core NAV</b>				<b>56</b>	<b>56</b>		<b>685</b>	<b>16.3</b>	<b>21.9</b>	<b>26.9</b>
Lancaster early tie-back	UK	100%	45%	22	22	5.3	52	0.7	1.7	2.6
Lancaster FFD*	UK	46%	81%	425	195	6.1	959	22.7	30.7	38.6
GWA FFD (part carried)	UK	50%	42%	499	250	4.8	504	9.8	16.1	22.2
<b>Total inc exploration RENA</b>				<b>555</b>	<b>306</b>		<b>2,199</b>	<b>49.5</b>	<b>70.4</b>	<b>90.4</b>

Source: Edison Investment Research. Note: Number of shares = 2,434.2m, assumes conversion of convertible debt. \*Assumes farm-down and carry, 20% IRR.

As can be seen in Exhibit 11, our valuation of Hurricane is highly sensitive to oil price assumptions, unlike some industry players with exposure to gas and fixed price contracts. In our mid case, we use the EIA's short-term forecasts (\$34.1/bbl Brent in 2020 and \$47.8/bbl in 2021) and a long-term oil price of \$50/bbl (from 2022) inflated at 2.5% onwards. At our current pricing assumptions, our risked NAV valuation for Hurricane, excluding any value beyond Lancaster EPS, stands at 21.9p/share, double the current share price. Our core NAV valuation in a low case is 48% higher than the current share price at 11p/share.

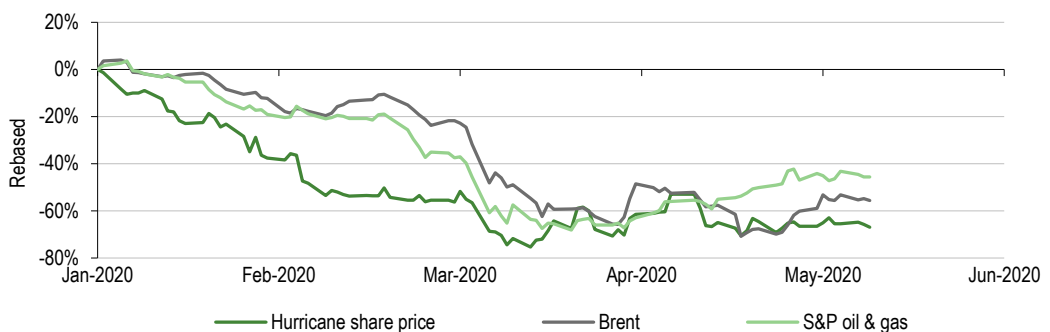
**Exhibit 12: Hurricane RENA waterfall**



Source: Edison Investment Research

Since the beginning of the year, the share prices of Hurricane and its peers have considerably decreased. Oil prices have fallen significantly since January 2020 largely driven by reduced oil demand because of COVID-19 and the OPEC+ oil price war. Despite the April agreement between the OPEC+ parties to reduce production levels, oil prices have remained at some of their lowest levels in more than 20 years. The EIA estimates global oil consumption averaged 94.1mmbbl/d in Q120, as per its 12 May 2020 report, a decline of 5.8mmbbl/d from the same period in 2019, and expects an average decrease in demand of 8.1mmbbl/d from last year, before increasing by 7.0mmbbl/d in 2021. As a result, the markets have observed an upward correction in oil and gas companies' valuations since early April 2020, after an initial adverse reaction to the low commodity prices in March 2020. However, we note that Hurricane share's price has not recovered in the same fashion. Meanwhile, there is support from management's statement that the Lancaster EPS has cash operating costs of c \$17/bbl meaning the asset is currently operating above its break-even price.

**Exhibit 13: Hurricane, Brent and S&P oil & gas peers pricing evolution since January 2020**



Source: Edison Investment Research, Bloomberg. Note: Prices as at 13 May 2020.

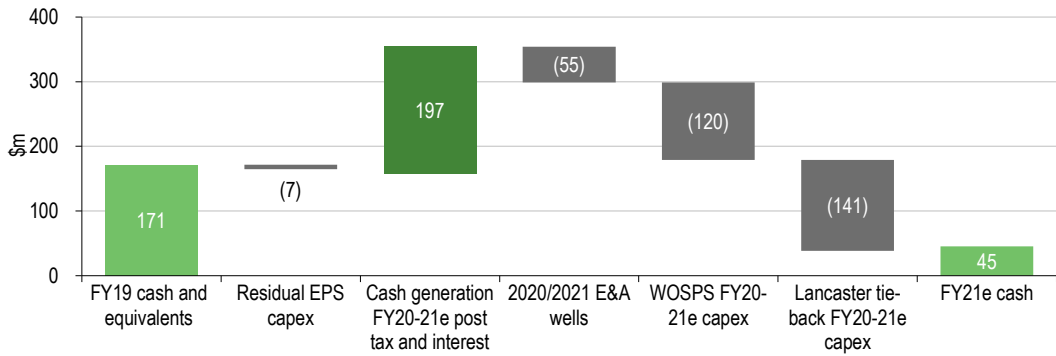
## Financials

Short-term financial forecasts will be driven by the performance of the Lancaster EPS and the Brent price. Consequently, there is significant uncertainty in precise forecasts of revenue and cash flows. However, we expect Lancaster EPS cash flows to provide enough cash for licence commitments and appraisal of the short-term portfolio.

Hurricane remains relatively unlevered, with the company's only debt being a \$230m convertible bond due in 2022 bearing interest of 7.5% and convertible at \$0.52/share. We assume the bond converts in our RENAV, treating this debt instrument as equity, since our current valuation is higher than conversion prices. If at the time of redemption, the warrants are out of the money, Hurricane might elect to pay that back in cash or refinance its debt.

Below we look at a cash flow bridge, which highlights Hurricane's potential to fund capital commitments through to end 2021 from a combination of existing cash resources, cash flow from EPS operations and the existing cost-carry arrangement.

**Exhibit 14: End FY19 to end FY21e cash flow bridge\***




Source: Edison Investment Research. Note: \*Outstanding convertible bond of \$230m due in 2022 if not redeemed prior to maturity.

We stress tested Hurricane’s cash flow generation for FY20 and FY21 and the company’s ability to cover the Lancaster EPS residual capex, 2020/21 exploration & appraisal (E&A) commitment wells and possibly Hurricane proceeding with the WOSPS installation on a sole basis and the Lancaster-8 well drilling and tie-back costs. In this note we have deferred our GWA FFD 2021 capex assumption to the following years. At our current FY20–21 price estimates, the above-mentioned costs are covered and Hurricane would exit 2021 with \$45m in cash. We estimate that at a c 10% discount to our current pricing estimates, resulting in an FY20 Brent yearly average of \$30.7/bbl and FY21 Brent of \$43.0/bbl, generated cash would just about cover all these costs. If Hurricane decides not to proceed with WOSPS installation and Lancaster-8 drilling and tie back, we estimate the company would exit 2021 with \$306m cash under our current pricing estimates.

**Exhibit 15: Financial summary**

	\$m	2017	2018	2019	2020e	2021e
Year-end: 31 December		IFRS	IFRS	IFRS	IFRS	IFRS
<b>PROFIT &amp; LOSS</b>						
Revenue		0.0	0.0	170.3	183.9	268.7
Operating Expenses		(14.6)	(12.7)	(118.9)	(200.1)	(200.1)
EBITDA		(14.6)	(12.6)	(11.7)	55.4	140.3
Operating Profit (before amort. and except.)		(14.6)	(12.7)	51.4	(26.2)	58.7
Exploration expenses		(10.4)	0.0	(66.5)	0.0	0.0
Exceptionals		10.4	(42.4)	34.7	0.0	0.0
Other		0.0	0.0	0.0	0.0	0.0
Operating Profit		(14.6)	(55.0)	19.7	(26.2)	58.7
Net Interest		7.6	(5.9)	(21.5)	(14.2)	(14.2)
Profit Before Tax (norm)		(7.0)	(18.5)	30.0	(40.4)	44.5
Profit Before Tax (FRS 3)		(7.0)	(60.9)	(1.8)	(40.4)	44.5
Tax		0.0	0.0	60.5	0.0	0.0
Profit After Tax (norm)		(7.0)	(18.5)	90.5	(40.4)	44.5
Profit After Tax (FRS 3)		(7.0)	(60.9)	58.7	(40.4)	44.5
Average Number of Shares Outstanding (m)		1,583.8	1,959.6	1,978.5	1,991.9	1,991.9
EPS - normalised (c)		(0.4)	(2.2)	(2.5)	12.9	13.9
EPS - (IFRS) (c)		(0.4)	(3.1)	3.0	(2.0)	2.2
Dividend per share (p)		0.0	0.0	0.0	0.0	0.0
Gross Margin (%)		NA	NA	30.2	-8.8	25.6
EBITDA Margin (%)		NA	NA	-6.9	30.1	52.2
Operating Margin (before GW and except.) (%)		NA	NA	30.2	-14.3	21.8
<b>BALANCE SHEET</b>						
Fixed Assets		587.9	884.2	932.5	905.4	1,037.6
Intangible Assets		126.4	131.5	75.9	80.3	80.3
Tangible Assets		445.3	728.2	796.2	819.0	951.1
Investments		16.3	24.5	60.5	6.1	6.1
Current Assets		350.1	106.0	228.7	193.4	105.7
Stocks		1.4	4.6	9.9	9.9	9.9
Debtors		4.7	2.6	50.4	50.4	50.4
Cash		343.9	98.9	168.4	133.0	45.3
Other		0.0	0.0	0.0	0.0	0.0
Current Liabilities		(28.8)	(55.1)	(94.4)	(72.4)	(72.4)
Creditors		(28.8)	(55.1)	(94.4)	(72.4)	(72.4)
Short term borrowings		0.0	0.0	0.0	0.0	0.0
Long Term Liabilities		(226.7)	(307.0)	(375.8)	(375.8)	(375.8)
Long term borrowings		(191.1)	(198.4)	(206.6)	(206.6)	(206.6)
Other long term liabilities		(35.6)	(108.7)	(169.2)	(169.2)	(169.2)
Net Assets		682.5	628.1	691.1	650.6	695.1
<b>CASH FLOW</b>						
Operating Cash Flow		(8.1)	(4.4)	112.2	70.4	126.1
Cash tax paid		0.0	0.0	0.0	0.0	0.0
Capex		(265.7)	(209.9)	(55.4)	(108.9)	(213.8)
Acquisitions/disposals		0.0	0.0	0.0	0.0	0.0
Financing		322.3	163.4	13.1	0.0	0.0
Dividends		0.0	0.0	0.0	0.0	0.0
Net Cash Flow		48.5	(50.9)	69.8	(38.4)	(87.7)
Opening net debt/(cash)		(98.6)	(152.8)	99.5	38.2	73.6
HP finance leases initiated		0.0	0.0	0.0	0.0	0.0
Other		5.7	(201.4)	(8.6)	3.1	0.0
Closing net debt/(cash)		(152.8)	99.5	38.2	73.6	161.3

Source: Hurricane Energy, Edison Investment Research

<p><b>Contact details</b></p> <p>Hurricane Energy The Wharf, Abbey Mill Business Park Godalming GU7 2QN Surrey United Kingdom +44 1483 862 820 www.hurricaneenergy.com</p>	<p><b>Revenue by geography</b></p> 																
<p><b>Management team</b></p>																	
<p><b>Chairman: Steven McTiernan</b></p> <p>Steven McTiernan has over 45 years of oil and gas industry and investment banking experience. He was a non-executive director of Tullow Oil for 11 years until December 2012 and served as its senior independent director. His oil and gas industry experience includes roles at Iraq Petroleum, Amoco, BP and Mesa, and his banking experience includes senior roles leading energy teams at the Chase Manhattan Bank, NatWest Markets and CIBC. He has served as an independent director at First Quantum Minerals and Songa Offshore SE and is chairman of Kenmare Resources. He holds an MA in natural sciences from the University of Cambridge.</p>	<p><b>CEO: Dr Robert Trice</b></p> <p>Dr Robert Trice, Hurricane's founder, 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.</p>																
<p><b>Acting CFO: Richard Chaffe</b></p> <p>Richard Chaffe has been head of finance at Hurricane since 2016 and intrinsically involved in all its finance activities. He was with E&amp;Y for nine years and has been in the oil and gas industry in senior finance roles for more than a decade. At E&amp;Y his role was split between client-facing audit work and working as part of an audit quality team at the London office. He left E&amp;Y in 2009 to become finance manager in the UK subsidiary of EOG Resources. In 2015, he was promoted to finance director, prior to joining Hurricane in 2016 as head of finance. Richard holds a BSc in Physics from Durham University.</p>	<p><b>COO: Neil Platt</b></p> <p>Neil Platt 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 for BG and vice president 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).</p>																
<p><b>Principal shareholders</b></p> <table border="1"> <thead> <tr> <th></th> <th>(%)</th> </tr> </thead> <tbody> <tr> <td>KEROGEN CAPITAL</td> <td>15.99</td> </tr> <tr> <td>Hargreaves Lansdown Asset Management</td> <td>8.18</td> </tr> <tr> <td>Pelham Capital Ltd</td> <td>6.12</td> </tr> <tr> <td>Interactive Investor Trading Ltd</td> <td>5.38</td> </tr> <tr> <td>Alken IM LLP</td> <td>5.28</td> </tr> <tr> <td>Crystal Amber Fund Ltd</td> <td>5.14</td> </tr> <tr> <td>Halifax Share Dealing Ltd</td> <td>3.03</td> </tr> </tbody> </table>			(%)	KEROGEN CAPITAL	15.99	Hargreaves Lansdown Asset Management	8.18	Pelham Capital Ltd	6.12	Interactive Investor Trading Ltd	5.38	Alken IM LLP	5.28	Crystal Amber Fund Ltd	5.14	Halifax Share Dealing Ltd	3.03
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