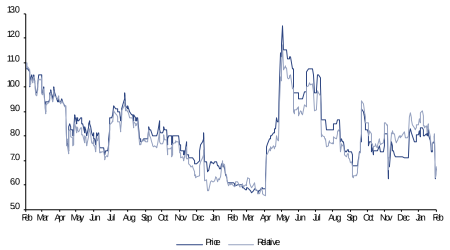
Egdon Resources (AIM:EDR LN)

BUY

Share Price (as at close: 22/02/2019)			**6.7p**
Target Price			20.0p
Upside to TP			201.4%
Market Cap (£'m)			17.3
Net Cash (£'m)			2.8
Enterprise Value (£'m)			14.5
Shares in Issue (m)			260.0
Free Float (%)			20.5%
Average Daily Volume (000, -3m)			206.0
12 month high/low			**12.5 p/5.7p**
(%)	**1m**	**3m**	**12m**
Absolute	-18.4	-9.5	0.0
FTA relative	-22.0	-11.9	-0.9

Price & price relative (-2 year)



Source: Datastream

Next News

Springs Road-1 well

Business

Egdon is a UK-focused, oil & gas exploration and production company.

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Tuning out the noise

Despite operational challenges, false starts and a great deal of political manoeuvring, there have been plenty of positives for UK shale in recent months. Egdon's Springs Road well is still underway, but is shaping up to be a potential play-opener, which could prove transformational and easily reverse the impact of the disappointing Biscathorpe exploration well last week. We maintain our BUY recommendation and 20p target price.

Shale operations proving challenging, but plenty of positives so far

The UK's fledgling shale gas industry has had a mixed couple of months. Cuadrilla reported that it had only managed to fully pump two of the planned 41 frack stages at its Preston New Road site in Lancashire, blaming the current 0.5 seismicity limit for its inability to complete more stages. Testing still proved positive, however, with the well achieving peak and stable rates of 200mcfd and 100mcfd, which it said could be scaled up to 3-8mmcfd for a full 2.5km lateral. CEO Francis Egan stated that the Bowland was "typical of an excellent [US] shale gas reservoir". The company subsequently added its voice to calls for the threshold to be raised, with peer Ineos going as far as to accuse the government of "playing politics" with the UK's future.

Gainsborough off to a false start, but Springs Road looks to be the play-opener

Partner IGas initially announced in December that its Tinker Lane-1 well (in which EDR holds no interest) had failed to find the primary target Bowland shales, having been drilled as a delineation well on the edge of the basin. While disappointing, the well did encounter a shale interval in the Millstone Grit Group, and the company noted last week that preliminary tests on samples had proven encouraging for this play across the Gainsborough Trough. The second well in the programme at Springs Road (EDR 14.5%, carried), which is located in the centre of the basin and was spudded last month, has already successfully encountered shales, including the Bowland, with results pending.

Biscathorpe proves disappointing, Wressle wrangling still going

Egdon last week announced that the Biscathorpe-2 exploration well on PEDL253 in Lincolnshire encountered poorly-developed Basal Westphalian reservoir, with the secondary target shallower sequences found to be water wet. On a more positive note, hydrocarbon shows in the Dinantian Carbonate did indicate the presence of a working petroleum system. The well is being suspended, with the potential to drill a future sidetrack (subject to new planning consents) once the results have been interpreted and the geological model updated. At Wressle, extension of the existing planning consent for the site (until January 2020) will allow the appeal against November's refusal of the new development application (despite the recommendation for approval by North Lincolnshire Council's own Planning Officer) to be heard later this year.

Valuation could more than recover from last week's beating

We believe the coming weeks could finally see Egdon's share price re-rated and some of the potential in the portfolio realised. While the political drama over UK shale is unlikely to be addressed in the near-term given the larger fish currently occupying Whitehall, Springs Road could well be the play-opening well for the East Midlands in terms of the Bowland, and the potential in the Millstone Grit will also attract interest. We maintain our BUY recommendation and our 20p target price.

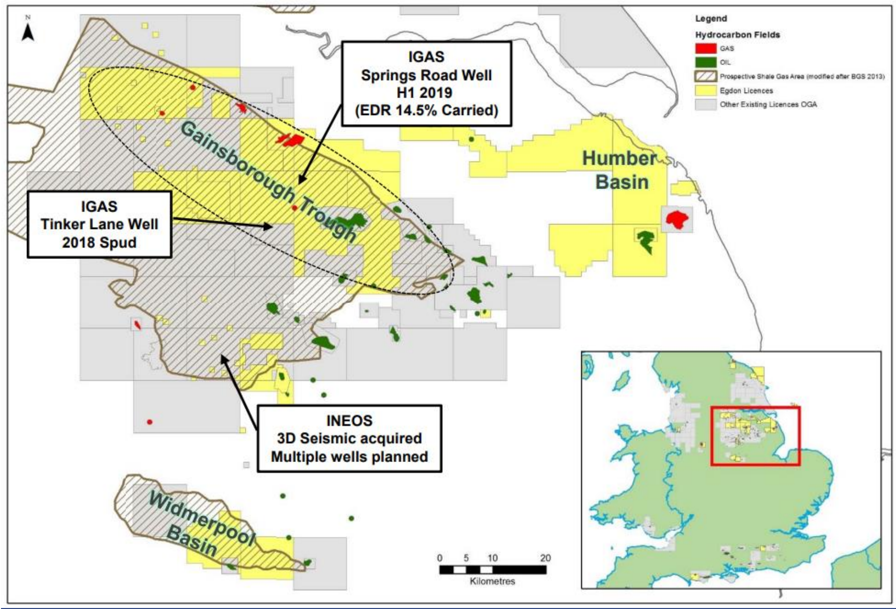
UK Shale

A busy, if mixed few months

Shale gas development in the UK continues to be a contentious issue, with the main political parties (and their supporters) maintaining opposing views on the net benefits of extraction and progress slowed significantly as a result. However, with mitigation measures recently put in place and (apparent) government belief that a thriving shale industry could deliver significant benefits to the UK in terms of employment, energy security and a gradual transition to renewable energy, activity is finally on the rise.

The last few months, in particular, have seen a step-change in operations. At Preston New Road in Lancashire, Cuadrilla reported that it had only managed to fully pump two of the planned 41 frack stages on its horizontal well, blaming the current 0.5 magnitude seismicity limit for its inability to complete more stages. Testing still proved positive, however, with the well achieving peak and stable rates of 200mcfd and 100mcfd, which it said could be scaled up to 3-8mmcfd were all stages completed. CEO Francis Egan stated that the Bowland was “typical of an excellent [US] shale gas reservoir”. The company subsequently added its voice to calls for the threshold to be raised, with peer Ineos going as far as to accuse the government of “playing politics” with the UK’s future.

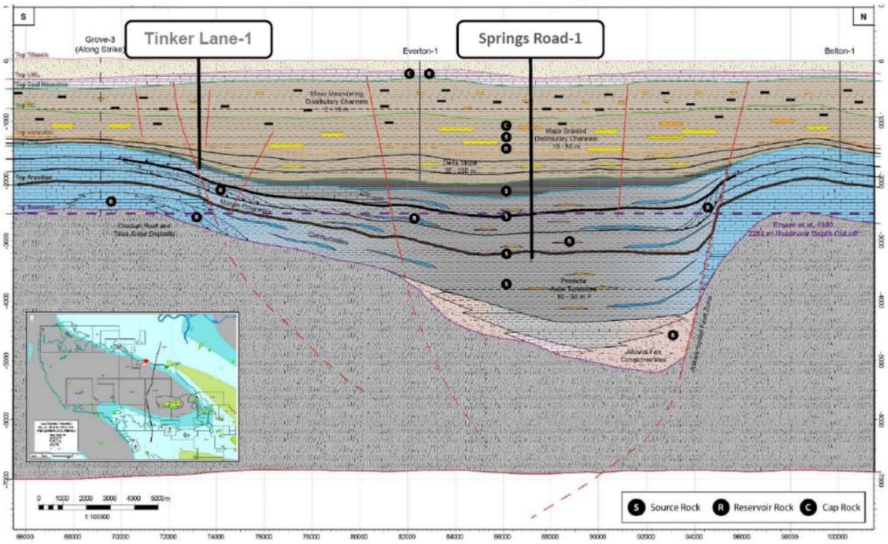
Recent Gainsborough Trough activity



Source: Company data

IGas initially announced in December that its Tinker Lane-1 well in the Gainsborough Trough had failed to find the primary target Bowland shales, having been drilled as a delineation well on the edge of the basin. While disappointing, the well did encounter a shale interval in the Millstone Grit Group, and the company noted last week that preliminary tests on samples had proven encouraging for this play across the Gainsborough Trough.

Geological cross-section across the Gasinborough Trough



Source: Company data

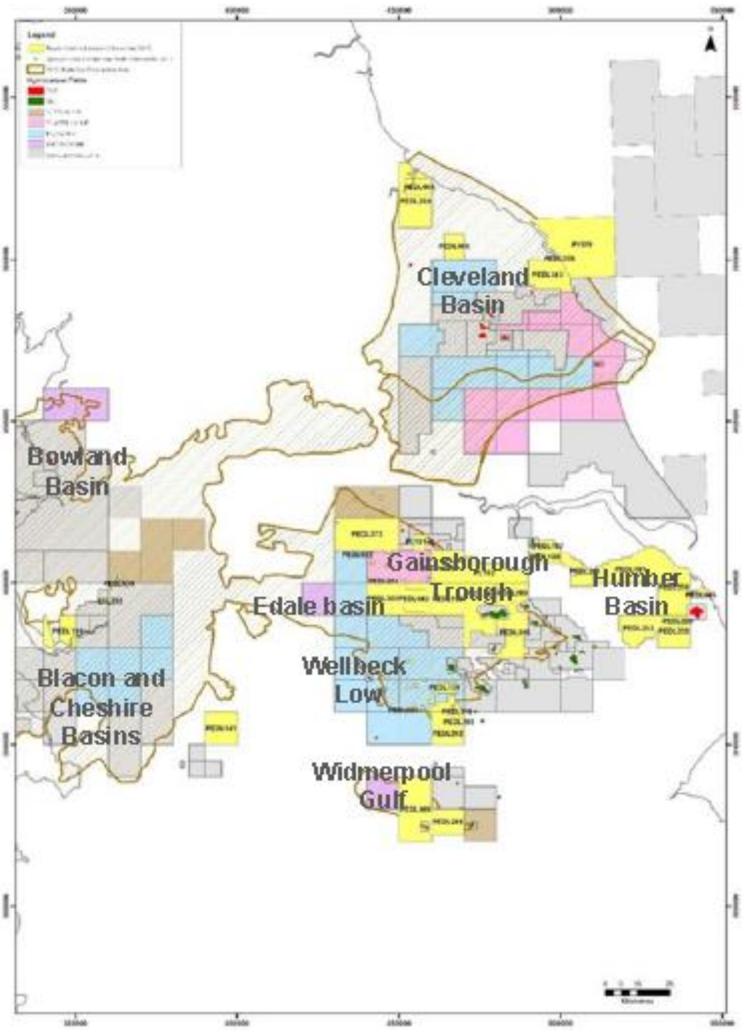
The second well in the programme at Springs Road (EDR 14.5%, carried), which is located in the centre of the basin and was spudded last month, has already successfully encountered shales, including the Bowland, with results pending. It is worth noting that Egdon and partner IGas believe that the lower stress environment across their acreage (to the east of the Pennines), is likely to result in less seismic activity during fracking operations than that seen during Cuadrilla's operations in Lancashire. However, whether this proves to be sufficiently low to avoid hitting the current threshold remains to be seen.

The Bowland shale – what is it and how big is it?

Thick, organic-rich Carboniferous shales extend across Europe from Poland, through The Netherlands and the Southern North Sea to the Irish Seat. This Namurian basin is present onshore in the UK in several sub-basins in Northern England and Southern Scotland, and historically has been the source rock of many conventional fields. The key stratigraphic interval is the Bowland-Hodder shale, which extends across a large area of central Britain and is of Visean to early Namurian in age. The gas-bearing shale section is up to 6,000ft and may be significantly naturally fractured.

The Bowland-Hodder consists of the Upper Bowland shale, Lower Bowland shale and Hodder Mudstone horizons. The Upper Bowland consists of laterally continuous, organic-rich zones dominated by clastic deposits with occasional thin sandstones and dolomitized limestones. The Lower Bowland is much thicker and has more variable lithology, but has been less explored to date.

Bowland shale - sub-basins



Source: Company data

While exploration remains at an early stage, early signs have been positive, with drilling to date showing the shale is thermally mature for gas. The total organic content (TOC) varies, with a range of 1-7% in the intervals cored. The Bowland is thicker but occasionally more intensely structured than the shale plays of North America, which makes gas recovery and well type curves a key uncertainty, alongside the level of overpressure. Numerous studies have been conducted to quantify gas resources, with a 2013 report by BGS/DECC assigning 264tcf to the Upper Bowland and 1065tcf to the lower unit. Despite the operational challenges encountered by Cuadrilla at Preston New Road, the company has noted that the flowrates achieved by a minimal number of frack stages could be scaled up to commercial levels. CEO Francis Egan stated that the shale was "typical of an excellent [US] shale gas reservoir".

Historical activity

Activity to date has focused on the Bowland sub-basin in Lancashire, one of the largest in the area, and specifically on Cuadrilla's 1,200km^2 PEDL 165. The licence was acquired by Cuadrilla in 2008, and included several historical wells, one of which - Thistleton-1 – had been drilled into the Lower Bowland shale. Across 2010 and 2011 the company drilled three vertical shale gas exploration wells: Preese Hall-1, Grange Hill-1Z and Becconsall-1. Preese Hall was the first and only well to produce gas from shale in the UK to date, and provided proof of concept that the Bowland could be successfully fractured. The other two wells were cored, while a fourth (Anna's Road-1) was abandoned due to drilling issues. The wells encountered sections up to 3,500ft (at Grange Hill), but found a variance of 20-30% over relatively short distances (three to four miles) compared to the uniform shales in the US. It is worth noting that the shales in the Gainsborough Trough being targeted by Egdon are expected to be much more homogeneous and less structured than those to the west of the Pennines.

Preese Hall-1 was drilled to 9,100ft, encountering a total net thickness of 2,411ft of shale, with five zones (from 12) each fracked with a sand/water slurry, and separated by bridge plugs. Initial flowrates from the first three comingled stimulations were reported at 400-500mcfd, notably from relatively small fracs in a vertical well. However, two seismic events were observed after the second and fourth treatment stages, with the programme subsequently curtailed. An 18 month moratorium was put in place while the cause of this was investigated, with the tremors (at a magnitude of 2.3ML and 1.5ML) seen as relatively large and unusual compared to those occasionally witnessed in the US.

The report concluded that the most likely cause of the seismicity was the direct injection of fluid into the same fault zone, and estimated that the worst case maximum seismic event magnitude would be 3ML - considered too small to cause structural damage at surface level (comparable to a passing truck and below the 4ML level permitted to be induced by coal mining in the UK). The study also found that fracture fluid would not leak into the shallow aquifer system, due to the presence of the thick impermeable Bowland Shale and overlying Permian anhydrites.

A new regulatory regime was then implemented by DECC in December 2012, incorporating the recommendations and results of a government-commissioned report from The Royal Society and the Royal Academy of Engineering, as well as the Cuadrilla study. This includes the requirement for seismic monitoring of each well site area, using a so-called “traffic light” system and the halting of operations if seismicity reaches a level greater than 0.5ML (well below Cuadrilla’s suggested threshold of 1.7ML).

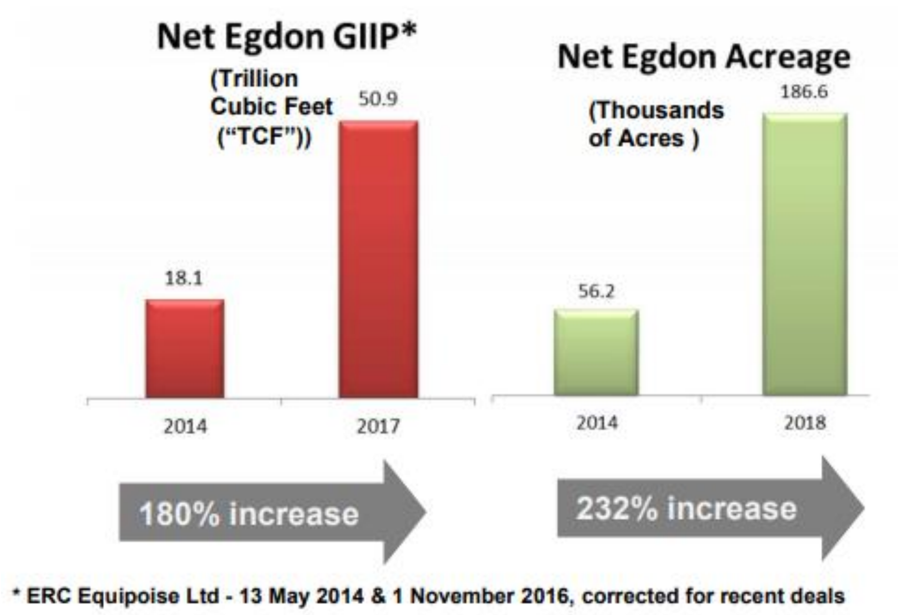
With the new regime in place, Cuadrilla returned to operations in the Bowland, with a view to proving that lateral wells can be drilled and fracked, potentially allowing multi-well pads to minimise surface impact and costs. Furthermore, the thicker shale intervals in the Bowland could allow drilling into different stratigraphic intervals from a single pad. Having gained planning permission for up to four horizontal wells at its Preston New Road location in the Fylde, Lancashire, with an initial two wells planned. Vertical drilling was completed in January 2018 through the Upper and Lower Bowland with several zones cored and logged, and excellent rock quality and gas saturations reported. This data was used to position the 800m horizontal well which was tested in January, despite the seismicity limit meaning only two of the planned 41 frack stages could be completed as planned.

Elsewhere, Third Energy is planning to fracture and test the Kirby Misperton-8 well in North Yorkshire later this year, and INEOS and IGas have begun drilling in the East Midlands, with Tinker Lane and Spring’s Road (where Egdon is a partner) in the Gainsborough Trough.

What is Egdon’s position?

Via licensing and acquisitions, including that of Alkane Energy in 2014, Egdon has built a net unconventional acreage position of over 187,000 acres, containing an estimated GIIP of 51tcf.

Growth of unconventional exposure



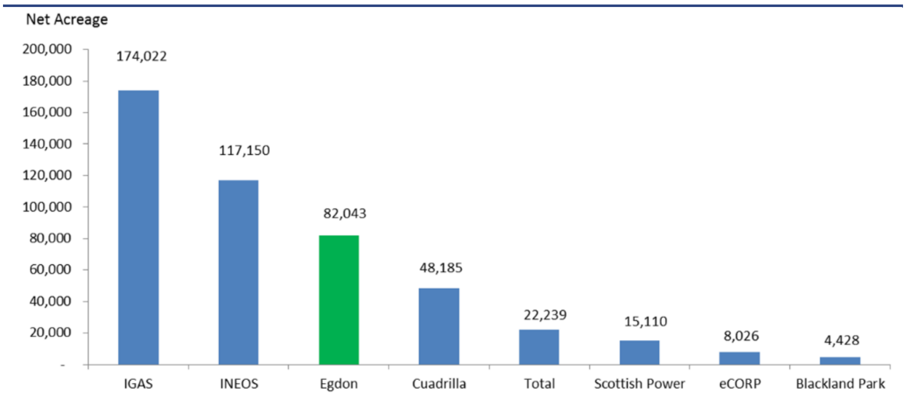
Source: Company data

The company's licences are spread across four of the key Bowland sub-basins:

- Gainsborough Trough/Wellbeck Low
- Cleveland Basin
- Humber Basin
- Widmerpool Gulf

Of its acreage, c160,000 acres is located in the East Midlands, with the Gainsborough Trough, where the company is the third largest net acreage holder, a core area. It is here that operator IGas is currently drilling a potentially play-opening exploration well, at the Springs Road site on PEDLs 139/140 in North Nottinghamshire.

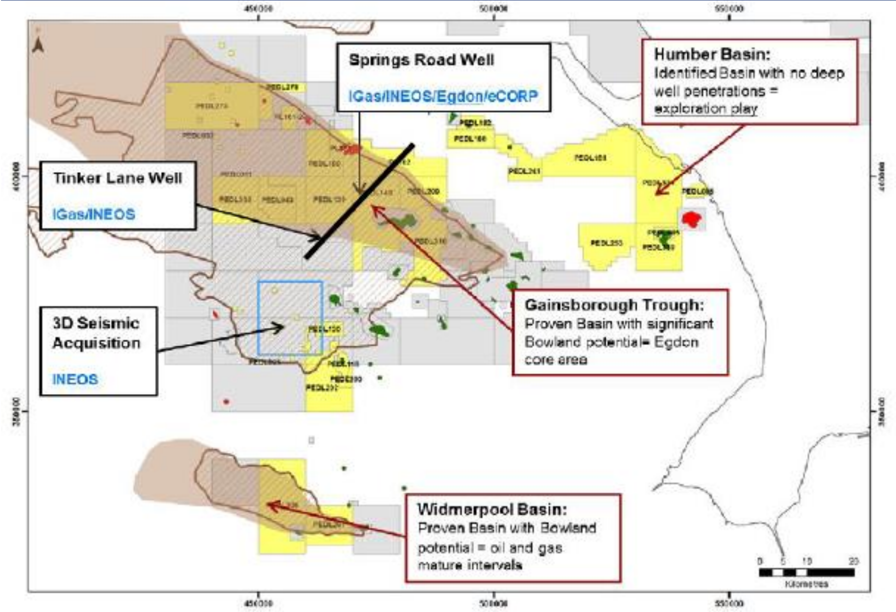
Gainsborough Trough acreage holders



Source: Company data

The company's East Midland acreage is shown below.

Egdon's East Midlands acreage



Source: Company data

The Springs Road-1 well (EDR 14.5%), for which Egdon is fully carried by partner INEOS, is being drilled vertically to c3,500m and will test the Upper Bowland-Hodder and deeper Lower Bowland-Hodder, as well as secondary Carboniferous tight sandstones. It will also determine the landing depth for the subsequent Springs Road-2 lateral well.

Springs Road well site

Source: IGas

While the early stage nature of the Bowland shale makes resources quantification and valuation difficult at this juncture (we have opted to use transaction multiples in constructing our target price), in our view a successful well at Springs Road (and in the third party activity currently underway elsewhere) could go some way to unlocking the nascent value in Egdon's portfolio.

Valuation and recommendation

Following the Biscathorpe well last week we removed the prospect from our valuation, reducing our target price to 20p (from 24p). We continue to construct our target price using a combination of our Core NAV (producing assets, net cash and other corporate items), shale valuation and the near-term work programme, as shown below. We maintain our BUY recommendation.

SotP target price

Target Price	£m	p
Core NAV	3.2	1.0
Wressle	2.4	0.7
North Kelsey	10.0	3.0
Shale acreage @ 30%	40.1	15.4
Total	55.7	20.0

Source: CFE Research estimates

While we might typically set this at parity to our Tangible NAV or full RENAV, in our view this is more representative of what investors might take into account over the coming year. This implies upside of c200%, despite our conservative risking of Egdon's shale acreage, and omission of significant additional assets including the Resolution field, which we view as indicative of the value inherent in the company's portfolio.

We continue to believe that Egdon provides significant exposure to the long-awaited UK shale gas revolution, with a valuation underpinned by existing production and near-term development, and near-term conventional exploration catalysts which are exciting in their own right.

Valuation methodology

We value Egdon using a combination of a discounted cash flow (DCF) analysis of the company's producing assets and corporate items (including cash, the discounted effect of tax losses, G&A costs etc), which makes up our CNAV. The company's remaining development and appraisal assets are included within our TNAV on a risked basis and are valued via a combination of a DCF approach (for near and mid-term development) and indicative per barrel metrics. Our wider Risked Net Asset Valuation (RENAV) incorporates the upside associated with risked prospective resources (usually within a defined exploration programme).

We incorporate the following assumptions into our model:

Valuation assumptions

Metric	**Assumption**
Discount rate	10.00%
Long-term F/X rate ($/£)	1.30
Shares in issue (m)	259.98
Brent pricing	2019: $60/bbl, 2020+: $62/bbl
NBP gas pricing	$6/mcf
Inflation	2.00%

Source: CFE Research estimates

Our full RENAV table is shown below:

RENAV table

Country	Field	WI	CoS	Total		Risked NAV			Unrisked NAV	
		(%)	(%)	(mmboe)	($m)	($/boe)	(p)	($m)	($/boe)	(p)
UK	Keddington	45.0%	100%	0.1	0.4	6.7	0.1	0.4	6.7	0.1
UK	Ceres	10.0%	100%	0.2	1.9	9.0	0.6	1.9	9.0	0.6
UK	Fiskerton Airfield	80.0%	100%	0.1	0.5	9.6	0.1	0.5	9.6	0.1
Developed Reserves				**0.3**	**2.8**	**8.6**	**0.8**	**2.8**	**8.6**	**0.8**
Net (debt)/cash			100%		3.6		1.1	3.6		1.1
Acquisition costs			100%		(0.5)		(0.2)	(0.5)		(0.2)
Post-tax E&A spend			100%		(3.3)		(1.0)	(3.3)		(1.0)
Tax losses (discounted)			100%		4.0		1.2	4.0		1.2
G&A (3 years)			100%		(3.4)		(1.0)	(3.4)		(1.0)
Corporate					**0.4**		**0.1**	**0.4**		**0.1**
Core NAV (CNAV)				**0.3**	**3.2**	**9.8**	**1.0**	**3.2**	**9.8**	**1.0**
UK	Wressle	30.0%	70%	0.2	2.4	13.4	0.7	3.5	19.2	1.0
UK	Wressle - Penistone Flags	30.0%	50%	0.4	6.5	14.7	1.9	13.0	29.5	3.8
UK	Resolution*	15.0%	35%	8.6	21.1	2.5	6.3	60.4	7.0	17.9
Undeveloped Resources				**9.2**	**30.1**	**3.3**	**8.9**	**76.9**	**8.3**	**22.7**
Tangible NAV (TNAV)				**9.6**	**33.3**	**3.5**	**9.9**	**80.1**	**8.4**	**23.7**
UK	Holmwood	18.4%	45%	1.1	4.1	3.6	1.2	9.1	8.0	2.7
UK	Holmwood KL	18.4%	35%	1.1	3.0	2.8	0.9	8.6	8.0	2.6
UK	North Kelsey	80.0%	24%	5.2	10.0	1.9	3.0	41.6	8.0	12.3
Defined Exploration				**12.4**	**33.1**	**2.7**	**9.8**	**99.4**	**8.0**	**29.4**
Risked Exploration NAV (RENAV)				**22.0**	**66.5**	**3.0**	**19.7**	**179.5**	**8.2**	**53.1**

Source: CFE Research estimates

* Assumes farm down from 100% WI

** Paying 22.53% of well cost

Risks

Risks include volatility in commodity prices, and those associated with oil & gas operations. Operational risks lie in reservoir uncertainty, plant and machinery issues, development delays and planning. Rising operational cost pressure may impact longer term profitability along with generic company risks including the unexpected departure of key management and senior personnel.

Financial model

Income Statement (£'m)

Year end Jul (£m)	2017A	2018A	2019E	2020E	2021E
Revenue	1.0	1.0	2.1	4.0	4.2
Cost of sales	(1.4)	(1.4)	(1.4)	(2.3)	(2.4)
Gross profit	(0.3)	(0.4)	0.8	1.7	1.8
Exploration write-off	(0.0)	(1.0)	(0.4)	(0.3)	-
Impairments	(0.2)	0.6	-	-	-
Other	0.1	(0.1)	-	-	-
G&A	(1.2)	(1.1)	(1.0)	(1.1)	(1.1)
Operating profit	(1.7)	(1.9)	(0.7)	0.3	0.7
Other	-	-	-	-	-
Exceptionals	-	-	-	-	-
Net interest	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)
Profit before tax	(1.7)	(2.0)	(0.7)	0.3	0.6
Tax	-	-	-	-	-
FX	-	-	-	-	-
Minority interests	-	-	-	-	-
Net income	(1.7)	(2.0)	(0.7)	0.3	0.6
EPS (f.dil, p)	(0.7)	(0.8)	(0.3)	0.1	0.2

Source: Company data, CFE Research estimates

Cashflow Statement (£'m)

Year end Jul (£m)	2017A	2018A	2019E	2020E	2021E
Profit before tax	(1.7)	(2.0)	(0.7)	0.3	0.6
Impairments	-	-	-	-	-
DD&A	0.5	(0.3)	0.3	1.0	1.2
Exploration write-off	0.2	1.0	0.4	0.3	-
Other non-cash	0.1	0.2	-	-	-
Working capital	0.6	(0.6)	-	-	-
Tax	-	-	-	-	-
Cashflow from operations	(0.4)	(1.6)	0.0	1.6	1.8
Capex	(1.1)	(1.8)	(2.6)	(1.4)	(0.1)
Acquisitions/divestments	-	0.1	-	(0.4)	-
Other	0.0	0.0	-	-	-
Cashflow from investments	(1.0)	(1.7)	(2.6)	(1.8)	(0.1)
Issue/(repurchase) of equity	5.1	-	-	-	-
Issue/(reduction) of debt	(0.2)	-	-	-	-
Dividends paid	-	-	-	-	-
Other	-	-	-	-	-
Cashflow from financing	4.9	-	-	-	-
FX	(0.0)	0.0	-	-	-
Increase/(decrease) in cash	3.4	(3.3)	(2.5)	(0.2)	1.7

Source: Company data, CFE Research estimates

Balance Sheet (£'m)

Year end Jul (£m)	2017A	2018A	2019E	2020E	2021E
Intangibles	19.2	19.6	20.7	21.4	21.4
PP&E	9.3	10.5	11.2	11.0	9.9
Other	-	-	-	-	-
Non-current assets	28.5	30.1	31.9	32.3	31.3
Inventories	-	0.0	0.0	0.0	0.0
Receivables	1.6	1.2	1.2	1.2	1.2
Tax receivable	-	-	-	-	-
Cash and equivalents	6.1	2.8	0.3	0.1	1.8
Other	-	-	-	-	-
Total assets	36.1	34.1	33.4	33.7	34.3
ST debt	-	-	-	-	-
Payables	1.2	1.2	1.2	1.2	1.2
Tax payable	-	-	-	-	-
Other	-	-	(3.0)	(2.0)	(1.0)
Current liabilities	1.2	1.2	(1.8)	(0.8)	0.2
LT debt	-	-	-	-	-
Deferred tax	-	-	-	-	-
Provisions	2.2	2.2	2.4	2.5	2.6
Other		-	-	-	-
Total liabilities	3.4	3.4	0.5	1.6	2.8
Net assets	32.7	30.7	32.9	32.1	31.6
Net debt/(cash)	(6.1)	(2.8)	(0.3)	(0.1)	(1.8)

Source: Company data, CFE Research estimates

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