Hurricane Energy

Adding to the basement portfolio

Licence update/block award

Oil & gas

Hurricane continues to progress farm-out discussions as it seeks to develop its 207mmboe fractured basement Lancaster discovery. In September, Lancaster was awarded oil field status that, together with the subdivision of its licence, should enhance Hurricane's farm-out options. Meanwhile, the award of two further blocks in the 28th Offshore Licensing Round adds the Warwick prospect to the portfolio as well as an extension of the existing Lincoln prospect. Considered to be analogous to Lancaster, these prospects are within tie-back distance of the planned Lancaster Early Production System (EPS) and provide an opportunity for further development of the basement play.

Year end	EBITDA* (£m)	PBT* (£m)	Operating cash flow (£m)	Capex (£m)	Net (debt)/cash (£m)
12/13	(5.2)	(12.0)	(4.4)	(6.9)	14.0
12/14	(8.5)	(9.0)	(4.7)	(36.5)	15.9
12/15e	(6.1)	(6.3)	(4.9)	(5.3)	5.7
12/16e	(6.1)	(6.2)	(6.1)	(7.4)	(7.9)

Note: *EBITDA and PBT are normalised, excluding intangible amortisation, exceptional items and share-based payments.

Focus on delivering Lancaster

Hurricane's priority to deliver first oil from Lancaster was boosted by the granting of oil field status in September, which is seen as a first step towards submitting a field development plan. Meanwhile, the November subdivision of its P1368 licence into four subareas means that the discoveries Lancaster and Whirlwind and the prospects Lincoln and Strathmore each now sit in their own individual subarea. This is expected to bring greater flexibility to the ongoing farm-out process.

Further basement potential

The addition of Blocks 204/30b and 205/26d in July to the portfolio brings the new basement prospect Warwick and additional prospectivity from the extension of the Lincoln prospect to the portfolio. Work on Lincoln is more advanced, with P50 resources assessed as 150mmbbls prior to the extension acquisition, and a drill location has already been identified. Both prospects appear to be as highly faulted as Lancaster on 3D seismic and could be tied back to the Lancaster EPS in case of success. The timing of any drilling here will, however, depend on achieving progress with the Lancaster farm-out.

Valuation: 47p potential RENAV with farm-out

Assuming a farm-out is secured to fund the Lancaster EPS and full field development, we suggest a post farm-out valuation for Hurricane of 47p/share (a modest increase from our previous valuation of 45p/share). This does not include any additional exploration/appraisal potential that we expect to include once drill plans and funding are confirmed.

16 December 2015

Price	**10.38p**
Market cap	**£66m**
	US$1.52/£
Net cash (£m) at 30 June 2015	12.4
Shares in issue	633.1m
Free float	83%
Code	HUR
Primary exchange	AIM
Secondary exchange	N/A

Share price performance

%	1m	3m	12m
Abs	(25.9)	(32.0)	(42.4)
Rel (local)	(25.1)	(30.9)	(42.3)
52-week high/low		19.2p	10.2p

Business description

Hurricane is an E&P focused on UKCS fractured basement exploration. It owns 100% in three licences, including the 207mmboe Lancaster discovery where it drilled an appraised well in 2014. It is currently engaged in a farm-out process to fund an Early Production System (EPS).

Next events

Farm-out	2016
FDP submission	H116
Updated CPR	Following FDP submission
EPS first oil	Late 2018 (Edison assumption)

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Edison profile page

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Company description: Basement prospectivity beyond Lancaster

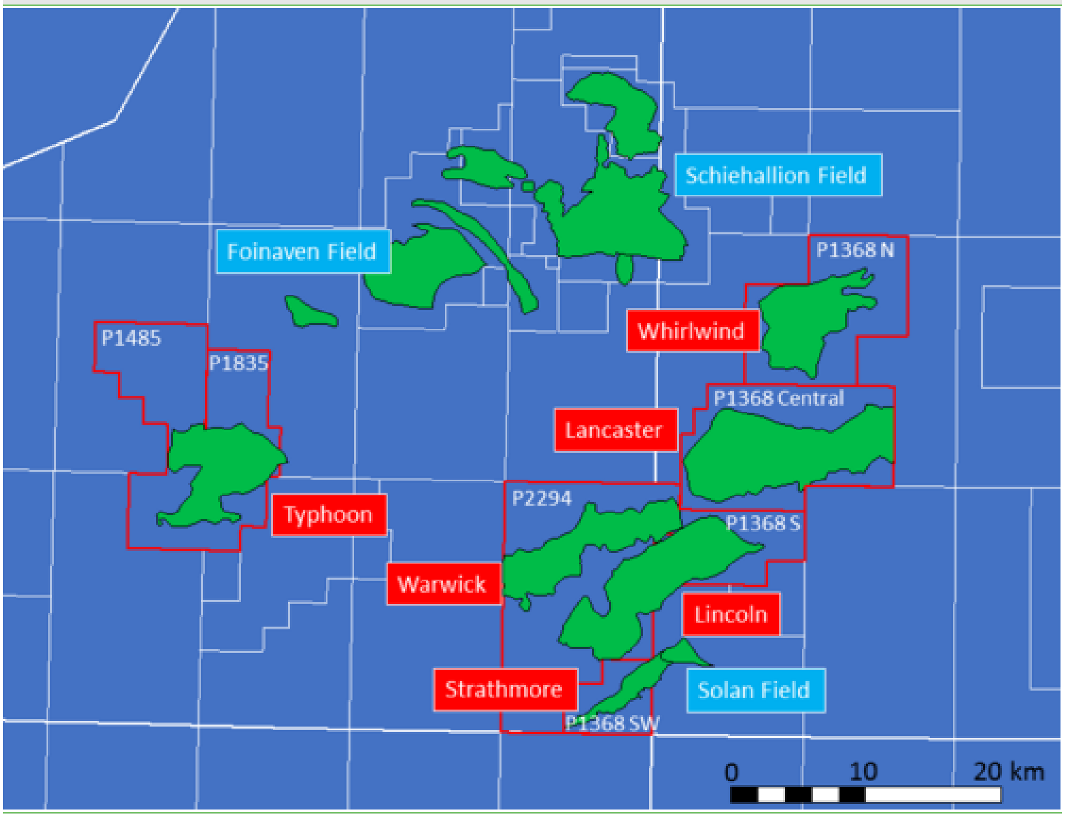
Hurricane is continuing to focus on achieving first oil from its 207mmboe Lancaster field, West of Shetland. The fractured basement field was granted oil field status by the UK Oil and Gas Authority (OGA) in September 2015, representing a first step towards the submission of the Lancaster early production system (EPS) field development plan (FDP). Meanwhile, the recent subdivision of its P1368 licence into four subareas will provide greater flexibility in progressing farm-down options for the field.

However, the award of two further West of Shetland blocks in the 28th Offshore Licensing Round highlights that Hurricane holds material basement prospectivity beyond Lancaster. Here we look in more detail at the nearby analogous prospects Lincoln and Warwick, which sit within tie-back distance of the planned Lancaster EPS. Background information on fractured basement reservoirs and a discussion of Lancaster can be found in our initiation note published in June 2015.

Recent licence changes enhance Hurricane's position

In the 28th Offshore Licensing Round Second Tranche announced in July 2015, Hurricane was awarded two blocks West of Shetland, 204/30b and 205/26d (licence P2294 in Exhibit 1). The blocks contain the western extension of the Lincoln prospect from Block 205/26b/Licence P1368S, together with the Warwick prospect. Both are considered similar to Lancaster and offer relatively low-risk near-field exploration potential, which the company is currently looking to prioritise once the Lancaster EPS is successfully implemented.

Exhibit 1: Hurricane assets map



Source: Hurricane Energy

In addition, the OGA announced in November 2015 that it had approved a subdivision of the original licence P1368 into four subareas:

- P1368 Central: containing the Lancaster basement discovery;
- P1368 North: containing the Whirlwind basement discovery;
- P1368 South: containing the Lincoln basement prospect; and
- P1368 Southwest: containing the Strathmore sandstone discovery.

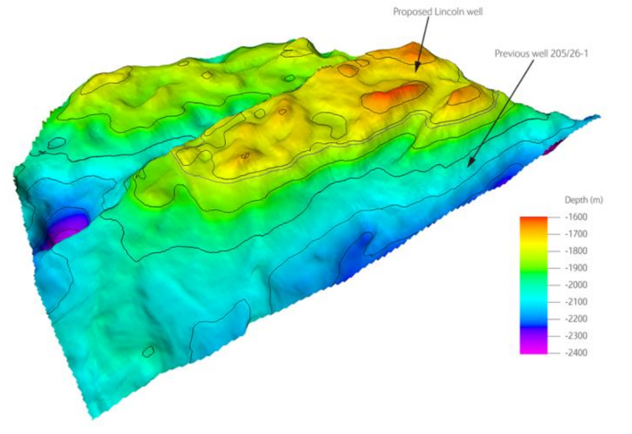
The subdivision will simplify the potential farm out of the assets, since it provides the flexibility to farm down the discoveries and prospects separately as required.

Lincoln: Proven oil down dip

Lincoln is an undrilled prospect sitting around midway between Lancaster to the north-east and the Premier development Solan to the south-west. The reservoir in Lincoln sits 500m deeper than in neighbouring Lancaster, but otherwise appears to be similar with a highly faulted basement reservoir identified on 3D seismic. The prospect is estimated to contain P50 prospective resources of 150mmbbls in Block 205/26b, but is also believed to extend into the recently awarded Block 204/30b, where potential resources have yet to be quantified.

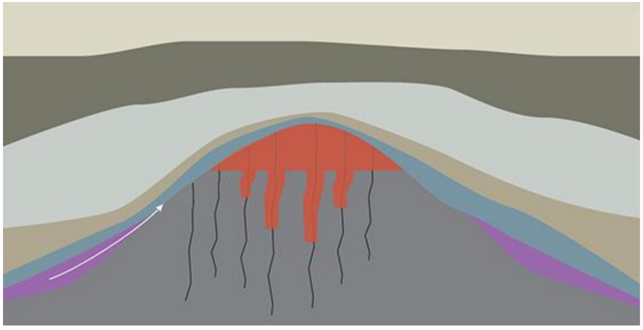
Evidence for the presence of oil in Lincoln comes from the 205/26-1 well drilled by BP in 1975 (Exhibit 2). The well was drilled on the down-dip flank to the south of Lincoln and found oil in the sandstones immediately above the basement and traces of oil in the short section of basement drilled in the well. In addition, oil samples were found in core recovered from 2,078m supporting Hurricane's model of oil below structural closure, assessed in the 2013 CPR as sitting between 1,780m and 1,820m. Oil is possible below structural closure in basement reservoirs as the oil backfills down through the fracture network and cannot then escape through the non-permeable rock. Hurricane calls this the 'jellyfish model' (Exhibit 3).

Exhibit 2: Lincoln 3D model



Source: Hurricane Energy

Exhibit 3: Jellyfish model



Source: Hurricane Energy

Below structural closure, the CPR assumes that oil could extend down to 2,135m. Using these contacts, the 150mmbbls in Lincoln are estimated to be distributed between 66mmbbls within structural closure and 84mmbbls below. The company sees the deliverability of the basement reservoir as the key issue for the prospect. The prospect's proximity to Lancaster suggests that there could be fluid communication between the two, though this would have to be confirmed by drilling.

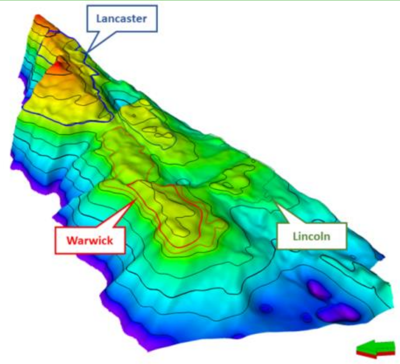
Hurricane is keen to drill an exploration well in Lincoln as early as possible. The company has identified a well location and hopes to drill here based on the results of appraisal drilling at

Lancaster. The OGA has granted a two-year extension to the requirement to drill a well on Lincoln to 31 December 2019.

Warwick: Earlier-stage with work required to assess volumes

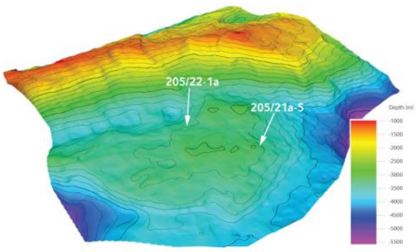
Like Lincoln, Warwick is geologically similar to Lancaster, with significant faulting present based on seismic interpretation. The prospect exhibits a similar topographical relief to Lincoln, and lies closer to the main Faroe-Shetland source kitchen to the north. Sitting in the recently awarded 204/30b and 205/26d blocks, the prospect is at a less advanced stage than Lincoln, and Hurricane is working to map the faults and prepare a volumetric assessment prior to identifying a drill location. The timing of an exploration well here is also aligned with progress on the Lancaster EPS.

Exhibit 4: Warwick 3D map



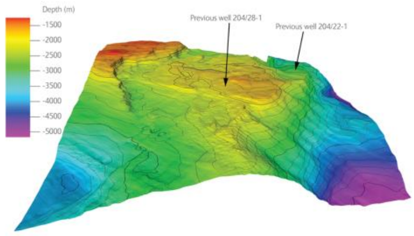
Source: Hurricane Energy

Exhibit 5: Whirlwind discovery



Source: Hurricane Energy

Exhibit 6: Typhoon 3D map



Source: Hurricane Energy

Other prospects/discoveries

Warwick and the Lincoln extension are the latest additions to the Hurricane portfolio, which includes the following additional assets:

- **Whirlwind discovery** (basement): North of Lancaster and structurally similar but considerably deeper (2,000m), Whirlwind was discovered with the 205/21a-5 well in 2010, although a 2011 well test was unable to unequivocally determine whether the reservoir fluid was volatile oil or gas condensate. The well may be re-entered or side-tracked to obtain more representative fluid samples and establish productivity of this field, which is at a higher pressure than Lancaster.
- **Typhoon prospect/Tempest discovery** (basement and sandstone): Typhoon and Tempest are further from Hurricane's other assets and in deeper waters of around 450m. Typhoon (149mmboe P50 prospective resources) is primarily a basement prospect but with significant upside potential if oil is built up deep down the flank of the structure (P10 resources over 1bnbbl). Oil samples recovered from a 1981 204/28-1 well drilled into overlaying sandstone (the Tempest discovery) confirmed heavy oil, although lighter oil was established in down flank wells 204/23-1 and 204/22-1. Hurricane has a well commitment and must have a rig contracted by the end of June 2016; otherwise it will have to relinquish the licence unless an extension is granted.
- **Strathmore discovery** (sandstone): Unlike Hurricane's other basement prospects and discoveries, Strathmore is an undeveloped conventional oil field 20km to the south-west of Lancaster containing 2C resources of 32mmbbls in Triassic aged sandstones. The field could be developed through a tie-back to neighbouring infrastructure, particularly Lancaster.

Valuation: >4x upside from Lancaster if farm-out secured

Pending confirmation of any drilling activity and in keeping with our initiation note, we base our valuation on the Lancaster proposed development that Hurricane is seeking a farm-in partner to help fund. We have adjusted our previous valuation for oil price, retaining a long-term $80/bbl real Brent assumption, but with a reduction in short-term forecasts that drops 2019 (first year of Lancaster production) assumed Brent from $88.3/bbl to $84.6/bbl. From 2020 our oil price assumptions remain unchanged from our initiation note. We continue to apply a 12% discount rate for our NPV calculations.

As Hurricane is seeking to fund Lancaster through a farm-out, we reflect our valuation on a post-farm-out basis. We assume the farm-in partner will seek a minimum return and adjust its carry and retained interest as appropriate; assuming Hurricane needs a full carry we estimate that the farm-in partner will seek a 20% IRR, giving it a 66% interest with Hurricane retaining a 34% interest.

We continue to assume that Hurricane will start its initial Early Production System (EPS) in late 2018, although any significant delays to the ongoing farm-out process over 2016 could delay this. With no changes to schedule and only modest macroeconomic adjustments, our reference case valuation (Exhibit 7) is largely unchanged at 47p/share (previously 45p/share).

Exhibit 7: Hurricane Energy valuation summary – purchased FPSO scenario (reference case)

				Recoverable reserves			Net risked value	Value per share	
Asset	**Country**	**Diluted WI**	**CoS**	**Gross**	**Net**	**NPV/boe**		**Risked**	**Unrisked**
NOSH: 633.1		**%**	**%**	**mmboe**	**mmboe**	**$/boe**	**$m**	**/share (p)**	**/share (p)**
Net (debt)/cash		100	100				9	1	1
SG&A (two years)		100	100				(16)	(2)	(2)
Core NAV							(7)	(1)	(1)
Contingent									
Lancaster EPS – two wells	UK	34	59	31	11	14.0	89	9	16
Lancaster FFD (post-EPS)	UK	34	53	169	58	12.0	367	38	73
RENAV				**200**	**69**		**449**	**47**	**88**

Source: Edison Investment Research, company data. Note: NPV/boe calculations assume a farm-out with full capex carry for Hurricane.

Our reference case assumes a purchased FPSO. This increases to 57p/share in the event that the company leases a FPSO for the development (Exhibit 8).

Exhibit 8: Hurricane Energy valuation summary – leased FPSO scenario

				Recoverable reserves			Net risked value	Value per share	
Asset	**Country**	**Diluted WI**	**CoS**	**Gross**	**Net**	**NPV/boe**		**Risked**	**Unrisked**
NOSH: 633.1		**%**	**%**	**mmboe**	**mmboe**	**$/boe**	**$m**	**/share (p)**	**/share (p)**
Net (debt)/cash		100	100				9	1	1
SG&A (two years)		100	100				(16)	(2)	(2)
Core NAV							**(7)**	**(1)**	**(1)**
Contingent									
Lancaster EPS – two wells	UK	52	59	31	16	14.0	134	14	24
Lancaster FFD (post-EPS)	UK	52	53	169	88	9.1	418	43	83
RENAV				**200**	**104**		**544**	**57**	**106**

Source: Edison Investment Research, company data. Note: NPV/boe calculations assume a farm-out with full capex carry for Hurricane.

For the remaining exploration/appraisal portfolio, we estimate an additional 19p/share could be added to our valuation once Hurricane confirms funding and drilling commitments for these prospects/discoveries (Exhibit 9). However, we stress that these do not form part of our current valuation until wells are funded and planned to be drilled in the next 12-18 months.

Exhibit 9: Hurricane Energy valuation summary – exploration/appraisal portfolio

				Recoverable reserves			Net risked value	Value per share	
Asset	Country	Diluted WI	CoS	Gross	Net	NPV/boe		Risked	Unrisked
		%	%	mmboe	mmboe	$/boe	$m	/share	/share
Discovery – on hold or unclarified									
Whirlwind	UK	100%	13%	192	192	1.7	46	5	35
Strathmore	UK	100%	10%	32	32	1.5	5	0	5
Long-term exploration upside									
Lincoln	UK	100%	7%	150	150	4.4	43	4	68
Tempest/Typhoon	UK	100%	8%	175	175	3.7	51	5	67
Lancaster prospective resources	UK	100%	5%	53	53	6.4	17	2	35
Whirlwind prospective resources	UK	100%	8%	85	85	2.5	18	2	22
Long-term exploration upside NAV					**687**		**180**	**19**	**232**

Source: Edison Investment Research, company data. Note: Lincoln includes conventional and unconventional volumes with a combined GCoS of 13.2%. For Tempest/Typhoon we use the 16% GCoS that applies to the flank prospective resources of 149mmbbls, as 2C contingent resources of 26mmbbls are too small to be developed standalone. For Whirlwind, we show the arithmetic average of the oil case (205mmboe) and the gas/condensate case (179mmboe). NPV/boe calculations include capex. We have not conducted the same quantified farm-out analysis to estimate post farm-out working interests for exploration/appraisal assets.

Once Hurricane completes its initial assessment of the 28th Offshore Licensing Round acreage, this upside valuation will also include the additional volume potential in Block 204/30b (the Lincoln extension) and in Block 205/26d (the Warwick prospect).

Financials: Cash burn suggests funding required end 2016

Hurricane exited H115 with £12.4m of cash, down from £15.9m at end 2014. The reduction, split £1.9m cash from operations, ie cash G&A, and £1.5 capex, is slightly above the £5m pa burn rate we had previously assumed and, assuming this trajectory, would fund the company through to end 2016. We do not believe that the current cash position to be a problem with Lancaster farm-out discussions likely to be at an advanced stage, although this will clearly start to become an issue if such a deal is not secured in H116.

We present our financial forecasts in Exhibit 10. Readers should note that in keeping with our standard research principles, we show Lancaster currently being fully debt funded. In practice, we expect Lancaster to be funded through the ongoing farm-out process so these forecasts should be considered as illustrative only.

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Exhibit 10: Financial summary

£000s	2012	2013	2014	2015e	2016e	2017e
Year-end 31 Dec	IFRS	IFRS	IFRS	IFRS	IFRS	IFRS
PROFIT & LOSS						
Revenue	0	0	0	0	0	0
Operating Expenses	(7,216)	(5,151)	(8,489)	(6,086)	(6,086)	(6,086)
EBITDA	(7,216)	(5,151)	(8,489)	(6,086)	(6,086)	(6,086)
Operating Profit (before amort. and except.)	(7,216)	(5,333)	(8,584)	(6,175)	(6,181)	(6,181)
Exploration expenses	(9)	(534)	0	0	0	0
Exceptionals	0	(8,792)	0	0	0	0
Other	0	0	0	0	0	0
Operating Profit	(7,225)	(14,659)	(8,584)	(6,175)	(6,181)	(6,181)
Net Interest	444	(6,671)	(441)	(98)	13	0
Profit Before Tax (norm)	(6,772)	(12,004)	(9,025)	(6,272)	(6,168)	(6,181)
Profit Before Tax (FRS 3)	(6,781)	(21,330)	(9,025)	(6,272)	(6,168)	(6,181)
Tax	(18)	(23)	19	0	0	0
Profit After Tax (norm)	(6,790)	(12,027)	(9,006)	(6,272)	(6,168)	(6,181)
Profit After Tax (FRS 3)	(6,799)	(21,353)	(9,006)	(6,272)	(6,168)	(6,181)
Average Number of Shares Outstanding (m)	462.8	480.2	621.4	633.1	633.1	633.1
EPS - normalised (p)	(1.5)	(2.5)	(1.4)	(1.0)	(1.0)	(1.0)
EPS - normalised and fully diluted (p)	(1.5)	(2.5)	(1.4)	(1.0)	(1.0)	(1.0)
EPS - (IFRS) (p)	(1.5)	(4.4)	(1.4)	(1.0)	(1.0)	(1.0)
Dividend per share (p)	0.0	0.0	0.0	0.0	0.0	0.0
Gross Margin (%)	N/A	N/A	N/A	N/A	N/A	N/A
EBITDA Margin (%)	N/A	N/A	N/A	N/A	N/A	N/A
Operating Margin (before GW and except.) (%)	N/A	N/A	N/A	N/A	N/A	N/A
BALANCE SHEET						
Fixed Assets	131,207	138,141	177,653	182,711	190,052	203,993
Intangible Assets	131,077	137,681	177,308	182,476	182,476	182,476
Tangible Assets	0	330	215	106	7,446	21,387
Investments	130	130	130	130	130	130
Current Assets	22,780	41,265	17,409	6,766	1,115	1,115
Stocks	0	0	0	0	0	0
Debtors	390	1,098	1,553	1,115	1,115	1,115
Cash	22,390	40,167	15,856	5,651	0	0
Other	0	0	0	0	0	0
Current Liabilities	(810)	(42,709)	(1,487)	(698)	(698)	(698)
Creditors	(810)	(16,564)	(1,487)	(698)	(698)	(698)
Short term borrowings	0	(26,145)	0	0	0	0
Long Term Liabilities	(4,000)	(4,764)	(7,281)	(7,350)	(15,208)	(35,330)
Long term borrowings	0	0	0	0	(7,858)	(27,980)
Other long term liabilities	(4,000)	(4,764)	(7,281)	(7,350)	(7,350)	(7,350)
Net Assets	149,177	131,933	186,294	181,430	175,261	169,080
CASH FLOW						
Operating Cash Flow	(6,307)	(4,424)	(4,677)	(4,899)	(6,073)	(6,086)
Net Interest	0	0	0	0	0	0
Tax	0	0	0	0	0	0
Capex	(33,066)	(6,944)	(36,542)	(5,273)	(7,436)	(14,036)
Acquisitions/disposals	0	0	0	0	0	0
Financing	28,527	3,533	16,783	22	0	0
Dividends	0	0	0	0	0	0
Net Cash Flow	(10,846)	(7,835)	(24,436)	(10,150)	(13,509)	(20,122)
Opening net debt/(cash)	(32,888)	(22,390)	(14,022)	(15,856)	(5,651)	7,858
HP finance leases initiated	0	0	0	0	0	0
Other	348	(533)	26,270	(55)	0	0
Closing net debt/(cash)	(22,390)	(14,022)	(15,856)	(5,651)	7,858	27,980

Source: Edison Investment Research, company data. Note: Assumes no farm-outs, ie Lancaster EPS funded at 100% WI by Hurricane for illustrative purposes.

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