

# THE PROJECT, SITE SELECTION AND ALTERNATIVES

## THE VPI IMMINGHAM LLP (LAND AT ROSPER ROAD) COMPULSORY PURCHASE ORDER 2024

**DOCUMENT CD 8.7** 

#### SUMMARY PROOF OF EVIDENCE

James Beresford-Lambert Engineering Manager VPI Immingham LLP



#### 1. QUALIFICATIONS AND EXPERIENCE

- 1.1 My name is James Beresford-Lambert and I have been an Engineering Manager at VPI Immingham LLP ("**the Acquiring Authority**") for 4 years.
- 1.2 As the Engineering Manager on the VPI Carbon Capture Project, I am responsible for all technical and project delivery aspects, and I have been engaged on the Project for the last 4 years.

#### 2 SCOPE OF EVIDENCE

- 2.1 The scope of my evidence is limited to:
  - 2.1.1 the Project and interactions with the Viking CCS Pipeline; and
  - 2.1.2 the site selection process that was undertaken for the Project and the lack of available alternatives.

#### 3 THE PROJECT

- 3.1 The existing 1260 MW VPI Immingham Combined Heat and Power (CHP) Plant is a gas fired power and steam generating facility and provides power to meet 2.5% of the UK's peak electricity demand.
- 3.2 Natural gas is the primary fuel for the CHP Plant. Carbon dioxide is produced during the combustion of this gas which is currently emitted to the atmosphere through the existing exhaust stacks. The objective of the Project is to remove over 95% of this CO<sub>2</sub> from the exhaust gases, capturing 3.3 million tonnes of CO<sub>2</sub> per annum, and reduce emissions.
- 3.3 New flue gas ducting will be installed to route flue gas from the existing main exhaust stack to two new carbon capture units. Predominantly air cooling has been selected to minimise the water required and the Project scope also includes CO2 processing facilities to meet the Viking CCS pipeline specifications.
- 3.4 The land required for the Project is to the South of the existing CHP Plant and East of the P66 refinery. The Port of Immingham lies approximately 1km to the east with good road connections that will provide a key route for import of materials and fabricated modules during the Project's construction.
- 3.5 The Project needs to be located as close as possible to the main exhaust stack tie-ins to minimise connecting infrastructure associated with the huge volumes of exhaust gas and avoid the need for large energy consuming exhaust gas blowers.



3.6 The land area required is driven by the very large low-pressure equipment associated with the carbon capture process and the need for extensive air coolers which span the full width of the plot.

## **Engineering Status**

3.7 The Project has completed sufficient engineering and design development over the past 5 years, including pre-FEED and FEED studies, and further EPC development work over and above FEED, to be ready to move into the execution phase as soon as commercial agreements are in place to enable FID.

## Planning and Permitting

3.8 Preparation for planning and permitting commenced in 2021 and culminated in the submission of an environmental impact assessment.

## Viking CCS Interfaces

- 3.9 As part of the Viking CCS project, Harbour Energy will install an onshore pipeline facility on the Order Land, adjacent to the Project, providing an ideal location for connection of the CO2 export. In addition to the CO2 connection, VPI will provide power and utilities, and CO2 to enable commissioning, start-up and early phase operation of the Viking CCS project.
- 3.10 The Acquiring Authority and Harbour have agreed terms for the relevant land interest required for the Viking CCS project within the boundaries of the Order Land, to enable the Viking project to come forward unimpeded. Harbour has withdrawn their objection to the Order.

## Project Programme

- 3.11 Following FID, which is targeted for 2026, VPI will take control of the Order Land (whether by agreement with P66, or through the CPO) and commence site preparation works prior to the main construction works.
- 3.12 A detailed path of construction has been developed and is being refined through the EPC development phase. The duration of the construction will extend out to 39 months from FID. This period will in part be overlapping with the installation and construction of the Viking CCS pipeline. Viking CCS and the Project will work closely to enable both projects to deliver within the planned timelines.

## 4 SITE SELECTION AND ALTERNATIVES

## Background and History

4.1 During the concept selection phase in 2020, Wood completed studies on behalf of Humber Zero partners, which included VPI Immingham and P66, and produced a concept layout for the overall proposed development.



- 4.2 From this point forward, working together with P66, the Order Land has been represented as being the preferred site for the Project.
- 4.3 The Project moved into a pre-FEED phase supported by co-funding from UK Research and Innovation ("**UKRI**"). During this period, P66 determined that it would prefer to have a separate HP CO2 compression station to VPI and Wood identified an option to accommodate these revisions.
- 4.4 Throughout FEED, VPI and P66 continued to work collaboratively under the UKRI funding scheme. During this time, it remained a common understanding that the Order Land was the base case option for the Project.

#### Site Alternatives

- 4.5 The Order Land was selected by Wood as the site for the Project in 2020.
- 4.6 As a significant amount of land is required for the Project (around 90,000m<sup>2</sup>), this acts as a key constraint on options available.
- 4.7 The Project needs an export route for the captured CO2. The Viking CCS pipeline plans to terminate at an onshore pipeline compound adjacent to the Project and within the Order land. This presents an ideal location for the Project to minimise interconnecting pipelines and permissions.
- 4.8 In theory, the exhaust gas could be transported to a more remote site, but this would require significant flue gas blowers, dampers and ducting to still be located on the Order land.
- 4.9 The alternative is to split the carbon capture plant with facilities on either side of Rosper Road connected by smaller pipelines. However, the facilities that would still be required on the Order Land are significant.
- 4.10 Further to this, the utilities and thermal reclaimer unit are best located adjacent to the capture units to minimise interfaces.
- 4.11 The other land surrounding VPI Immingham was either unavailable due to ongoing projects, closer to noise and emission receptors which could result in the Project not being able to meet planning requirements, or not large enough.

#### **Future P66 Project Requirements**

4.12 VPI has some indication of P66 future project requirements in relation to the hydrogen pipeline routing, Gigastack and Uniper green hydrogen projects, proposed pipeline routing and the P66 0.46kTPA future carbon capture scheme.

#### 5 CONCLUSION

- 5.1 A significant land area (at least 90,000m<sup>2</sup>) is required for the permanent Project facilities.
- 5.2 The Order land has been the base case option for the Project since 2020 when Humber Zero project locations were first identified. P66 has supported this assumption



for the past 5 years through technical development and joint planning and permitting assessments.

- 5.3 VPI has accommodated multiple requests from P66 to reduce the permanent land area for the Project on the Order Land in the interest of collaboration whilst also accommodating increases in the land area for Viking CCS transportation and storage pipeline in the interest of the cluster program.
- 5.4 Reasonable alternative sites are not available in the proximity of the CHP Plant. Even if land was available to the east of Rosper Road and adjacent to Marsh Lane (Able Marine or P66-owned land), based on current assessments, VPI would not be able to satisfy the EA targets for emissions nor planning requirements for noise increases due to closer proximity to nearest receptors, rendering the Project infeasible.
- 5.5 If it became necessary to now consider an alternative site, this would result in a significant cost and schedule impact to the Project, resulting in the inability to meet an FID date in 2026 and deliver the Project within the 2030 timeline.
- 5.6 Even if alternative sites were available, significant parts of the Order land would still be required to route ducting and locate associated flue gas blowers. The feasibility and acceptability of road crossing on a rack of two by 7m<sup>2</sup> ducts plus two by 4m<sup>2</sup> ducts is considered to be very low on highway safety grounds. To enable pipelines in place of ducting the CO2 must first be captured and compressed the facilities for which comprise 70% or more of the plot space required for the facility hence most the Order Land would still be required.
- 5.7 The Viking CCS onshore pipeline compound and pipeline routing onto the Order Land can be accommodated and collaborative scheduling of execution activities will be conducted to understand and mitigate issues in advance of FID.
- 5.8 The Acquiring Authority considers that it would be feasible to accommodation P66 pipeline requirements on the Order Land in a way that is consistent with the Project to enable connection of the Humber Refinery to the Viking CCS transportation and storage pipeline.

James Beresford-Lambert Date: 22<sup>nd</sup> April 2025