



# Immingham Green Energy Terminal

9.62 Summary of Issue Specific Hearing 7 (ISH7)

Infrastructure Planning (Examination Procedure) Rules 2010  
Volume 9

May 2024

Planning Inspectorate Scheme Ref: TR030008

Document Reference: TR030008/EXAM/9.62

# Immingham Green Energy Terminal

Written Summary of Applicant's Oral Submissions to Issue Specific Hearing 7

---

## TABLE OF CONTENTS

1	ABOUT THIS DOCUMENT .....	1
1.1	Introduction .....	1
1.2	Attendees on behalf of the Applicant .....	1
2	APPLICANT'S SUMMARY OF CASE ON ITEM 3: NAVIGATION AND OPERATION SAFETY.....	2
2.1	Item 3 (Navigation and Operation Safety).....	2
3	APPLICANT'S SUMMARY OF CASE ON ITEM 4: MAJOR ACCIDENTS AND HAZARDS .....	5
3.1	Item 4 (Major Accidents and Hazards).....	5

# Immingham Green Energy Terminal

Written Summary of Applicant's Oral Submissions to Issue Specific Hearing 7

---

## 1 ABOUT THIS DOCUMENT

### 1.1 Introduction

- 1.1.1 This document summarises the case put by Associated British Ports (the "Applicant"), at the Issue Specific Hearing 7 on 18 April 2024 for the Immingham Green Energy Terminal project (referred to as the "Project").
- 1.1.2 The hearing opened at 10:00 and closed at 12:25 on 18 April 2024 and focused on Marine Side Issues, including Navigation and Safety Issues and Major Accidents and Hazards. The agenda for the hearing [\[EV10-001\]](#) was published on the Planning Inspectorate's website on 3 April 2024.
- 1.1.3 In what follows, the Applicant's submissions on the points raised broadly follow the items set out in the Examining Authority's agenda.

### 1.2 Attendees on behalf of the Applicant

- 1.2.1 Hereward Phillpot KC, Counsel instructed jointly by Bryan Cave Leighton Paisner LLP (BCLP) on behalf of Associated British Ports, the Applicant and Charles Russell Speechlys (CRS) on behalf of Air Products (BR) Limited. Also appearing on behalf of the Applicant were John Beattie, Director and Principal Risk Analyst at Anatec and Timon Robson, Project Director at Air Products.

# Immingham Green Energy Terminal

Written Summary of Applicant's Oral Submissions to Issue Specific Hearing 7

---

## 2 APPLICANT'S SUMMARY OF CASE ON ITEM 3: NAVIGATION AND OPERATION SAFETY

### 2.1 Item 3 (Navigation and Operation Safety)

Issue Discussed	Summary Of Oral Case
<i>Discussion and justification for the proposed mitigation, in particular the imposition of a 5-knot speed limit and a 150m exclusion zone.</i>	
When would the mitigation be required; where would they be measured from; and how would they relate and interact with any other existing navigational restrictions.	<p>The Applicant carried out a Navigation Risk Assessment [<b>APP-191</b>] for the Project as part of the consenting work which identified a range of mitigation measures covering both the construction and operational phases. Some mitigation measures would be unique to each phase and some would overlap both phases. It was noted that a number of mitigation measures are already in existence at the Humber, such as the Vessel Traffic Service which the ExA visited as part of the recent accompanied site inspection.</p> <p>In terms of the 5-knot speed limit and 150m exclusion zone, these measures would be the same as the speed limit and exclusion zone applied at the neighbouring Immingham Oil Terminal ('IOT') berths with which the IGET berth has been aligned and will be required from the commencement of operation of the jetty.</p> <p>At the IOT jetties, there is a Standing Notice to Mariners in place with reference No. S.H. 34 on "Passing Immingham Jetties" (dated 16<sup>th</sup> August 2011) which states:</p> <p style="text-align: center;"><i>"Masters and Pilots of vessels which have to pass the Immingham Oil Terminal jetties <u>must not</u> approach nearer than 150 metres from the face of the berths."</i></p> <p>The same 150m distance is planned for IGET measured from the face of the berth (berth line). This would apply as soon as the berth is operational at all times whether or not a vessel is on the berth.</p> <p>This differs from the operating times of the speed limit, where the aforementioned Standing Notice to Mariners refers to the Humber Navigation Byelaws 1990 (specifically Byelaw 14(3)), which states that:</p> <p style="text-align: center;"><i>"The master of a vessel shall ensure that the vessel does not exceed a speed of 5 knots when approaching and passing any jetty when any vessel is mooring, moored or unmooring at the jetty."</i></p> <p>As such, the speed limit does not apply constantly like the exclusion zone, just when there is a</p>

## Immingham Green Energy Terminal

Written Summary of Applicant's Oral Submissions to Issue Specific Hearing 7

	<p>vessel operating at the berth. An extract of the Humber Navigation Byelaws 1990, providing a copy of Byelaw 14(3) is provided in the Applicant's Response to the Examining Authority's Action Points from Issue Specific Hearing 7 [<b>TR30008/EXAM/9.56</b>].</p> <p>By having an identical speed limit for IGET as for IOT (and as applies to the rest of the Humber when passing a jetty), it should be well-understood by other mariners, including Pilots and Pilot Exemption Certificate (PEC) holders who are already familiar with the restriction applying at the neighbouring IOT jetty. If vessels are simultaneously moored at IOT and IGET, the speed limit is the same so any passing vessel will only have to slow down once, rather than varying speed.</p> <p>In relation to any potential interaction with existing navigational restrictions, it is noted that because the measures planned are aligned with measures in place already at IOT, it is not anticipated that there will be any negative interaction as they are designed to be complementary. A workshop was held as part of the Navigational Risk Assessment involving port personnel (Harbour Master Humber and port users such as CLdN and IOT) where these measures (and others) were discussed and agreed to be appropriate to mitigate safety hazards for IGET. There were no objections to these measures at the meeting or in response to the report on these measures that followed.</p>
<p>How would they be enforced and by whom.</p>	<p>The Applicant made no submissions in relation to this question, and endorsed the submissions made by the Harbour Master, Humber.</p>
<p>How would the mitigation measures be secured through the dDCO and how would they be implemented. If not through the DCO, how can the ExA have certainty they will be provided.</p>	<p>In addition to the submissions raised by HMH in relation to the Gateshead principle, the Applicant took an action to provide a copy of the judgment (Gateshead Metropolitan Borough Council v Secretary of State for Environment). This is provided in the Applicant's Response to the Examining Authority's Action Points from Issue Specific Hearing 7 [<b>TR30008/EXAM/9.56</b>].</p> <p>In relation to the judgment, the Applicant emphasised two points. The first being that the duplication of other regulatory controls is in principle unnecessary, which goes to the question of necessity in terms of imposing a requirement in the DCO. The second was that there is a practical problem in terms of the public interest and the interest of the operator. This is because there is an obvious risk of creating inconsistency between regulatory regimes and their requirements or potentially fettering or otherwise interfering with the discretion bestowed upon the relevant regulatory bodies in the exercise of their duties in the public interest.</p> <p>As such, there is either a risk of inconsistency whereby the operator is faced with potentially inconsistent rules and regulations governing the same activity, where the options of enforcement carry criminal liability and criminal penalty. Inconsistency in this context is contrary to the public interest. However, the</p>

# Immingham Green Energy Terminal

Written Summary of Applicant's Oral Submissions to Issue Specific Hearing 7

	<p>alternative is that the regulatory body, the Conservancy and the Harbour Master Humber in this case, has its discretion and flexibility fettered by the need to avoid an inconsistency. It is against this context that the rationale for the Gateshead principle should be understood when considering whether it is appropriate to impose a control on the DCO that deals with these matters.</p>
<p>What are the implications of the restrictions on other operators such as IoT and CLdN Killingholme and would their imposition have any consequential navigational effects upon the rest of the Humber.</p>	<p>As noted in the response to the first bullet point, the measures have been aligned with IOT in terms of speed and approach distance restrictions. This provides consistency for other passing traffic and ensures the channel width to the north is maintained. They were discussed at the navigational workshop during the NRA attended by users of the port, including IOT and CLdN, and were agreed to be appropriate, with no opposing views.</p> <p>Vessels visiting IOT will be able to navigate to the north of IGET. This was demonstrated in the simulation work undertaken by HR Wallingford which carried out four arrival and departure manoeuvres to IOT Berth 3, the closest neighbouring berth. All the runs were assessed to be successful and no significant issues arose. The simulation study concluded that [Section 10 of APP-192]:</p> <p><i>"the changes in approach will be marginal and would not be expected to result in any significant additional time or resource requirements".</i></p> <p>The IOT Operators in their Deadline 1 Submission specifically addressed the speed and distance restrictions stating, in Section 10.3 of their Written Representation [REP1-110]:</p> <p><i>"Increasing the region of this exclusion area would have no effect on operations at the IOT as the vessels arriving or departing from the IOT are already operating at low manoeuvring speeds during this phase of their passage."</i></p> <p>For other passing traffic to the north, such as CLdN vessels to/from Killingholme, the simulation study concluded that IGET [Section 10 of APP-192]:</p> <p><i>"will impose no additional restrictions on the ability of ships to navigate safely in the main channel when compared with the existing situation".</i></p> <p>Anatec has reviewed the ship tracking data used in the NRA to understand how the speed restriction will affect the regular passing vessels operated by CLdN to and from Killingholme. The assessment was carried out without and with vessels at IOT as this will influence the impact of a speed limit at IGET. The additional time is estimated to be approximately two minutes, which is not considered to be significant in the context of the overall voyage time for the affected vessels.</p>
<p>Are any further mitigation measures likely to be required to accommodate</p>	<p>The Applicant made no submissions in relation to this item as the ExA did not raise this in the hearing.</p>

# Immingham Green Energy Terminal

Written Summary of Applicant's Oral Submissions to Issue Specific Hearing 7

future cargos	
<i>Future operation of the proposed IGET jetty</i>	
Who would have responsibility for navigational and operational safety of the proposed development and how would this be secured through the DCO and subsequently implemented.	<p>The Applicant made no submissions in relation to this item. The Applicant endorsed the submissions made by the Harbour Master, Humber.</p> <p>The ExA queried whether, should the development be granted, would it become part of the operational port from a general permitted development procedure position. This was taken away as an action to be included within the note now provided in the Applicant's Response to the Examining Authority's Action Points from Issue Specific Hearing 6 [<b>TR30008/EXAM/9.55</b>].</p>
Are there any non-navigational risks associated with the handling of ammonia on the jetty that need to be understood.	The Applicant made no submissions in relation to this item.
<i>Securing mitigation under the draft DCO</i>	
The ExA notes the view of the HMH that 'it is vitally important for the Humber that the DCO should not include any specific requirements that would impinge on the discretion of the SCNA and/or the existing mechanisms for securing the safe and efficient operation of the Humber for all users.' The ExA will ask the HMH to explain these concerns and to comment on whether the current dDCO achieves this aim.	The Applicant made no submissions in relation to this item additional to the submissions made in respect of the Gateshead principle as summarised above. The Applicant endorsed the submissions made by the Harbour Master, Humber.

### 3 APPLICANT'S SUMMARY OF CASE ON ITEM 4: MAJOR ACCIDENTS AND HAZARDS

#### 3.1 Item 4 (Major Accidents and Hazards)

Issue Discussed	Summary Of Oral Case
How did the Applicant decide the number of hydrogen production units	The Applicant confirmed that the hydrogen production facility was intended to be constructed so that production could be progressively increased as the market evolved, as is also explained in the Applicant's

## Immingham Green Energy Terminal

Written Summary of Applicant's Oral Submissions to Issue Specific Hearing 7

<p>required to meet the production target. Could this number have been greater or less than the number currently specified in the application.</p>	<p>answer to ExQ1.13.2.1 <b>[REP1-034]</b>. This was a project requirement for the design from the outset.</p> <p>Air Products decided to build multiple smaller hydrogen production units (six) as it offers a number of advantages: (a) it allows the build up of capacity for hydrogen production over time as the supply of green ammonia and demand for green hydrogen increases; (b) it allows Air Products to start production sooner as hydrogen production units can be constructed and commissioned whilst others are operational; (c) it increases the level of reliability of the overall facility – if one unit is offline, others are operational and a reliable supply to customers can be maintained; (d) the constructability of the facility is smoothed, avoiding high peaks with associated impacts on traffic by building a larger facility in phases.</p> <p>The Applicant explained that constructing fewer larger units has benefits in terms of reduced cost and land footprint. However, there are disadvantages as it is less easy to get capacity growth to match market demand, as it takes longer to build the units and each unit results in a larger increase in capacity. It also increases peak construction activity, with adverse traffic impacts. The units are taller, with greater impacts in terms of scale and massing. If operational issues arise for one unit, for example from a trip or maintenance, there is a greater impact on output. On the other hand, if more smaller units are constructed, there is an increase in costs and land requirements, which affects commercial viability. There is a trade off between cost, land take and operational, commercial and construction flexibility. For the Immingham terminal, given the immature state of the hydrogen market and the need for operational flexibility, the Applicant confirmed that six hydrogen production units are considered optimal to meet the intended output in terms of cost, time to first operations and flexibility to adjust to market demand.</p>
<p>Applicant to explain:</p> <ul style="list-style-type: none"> <li>- how the construction phases align with each of the submissions required under the COMAH regime</li> <li>- as progress is made with other consenting regimes, could this affect the current layout and design of the proposed development, should further mitigation measures be required from regulators.</li> </ul>	<p>In respect of the first limb of this question, the Applicant explained that safety reports are submitted at various stages (references in this section to regulations being references to the Control of Major Accident Hazards (COMAH) Regulations 2015): (a) a pre-construction safety report must be issued a reasonable time before the start of construction (Regulation 9(2)); (b) a pre-operations safety report must be issued a reasonable time before the start of operation (Regulation 9(2)) and an operational safety report must be issued within 5 years of issue of the pre-operation safety report (Regulation 10(1)).</p> <p>These are all stages in the development of the overall safety report and are not stand alone documents in their own right. For example, once the safety report is issued at the pre-operational stage, the pre-construction safety report cannot be revised and resubmitted. The safety report is a live document throughout the life of the facility. It is required to be revised at least every 5 years and if there is a trigger event (such as a change in hazardous materials from that assessed). Air Products have engaged a process safety consultant, Gexcon Limited, to assist in the preparation of the safety reports.</p> <p>The pre-construction safety report will provide full details and an assessment of all phases of construction of the facility and is intended to be submitted at the end of April 2024. It is based on the best information available at the time adopting conservative assumptions and considers the worst case risk profile of the</p>



# Immingham Green Energy Terminal

## Written Summary of Applicant's Oral Submissions to Issue Specific Hearing 7

facility during construction, whilst the facility is partly under construction and partly operational, and on completion. This will facilitate risk informed decision taking and 'ALARP' demonstration for the entire facility, rather than consideration of isolated phases.

At the pre-operations safety report stage, the risk assessment is revised and a more detailed assessment is undertaken taking account of the construction phasing, likely numbers of construction workers on site at the relevant time, the likely design and operational details. Subject to discussion with the Competent Authority, the pre-operations safety report is intended to be submitted for phases 1 to 3, addressing phased progression of the facility up to and including the construction and operation of phase 2, whilst construction is ongoing for phase 3 (i.e. the risk assessment will include consideration of the risks and hazardous materials arising for phase 1 in operation and phase 2 in construction and for phases 1 and 2 in operation and phase 3 in construction). The pre-operations safety report is intended to be submitted in 2026 before commissioning of phase 1.

The first operational safety report must be issued no later than 5 years later, at which point, it is anticipated that phases 1 and 2 will be operational. This safety report and risk assessment will therefore address the risks and hazardous materials associated with phases 1 and 2 in operation whilst phases 3 to 6 are under construction; and with phases 1 to 6 all fully operational, once all construction and commissioning activities are complete.

This approach aims to ensure that each safety report accurately identifies and evaluates the risks for the subsequent 5 year period in accordance with the project construction and commissioning schedule and demonstrates safe design and robust safety management systems for that period, without the requirement for interim modification submissions for each phase.

The schedule for submission of the safety reports will be kept under review against the construction and commissioning schedules and phasing. If there is any change in the status of operating phases and construction that gives rise to any scenarios that have not been assessed (e.g. should phase 3 be ready for commissioning earlier than expected), the safety report and associated risk assessment would be revised and resubmitted earlier.

The Applicant confirmed that (following submission of each stage of the safety report) there is interaction with the competent authority and whilst they do not approve the reports as such, Air Products would expect to receive comments and may need to revise the submitted report.

In respect of the second limb to the question, the Applicant confirmed that, as outlined in the Consents and Agreements Position Statement [REP1-010], the key permitting matters to be addressed in relation to the hydrogen production facility comprise the hazardous substances consent (which has already been

# Immingham Green Energy Terminal

## Written Summary of Applicant's Oral Submissions to Issue Specific Hearing 7

	<p>submitted), submissions under the COMAH Regulations 2015 (the pre-construction safety report is expected to be submitted shortly) and the environmental permit (the application for which is also expected to be submitted shortly). These permit processes are therefore running concurrently.</p> <p>It is possible that the regulators may require additional mitigation measures as part of these consenting processes which affect layout and design, although this is not expected by Air Products, who are not aware of any such requirement arising at this stage.</p> <p>The parameters set out in the Environmental Statement Chapter 2 [APP-044, Table 2-2] and DCO Requirement 4 [REP1-010] provide a level of flexibility in the design of the parameters which Air Products considers is sufficient to cater for any request that may arise during the permitting process. For example, should the capacity for onsite firewater storage increase or an interconnection between firewater systems be required, such changes would be within the maximum heights secured through the parameters and there is otherwise flexibility to accommodate such changes without impacting the overall DCO submission.</p>
<p>Applicant to provide further details on why the nitrogen generated from the cracking of ammonia, cannot be used on site or for other industrial uses.</p>	<p>The Applicant explained that there are a number of reasons why the nitrogen generated during the hydrogen production process is not suitable for use as purging gas. In the hydrogen production unit, the ammonia passes through the furnace in which it is cracked into nitrogen and hydrogen. The gas stream passes through a process unit which extracts the hydrogen, leaving an "off gas" stream made up of nitrogen (approximately 80%) and some hydrogen and ammonia. As part of the optimisation of the process, the off gas stream is fed back into the furnace and mixed with firing gas, so that the residual ammonia and hydrogen supplement the fuel in the furnace. The nitrogen is mixed with the flue gas within the furnace and emitted through the stack.</p> <p>The Applicant explained that, for a number of reasons, it is not efficient to capture the nitrogen from the off gas for use, rather than generating nitrogen through air separation. The nitrogen concentration in the off gas (at approximately 80%) is very similar to that of air and is at a similar pressure to air. As the process efficiency is similar, there is no efficiency or recovery benefit in capturing the nitrogen from the off gas stream. Further, the production of nitrogen from air is a very stable and energy efficient process. Producing nitrogen from off gas is less efficient as: (a) process complications arise from variations in the flow in off gas stream; (b) the remaining ammonia and hydrogen have to be routed back to the furnace; (c) the nitrogen needs to be liquified for storage (a separate process is less efficient than using a standard air separation unit); and (d) capturing the nitrogen from hydrogen production unit off gas would require a process package for each hydrogen production unit or a group of such units, compared to a single standard air separation unit – this would require more process equipment and higher energy consumption). It is therefore more expensive, more complex and more energy intensive to capture nitrogen from the off gas than using a standard air separation package.</p> <p>The Applicant also explained that, fundamentally, nitrogen is needed for purging during shutdown and</p>

# Immingham Green Energy Terminal

## Written Summary of Applicant's Oral Submissions to Issue Specific Hearing 7

	<p>emergencies i.e. whilst the hydrogen production unit is offline, whereas the nitrogen is generated when those units are online. This means that nitrogen needs to be produced separately from hydrogen production process (otherwise a single point of failure could affect both processes and prevent nitrogen being available when it is needed). For all such reasons, the Applicant proposes separate nitrogen generation plant.</p> <p>The Applicant confirmed that not all ammonia would be converted to hydrogen, but any ammonia that is not cracked would be fed into the furnace as fuel, replacing the amount of hydrocarbon fuel needed in furnace operations. Air Products anticipates being able to meet low carbon hydrogen standards whilst using hydrocarbons as the firing gas (as discussed at ISH1). At present, there are complications with the entire replacement of hydrocarbon firing gas with ammonia, but the position may change in the future as technology develops.</p>
<p>If a separate nitrogen generating unit is required, Applicant to confirm the size and location of this.</p>	<p>The Applicant confirmed that a single nitrogen generation package is proposed on the West Site (Work No. 7), together with liquid nitrogen storage. The design accommodates connections to units in Work Nos 3 and 5 through Work No. 6 and the culvert in Work Number 4, such that the single package serves the entire facility.</p> <p>The footprint of the nitrogen generation package is expected to be approximately 35m x 26m, supplying 22,682 m3/hr of nitrogen during an emergency event with a storage volume of 406m3 of liquid nitrogen.</p>
<p>NELC's draft LIR [REP1-070] states they are in detailed discussions with the Applicant to resolve potential issues regarding COMAH zones and land use constraints. Explanation is required about the detail of these discussions and potential solutions.</p>	<p>The Applicant confirmed that whilst the hazardous substances consent application had been submitted in March 2023, the extent of the associated zones had not yet been determined by the HSE.</p> <p>In order to inform the consideration of these issues in the interim, the Applicant explained that Air Products had engaged Gexcon UK Limited, a leading specialist process safety consultant, to undertake a number of steps. These comprised: (a) developing a representative land use planning assessment model based on HSE's guidance and design information in the hazardous substances consent application, supplemented by the latest design information provided by Air Products; (b) using the model in conjunction with the HSE's published thresholds to estimate the inner, middle, and outer consultation zones; (c) using those estimated zones to evaluate the impact on surrounding land areas, residential buildings, transport routes, recreational areas and land intended for future development; (d) concluding, based on HSE published criteria whether it is likely that the HSE would 'advise against' the Project and (e) identifying whether the Project would affect potential future development sites having regard to the allocation of sites contained within both the adopted and emerging local plans.</p> <p>The assessments considered the adopted Local Plan 2013 to 2032, Local Plan Review Draft Plan with options (20 December 2023), extant planning permissions (excluding alterations and facilities under</p>

# Immingham Green Energy Terminal

## Written Summary of Applicant's Oral Submissions to Issue Specific Hearing 7

	<p>construction), planning applications and existing land uses.</p> <p>The Applicant confirmed that the actual zones will be calculated by HSE, but the work of Gexcon is a proxy for those zones. To ensure the estimated zones are as representative as possible, Gexcon arranged meetings with HSE to understand their approach and a Freedom of Information request resulted in the HSE sharing relevant guidance documentation. The general scope of the Gexcon assessment included the full Project from jetty through to tanker loading, and all phases of the Project. The Gexcon work is, as far as possible, an accurate representation of what HSE will conclude.</p> <p>As noted in ISH 5, Air Products has committed to submitting a summarised version of the Gexcon report at Deadline 3 which, whilst not giving full zones due to confidentiality reasons, will indicate the outcome for relevant land areas, and will share the report with NELC. The Applicant explained that Air Products had discussed with NELC the Gexcon work and the relationship of the expected consultation zones with the NELC local and emerging plan.</p> <p>The Applicant confirmed that their understanding is that, based on these zones, there would not be any impact on the adjacent land uses, including allocations in the local plan or emerging plan for employment development. This would be confirmed with NELC following their review of the Gexcon report.</p> <p>The Applicant confirmed that Air Products are continuing to engage with HSE to expedite consideration of the hazardous substances consent application and the issue of the consultation zones, but this is not expected before completion of the Examination.</p> <p>The Applicant explained that a contingency factor had not been applied by Gexcon, partly because there was no evidential basis on which to do so, and partly because Air Products would not expect it to result in significant differences in the conclusions, on the basis that very few residential properties lie in the vicinity of the Project and there are no such additional properties which might fall into the inner zone once published by the HSE.</p>
--	--

#### 4 **ACTION ARISING FROM THE ACCOMPANIED SITE INSPECTION ON 17 APRIL**

- 4.1 The Applicant took an action away from the Accompanied Site Inspection on 17 April to confirm the heights of nearby existing and proposed developments adjacent to the site, in particular the West Site. This is provided in the Applicant's Response to the Examining Authority's Action Points from Issue Specific Hearing 7 [**TR30008/EXAM/9.56**].