

30 August 2021

## OPERATIONAL UPDATE & SUBSTANTIAL INCREASE TO GAS IN PLACE VOLUMES FOR PHASE I

### Highlights:

- Increase of 43% in the volume of gas initially contained within the Viking Wx field which provides substantial upside potential for the overall project and economics
- Completion of Viking Wx geo-cellular static reservoir model with 368 Bcf gas-initially-in-place (GIIP) volume confirmed, an increase of 112 Bcf
- Phase I GIIP is now 603 Bcf
- Workshops with infrastructure owners are in process to identify the optimal tie-in and transportation options
- Greenfield Concept Select report received from Petrofac identifying a dual platform development as the optimum development concept for Victoria & Viking Wx gas fields
- UK natural gas spot price reached record of 117 pence per therm<sup>1</sup> during August 2021 due to continuing European gas market constraints
- Project team remains on schedule and within budget with further key deliverables scheduled for the coming months.

Hartshead Resources NL (**Hartshead, HHR** or the **Company**) is pleased to announce the identification of an additional 112 Bcf of gas-initially-in-place (GIIP) in the Viking Wx gas field, equivalent to a 43% increase. This takes the total Phase I GIIP to 603 Bcf, including the Viking Wx and Victoria gas fields.

This operational update follows the delivery of the Viking Wx geological model by Xodus Group (**Xodus**) with associated revised GIIP estimates, and the completion of cost and revenue estimations for multiple greenfield development scenarios, to be used to screen, rank and select development concepts. The Phase I Gas Field Development Planning work program remains on schedule and within budget.

- **Key Development Planning Tasks Performed**
  - Subsurface Interpretation & Modelling
    - Completion of Viking Wx geo-cellular static reservoir model with gas-initially-in-place (GIIP) volumetrics
    - GIIP of 368 Bcf which is a 112 Bcf increase (43%) on estimates made previously by Hartshead and within the CPR (dated October 2020)

<sup>1</sup> Source: Intercontinental Exchange (ICE)

- Additional undrilled extension to Viking Wx gas field identified which has added 40 Bcf to total field in-place volumes
- Prospective undrilled fault compartment identified adjacent to Viking Wx (not included in the increase in calculated GIIP)
- Reservoir simulation and history matching for Viking Wx commenced
- Victoria field geo-cellular static reservoir model construction underway
- Development Well Planning
  - Initial development well costs received for subsea, single platform and dual platform development options
- Production Facilities Planning
  - CAPEX, OPEX & ABEX cost estimates complete for multiple greenfield development scenarios
  - Net Present Cost and Net Present Revenue for all options compared to rank and screen concepts
  - Greenfield Concept Select Report received from Petrofac
- Commercial Gas Transportation
  - Workshops with third party infrastructure owners held with further workshops scheduled
  - Short-listing of export routes underway
- QHSE
  - Safety and environmental workshops held with Petrofac
  - Introductory meeting held with the EMT (Environmental Management Team) within the UK Government BEIS (Department for Business, Energy & Industrial Strategy).

### Subsurface Interpretation & Modelling

The construction of the Viking Wx geo-cellular static field model has been completed by Xodus providing a calculated GIIP volume of 368 Bcf. The model is based on new analysis and interpretation of seismic and well data performed by Xodus. The GIIP is comparable to the calculation made by Hartshead and independently as part of the recent CPR:

SOURCE	Gas-Initially-In-Place (Bcf)
Xodus (deterministic – best technical case)	368
CPR (deterministic – mid case) <sup>2</sup>	259

<sup>2</sup> Volumetric estimates are from Oilfield Production Consultants (OPC) Ltd, Independent Competent Persons Report (CPR) entitled “Contingent Resources Review and Audit (Victoria and Viking Wx)” dated October 2020. See Qualified Persons Statement for contingent resource reporting notes.

CPR (stochastic – P50) <sup>2</sup>	262
Hartshead (stochastic – P50) <sup>3</sup>	256

As well as confirmation of existing GIIP estimates, an extension to the gas field has been identified as a fault block in the south-east part of the field. This fault block contains 40 Bcf of additional gas in place (included in the new total field estimate) and will be evaluated as an additional target location for development drilling, which is expected to add recoverable resources to the Phase I development. Adjacent and to the northeast of the field, an undrilled structure has also been identified that will be evaluated as a potential, near field, exploration prospect that could also add further gas volumes to the Phase I development. This undrilled prospective structure is not currently included in the total field GIIP estimate.

The building of the geo-cellular static reservoir model for the Victoria field is progressing and completion is expecting within the next month.

The Viking Wx static field model will now be used to construct a full field dynamic reservoir simulation model to match against historic gas production from the field. Once history matched this model will be used to optimise frac and well placement and generate production profiles and updated recoverable resource estimates.

### **Development Well Planning**

Fraser Well Management (**FWM**) has completed the drilling and completion cost estimates for production wells (platform & sub-sea) for the various Phase I greenfield development concepts, this follows a review of the potential well trajectories from single and dual drill centre options.

These costs have now been incorporated with greenfield platform & pipelines costs to evaluate the various development options.

### **Production Facilities Planning**

All cost estimates (CAPEX, OPEX, ABEX) have been completed for the various greenfield development options for Phase I, including a single platform for both fields, one platform for each field, a mix of platform and sub-sea infrastructure and fully sub-sea development.

The Greenfield Concept Select Report identifying the preferred greenfield development concept has been issued by Petrofac, which is based on these costs, the drilling cost estimates and the gas production revenue projections.

The preferred Greenfield Development Concept is via two wireline capable production platforms, one at Viking Wx and one at Victoria. This development concept provides slightly superior economic

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<sup>3</sup> Hartshead Resources management estimates.

performance and a reduction in drilling risk when compared to a single platform development. In addition, it is envisaged that production from Viking Wx will tie in subsea to the Victoria export pipeline, thus allowing both platforms to operate independently and mitigates outages on one platform stopping production from the other.

Further work is now required to identify the preferred gas transportation route and host facilities in order to finalise functionality requirement for the Viking Wx and Victoria platforms.

### **Commercial Gas Transportation**

Discussions continue with several owners of gas transportation and processing infrastructure local to the Phase I development area. A number of workshops have been held with the operators of potential host platforms and pipelines to identify the optimum gas transportation route for gas produced as part of the Phase I development. Further workshops are planned with a view to commencing engineering feasibility studies for the tie-in of Hartshead's facilities and gas offtake.

### **QHSE**

Petrofac have kicked off the safety and environmental workstreams with three workshops that were held during July and August 2021.

Importantly, an introductory meeting has been held with the UK Government's Environmental Management Team (EMT), part of the Department for Business, Energy & Industrial Strategy (BEIS). An EMT Manager has been appointed by BEIS to liaise with Hartshead on all environmental matters. The UK Government BEIS department work closely with the UK OGA on many aspects of UK North Sea License regulation and stewardship and have a key stakeholder role to play in the UK Government's 2050 net zero target.

### **Gas Markets**

Structural supply-side constraints in LNG and reduced capacity from Norway and Russia continue to dominate European gas markets which are reflected in the recent UK spot gas price reaching 117 pence per therm<sup>1</sup> (**p/therm**) and a near-term NBP futures (Jan 2022 contract) of circa 120p/therm compared to 47.5 p/therm at the time of the acquisition of HRL in February 2021. The UK gas futures curve also points to a winter 2024/25 price in excess of 50p/therm. Hartshead's internal economic evaluation of the Phase I development is based on a gas price assumption of 45p/therm highlighting the potential for economic upside should market conditions persist.

Chris Lewis, CEO, commented: "An increase in the gas volume at Wx is certainly good news and an excellent result. I look forward to the revised production profiles and seeing what positive impact this has on recoverable volumes, 2C resources and project economics. In addition, development planning for Phase I is progressing well with further key deliverables scheduled for the coming months. Workshops with infrastructure owners are proving valuable in understanding and assessing the best

tie-in and transportation options for our gas, once we commence production, and I look forward to being able to report on further progress with this as we continue discussions.”

-Ends-

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**CONTACTS**

**The Board of Directors of Hartshead Resources NL authorised this announcement to be given to ASX.**

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For further information on this announcement, visit [www.hartshead-resources.com.au](http://www.hartshead-resources.com.au) or contact:

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## Notes to Editors:

### Hartshead Resources NL

ASX-listed Hartshead Resources NL and is focussed on building a financially, technically and environmentally responsible European Energy business.

Hartshead's goal is to secure and invest in projects where resources can be extracted and delivered to meet Europe's growing energy demand while supporting the transition to a low carbon future.

In progressing this strategy Hartshead is focused on its 100% owned Production Seaward License P2607 comprising of five blocks which contain four existing gas fields in the UK Southern Gas Basin.

Hartshead brings together a highly experienced oil and gas team with specialised knowledge covering subsurface, engineering, commercial, QHSE and capital markets with the required skillsets needed to successfully and safely deliver oil and gas upstream projects.

### UK Southern North Sea Production Seaward License P2607 – Contingent and Prospective Resources

Please refer to the qualified person's statement relating to the reporting of contingent and prospective resources on Hartshead Resources Southern North Sea License P2607 in Hartshead's ASX Announcement dated 14 December 2020 (see Schedule 3). The Company is not aware of any new information or data that materially affects the information about the contingent resource and prospective resource estimates included in this announcement and all the material assumptions and technical parameters underpinning those estimates in this announcement continue to apply and have not materially changed.

Contingent resources reported herein have been estimated and prepared using the probabilistic method.

CONTINGENT RESOURCES (BCF)						
PHASE I PROJECTS			1C	2C	3C	
VICTORIA	49/17b		84	125	177	
VIKING-WX	49/17b		62	90	124	
COMBINED <sup>4</sup>	49/17b		161	217	285	

  

CONTINGENT RESOURCES (BCF)			1C	2C	3C	GCOS
PHASE II	49/6c, 49/11c	Tethys North	14	39	70	100%
	48/15c	Audrey NW	35	100	387	100%

<sup>4</sup> Volumes combined stochastically to give portfolio volume

PROSPECTIVE RESOURCES <sup>5</sup>			P90	P50	P10	GCoS
PHASE III	49/17b	Vixen SW	29	56	94	50%
EXPLORATION	49/17b	Vixen SE	43	85	142	30%

### Forward Looking Statements

This document has been prepared by Hartshead Resources NL (HHR). This document contains certain statements which may constitute "forward-looking statements". It is believed that the expectations reflected in these statements are reasonable but they may be affected by a variety of variables and changes in underlying assumptions which could cause actual results or trends to differ materially, including, but not limited to: price fluctuations, actual demand, currency fluctuations, drilling and production results, reserve and resource estimates, loss of market, industry competition, environmental risks, physical risks, legislative, fiscal and regulatory developments, economic and financial market conditions in various countries and regions, political risks, project delays or advancements, approvals and cost estimates.

HHR's operations and activities are subject to regulatory and other approvals and their timing and order may also be affected by weather, availability of equipment and materials and land access arrangements. Although HHR believes that the expectations raised in this document are reasonable there can be no certainty that the events or operations described in this document will occur in the timeframe or order presented or at all.

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<sup>5</sup> Prospective resources are estimated quantities of petroleum that may potentially be recovered by the application of a future development project(s) and relate to undiscovered accumulations. These prospective resources estimates have both an associated risk of discovery and a risk of development. Further exploration appraisal and evaluation is required to determine the existence of a significant quantity of potentially moveable hydrocarbons.

### **Qualified Person's Statement**

Hartshead has prepared the Contingent Resource and Prospective Resource information in this announcement in accordance with the ASX Listing Rules and the 2007 Petroleum Resources Management System published by the Society of Petroleum Engineers (SPE-PRMS). The Contingent Resource estimates and Prospective Resource estimates presented in this report were originally disclosed to the market in an announcement released 14 December 2020. Hartshead confirms that it is not aware of any new information or data that materially affects the information included in the aforesaid market announcement and that all the material assumptions and technical parameters underpinning the estimates in the aforesaid market announcement continue to apply and have not materially changed. The information in this announcement that relates to Contingent Resource information in relation to the Phase I Victoria and Viking-Wx fields is based on information compiled by technical employees of independent consultants, Oilfield Production Consultants Ltd, which information was subsequently reviewed by Mr Christopher Lewis. The information in this announcement that relates to Contingent Resource information in relation to the Phase II Audrey NW and Tethys North fields and the Prospective Resource information in relation to the Vixen SW and Vixen SE prospects is based on information compiled by Mr Christopher Lewis and information compiled by technical consultants contracted to Hartshead which has been subsequently reviewed by Mr Christopher Lewis. Mr Lewis has consented to the inclusion of such information in this announcement in the form and context in which it appears and the resources information in this report is based on, and fairly represents, information and supporting documentation reviewed by, or prepared under the supervision of, Mr Christopher Lewis. Mr Lewis is a Director of Hartshead and has a BSc from the Imperial College, University of London and is a member of The American Association of Petroleum Geologists (AAPG) and the European Association of Geoscientists and Engineers (EAGE). Mr Lewis is qualified in accordance with the requirements in ASX Listing Rule 5.41.