Immingham Green Energy Terminal

TR030008

Volume 6

6.4 Environmental Statement Appendices

Appendix 19.B: Climate Change Resilience (CCR) Assessment

Planning Act 2008

Regulation 5(2)(a)

Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009 (as amended)

September 2023

Infrastructure Planning

Planning Act 2008

The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009 (as amended)

Immingham Green Energy Terminal

Development Consent Order 2023

6.4 Environmental Statement Appendices

Appendix 19.B: Climate Change Resilience (CCR) Assessment

Regulation Reference	APFP Regulation 5(2)(a)
Planning Inspectorate Case Reference	TR030008
Application Document Reference	TR030008/APP/6.4
Author	Associated British Ports Air Products BR

Version	**Date**	**Status of Version**
Revision 1	21 September 2023	DCO Application

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1. Climate Change Resilience Assessment

1.1. Introduction

1.1.1. This appendix presents the results of the Climate Change Resilience ("CCR") assessment for the construction and operation phases of the Project in the form of a Climate Change Resilience Review Summary table. It should be read in conjunction with **Chapter 19: Climate Change [TR30008/APP/6.2]**.

1.1.2. The tables below present the climate change impacts associated with each phase of the Project. Both the adaptation methods to increase the resilience of the Project and likely effects of climate change on the Project are summarised.

1.1.3. Identified climate variables are ascribed a significance rating, based upon the likelihood of an impact occurring to the Project and the anticipated consequences. This includes consideration of embedded mitigation measures that have been detailed in **Chapter 19: Climate Change [TR30008/APP/6.2]**.

Table 1 Climate Change Resilience Review Summary: Construction Phase

Potential climate changes	Potential impacts on the Project	Initial Likelihood of climate related impact occurring	Initial Measure of Consequence occurring	Initial Significance Level	Adaptation/Resilience measures	Residual Likelihood of climate related impact occurring	Residual Measure of Consequence occurring	Residual Significance Level
Increased frequency and severity of weather events	Limit access to site Restrict working hours Delay construction program Damage to construction materials, plant and equipment	Moderate	Low	Not significant	A risk assessment of severe weather impacts on the construction process will be produced by the main contractor to inform mitigation. Any receptors and/or construction-related operations and activities potentially sensitive to severe weather events will be considered in that assessment. Climate change projections will be considered in the risk assessments. The main contractors' Environmental Management System will consider all measures deemed necessary and appropriate to manage severe weather events and will as a minimum	Low	Low	Not significant

Potential climate changes	Potential impacts on the Project	Initial Likelihood of climate related impact occurring	Initial Measure of Consequence occurring	Initial Significance Level	Adaptation/Resilience measures	Residual Likelihood of climate related impact occurring	Residual Measure of Consequence occurring	Residual Significance Level
					cover training of personnel and prevention and monitoring arrangements. As appropriate, construction method statements will also consider severe weather events where risks have been identified. Use of storm defences (e.g., walls, riprap). Design site with refuges where required, storm-resilient materials and form. Ensure appropriate storage of plant and materials. Addition of wind protection defenses (e.g., storm pin and tie-down procedures, crane buffers) across site. Specific measures to ensure safe storage of			

Potential climate changes	Potential impacts on the Project	Initial Likelihood of climate related impact occurring	Initial Measure of Consequence occurring	Initial Significance Level	Adaptation/Resilience measures	Residual Likelihood of climate related impact occurring	Residual Measure of Consequence occurring	Residual Significance Level
					larger infrastructure (e.g. quay cranes). Regular maintenance of assets to be undertaken to detect deterioration and damage.			
Increased summer temperatures	Restrict working hours Delay construction program Weather may create site conditions unsuitable for plant operation (damage to assets)	Moderate	Low	Not significant	Prevention measures and health and safety plans to be developed to prevent worker exhaustion due to heat such as monitoring of the weather to advise on requirements to stop work.	Low	Low	Not significant
Increased winter precipitation	Viability of and access to construction sites (such as heavy rain resulting in surface water flooding of local roads, sources of power supply or inundation of construction sites).	Moderate	Low	Not significant	Prevention measures and health and safety plans to be developed to manage flood risk during construction such as monitoring of the weather to advise on requirements to stop work.	Low	Low	Not significant

Table 2 Climate Change Resilience Review Summary: Operational Phase

Potential climate changes	Potential impacts on the Project	Initial Likelihood of climate related impact occurring	Initial Measure of Consequence occurring	Initial Significance Level	Adaptation/ Resilience measures	Residual Likelihood of climate related impact occurring	Residual Measure of Consequence occurring	Residual Significance Level
Increased frequency and severity of extreme weather	Potentially cause damage to structures and infrastructure.	Moderate	Moderate	Significant	All new structures will either be designed for the climatic conditions using appropriate design guidance where available, or adaptive capacity will be built into the designs.	Moderate	Low	Not Significant
Sea Level Rise	Potentially cause damage to structures and infrastructure	Moderate	Moderate	Significant	All new structures will either be designed for the climatic conditions using appropriate design guidance where available, or adaptive capacity will be built into the designs. Additional design measures to cope with flood / high water level conditions on site will be implemented	Moderate	Low	Not significant

Potential climate changes	Potential impacts on the Project	Initial Likelihood of climate related impact occurring	Initial Measure of Consequence occurring	Initial Significance Level	Adaptation/ Resilience measures	Residual Likelihood of climate related impact occurring	Residual Measure of Consequence occurring	Residual Significance Level
					(see **Section 19.6** of **Chapter 19: Climate Change [TR30008/APP/6.2]**.			
Increased frequency and severity of extreme weather events (e.g. flooding, snow and ice, storms)	Potential damage to land-based infrastructure. Disruption to power and water services which may impact the operation of the Project	Moderate	Moderate	Significant	All new assets and buildings will either be designed for the climatic conditions using appropriate design guidance where available, or adaptive capacity will be built into the designs. Storm-proof infrastructure will be incorporated where possible (e.g., underground power supplies). Addition of wind protection defenses (e.g., storm pin and tie-down procedures, crane buffers) across site. Specific measures	Moderate	Low	Not significant

Potential climate changes	Potential impacts on the Project	Initial Likelihood of climate related impact occurring	Initial Measure of Consequence occurring	Initial Significance Level	Adaptation/ Resilience measures	Residual Likelihood of climate related impact occurring	Residual Measure of Consequence occurring	Residual Significance Level
					to ensure safe storage of larger infrastructure (e.g. quay cranes) Regular maintenance of assets to be undertaken to detect deterioration and damage.			
Increased Summer Temperatures	Interrupted power supplies (e.g., overheating, damage to power provision infrastructure). Higher year-round temperatures could increase operational cooling requirements for the equipment and infrastructure.	Low	Low	Not significant	Use of materials with superior properties which offer increased tolerance to high temperatures to be considered.	Low	Low	Not significant

Potential climate changes	Potential impacts on the Project	Initial Likelihood of climate related impact occurring	Initial Measure of Consequence occurring	Initial Significance Level	Adaptation/ Resilience measures	Residual Likelihood of climate related impact occurring	Residual Measure of Consequence occurring	Residual Significance Level
	Potential damage to infrastructure and services through the increased risk of thermal expansion beyond the design tolerance of the materials.							
Increased temperatures	Risk of destabilising chemicals/ substances stored on site during operation.	Moderate	Moderate	Significant	Storage and transfer of chemicals/ substances in line with safety regulations.	Moderate	Low	Not significant