HHR reaches agreement with Shell for the Phase 1 gas offtake engineering study

HHR announced it has entered into an agreement with Shell UK to undertake an Engineering Study for the tie-in of HHR's Phase I gas field development to Shell's infrastructure. The agreement will provide a basis of design and cost estimate for the tie-in of facilities through Shell's infrastructure detailing the required brownfield modifications as part of the gas offtake route for Phase 1.

Targeting FID by end 1H CY2023

HHR will now move into the front end, engineering and design (FEED) for Phase 1, expected to commence in the coming months. Once completed, HHR will then be in a position to submit its final development plan (FDP) to the UK Government for approval. Once approved, a final investment decision (FID) is targeted to be made by the end of 1H CY 2023. **HHR continues to target first gas from the Phase 1 development by the end of CY 2024**.

Additionally, given the recent announcement, and with a 2P reserve in place of 302 Bcf, HHR are now in a strong position to progress discussions on farm outs, gas sales agreements together with preparations for project financing of the Phase 1 development. **We would expect to see HHR divest a stake in the Phase 1 development in early CY 2023**.

Oversubscribed capital raise completed

HHR has successfully raised $11.5m (pre-raising costs) at $0.0275 per share to fund the progression of the Phase 1 development and for working capital purposes. Given we forecast HHR will divest a percentage of the Phase 1 development in early CY 2023, we believe HHR is unlikely to need to issue any new equity capital in the medium term. **We note Directors subscribed to $500,000 of shares as part of the capital raise process**.

Alternative Investment Market (AIM) listing

Given the level of interest shown in the capital raise from a number of UK investors and funds, HHR intends to explore the merits of a dual listing of HHR on the AIM market of the LSE. **Given the listed UK comparables of HHR trade at multiples of higher than US$10/2P reserve (boe) (HHR ~US$1.1/boe), we believe there would be significant interest from UK based investors.**

300% upside to our valuation

We have raised our valuation for HHR from $0.135 to $0.146, reflecting an increase in our assumed gas sales price from £0.50/therm to £0.60/therm in our Phase 1 development valuation. (See report for detail on valuation and forecast risks).

If we run our Phase 1 development valuation at a higher assumed gas sales price of 70 pence/therm (spot price £640 pence/therm), our **Phase 1 development valuation lifts from A$0.148 to A$0.187 and our blended valuation lifts from $0.146 to $0.166.**

We note that our valuation pays no recognition to the 139 Bcf of 2C gas resource in the Phase 2 development plan, or the 344 Bcf of un-risked 2U prospective resource in the Phase 3 development plan.

HARTSHEAD RESOURCES

Hartshead Resources (HHR) is the 100% owner and operator of Seaward Production License P2607 which is comprised of five blocks in Quads 48 and 49 on the United Kingdom Continental Shelf, in the Southern Gas Basin. The License contains multiple gas fields, some of which have been only partially developed. There are also several exploration prospects.

See our initiation "A responsible and safe European energy business in the making"

Stock	HHR.ASX
Price	A$0.037
Market cap	A$84m
Valuation	A$0.146 (Up from $0.135)

Company data	
Net cash (August 2022) Proforma	$11.8m
Shares on issue	2,273m

Next news	
Early 2023	Phase 1 partial divestment completed
2023	Pre-FID valuation confirmed
2023	Phase 1 FEED completed
2023	Phase 1 FDP approval
2023	Phase 1 Final Investment Decision

HHR Share Price (A$)

Source: FactSet

David Fraser
david.fraser@mstaccess.com.au

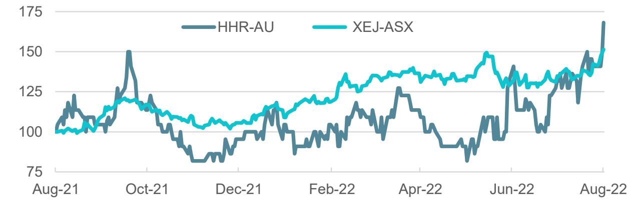
Figure 1 - Financial data table

Hartshead Resources — **HHR-AU**

Year end 30 June

MARKET DATA	A$		
Price	**A$**		**0.037**
52 week high / low	A$	0.037	0.018
Valuation	**A$**		**0.146**
Market capitalisation	**A$m**		**84.1**
Shares on issue (basic)	m		2,273.0
Options & perfomance shares	m		129.5
Potential diluted shares on issue	**m**		**2,403**

12 month relative performance versus S&P/ASX 200 Energy Index



INVESTMENT FUNDAMENTALS		FY21	FY22	FY23E	FY24E
EPS Underlying	¢	(1)	(0.2)	(0.5)	(0.6)
EPS Reported	**¢**	**(0.6)**	**(0.2)**	**(0.5)**	**(0.6)**
P/E Underlying	x	n/m	n/m	n/m	n/m
P/E Reported	**x**	**n/m**	**n/m**	**n/m**	**n/m**
Dividend	**A¢**	**0.0**	**0.0**	**0.0**	**0.0**
Payout ratio	%	0%	0%	0%	0%
Yield (Y/E/ spot)	**%**	**0.0**	**0.0**	**0.0**	**0.0**
Free cash flow	**$m**	**(1)**	**(4)**	**(12)**	**(15)**
Free cash flow per share	¢	(0)	(0)	(0)	(1)
Price to free cash flow	x	n/m	n/m	n/m	n/m
Year end share price / Spot	**A$**	**0.016**	**0.037**	**0.037**	**0.037**
Year end shares	m	1,850	2,273	2,711	2,711
Potential Diluted shares	m	1,850	2,397	2,835	2,835
Market cap (Y/E / Spot)	**$m**	**30**	**84**	**100**	**100**
Net debt /(cash)	$m	(7)	(3)	(2)	(2)
Enterprise value	**$m**	**23**	**82**	**99**	**99**
EV/EBITDAX	x	n/m	n/m	n/m	n/m
Net debt / Enterprise Value	**x**	**(0.3)**	**(0.0)**	**(0.0)**	**(0.0)**

Contingent and Prospective Resources (Bcf) *NB: Excludes condensate*

Phase 1	**License**	**1P**	**2P**	**3P**
Anning	49/17b	73	145	245
Somerville	49/17b	107	157	213
Combined	**49/17b**	**180**	**302**	**458**
Phase 2	**License**	**1C**	**2C**	**3C**
Lovelace	49/6c, 49/1	14	39	70
Hodgkin	48/15c	35	100	387
Combined			**139**	
Phase 3	**License**	**1U**	**2U**	**3U**
Exploration Prospects	49/17b	143	344	719
Total 2P, 2C plus 2U			**784.5**	

Valuation based on North Sea recent M&A tranction multiples		Base case	
M&A Transaction multiple (US$/boe)	3.00	5.50	7.50
Phase 1 2P contingent resources (MMboe)	52.0	52.0	52.0
Exit value (US$m) (FY24)	156	286	390
A$m	225	412	562
A$ per share (FY24)	$0.09	$0.17	$0.23
A$ per share (Today)	**$0.08**	**$0.14**	**$0.20**

Valuation based on Phase 1 project (First Gas in FY25)	
Cash flows (Project Value) (£m)	715
Less project net debt (£m)	(216)
Project equity value FY24 (£m)	**499**
Sell down	50%
HHR share of project equity post farm-out (£m)	250
Equity value per share FY24 (£)	0.10
Equity value per share FY24 (A$)	**0.18**
Cost of equity (Ke)	10%
Discounted back to today (A$)	**$0.15**

PROFIT AND LOSS (A$m)		FY21	FY22	FY23E	FY24E
Sales	**$m**	**0**	**0**	**0**	**0**
Operating costs	$m	(5)	(3)	(4)	(5)
EBITDAX	**$m**	**(5)**	**(3)**	**(4)**	**(5)**
Exploration & development	$m	(1)	(1)	(9)	(10)
EBITDA	**$m**	**(6)**	**(5)**	**(13)**	**(15)**
Depreciation & amortisation	$m	(0)	(0)	(0)	(0)
EBIT	$m	(6)	(5)	(13)	(15)
Net interest	$m	0	0	0	0
PBT pre impairments / unusual	**$m**	**(6)**	**(5)**	**(13)**	**(15)**
Impairments	$m	0	0	0	0
Pretax Profit	$m	(6)	(5)	(13)	(15)
Tax expense	$m	0	0	0	0
NPAT	**$m**	**(6)**	**(5)**	**(13)**	**(15)**
Minority interests	$m	0	0	0	0
Reported NPAT	**$m**	**(6)**	**(5)**	**(13)**	**(15)**

BALANCE SHEET (A$m)		FY21	FY22	FY23E	FY24E
Cash	$m	7	3	2	2
Receivables	$m	0	0	0	0
Other	$m	0	0	0	0
Current assets	**$m**	**7**	**3**	**2**	**2**
Plant and equipment	$m	0	0	0	0
Exploration and evaluation assets	$m	0	0	0	0
Associates	$m	0	0	0	0
Other	$m	0	0	0	0
Non current assets	**$m**	**1**	**0**	**0**	**0**
Total Assets	**$m**	**8**	**3**	**2**	**2**
Payables	$m	1	1	1	1
Borrowings	$m	0	0	0	0
Other	$m	0	0	0	0
Current liabilities	**$m**	**1**	**1**	**1**	**1**
Borrowings	$m	0	0	0	0
Other	$m	0	0	0	0
Non current liabilities	**$m**	**0**	**0**	**0**	**0**
Total Liabilities	**$m**	**1**	**1**	**1**	**1**
Equity	$m	55	60	72	72
Retained earnings	$m	(58)	(62)	(75)	(91)
Reserves / Other	$m	5	5	4	19
Shareholder's equity	**$m**	**2**	**2**	**1**	**1**

CASH FLOW (A$m)		FY21	FY22	FY23E	FY24E
OCF - pre interest & tax	$m	(1)	(3)	(4)	(5)
Net corporate interest	$m	0	0	0	0
Tax Paid	$m	0	0	0	0
Other	$m	(1)	0	0	0
Operating cash flow	**$m**	**(1)**	**(3)**	**(4)**	**(5)**
PPE	$m	(0)	0	0	0
Development capex	$m	0	0	(9)	(10)
Investments / Divestments	$m	0	(1)	0	0
Other investing cash flow	$m	0	0	0	0
Net investing	**$m**	**1**	**(1)**	**(9)**	**(10)**
Net movement in Equity	**$m**	**8**	**0**	**12**	**0**
Cash dividends Paid	$m	0	0	0	0
Net debt movement	$m	0	0	0	15
Other	$m	(0)	0	(1)	0
Net Financing	**$m**	**8**	**0**	**12**	**15**
Change in cash	$m	7	(4)	(1)	0

Source: Company data, MST Access

Hartshead Resources Investment Thesis - Supply gas into the UK market that is short gas

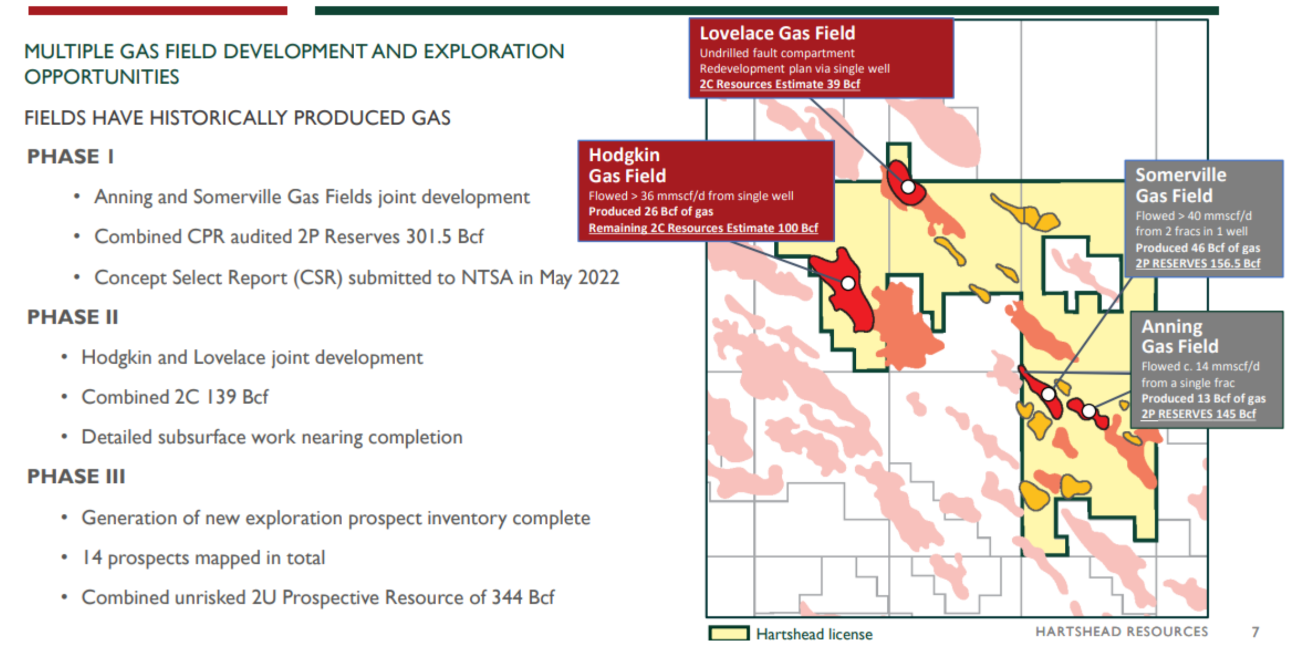
HHR is a new entrant in the Southern Gas Basin (SGB) of the North Sea. Its small gas pools aggregation strategy aims to enable the multi-phased development of resources in a market which is short of gas.

In order to maximise economic recovery, these gas pools must be aggregated and coupled together with a thorough interpretation of the existing subsurface dataset. This creates a compelling investment case for a single owner/operator that can execute against a carefully designed development plan that is phased to fully exploit the resources through a single offtake route.

HHR has put together an experienced management team with over 250 years combined industry experience and UK SGB specific knowledge. The team has a seasoned skill set including subsurface, engineering, commercial, and health, safety, environment and quality (HSEQ) experience that has successfully managed a number of SGB projects.

HHR is the 100% owner and operator of License P2607 which is comprised of five blocks in Quads 48 and 49 on the United Kingdom Continental Shelf, in the SGB which it won in the UK 32nd Offshore Licensing Round. The license awarded covers four existing discoveries and two drill-ready prospects in five contiguous blocks.

Figure 2 – HHR's portfolio well positioned for UK gas market – Over 780 Bcf of 2P, 2C and 2U Resource



Source: Company

HHR management and ERCE estimate ~785 Bcf (135 mmboe) of 2P, 2C and 2U gas is contained in the Phase 1,2 and 3 developments. All existing discoveries have multiple wells, flow tests and historical production.

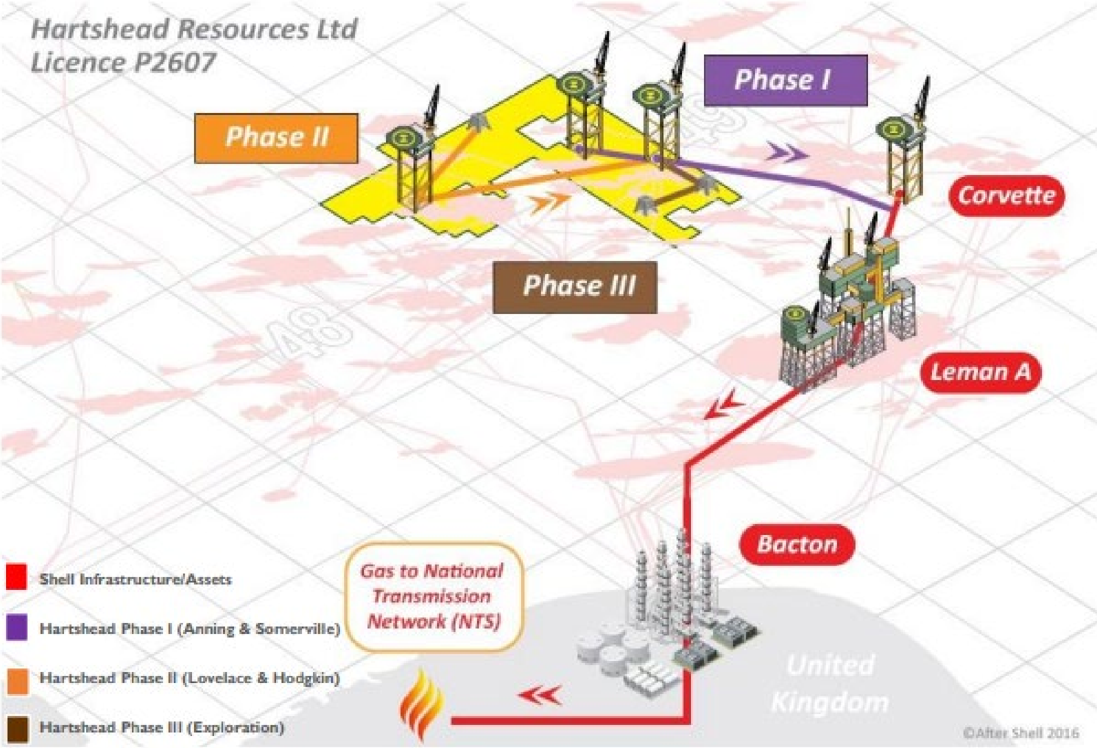
HHR is currently progressing the Phase 1 assets (Anning and Somerville fields) through to a field development plan (FDP) to be submitted to the UK Government before a final investment decision is made before the end of 1H CY2023.

HHR continues to target first gas from the Phase 1 development by the end of CY 2024.

HHR reaches agreement with Shell UK to conduct preferred offtake route and agree tie-in option for Phase 1

HHR has reached agreement with Shell UK to conduct an Engineering Study for the preferred offtake route and agreed tie-in option for the Phase I field development. The offtake route is via a tie-in to Shell's Southern North Sea infrastructure for transportation to Bacton for onshore processing and delivery to the UK Gas National Transmission System The Engineering Study will be conducted by Petrofac and will provide a basis for design and cost estimate for the preferred gas offtake route for the tie-in of Hartshead facilities and the required brownfield facility modifications. Shell will provide assurance on the final study prior to commencing Front-End Engineering and Design studies.

Figure 3 – Schematic of Hartshead's License P2607 and Assets with proposed Gas Transportation Route via Shell's Southern North Sea Infrastructure to the Bacton Gas Processing Terminal.



Source: Company

Shell Bacton Gas Terminal

The Bacton Gas Plant, located 20 miles (32 km) from Great Yarmouth, is a hydrocarbon gas processing plant of strategic national importance supplying up to one-third of the UK's gas supply as well as importing and exporting gas from Europe. The Plant was built and commissioned in 1968. The plant receives and processes gas to the National Transmission System entry specification from UK Southern North Sea Gas Fields including Leman, Sole Pit and Sean. Gas is also received and processed from Central UK offshore fields via a 473 km subsea pipeline.

Further connections link the plant to the European market with hydrocarbon gas sent and received via the IUK pipeline (UK to Belgium) and the BBL pipeline from the Shell site to Balgzand in the Netherlands via a direct 245 km gas pipeline. The plant uses cryogenic processes to separate the hydrocarbon components and has unique systems such as the desalination plant and wastewater treatment plant which help to unlock more production. Methane gas is delivered to National Grid for entry into the National Transmission System, which through its network, provides gas for downstream domestic and industrial use. The Bacton gas terminal has been reliably hosting a number of 3rd party customers and has scope and capacity to accommodate additional new volumes.

Capital raise to fund Phase 1 Progression and Working Capital

HHR has successfully raised $11.5m (pre-raising costs) at $0.0275 per share to fund the progression of the Phase 1 development and for working capital purposes.

Given we forecast HHR will divest a percentage of the Phase 1 development in early CY 2023, we believe HHR is unlikely to need to issue any new equity capital in the medium term.

We note Directors subscribed to $500,000 of shares as part of the capital raise process.

Figure 4 – Capital raise use of funds

SOURCE OF FUNDS	$(AUD)
Cash as at 19 August 2022	1,500,000
Gross proceeds from Placement	11,000,000
TOTAL	**12,500,000**
ESTIMATED APPROXIMATE USE OF FUNDS[1]	
Phase I - Shell Engineering Study	900,000
Phase I - Define Stage Gate (FEED & Environmental)	6,750,000
Phase I - Platform EPC Costs	500,000
Phase II – Subsurface Project Costs	200,000
Sub-Total	**8,350,000**
Costs of the Capital Raising	660,000
Working Capital	3,490,000
TOTAL	**12,500,000**

Source: Company

Phase 1 Divestment Process

At the end of the June quarter, HHR announced the appointment of LAB Energy Advisors Limited (LAB), a UK based specialist energy sector advisory company with extensive upstream corporate merger and acquisition (M&A) and asset and divestiture (A&D) experience, to advise HHR on industry partnering for its Phase I development of the Anning and Somerville gas fields.

HHR stated that LAB has a strong track record in asset divestments and farm-out transactions globally, including the UK and Dutch sectors of the Southern Gas Basin and bring a wealth of transaction experience with clients ranging from the oil & gas majors to independent energy players.

LAB has now launched a formal process to secure an industry partner for the development stage of the Phase I Anning and Somerville gas fields following Final Investment Decision (FID), which is expected to be completed in early-2023.

We expect to see HHR divest a stake in the Phase 1 development in early CY 2023.

UK gas prices reflecting the tragedy in the Ukraine and the supply issues the conflict has created

What's impacting UK gas prices now and where are they going?

The COVID pandemic caused gas demand in the UK to lower in spring 2020, resulting in low gas prices (see Figure 5).

Globally, in 2021, a cold winter in Asia prompted a dramatic spike in LNG spot prices. A hot summer followed, increasing electricity demand for cooling. Resulting high LNG prices limited deliveries to Europe, but lockdowns were lifting and economies recovering. Energy demand started to recover.

Traditionally, Europe uses the summer, when gas prices are lower due to limited heating demand, to fill reserves for the winter. Following the closure of the Rough[1] storage facility due to safety concerns in the UK in 2017, a depleted gas field in the North Sea, the UK now has no long-term storage.

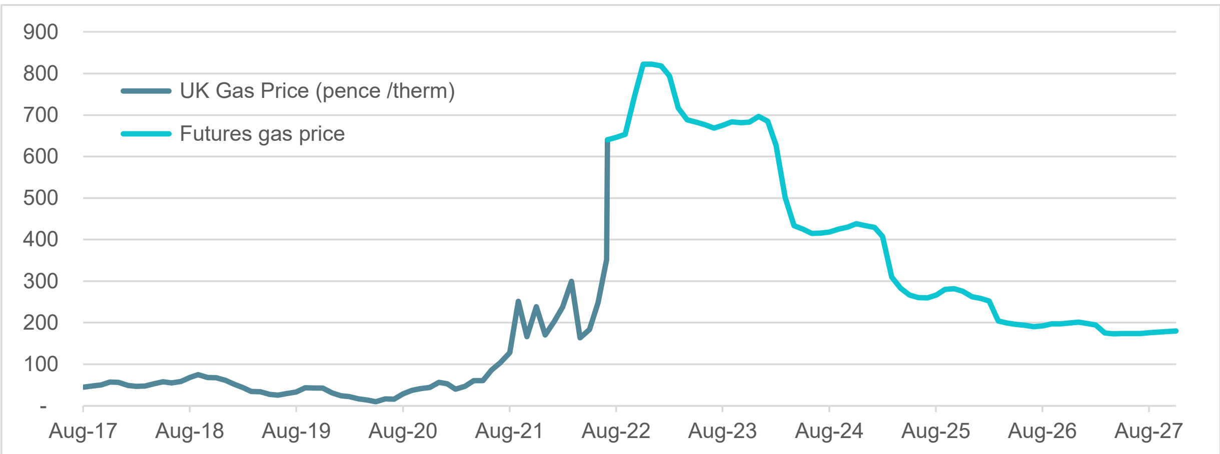
Wind power generation was lower than average during the 2021 summer due to mild weather conditions. High carbon prices in the EU reportedly reduced the level of coal-fired power generation so more gas than usual has been used to generate electricity, leaving less gas to go into storage.

The recent developments in Eastern Europe and the tragedy that is currently occurring in Ukraine has heightened the risk that gas supplies from Russia to Europe and the UK may be impacted.

Given all of the above, the UK is experiencing abnormally high gas prices (Figure 5) reflecting all the supply and demand issues noted.

The forward curve is indicating average gas prices of 313 pence/therm in CY2025 (HHR targeting first gas in late 2024) compared with the historic ten-year average to June 2021 of ~£0.50/therm.

Figure 5 – UK NBP gas prices – CY 2025 forward curve averaging 313 pence/therm – Spot gas price ~640 pence/therm



Source: FactSet, CME Group

The UK NBP gas futures for prior settlements for gas prices (Figure 5) out to CY2027 (averaging 181 pence /therm) are implying the markets believe the current peaks will start to ease in late 2024 but pricing in the outer years is still materially higher than over the last ten years heading into June 2021.

We note that what is currently occurring will provide long term gas users the impetus to lock in offtake agreements which potentially is very timely for HHR as it progresses through to first gas in late CY 2024.

[1] Rough was the largest gas storage facility in Great Britain, that used to be used by market participants to store gas in the summer and deliver that gas to meet peak demand in the winter.

Valuation

We have raised our valuation for HHR from $0.135 to $0.146, reflecting an increase in our assumed gas sales price from £0.50/therm to £0.60/therm in our Phase 1 development valuation (See Figure 5 for current forward curve).

It is based on the blend of:

- our Phase 1 project valuation at first gas (A$0.148), and
- a FY24 valuation (discounted back to today) of A$0.144, based on US$5.50/ (2P+2C) boe which is in line with recent M&A acquisition multiples achieved for 2C contingent resources and 2P reserves (Figure 6).

Merger and acquisition activity has been high

The liquid nature of North Sea Oil and Gas projects in terms of both asset and corporate transactions has been key to attracting new entrants and capital into the area. Since 2019 there has been more than 55 UK North Sea M&A transactions at an asset and corporate level. The recent exit multiples for blended 2C and 2P contingent resources for similar companies to HHR have ranged from US$2.70 to US$14.20 per boe (average of US$5.70/boe).

Figure 6 – Exit multiples for a number of UK gas transactions for similar companies to HHR

Vendor	Acquirer	Asset(s)	Consideration (US$)	Net 2P + 2C Reserves & Resources	EV/(2P+2C) (US$/boe)
IOG	CalEnergy	50% of UK SNS Assets	94.0	35.3	2.7
Tulip Oil NV	Kistos	Q-10A, Q10-B, Q11-B and M10/M11	262.6	90.2	2.9
TotalEnergies	Kistos	20% of GLA WoS (UK)	125	8.8	14.2
E.On	Premier Oil	UK Gas Portfolio	120	38	3.2
SSE	Viaro	UK Portfolio	164	30	5.5
Average					5.7

Source: Company

Phase 1 Project Valuation

Following an independent Technical and Commercial Audit conducted by ERC Equipoise (ERCE) of HHR's Phase 1 development, a Competent Persons Report (CPR) was published with Phase 1 2P gas reserves of 302 Bcf (52 mmboe and 3P reserves of 458 Bcf (79 MMboe).

This is a very positive announcement and implies a 90% plus conversion of the previous 2C contingent resource of 324 Bcf at Phase 1.

HHR has published the forecast production profile which has been adjusted for fuel consumption, shrinkage and flaring (see Appendix 1) and the ERCE economic assumptions that underpin the reserve and valuation calculations.

Key assumptions to note are a forecast gross capex for the Phase 1 development of £351m, direct operating costs of £7.6m per annum, indirect costs (third party infrastructure costs) are undisclosed due to confidentiality (MST assume £0.08/mm therm) and an abandonment cost of £38m (unlikely before 2044).

ERCE's best case (2P reserve) net present value (using a 10% discount rate) for the Phase 1 development is £514m at 1 April 2022 with a 1P valuation of £264m lifting to £810m for the 3P valuation.

MST's net present value for the Phase 1 development at 30 June 2025 is ~£500m. (See Initiation research for detail). We assume HHR divest 50% of the Phase 1 development to arrive at our $0.148 valuation for the Phase 1 development today.

See our initiation "A responsible and safe European energy business in the making"

MST Blended Valuation

We calculate a valuation based on a 50:50 blend of the two valuation techniques to get to our $0.146 spot valuation.

Figure 7 – HHR Valuation based on recent M&A multiples and MST's Phase 1 development valuation

M&A Transaction multiple (US$/boe)	3.00	5.50	7.50
Phase 1 2P contingent resources (MMboe)	52.0	52.0	52.0
Exit value (US$m) (FY24)	**155.9**	**285.9**	**389.9**
A$m	224.7	412.0	561.8
A$ per share (FY24)	**$0.094**	**$0.172**	**$0.234**
A$ per share (Today)	**$0.079**	**$0.144**	**$0.197**
Phase 1 Project Valuation	**$0.148**	**$0.148**	**$0.148**
Average	**$0.114**	**$0.146**	**$0.173**

Source: Company

If we run our Phase 1 base case valuation at a higher assumed gas sales price of 70 pence/therm, our **Phase 1 base case valuation lifts from A$0.148 to A$0.187 and our blended valuation lifts from $0.146 to $0.166.**

We note that our valuation pays no recognition to the 139 Bcf of 2C gas resource in the Phase 2 development plan, or the 344 Bcf of un-risked 2U prospective resource in the Phase 3 development plan.

Comparable company trading valuation as a sense check

HHR is trading at a material discount to comparative company EV / (2P + 2C) UK listed comparables on a EV/(2P+2C) basis.

Figure 8 – HHR trading at a material discount to comparative company EV / (2P + 2C) multiples

Company	Ticker	Share price (LC)	Enterprise Value (LCm)	Market Cap. (US$m)	Net debt / (Cash) (US$m)	Enterprise Value (US$m)	2P Reserves (mm boe)	2C Resources (mm boe)	EV/2P (US$/boe)	EV/(2P+2C) (US$/boe)
EnQuest PLC	ENQ-GB	0.30	1,873	670	1,538	2,209	194	402	11.4	3.7
IOG PLC	IOG-GB	0.29	235	182	96	277	24	19	11.4	6.4
Kistos PLC	KIST-GB	6.65	608	550	57	607	26	105	23.4	4.6
Serica Energy PLC	SQZ-GB	4.50	1,124	1,447	(121)	1,326	62	0	21.3	21.3
Average									**16.9**	**9.0**
Hartshead Resources	**HHR-ASX**	**0.037**	**80**	**58**	**(3)**	**56**	**52**	**24**	**1.1**	**0.7**

Source: Company

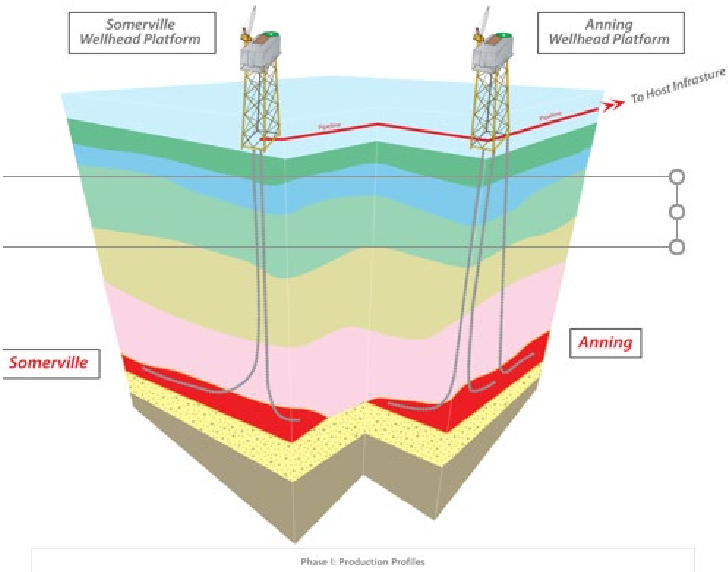
Risks to our valuation and forecasts

The key risks to our financial forecasts and valuation include UK gas pricing particularly if HHR are unable to sign long term offtake contracts, quantum of capital expenditure and forecast over runs, access to gas distribution infrastructure, project timing, reserve and resource estimates, operational risks including equipment failure, regulatory changes, governmental responses to climate change and the impact on gas demand, the ability to find partners and or source capital to complete the first project, and an extension of the "windfall" oil and gas tax post December 2025.

Appendix 1 – Currently Proposed Phase 1 Development

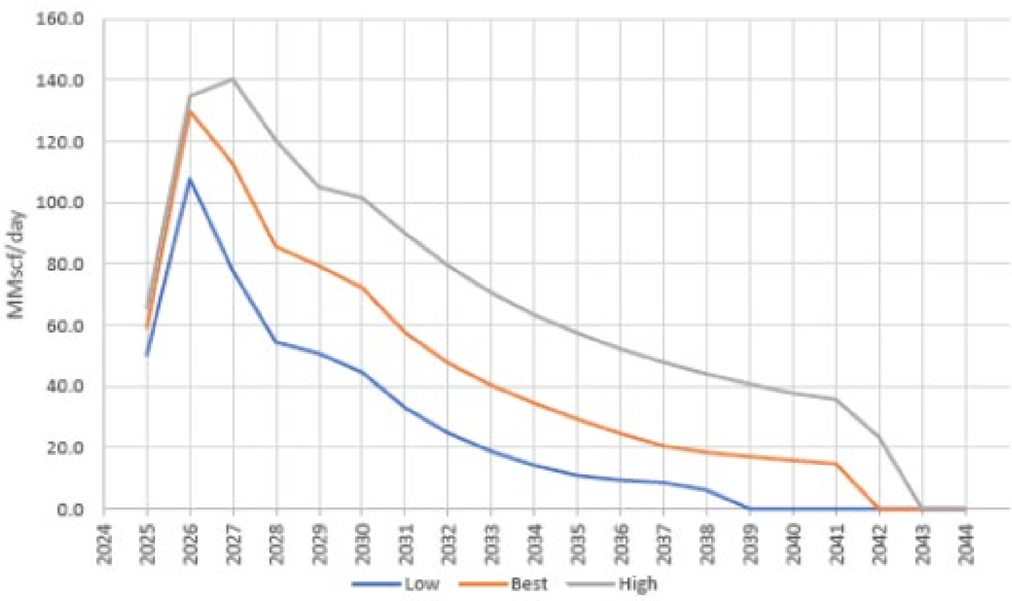
- 2P reserve estimate 302 Bcf. 3P estimate is 458 Bcf from six wells
- Peak production rate estimated at c. 140 mmscfd.
- Greenfield Development Concept Identified.
- Two minimum facility, unmanned platforms.
- Export via third party infrastructure.
- Gas delivery to Bacton Gas Terminal.
- Phase I infrastructure can then be used to monetise Phase II and Phase III resources

Figure 9 – Phase 1 Development



Source: Company

Figure 10 – Phase 1 Development Forecast Production Profiles



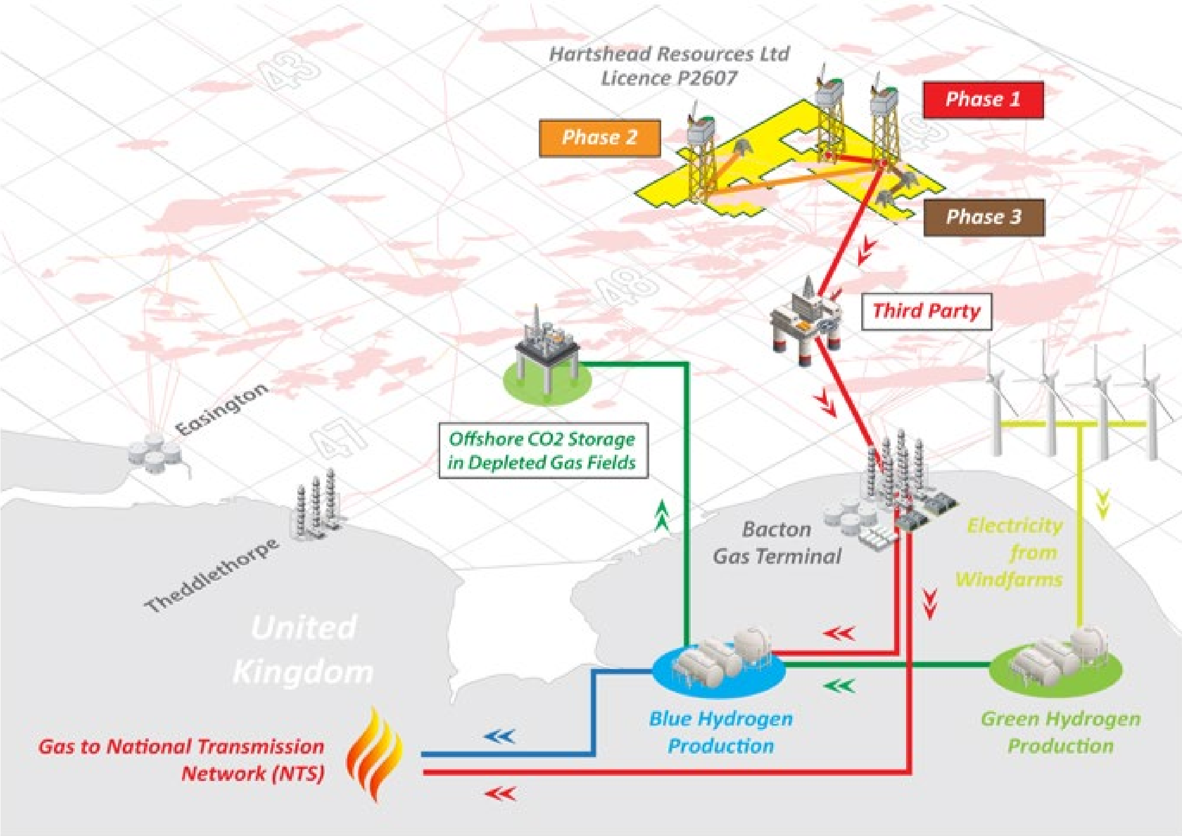
Source: Company, ERCE

Appendix 2 - Bacton Energy Hub Initiative

During the fourth quarter HHR announced that it had been selected to participate in several Special Interest Groups (SIGs) established by the UK Oil & Gas Authority (OGA) as part of the Bacton Energy Hub initiative. The initiative is focussed on future hydrogen generation at the Bacton gas terminal, where HHR intends to process its natural gas production. The UK Southern Gas Basin, together with the Bacton gas terminal and offshore wind power infrastructure, form the Bacton Catchment Area.

In line with the UK's decarbonisation efforts and 2050 net zero target, the area has been the focus of a recent study by the OGA to consider how the Bacton Catchment Area could be developed into an energy and infrastructure hub for future hydrogen generation. HHR's gas developments could provide material volumes of natural gas feedstock into the Bacton Energy Hub for blue hydrogen generation and the Company's future offshore infrastructure could potentially be utilised in Carbon Capture & Storage and electrification projects.

Figure 11 – The Bacton Energy Hub Catchment Area



Source: Company

The OGA study has confirmed that there is a significant economic opportunity for a hydrogen-led energy hub centred at Bacton that will play a leading role in the UK's energy future which focusses on the following:

- **Blue Hydrogen**: Using natural gas feedstock from existing and undeveloped gas fields to produce hydrogen via methane reformation;
- **Carbon Capture & Storage:** Depleted gas fields or suitable reservoirs to be used for the injection and storage of CO2 generated as a by-product from Blue Hydrogen production;
- **Green Hydrogen**: Integration of new and existing wind turbines into the Bacton Energy Hub to produce hydrogen via electrolysis; and
- **Electricity**: Generation of electricity from wind turbines to provide power to the UK grid and offshore installations in the Southern Gas Basin.

Appendix 3 – Phase 3 Exploration Inventory

An exploration study across License P2607 by Xodus Group has generated 14 new prospects and leads with un-risked 2U Prospective Resources of 344 Bcf.

Twelve new prospects, in addition to the existing Garrod and Ayrton prospects, have been identified on the license area. All of the new prospects are undrilled structural traps within the Rotliegendes reservoir and are summarised below (Figure 7) along with their respective geological chance of success (GCoS).

A number of opportunities for further work have been identified by Xodus to potentially further de-risk the prospects and reduce volumetric uncertainty including seismic reprocessing and geological and geophysical studies. The prospects will be economically evaluated and ranked prior to being short listed for further work. Future work on short listed prospects will also involve initial well planning for the drilling of exploration wells in the final selected prospect or prospects.

It may be that the McLaren prospect can be drilled as part of the Somerville development project in 2024 or 2025 and this option is being evaluated. Any other prospects selected to be drilled would likely be drilled as vertical exploration wells, sometime following Phase I first gas which is scheduled for H2 2024.

Figure 12 – Phase 3 Prospective 2U Resources of 344 Bcf

Prospect	GIIP (Bcf)			Recoverable Volume (Bcf)			GCoS
	P90	P50	P10	1U	2U	3U	P50
Mclaren	34	47	63	18	**27**	39	0.54
Stephenson	47	58	73	36	**47**	60	0.43
Widdowson East	8	36	99	6	**29**	79	0.32
Widdowson Central	14	26	49	11	**21**	40	0.50
Lonsdale	7	20	38	5	**16**	31	0.50
Anderson	5	14	31	5	**12**	29	0.45
Garrod	24	74	177	16	**52**	125	0.50
Ayrton	36	107	206	25	**74**	146	0.41
Wenlock Prospect 1	6	28	79	4	**19**	55	0.36
Wenlock Prospect 2	1	8	27	1	**5**	19	0.36
Wenlock Prospect 3	2	7	24	1	**5**	17	0.36
FFs Prospect 1	5	15	37	3	**11**	26	0.41
FFs Prospect 2	12	27	52	8	**19**	37	0.35
FFs Prospect 3	6	13	24	4	**9**	17	0.34
Arithmetic Total	**205**	**480**	**980**	**143**	**344**	**719**	

Source: Company

Appendix 4 – United Kingdom Windfall Tax

On 26 May 2022, the UK Government announced a new tax on the profits of oil and gas companies operating in the UK and the UK Continental Shelf.

The Energy Profits Levy (the Levy) will be charged at 25 % and apply to profits arising on or after 26 May 2022.

The oil and gas sector is currently subject to a 40 % headline rate of tax on UK 'ring fence profits' consisting of 30% Ring Fence Corporation Tax (RFCT) and 10% Supplementary Charge to Corporation Tax (SCT). The Levy will therefore effectively increase the headline rate of corporation tax on oil and gas sector UK profits from 40% to 65%. Not quite as simple as that. Please see our initiation for more detail on tax calculations.

KPMG noted that:

"As evidenced by levels of activity following previous rate increases, these announcements will reduce the attractiveness of investment in the UK at a time when energy security and funding the energy transition are front and centre of the political agenda.

As such the UK Chancellor also announced a 'super-deduction' style investment allowance to provide an immediate incentive for the oil and gas sector to invest in UK extraction and to support energy security."

The measure is temporary and will be phased out when oil and gas prices return to historically more normal levels. The legislation will also include a sunset clause which will remove the Levy after 31 December 2025.

The tax base for the Levy will be computed in a similar manner to RFCT and the SCT, applying to a company's ring fence profits, with the following applying:

- Levy losses may be:
  (i) carried back for 12 months against previous levy profits (three years for terminal losses);
  (ii) carried forward to set against future levy profits; and
  (iii) group relieved in year to another company with levy profits;
- No relief for existing RFCT or SCT losses;
- No deductions for decommissioning costs;
- No deductions for finance costs (akin to SCT); and
- An investment allowance will be available for certain expenditure (operating and leasing expenditure) at a rate of 80 %.

The Levy will be included in the RFCT three-instalment payment regime for large companies, although for accounting periods that straddle the commencement date, the levy payment for that straddling period will be made in the final instalment payment.

We note our modelling on the Phase 1 development does not have HHR paying cash tax until FY28, so there is no impact on our forecasts or valuation assuming the windfall tax concludes in December 2025. See our initiation for detail on tax calculations.

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