

Appendix 18B
Climate Change Risk Register

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APPENDIX 18B – CLIMATE CHANGE RISK REGISTER

Power Plant Area

Initial Risks

RISK IDENTIFICATION						INITIAL RISK						SIGNIFICANCE	
Risk ID	Climate variable	Risk statement	Receptors			Impact type	Initial risk rating						Significance
							RCP4.5 (2041-2060)			RCP8.5 (2041-2060)			
			Power Plant Area	Construction assets, plant and equipment	Staff and visitors on-site	Likelihood	Consequence	Risk rating	Likelihood	Consequence	Risk rating		
Construction													
1	Extreme weather events (e.g storms)	Extreme weather events (e.g. storms) result in an inaccessible construction site or health and safety risk to workers, causing restricted working hours and a delay in operations.		•	•	Construction disruption Health and safety	Rare	Minor	Low	Unlikely	Minor	Low	Not significant
2	Extreme weather events (e.g storms)	Extreme weather events (e.g. storms) cause damage to construction materials, plant, and equipment.		•		Construction asset damage	Rare	Moderate	Medium	Unlikely	Moderate	Medium	Not significant
3	Extreme temperatures	Extreme temperatures result in unsuitable conditions for certain construction activities causing delays in construction.		•		Construction disruption	Rare	Minor	Low	Rare	Minor	Low	Not significant
4	Extreme rainfall	Extreme rainfall results in flooded areas and unsuitable conditions for certain construction activities causing delays in construction.		•		Construction disruption	Rare	Minor	Low	Unlikely	Minor	Low	Not significant
Operation													
5	Extreme heat	Extreme heat causes overheating of electrical equipment, as well as heat damage, deformation, cracking and thermal expansion of building surfaces and pavements.		•		Asset damage	Rare	Minor	Low	Unlikely	Minor	Low	Not significant

6	Extreme heat	Extreme heat leads to increase in ambient temperature of buildings, impacting the thermal comfort of building users.			•	Health and safety	Rare	Minor	Low	Rare	Minor	Low	Not significant
7	Extreme heat	Extreme heat results in reduced efficiency in CCGT and OCGT operations.			•	Engineering / operational	Unlikely	Minor	Low	Moderate	Minor	Low	Not significant
8	Extreme rainfall	Extreme rainfall event leads to flooding of surfaces which has implications on safety, asset damage, and the operation of the plant.			•	Asset damage / engineering / operational Health and safety	Rare	Moderate	Low	Unlikely	Moderate	Medium	Not significant
9	Extreme weather events (e.g. storms)	Extreme weather events such as storms cause damage to plant infrastructure and equipment, causing stoppages in operation.			•	Asset damage / engineering / operational Health and safety	Rare	Moderate	Low	Unlikely	Moderate	Medium	Not significant

Residual Risks

RISK IDENTIFICATION						INITIAL RISK						MITIGATION MEASURES						SIGNIFICANCE			
Risk ID	Climate variable	Risk statement	Receptors			Impact type	Initial risk rating			Embedded Mitigation Measures	Responsibility	Residual risk rating			Significance						
							RCP4.5 (2041-2060)					RCP8.5 (2041-2060)				RCP4.5 (2041-2060)			RCP8.5 (2041-2060)		
			Power Plant Area	Construction assets, plant and equipment	Staff and visitors on-site		Likelihood	Consequence	Risk rating	Likelihood	Consequence	Risk rating		Likelihood	Consequence	Risk rating	Likelihood	Consequence	Risk rating		
Construction																					
1	Extreme weather events (e.g. storms)	Extreme weather events (e.g. storms) result in an inaccessible construction site or health and safety risk to workers, causing restricted working hours and a delay in operations.		•	•	Construction disruption Health and safety	Rare	Minor	Low	Unlikely	Minor	Low	Contractor to monitor weather and plan works accordingly	Contractor	Rare	Minor	Low	Unlikely	Minor	Low	Not significant
2	Extreme weather events (e.g. storms)	Extreme weather events (e.g. storms) cause damage to construction materials, plant, and equipment.		•		Construction asset damage	Rare	Moderate	Medium	Unlikely	Moderate	Medium	Contractor to monitor weather and plan works accordingly	Contractor	Rare	Minor	Low	Unlikely	Minor	Low	Not significant
3	Extreme temperatures	Extreme temperatures result in unsuitable conditions for certain construction activities causing delays in construction.		•		Construction disruption	Rare	Minor	Low	Rare	Minor	Low	Contractor to monitor weather and plan works accordingly	Contractor	Rare	Insignificant	Low	Rare	Insignificant	Low	Not significant
4	Extreme rainfall	Extreme rainfall results in flooded areas and unsuitable conditions for certain construction activities causing delays in construction.		•		Construction disruption	Rare	Minor	Low	Unlikely	Minor	Low	Contractor to monitor weather and plan works accordingly	Contractor	Rare	Minor	Low	Unlikely	Minor	Low	Not significant
Operation																					
5	Extreme heat	Extreme heat causes overheating of electrical equipment, as well as heat damage, deformation, cracking and thermal expansion of building surfaces and pavements.		•		Asset damage	Rare	Minor	Low	Unlikely	Minor	Low	Designed to Irish building standards; designed to withstand a range of temperatures Infrastructure is to be maintained and monitored for degradation due to extreme temperatures	Designer, Operator	Rare	Minor	Low	Unlikely	Minor	Low	Not significant

6	Extreme heat	Extreme heat leads to increase in ambient temperature of buildings, impacting the thermal comfort of building users.				Health and safety	Rare	Minor	Low	Rare	Minor	Low	Designed to Irish building standards; designed for thermal comfort in a range of temperatures	Designer	Rare	Insignificant	Low	Rare	Insignificant	Low	Not significant
7	Extreme heat	Extreme heat results in reduced efficiency in CCGT and OCGT operations.				Engineering / operational	Unlikely	Minor	Low	Moderate	Minor	Low	The power plant is designed to operate over a large range of ambient conditions with negligible change in efficiency	Designer	Unlikely	Insignificant	Low	Moderate	Insignificant	Low	Not significant
8	Extreme rainfall	Extreme rainfall event leads to flooding of surfaces which has implications on safety, asset damage, and the operation of the plant.				Asset damage / engineering / operational Health and safety	Rare	Moderate	Low	Unlikely	Moderate	Medium	Flood protection designed to withstand 1:1000 year flood	Designer	Rare	Minor	Low	Unlikely	Minor	Low	Not significant
9	Extreme weather events (e.g. storms)	Extreme weather events such as storms cause damage to plant infrastructure and equipment, causing stoppages in operation.				Asset damage / engineering / operational Health and safety	Rare	Moderate	Low	Unlikely	Moderate	Medium	Designed to Irish building standards; design takes into consideration wind loadings. Emergency procedures are to be implemented against extreme weather events	Designer, Operator	Rare	Minor	Low	Unlikely	Minor	Low	Not significant

Electricity Grid Connection

Initial Risks

RISK IDENTIFICATION						INITIAL RISK						SIGNIFICANCE	
Risk ID	Climate variable	Risk statement	Receptors			Impact type	Initial risk rating						Significance
							RCP4.5 (2041-2060)			RCP8.5 (2041-2060)			
			Electricity Grid Connection	Construction assets, plant and equipment	Staff and visitors on-site		Likelihood	Consequence	Risk rating	Likelihood	Consequence	Risk rating	
Construction													
1	Extreme weather events (e.g. storms)	Extreme weather events (e.g. storms) result in an inaccessible construction site or health and safety risk to workers, causing restricted working hours and a delay in operations.		•	•	Construction disruption Health and safety	Rare	Minor	Low	Unlikely	Minor	Low	Not significant
2	Extreme weather events (e.g. storms)	Extreme weather events (e.g. storms) cause damage to construction materials, plant, and equipment.		•		Construction asset damage	Rare	Moderate	Medium	Unlikely	Moderate	Medium	Not significant
3	Extreme temperatures	Extreme temperatures result in unsuitable conditions for certain construction activities causing delays in construction.		•		Construction disruption	Rare	Minor	Low	Rare	Minor	Low	Not significant
4	Extreme rainfall	Extreme rainfall results in flooded areas and unsuitable conditions for certain construction activities causing delays in construction.		•		Construction disruption	Rare	Minor	Low	Unlikely	Minor	Low	Not significant
Operation													
5	Extreme heat	Extreme heat causes overheating of electrical equipment, as well as heat damage to electrical infrastructure.	•			Asset damage	Rare	Minor	Low	Unlikely	Minor	Low	Not significant
6	Extreme heat	Extreme heat leads causes heat stress for maintenance workers.			•	Health and safety	Rare	Minor	Low	Rare	Minor	Low	Not significant

7	Extreme rainfall	Extreme rainfall event leads to flooding which can damage substations and underground cables, disrupting electricity connection.	.			Asset damage / engineering / operational Health and safety	Rare	Moderate	Medium	Unlikely	Moderate	Medium	Not significant
8	Extreme weather events (e.g. storms)	Extreme weather events such as storms cause damage to overhead lines disrupting electricity connection.	.			Asset damage / engineering / operational Health and safety	Rare	Moderate	Medium	Unlikely	Moderate	Medium	Not significant

Residual Risks

RISK IDENTIFICATION						INITIAL RISK						MITIGATION MEASURES						SIGNIFICANCE			
Risk ID	Climate variable	Risk statement	Receptors			Impact type	Initial risk rating			Embedded Mitigation Measures	Responsibility	Residual risk rating			Significance						
							RCP4.5 (2041-2060)	RCP8.5 (2041-2060)				RCP4.5 (2041-2060)	RCP8.5 (2041-2060)								
			Electricity Grid Connection	Construction assets, plant and equipment	Staff and visitors on-site		Likelihood	Consequence	Risk rating	Likelihood	Consequence	Risk rating		Likelihood	Consequence	Risk rating					
Construction																					
1	Extreme weather events (e.g. storms)	Extreme weather events (e.g. storms) result in an inaccessible construction site or health and safety risk to workers, causing restricted working hours and a delay in operations.		•	•	Construction disruption Health and safety	Rare	Minor	Low	Unlikely	Minor	Low	Contractor to monitor weather and plan works accordingly	Contractor	Rare	Minor	Low	Unlikely	Minor	Low	Not significant
2	Extreme weather events (e.g. storms)	Extreme weather events (e.g. storms) cause damage to construction materials, plant, and equipment.		•		Construction asset damage	Rare	Moderate	Medium	Unlikely	Moderate	Medium	Contractor to monitor weather and plan works accordingly	Contractor	Rare	Minor	Low	Unlikely	Minor	Low	Not significant
3	Extreme temperatures	Extreme temperatures result in unsuitable conditions for certain construction activities causing delays in construction.		•		Construction disruption	Rare	Minor	Low	Rare	Minor	Low	Contractor to monitor weather and plan works accordingly	Contractor	Rare	Insignificant	Low	Rare	Insignificant	Low	Not significant
4	Extreme rainfall	Extreme rainfall results in flooded areas and unsuitable conditions for certain construction activities causing delays in construction.		•		Construction disruption	Rare	Minor	Low	Unlikely	Minor	Low	Contractor to monitor weather and plan works accordingly	Contractor	Rare	Minor	Low	Unlikely	Minor	Low	Not significant
Operation																					
5	Extreme heat	Extreme heat causes overheating of electrical equipment, as well as heat damage to electrical infrastructure.		•		Asset damage	Rare	Minor	Low	Unlikely	Minor	Low	Designed to Irish building standards; designed to withstand a range of temperatures Infrastructure is to be maintained and monitored for degradation due to extreme temperatures	Designer, Operator	Rare	Minor	Low	Unlikely	Minor	Low	Not significant
6	Extreme heat	Extreme heat leads causes heat stress for maintenance workers.			•	Health and safety	Rare	Minor	Low	Rare	Minor	Low	Maintenance work to be scheduled to avoid unfavourable weather	Operator	Rare	Insignificant	Low	Rare	Insignificant	Low	Not significant

7	Extreme rainfall	Extreme rainfall event leads to flooding which can damage substations and underground cables, disrupting electricity connection.	.			Asset damage / engineering / operational Health and safety	Rare	Moderate	Medium	Unlikely	Moderate	Medium	Flood protection designed to withstand 1:1000 year flood	Designer	Rare	Minor	Low	Unlikely	Minor	Low	Not significant
8	Extreme weather events (e.g. storms)	Extreme weather events such as storms cause damage to overhead lines disrupting electricity connection.	.			Asset damage / engineering / operational Health and safety	Rare	Moderate	Medium	Unlikely	Moderate	Medium	Designed to Irish building standards; design takes into consideration wind loadings. Emergency procedures are to be implemented against extreme weather events	Designer, Operator	Rare	Minor	Low	Unlikely	Minor	Low	Not significant

Gas Connection Corridor

Initial Risk

RISK IDENTIFICATION						INITIAL RISK						SIGNIFICANCE	
Risk ID	Climate variable	Risk statement	Receptors			Impact type	Initial risk rating						Significance
							RCP4.5 (2041-2060)			RCP8.5 (2041-2060)			
			Gas Connection Corridor	Construction assets, plant and equipment	Staff and visitors on-site		Likelihood	Consequence	Risk rating	Likelihood	Consequence	Risk rating	
Construction													
1	Extreme weather events (e.g. storms)	Extreme weather events (e.g. storms) result in an inaccessible construction site or health and safety risk to workers, causing restricted working hours and a delay in operations.		•	•	Construction disruption Health and safety	Rare	Minor	Low	Unlikely	Minor	Low	Not significant
2	Extreme weather events (e.g. storms)	Extreme weather events (e.g. storms) cause damage to construction materials, plant, and equipment.		•		Construction asset damage	Rare	Moderate	Medium	Unlikely	Moderate	Medium	Not significant
3	Extreme temperatures	Extreme temperatures result in unsuitable conditions for certain construction activities causing delays in construction.		•		Construction disruption	Rare	Minor	Low	Rare	Minor	Low	Not significant
4	Extreme rainfall	Extreme rainfall results in flooded areas and unsuitable conditions for certain construction activities causing delays in construction.		•		Construction disruption	Rare	Minor	Low	Unlikely	Minor	Low	Not significant
Operation													
5	Extreme heat	Extreme heat leads causes heat stress for maintenance workers.			•	Health and safety	Rare	Minor	Low	Rare	Minor	Low	Not significant
6	Extreme rainfall	Extreme rainfall event leads to flooding which can damage underground pipelines, disrupting gas supply.	•			Asset damage / engineering / operational Health and safety	Rare	Moderate	Medium	Unlikely	Moderate	Medium	Not significant

Residual Risk

RISK IDENTIFICATION						INITIAL RISK						MITIGATION MEASURES						SIGNIFICANCE			
Risk ID	Climate variable	Risk statement	Receptors			Impact type	Initial risk rating			Embedded Mitigation Measures	Responsibility	Residual risk rating			Significance						
							RCP4.5 (2041-2060)	RCP8.5 (2041-2060)				RCP4.5 (2041-2060)	RCP8.5 (2041-2060)								
			Gas Connection Corridor	Construction assets, plant and equipment	Staff and visitors on-site		Likelihood	Consequence	Risk rating	Likelihood	Consequence	Risk rating		Likelihood	Consequence	Risk rating					
Construction																					
1	Extreme weather events (e.g. storms)	Extreme weather events (e.g. storms) result in an inaccessible construction site or health and safety risk to workers, causing restricted working hours and a delay in operations.		•	•	Construction disruption Health and safety	Rare	Minor	Low	Unlikely	Minor	Low	Contractor to monitor weather and plan works accordingly	Contractor	Rare	Minor	Low	Unlikely	Minor	Low	Not significant
2	Extreme weather events (e.g. storms)	Extreme weather events (e.g. storms) cause damage to construction materials, plant, and equipment.		•		Construction asset damage	Rare	Moderate	Medium	Unlikely	Moderate	Medium	Contractor to monitor weather and plan works accordingly	Contractor	Rare	Minor	Low	Unlikely	Minor	Low	Not significant
3	Extreme temperatures	Extreme temperatures result in unsuitable conditions for certain construction activities causing delays in construction.		•		Construction disruption	Rare	Minor	Low	Rare	Minor	Low	Contractor to monitor weather and plan works accordingly	Contractor	Rare	Insignificant	Low	Rare	Insignificant	Low	Not significant
4	Extreme rainfall	Extreme rainfall results in flooded areas and unsuitable conditions for certain construction activities causing delays in construction.		•		Construction disruption	Rare	Minor	Low	Unlikely	Minor	Low	Contractor to monitor weather and plan works accordingly	Contractor	Rare	Minor	Low	Unlikely	Minor	Low	Not significant
Operation																					
5	Extreme heat	Extreme heat leads causes heat stress for maintenance workers.			•	Health and safety	Rare	Minor	Low	Rare	Minor	Low	Maintenance work to be scheduled accordingly to avoid unfavourable weather.	Operator	Rare	Insignificant	Low	Rare	Insignificant	Low	Not significant

6	Extreme rainfall	Extreme rainfall event leads to flooding which can damage underground pipelines, disrupting gas supply.	.			Asset damage / engineering / operational Health and safety	Rare	Moderate	Medium	Unlikely	Moderate	Medium	Flood protection designed to withstand 1:1000 year flood	Designer	Rare	Minor	Low	Unlikely	Minor	Low	Not significant
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