FENWICK SOLAR FARM

Fenwick Solar Farm
EN010152

Environmental Statement

Volume III Appendix 6-2: Climate Change Risk Assessment

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1. Introduction

1.1 Purpose of this Appendix

1.1.1 This appendix presents the results of the Climate Change Risk Assessment (CCRA) for the construction, operation and maintenance, and decommissioning phases of the Scheme in the form of a Climate Change Risk Assessment table. It should be read in conjunction with **ES Volume I Chapter 6: Climate Change [EN010152/APP/6.1]**.

1.1.2 The time-period for the initial risk rating of each phase of the Scheme reflects the period of the obtained climate change projection data (e.g. projections for 2020–2049 cover the estimated construction phase of 2028–2030).

1.2 Climate Change Risk Assessment

1.2.1 The three tables below present the climate change risks associated with each phase of the Scheme, from construction through operation and maintenance to decommissioning. Future climate projections have been reviewed and the sensitivity of assets have been examined, before commenting on the adequacy of the embedded climate change mitigation measures built into the Scheme.

1.2.2 Identified climate variables are given a significance rating, based upon the likelihood of an impact occurring to the Scheme and the anticipated consequences. This includes consideration of embedded mitigation measures.

Table 1: Construction Climate Change Risk Assessment

Risk ID	Climate Variable	Risk Identification				Risk Assessment				Significance
		Risk Statement	Type of risk	Project receptors	Impact type	Planned Controls	Initial risk rating (RCP8.5 2020–2049)			
							Likelihood	Consequence	Risk rating	
1	Extreme rainfall events	Surface water flooding and standing water	Direct	Physical structures	Asset damage	Drainage arrangements to attenuate surface water runoff and minimise flood risk to the Scheme location. These are available within **ES Volume I Chapter 9: Water Environment [EN010152/APP/6.1]** and **Framework Construction Environmental Management Plan (CEMP) [EN010152/APP/7.7]**.	Low	Low	Low	Not Significant
2	Extreme rainfall events	Working on-site in dangerous conditions	Direct	Workforce	Safety and health	The **Framework CEMP [EN010152/APP/7.7]** states that contracts with companies involved in the construction work will incorporate environmental control, health and safety regulations, and current guidance to ensure that construction activities are sustainable. A Safety, Health and Environment Manager will also advise construction managers to cascade through to all workers.	Negligible	Low	Low	Not Significant
3	Decrease in annual rainfall	Increase drought risk	Indirect	All receptors	All impact types	None required.	Unlikely	Low	Low	Not Significant
4	Increase in summer temperature	Risk of overheating to workers	Direct	Workforce	Health and safety	The **Framework CEMP [EN010152/APP/7.7]** states that contracts with companies involved in the construction work will incorporate environmental control, health and safety regulations, and current guidance to ensure that construction activities are sustainable. A Safety, Health and Environment Manager will also advise construction managers to cascade through to all workers.	Negligible	Very low	Negligible	Not Significant
5	Increase in summer temperature	Increase damage to infrastructure	Direct	Physical structures	Asset damage	During construction, the contractor will monitor weather forecasts on a monthly, weekly, and daily basis, and plan works accordingly based on anticipated weather conditions.	Negligible	Very low	Negligible	Not Significant
6	Increase in annual temperature	Risk of overheating to workers	Direct	Workforce	Safety and health	During construction, the contractor will monitor weather forecasts monthly, weekly, and daily, and plan works accordingly. Contracts with companies involved in the construction work will incorporate environmental control, health and safety regulations, and current guidance to ensure that construction activities are sustainable. A Safety, Health and Environment Manager will also advise construction managers to cascade through to all workers.	Negligible	Low	Low	Not Significant

Risk ID	Climate Variable	Risk Identification				Risk Assessment				Significance
		Risk Statement	Type of risk	Project receptors	Impact type	Planned Controls	Initial risk rating (RCP8.5 2020–2049)			
							Likelihood	Consequence	Risk rating	
7	Decrease in summer rainfall	Increase drought risk	Indirect	All receptors	All impact types	None required.	Negligible	Very low	Negligible	Not Significant
8	Increase to winter rainfall	Viability of and access to sites (such as heavy rain resulting in surface water flooding of local roads, sources of power supply, or inundation of sites)	Direct	All receptors	Safety and health	During construction, the contractor will monitor weather forecasts on a monthly, weekly, and daily basis, and plan works accordingly. Flood resilience measures to infrastructure during construction have been produced and are detailed **ES Volume I Chapter 9: Water Environment [EN010152/APP/6.1]** and **Framework CEMP [EN010152/APP/7.7]**.	Negligible	Very Low	Negligible	Not Significant
9	Increase in heatwaves	Increased heat stress/heat exhaustion for workers	Direct	Workforce	Safety and health	During construction, the contractor will monitor weather forecasts monthly, weekly, and daily, and plan works accordingly. Contracts with companies involved in the construction work will incorporate environmental control, health and safety regulations, and current guidance to ensure that construction activities are sustainable. A Safety, Health and Environment Manager will also advise construction managers to cascade through to all workers.	Negligible	Low	Low	Not Significant
10	Wildfire risk	Risk to workers over dry periods	Direct	Workforce	Safety and health	During construction, the contractor will monitor weather forecasts monthly, weekly, and daily, and plan works accordingly. Contracts with companies involved in the construction work will incorporate environmental control, health and safety regulations, and current guidance to ensure that construction activities are sustainable. A Safety, Health and Environment Manager will also advise construction managers to cascade through to all workers.	Low	Low	Low	Not Significant

Table 2: Operation and Maintenance Climate Change Risk Assessment

Risk ID	Climate Variable	Risk Identification				Risk Assessment				Significance
		Risk Statement	Type of risk	Project receptors	Impact type	Planned Controls	Initial risk rating (RCP8.5 2050-2079)			
							Likelihood	Consequence	Risk rating	
1	Extreme rainfall events	Surface water flooding and standing water	Direct	Physical structures	Asset damage	The Scheme has been designed taking into account flood risk modelling which includes climate change projections in **ES Volume III Appendix 9-3: Flood Risk Assessment [EN010152/APP/6.3].** Drainage arrangements to attenuate surface water runoff and minimise flood risk to the Scheme location and surrounding areas are discussed within **ES Volume III Appendix 9-4: Framework Drainage Strategy [EN010152/APP/6.3]**.	Low	Moderate	Low	Not Significant
2	Extreme rainfall events	Deterioration of structures or foundations due to soil moisture levels	Direct	Physical structures	Asset damage	The Scheme has been designed taking into account flood risk modelling which includes climate change projections in **ES Volume III Appendix 9-3: Flood Risk Assessment [EN010152/APP/6.3].** Details around the Scheme's drainage strategy are available in **ES Volume III Appendix 9-4: Framework Drainage Strategy [EN010152/APP/6.3**.	Low	Low	Low	Not Significant
3	Extreme rainfall events	Working on-site in dangerous conditions	Direct	Workforce	Safety and health	Operational staff and contractors will monitor weather forecasts and plan works accordingly. **ES Volume III Appendix 9-4: Framework Drainage Strategy [EN010152/APP/6.3]** discusses the Scheme's drainage Strategy. Measures to protect the health and safety of workers are detailed in the **Framework OEMP [EN010152/APP/7.8].**	Low	Low	Low	Not Significant
4	Decrease in annual rainfall	Drought risk	Direct	Workforce	Safety and Health	Operational staff and contractors will monitor weather forecasts and plan works accordingly. Measures to protect the health and safety of workers are detailed in the **Framework OEMP [EN010152/APP/7.8].**	Low	Low	Low	Not Significant
5	Decrease in annual rainfall	Drought risk potentially impacting landscape	Indirect	Physical structures, materials and planting	Asset damage	Measures to protect the landscaping of the Scheme are detailed in the **Framework OEMP [EN010152/APP/7.8]** and **Framework Landscape and Ecological Management Plan [EN010152/APP/7.14].**	Negligible	Low	Low	Not Significant

Risk ID	Climate Variable	Risk Identification				Risk Assessment				Significance
		Risk Statement	Type of risk	Project receptors	Impact type	Planned Controls	Initial risk rating (RCP8.5 2050-2079)			
							Likelihood	Consequence	Risk rating	
6	Increase in summer temperature	Damage to materials	Direct	Materials, plant, and machinery	Asset damage	Infrastructure is designed to tolerate hot conditions so will not be impacted. Operational staff and contractors will monitor weather forecasts and plan works accordingly.	Low	Moderate	Low	Not Significant
7	Increase in summer temperature	Overheating of electrical equipment	Direct	Physical structures	Asset damage	Infrastructure is designed to tolerate hot conditions so will not be impacted. Operational staff and contractors will monitor weather forecasts and plan works accordingly.	Negligible	Low	Low	Not Significant
8	Increase in summer temperature	Overheating of workforce in hot conditions	Direct	Workforce	Safety and health	Operational staff and contractors will monitor weather forecasts and plan works accordingly. Measures to protect the health and safety of workers are detailed in the **Framework OEMP [EN010152/APP/7.8].**	Negligible	Low	Low	Not significant
9	Increase in winter temperature	Operational efficiency of the Scheme	Direct	Physical structures	Asset use	Infrastructure is designed to tolerate hot conditions so will not be impacted.	Negligible	Very low	Negligible	Not Significant
10	Increase in annual temperature	Risk of overheating to workers	Direct	Workforce	Safety and health	Operational staff and contractors will monitor weather forecasts and plan works accordingly. Measures to protect the health and safety of workers are detailed in the **Framework OEMP [EN010152/APP/7.8].**	Low	Moderate	Low	Not Significant
11	Increase to winter rainfall	Viability of and access to sites (such as heavy rain resulting in surface water flooding of local roads, sources of power supply, or inundation of sites)	Direct	All receptors	Safety and health	Operational staff and contractors will monitor weather forecasts and plan works accordingly. Measures to protect the health and safety of workers are detailed in the **Framework OEMP [EN010152/APP/7.8].** The Scheme has been designed taking into account flood risk modelling which includes climate change projections in **ES Volume III Appendix 9-3: Flood Risk Assessment [EN010152/APP/6.3].** Details around the Scheme's drainage strategy are available in **ES Volume III Appendix 9-4: Framework Drainage Strategy [EN010152/APP/6.3**.	Low	Moderate	Low	Not Significant
12	Increase in heatwaves	Overheating of electrical equipment	Direct	Physical structures	Asset damage	Infrastructure is designed to tolerate hot conditions so will not be impacted.	Negligible	Moderate	Low	Not Significant
13	Increase in heatwaves	Damage to materials	Direct	Materials	Asset damage	Infrastructure is designed to tolerate hot conditions so will not be impacted.	Low	Low	Low	Not Significant

Risk ID	Climate Variable	Risk Identification				Risk Assessment				Significance
		Risk Statement	Type of risk	Project receptors	Impact type	Planned Controls	Initial risk rating (RCP8.5 2050-2079)			
							Likelihood	Consequence	Risk rating	
14	Increase in heatwaves	Increased heat stress/heat exhaustion for workers	Direct	Workforce	Safety and health	Operational staff and contractors will monitor weather forecasts and plan works accordingly. Measures to protect the health and safety of workers are detailed in the **Framework OEMP [EN010152/APP/7.8].**	Low	Moderate	Low	Not Significant
15	Increased wildfire risk	Potential danger for the batteries in the Battery Energy Storage System to cause or be damaged by wildfire	Indirect	Physical structures	Safety, asset damage	Operational staff and contractors will monitor weather forecasts and plan works accordingly. Battery safety measures specified in **the Framework Battery Safety Management Plan [EN010152/APP/7.16].**	Low	Low	Low	Not Significant

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