

# **Sainshand – Tsagaan Suvarga Transmission Line Project**

Environmental and Social Impact Assessment

DECEMBER 2025



# Sainshand – Tsagaan Suvarga Transmission Line Project

## Environmental and Social Impact Assessment (ESIA)

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## 19 Cumulative Effects

### 19.1 Introduction

- 19.1.1 This chapter provides an assessment of the cumulative effects of the Project. The assessment of cumulative effects is typically performed, in general terms, in a qualitative manner based on the existing information of the present or future activities taken into consideration, and the judgement of the ESIA Team.

### 19.2 Scope and Methodology

- 19.2.1 As stated in EBRD PR1 the assessment of cumulative impacts is a requirement for ESIA. The assessment process will consider cumulative impacts of the project in combination with impacts from other relevant past, present and reasonably foreseeable developments as well as unplanned but predictable activities enabled by the project that may occur later or at a different location<sup>1</sup>.
- 19.2.2 The European Commission (EC) Directive 85/337/EEC also requires assessment of “the direct effects and any indirect, secondary, cumulative, short, medium and long term, permanent or temporary, positive and negative effects of the project”. EC Directive 97/11/EC requires projects to be assessed in relation to “the cumulation with other projects and the existing land use”.
- 19.2.3 There is no single widely accepted or best practice methodology for the assessment of cumulative effects. The following approach is based on the principles of the relevant guidance, previous experience and professional judgement, tailored to reflect the available data.
- 19.2.4 The cumulative effects considered in this assessment, as also set out in **Chapter 5: Approach to the ESIA**, are those that may arise as a result of:
- Effects of interrelationships within the same project on a single receptor; and
  - Effects on a resources or receptors arising from the Project in combination with other existing, planned or reasonably defined developments.
- 19.2.5 The duration of effects considered covers the construction period for the Project, which is assumed to be two years. A year of operation based on the detailed design report has been assumed as 2028/9.

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<sup>1</sup> EBRD Performance Requirement 1 Assessment and Management of Environmental and Social Impacts and Issues 2014, p.12

## Effect Interrelationships

- 19.2.6 The approach to the assessment of the effects of interrelationships considers effects arising from the combined action of several different environmental and social topic-specific effects on a common receptor, for example, the effects of noise and dust on the local community. The assessment is based upon residual effects (of minor or greater significance) on common receptors (identified in the individual topic chapters). The study area for the assessment is informed by the study area for individual topic assessments as set out in Chapters 7 to 17.

## In-Combination Effects

- 19.2.7 The approach to the assessment of in-combination effects considers effects arising from the combined action of a number of different projects ('planned developments'), in combination with the Project, on a single receptor.
- 19.2.8 The assessment is based upon residual effects (of minor or greater significance) on the common receptors that have been identified in Chapters 7 to 17 as well as any available data for applicable 'planned developments'.
- 19.2.9 There is no standard definition for a 'planned development' and as such, developments are assessed using professional judgement and on a case-by-case basis. For the purposes of this assessment, planned developments are defined as those that are within a relevant geographical boundary with the common sensitive receptors of this Project and are of a nature and scale that is likely to impact on the common sensitive receptors of the Project in construction and/or operation.

## 19.3 Determining Significant Effects

- 19.3.1 There is no formal guidance on the criteria for determining significance of cumulative effects. The following principles have been considered when assessing the significance of cumulative effects on relation to both the effect Interrelationships and in-combination effects:
- The nature and sensitivity of the receptors affected;
  - How the effects identified combine to affect the condition of the receptor;
  - The probabilities of the effects occurring in relation to each other in such a way as to produce cumulative effects; and
  - The ability of the receptor to absorb further effects.
- 19.3.2 The resulting determination of significance is therefore an illustration of how multiple effects may lead to an increased residual effect compared to viewing effects in isolation.

## 19.4 Assessment of Cumulative Effects

### Common Receptors

19.4.1 Receptors or resources that could be affected by more than one environmental or social topic and therefore be subject to more than one residual effect, are known as common receptors. This has been determined by considering which receptors have been identified in each topic chapter of this ESIA as having a residual adverse effect. So for example, local community as receptor was identified in various topic chapters such as landscape and visual, water and social and community as having a residual adverse effect following mitigation. As this receptor has been identified in more than more topic chapter it has been considered a common receptor. Receptors that have not been considered in more than one topic assessment have not been included in the table. The common receptors with residual effects of minor and above, and their corresponding environmental and/or social topic, are identified in **Table 19-1**.

Table 19-1 Common Receptors

Phase	Receptor or resource	Environmental and Social Topics
Construction	Local communities (baghs), including vulnerable people: <ul style="list-style-type: none"> <li>• Dalaishand bagh</li> <li>• Chandmani bagh</li> <li>• Yalalt bagh</li> <li>• Ganzam bagh</li> <li>• Zuunbayan bagh</li> <li>• Khairkhan bagh</li> <li>• Naran bagh</li> <li>• Argalant bagh</li> <li>• Ulaanshoroot bagh</li> <li>• Servenbayankhoshuu bagh</li> <li>• Alagteeg bagh</li> </ul>	Landscape and Visual Water Cultural Heritage Economy, Employment and Livelihoods Social and Community Labour and Working Conditions
	Herder households within 1km of the OHTL route, including vulnerable people	Air Quality Noise and Vibration Soils Water Cultural Heritage Social and Community Land Use, Tenure and Displacement Labour and Working Conditions
	Customers of CES / Local businesses (including mines)	Social and Community Economy, Employment and Livelihoods
	Social infrastructure and utility owners	Water Social and Community Economy, Employment and Livelihoods Land Use, Tenure and Displacement

Phase	Receptor or resource	Environmental and Social Topics
	Construction workers	Natural Hazards Social and Community Economy, Employment and Livelihoods Labour and Working Conditions
	Water Environment	Water Land Use, Tenure and Displacement
	Flora and Fauna	Biodiversity, Flora and Fauna Noise and Vibration Air Quality Soils Water
Operation	Local communities (baghs), including vulnerable people: <ul style="list-style-type: none"> <li>• Dalaishand bagh</li> <li>• Chandmani bagh</li> <li>• Yalalt bagh</li> <li>• Ganzam bagh</li> <li>• Zuunbayan bagh</li> <li>• Khairkhan bagh</li> <li>• Naran bagh</li> <li>• Argalant bagh</li> <li>• Ulaanshoroot bagh</li> <li>• Servenbayankhoshuu bagh</li> <li>• Alagteeg bagh</li> <li>• Visitors to the Project Area</li> </ul>	Landscape and Visual Water Cultural Heritage Economy, Employment and Livelihoods Social and Community Labour and Working Conditions
	Herder households within 1km of the OHTL route including vulnerable people	Air Quality Noise and Vibration Soils Natural Hazards Water Cultural Heritage Social and Community Land Use, Tenure and Displacement Labour and Working Conditions
	Customers of CES / Local businesses (including mines)	Social and Community Economy, Employment and Livelihoods
	Social infrastructure and utility owners	Social and Community Economy, Employment and Livelihoods Land Use, Tenure and Displacement
	O&M workers	Economy, Employment and Livelihoods Labour and Working Conditions Natural Hazards

Phase	Receptor or resource	Environmental and Social Topics
	Flora and Fauna	Biodiversity, Flora and Fauna Noise and Vibration Air Quality Water

## Construction

- 19.4.2 **Table 19-2** provides a summary matrix for the construction phase of the Project showing the residual effect as identified in the relevant topic assessments following implementation of the mitigation measures set out in Chapters 7 to 18. This enables a qualitative assessment of the interactions of residual effects across the common receptors under consideration and outlines the overall significance of effect on the identified common receptors.
- 19.4.3 Any residual effects that do not affect the common receptors have not been detailed in the table, as no effect interrelationships are anticipated.

## Operation

- 19.4.4 **Table 19-3** provides a summary matrix for the operation phase of the Project showing the residual effect interrelations between the topics, following implementation of the mitigation measures set out in Chapters 7 to 16. This enables a qualitative assessment of the interactions of residual effects and outlines the overall significance of effect on the identified common receptors.
- 19.4.5 Any residual effects that do not affect the common receptors have not been detailed in the table, as no effect interrelationships are therefore anticipated.





Table 19-2 Matrix of Effects Interrelationships for the Construction Phase

Technical topic	Local communities	Herder household	Customers of CES / Local businesses	Social infrastructure and utility owners	Construction workers	Water Environment	Flora and fauna
<b>Air Quality</b>	n/a	<b>Not significant</b> – Dust generation as a result of construction activities.	n/a	n/a	N/a	n/a	<b>Not significant</b> – Dust generation as a result of construction activities.
<b>Noise and Vibration</b>	n/a	<b>Not significant</b> – Noise and vibration generation as a result of construction activities.	n/a	n/a	N/a	n/a	<b>Not significant</b> – Noise and vibration generation as a result of construction activities.
<b>Biodiversity, Flora and Fauna</b>	n/a	n/a	n/a	n/a	n/a	n/a	<b>Negligible -</b> Pollution events and Construction worker pressures on habitats  Construction worker pressures on small mammals  Habitat loss and degradation, Animal mortality, Disturbance and Construction worker pressures on Birds not of Conservation Concern

Technical topic	Local communities	Herder household	Customers of CES / Local businesses	Social infrastructure and utility owners	Construction workers	Water Environment	Flora and fauna
							<p>Construction worker pressures on reptiles and Invertebrates</p> <p><b>Minor Adverse –</b> Direct loss and degradation on habitats</p> <p>Direct loss and degradation on, Pollution events and Construction worker pressures on Rare / Endangered Flora</p> <p>Habitat loss and degradation, Animal mortality, Disturbance and Construction worker pressures on large mammals</p> <p>Habitat loss and degradation, Animal mortality, Disturbance and Construction worker pressures on Birds of Conservation Concern</p>

Technical topic	Local communities	Herder household	Customers of CES / Local businesses	Social infrastructure and utility owners	Constuction workers	Water Environment	Flora and fauna
<b>Landscape and Visual</b>	<p><b>Moderate adverse</b> – Visual impacts for users and visitors to Khiimoriin ovoo and the adjacent part of the Ulaan Tolgoi valley race horse competition area visual amenity.</p> <p><b>Minor Adverse</b> – Landscape character impacts.</p> <p><b>Minor Adverse</b> – Visual impacts for Community of Sainshand visual amenity and Visitors to Khan bayanzurkh mountain top visual amenity.</p>	Same as for local communities.	n/a	n/a	n/a	n/a	n/a
<b>Soils</b>	n/a	<b>Negligible</b> – Soil compaction, erosion, deterioration, and contamination.	n/a	n/a	n/a	n/a	<b>Negligible</b> – Soil compaction, erosion, deterioration, and contamination
<b>Natural Hazards</b>	n/a	n/a	n/a	n/a	<b>Not Significant</b> - impact of natural hazards on construction activities, including access to site, ability to dig tower foundations and the health and safety of construction workers;	n/a	n/a

Technical topic	Local communities	Herder household	Customers of CES / Local businesses	Social infrastructure and utility owners	Construction workers	Water Environment	Flora and fauna
					particularly given the open nature of the terrain in the Study Area.		
<b>Water</b> - Flood risk and land drainage	n/a	<p><b>Negligible</b> - Land clearing, earthworks and construction of towers have the potential to increase impermeable land cover which could lead to an increase in the rates and volumes of surface water runoff that are generated in response to rainfall. Uncontrolled discharges of surface water during construction activities do not have the potential to increase flood risk downstream.</p> <p><b>Negligible</b> - Construction of temporary in-channel structures to facilitate construction access crossings of dry riverbeds can also act as an impediment to flow which may cause local changes in flow velocities, scour and increased flood risk upstream. Founding a tower in an unknown dry</p>	n/a	n/a	n/a	<p><b>Negligible</b> - Land clearing, earthworks and construction of towers have the potential to increase impermeable land cover which could lead to an increase in the rates and volumes of surface water runoff that are generated in response to rainfall. Uncontrolled discharges of surface water during construction activities do not have the potential to increase flood risk downstream.</p> <p><b>Negligible</b> - Construction of temporary in-channel structures to facilitate construction access crossings of dry riverbeds can also act as an impediment to flow which may cause local changes in flow velocities, scour and</p>	n/a

Technical topic	Local communities	Herder household	Customers of CES / Local businesses	Social infrastructure and utility owners	Constuction workers	Water Environment	Flora and fauna
		stream may reduce the tower's structural integrity and impact on the surface water hydromorphology.				increased flood risk upstream. Founding a tower in an unknown dry stream may reduce the tower's structural integrity and impact on the surface water hydromorphology.	
<b>Water - Water resources</b>	<b>Minor Adverse</b> - water will be required for the construction workforce, to supply welfare facilities at any temporary camps and construction activities such as concrete mixing and water dousing for dust suppression.	<b>Minor Adverse</b> - Construction activities near to any drinking water wells or the increased usage of groundwater has the potential to cause accidental damage to the well infrastructure, potentially impacting access to groundwater supplies.	n/a	<b>Minor Adverse</b> - water will be required for the construction workforce, to supply welfare facilities at any temporary camps and construction activities such as concrete mixing and water dousing for dust suppression.	n/a	<b>Minor Adverse</b> - water will be required for the construction workforce, to supply welfare facilities at any temporary camps and construction activities such as concrete mixing and water dousing for dust suppression.  Construction activities near to any drinking water wells or the increased usage of groundwater has the potential to cause accidental damage to the well infrastructure, potentially impacting access to groundwater supplies.	n/a
<b>Water – Water quality</b>	<b>Negligible –</b> Wastewater and communal waste	<b>Negligible –</b> Wastewater and communal waste	n/a	n/a	n/a	<b>Negligible –</b> Wastewater and communal waste	n/a

Technical topic	Local communities	Herder household	Customers of CES / Local businesses	Social infrastructure and utility owners	Construction workers	Water Environment	Flora and fauna
	<p>generation which could enter the wetland, groundwater table or dry riverbeds, impacting on water quality. Uncontrolled discharges of contaminated water may lead to surface and groundwater quality degradation, which has the potential to impact the integrity of the existing drinking water wells and the wetland.</p> <p>Accidental spills of oils/chemicals which infiltrate into the ground.</p>	<p>generation which could enter the wetland, groundwater table or dry riverbeds, impacting on water quality. Uncontrolled discharges of contaminated water may lead to surface and groundwater quality degradation, which has the potential to impact the integrity of the existing drinking water wells and the wetland.</p> <p>Accidental spills of oils/chemicals which infiltrate into the ground.</p>				<p>generation which could enter the wetland, groundwater table or dry riverbeds, impacting on water quality. Uncontrolled discharges of contaminated water may lead to surface and groundwater quality degradation, which has the potential to impact the integrity of the existing drinking water wells and the wetland.</p> <p>Accidental spills of oils/chemicals which infiltrate into the ground.</p>	
<b>Water - Hydromorphology</b>	n/a	n/s	n/a	n/a	n/a	<p><b>Minor Adverse -</b> potential for temporary physical disturbances to the beds or banks of the dry riverbeds during crossing construction. Temporary culverting of any dry watercourses could lead to changes in the hydromorphology features of the watercourse. In-channel structures can also act as a barrier to flow which may cause local</p>	n/a

Technical topic	Local communities	Herder household	Customers of CES / Local businesses	Social infrastructure and utility owners	Constuction workers	Water Environment	Flora and fauna
						changes in velocities and cause increased erosional and depositional processes.	
<b>Social and Community - Wellbeing</b>	<b>Minor Adverse to Negligible</b> - Direct effects of OHTL construction activities such as increased road traffic, land clearance, earthworks and excavation, stockpiling, backfilling, and levelling, unprotected tower base excavations (risk to children and livestock in particular), as well as the movement of construction personnel, and HGV material and equipment transport and handling.	<b>Moderate Adverse</b> - Direct effects of OHTL construction activities such as increased road traffic, land clearance, earthworks and excavation, stockpiling, backfilling, and levelling, unprotected tower base excavations (risk to children and livestock in particular), as well as the movement of construction personnel, and HGV material and equipment transport and handling.	n/a	n/a	n/a	n/a	n/a
<b>Social and Community - Wellbeing</b>	<b>Minor Adverse to Negligible; Women and children - Moderate to Minor Adverse</b> - influx of non-local, expatriate, or inter-regional, workers heighten the risk of	<b>Minor Adverse to Negligible</b> - influx of non-local, expatriate, or inter-regional, workers heighten the risk of communicable disease spread.	n/a	n/a	<b>Minor Adverse to Negligible</b> - influx of non-local, expatriate, or inter-regional, workers heighten the risk of communicable disease spread.	n/a	n/a

Technical topic	Local communities	Herder household	Customers of CES / Local businesses	Social infrastructure and utility owners	Construction workers	Water Environment	Flora and fauna
	communicable disease spread.						
<b>Social and Community - Safety and security</b>	<b>Minor Adverse</b> - public injuries as a result, for example, of increased construction traffic to and from the site and around the works sites; unprotected excavations (risk to children and livestock in particular); and machinery or operator loss of control.	<b>Minor Adverse</b> - public injuries as a result, for example, of increased construction traffic to and from the site and around the works sites; unprotected excavations (risk to children and livestock in particular); and machinery or operator loss of control.	n/a	n/a	n/a	n/a	n/a
<b>Social and Community - Gender safety and security</b>	<b>Moderate or Minor Adverse</b> - Construction workers often come without their families and have large disposable incomes relative to the local community and can pose a risk in terms of sexual harassment, violence and exploitative transactional relationships.	<b>Moderate or Minor Adverse</b> - Construction workers often come without their families and have large disposable incomes relative to the local community and can pose a risk in terms of sexual harassment, violence and exploitative transactional relationships.	n/a	n/a	n/a	n/a	n/a
<b>Social and Community -</b>	n/a	n/a	n/a	<b>Social infrastructure - Moderate to Minor Adverse</b>	n/a	n/a	n/a



Technical topic	Local communities	Herder household	Customers of CES / Local businesses	Social infrastructure and utility owners	Construction workers	Water Environment	Flora and fauna
Infrastructure and services				<b>Transport infrastructure - Negligible</b> Proposed construction activities, and any net increase in local population because of an influx of migrant workers, will increase demand on existing local services and infrastructure during construction.  Increases in traffic movements and the transportation of equipment and workers can have a negative effect on the local transportation network.			
<b>Economy, Employment and Livelihoods - Employment and Gender</b>	<b>Moderate to Major Beneficial</b> - short-term direct employment opportunities will be created, opportunity to up-skill, potential for females to be employed on the project	<b>Moderate to Major Beneficial</b> - short-term direct employment opportunities will be created, opportunity to up-skill, potential for females to be employed on the project	n/a	n/a	<b>Moderate to Major Beneficial</b> - short-term direct employment opportunities will be created, opportunity to up-skill, potential for females to be employed on the project	n/a	n/a
<b>Economy, Employment and</b>	<b>Moderate Beneficial</b> - Construction Contractor	n/a	n/a	n/a	n/a	n/a	n/a

Technical topic	Local communities	Herder household	Customers of CES / Local businesses	Social infrastructure and utility owners	Construction workers	Water Environment	Flora and fauna
<b>Livelihoods – Regional economy</b>	expenditure on project materials, provisions and services						
<b>Economy, Employment and Livelihoods – Local economy</b>	<b>Moderate to potentially Major Beneficial over time</b> - construction employee expenditure on transport, assets, hard goods and consumables	<b>Moderate to potentially Major Beneficial over time</b> - where set out as a requirement for the Construction Contractor, the purchase of locally produced dairy products, meat and vegetables will stimulate the local economy and local producer and seller incomes.	<b>Moderate to potentially Major Beneficial over time</b> - construction employee expenditure on transport, assets, hard goods and consumables	n/a	n/a	n/a	n/a
<b>Economy, Employment and Livelihoods – Livelihoods</b>	<b>Minor to Moderate Beneficial</b> - increase the earnings and disposable income of local working age people in the Project Area.	<b>Minor to Moderate Beneficial</b> - purchase of locally produced dairy products, meat and vegetables will also contribute to herder household incomes.	n/a	n/a	<b>Minor to Moderate Beneficial</b> - Construction workers will also gain qualifications and experience through training and employment that will potentially also contribute to more sustained employment opportunities in the future.	n/a	n/a
<b>Economy, Employment and Livelihoods – Living costs</b>	<b>Negligible</b> – Local inflationary costs due to an influx of demand				<b>Negligible</b> – Local inflationary costs due to an influx of demand	n/a	n/a

Technical topic	Local communities	Herder household	Customers of CES / Local businesses	Social infrastructure and utility owners	Construction workers	Water Environment	Flora and fauna
<b>Economy, Employment and Livelihoods – Living costs</b>	<b>Negligible</b> - a significant increase in demand for goods and services due to a temporary labour influx can lead to local inflationary pressures and increased living cost	<b>Negligible</b> - a significant increase in demand for goods and services due to a temporary labour influx can lead to local inflationary pressures and increased living cost	<b>Negligible</b> - a significant increase in demand for goods and services due to a temporary labour influx can lead to local inflationary pressures and increased living cost	n/a	n/a	n/a	n/a
<b>Land Use, Tenure and Displacement – Land use</b>	n/a (impacts would be via use e.g. of social infrastructure due to distance from the site)	<b>Negligible</b> - As the land is currently mainly used for grazing, access for grazing is likely to be most affected.	<b>Negligible</b> - There may be some impact on the use of the land for storage of explosives, depending on the extent of that development.  No impact is anticipated on the use of land for exploration mining or allocated developments, as these land parcels are not currently in use.	<b>Negligible</b> - There may be some impact on paved and dirt roads, the use of the railways and the use of other OHTLs/ communications lines, where works are close to or cross these features.	n/a	n/a	<b>Negligible</b> - No impact is anticipated on the use of land as LPAs, as despite their designations, they are currently still used as grazing lands.
<b>Land Use, Tenure and Displacement – Displacement</b>	n/a	<b>Minor Adverse to Negligible</b> - Temporary loss of access to pasturelands and associated impacts on herder livelihoods.  <b>Minor Adverse</b> - Temporary impact on	n/a	<b>Negligible</b> - The final micro-siting of the towers will be such to avoid any physical or economic displacement. With respect to other temporary sites	n/a	<b>Minor Adverse</b> - Temporary impact on access to water resources mainly for herders.	n/a

Technical topic	Local communities	Herder household	Customers of CES / Local businesses	Social infrastructure and utility owners	Construction workers	Water Environment	Flora and fauna
		<p>herder livelihoods through dust, traffic collisions and other construction-related risks. Temporary impact on access to water resources mainly for herders.</p> <p><b>Negligible</b> - The final micro-siting of the towers will be such to avoid any physical or economic displacement. With respect to other temporary sites needed during construction, the Construction Contractor will be required to select these site requirements based on minimal environmental and social impacts, including avoiding any involuntary displacement.</p>		<p>needed during construction, the Construction Contractor will be required to select these site requirements based on minimal environmental and social impacts, including avoiding any involuntary displacement.</p>			
<b>Labour and Working Conditions</b>	<p><b>Moderate to Minor Adverse –</b></p> <ul style="list-style-type: none"> <li>Risk of exploitative work practices including child and forced or compulsory labour</li> </ul>	n/a	n/a	n/a	<p><b>Moderate to Minor Adverse –</b></p> <ul style="list-style-type: none"> <li>Risk of exploitative work practices including child and forced or compulsory labour</li> </ul>	n/a	n/a

Technical topic	Local communities	Herder household	Customers of CES / Local businesses	Social infrastructure and utility owners	Construction workers	Water Environment	Flora and fauna
	<ul style="list-style-type: none"> <li>Construction workers personal safety risks</li> <li>Potential discrimination</li> <li>Labour grievances</li> </ul>				<ul style="list-style-type: none"> <li>Construction workers personal safety risks</li> <li>Potential discrimination</li> <li>Labour grievances</li> </ul>		
<b>Labour and Working Conditions – Gender</b>	<b>Minor beneficial</b> – Employment for local women, particularly in catering, the workers' accommodation camp, the service industry and administration	n/a	n/a	n/a	<b>Minor beneficial</b> – Employment for local women, particularly in catering, the workers' accommodation camp, the service industry and administration.	n/a	n/a
<b>Labour and Working Conditions – GBVH</b>	<b>Minor adverse</b> – GBVH may intensify within communities experiencing large non-local male worker influxes.	<b>Minor adverse</b> – GBVH may intensify within communities experiencing large non-local male worker influxes.	n/a	n/a	<b>Minor adverse</b> – GBVH may intensify within communities experiencing large non-local male worker influxes.	n/a	n/a
<b>Labour and Working Conditions – supply chain</b>	<b>Minor adverse</b> – <ul style="list-style-type: none"> <li>Risk of child and forced labour in the supply chain</li> <li>Unsafe work sites with a lack of controls in the supply chain</li> </ul>	n/a	n/a	n/a	<b>Minor adverse</b> – <ul style="list-style-type: none"> <li>Risk of child and forced labour in the supply chain</li> <li>Unsafe work sites with a lack of controls in the supply chain</li> </ul>	n/a	n/a

Technical topic	Local communities	Herder household	Customers of CES / Local businesses	Social infrastructure and utility owners	Construction workers	Water Environment	Flora and fauna
<b>Labour and Working Conditions – OHS</b>	<b>Minor adverse</b> – risks of illness from temporary construction worker accommodation camp conditions.	n/a	n/a	n/a	<b>Minor adverse</b> – <ul style="list-style-type: none"> <li>Construction workers personal safety risks</li> <li>Risks of illness from temporary construction worker accommodation camp conditions</li> <li>Emergency conditions from natural hazards e.g., dust storms, extreme heat and lightning strikes</li> </ul>	n/a	n/a
<b>Overall Effect Interrelationships</b>	<p><b>Minor Adverse effects (not significant)</b> are anticipated in relation to local communities from multiple topics for the period of construction.</p> <p><b>Moderate Adverse effects (Significant) in relation to</b> visual impacts; wellbeing/safety for women and children; and vulnerable groups in the labour market. Mitigation measures for these effects have been</p>	<p><b>Although mainly Minor Adverse effects (not significant)</b> are anticipated in relation to local communities from multiple topics for the period of construction, there is a potential for these to combine with the <b>Moderate Adverse effects (Significant)</b> related to construction activities such as increased road traffic, land clearance etc. to result in temporary <b>Moderate Adverse</b> effect</p>	<p><b>At most, a Moderate to potentially Major Beneficial effects</b> relating to construction employee expenditure on local transport, assets, hard goods and consumables.</p>	<p><b>Moderate to Minor Adverse (Significant) effects</b> associated with the demand on local infrastructure during the construction period. This will mainly be mitigated through liaison with the relevant service providers to mitigate peaks in demand and no additional measures are proposed beyond those set out in the</p>	<p><b>Moderate adverse effects (significant)</b> – are anticipated in relation to construction workers, dependent on the final approach to construction, with no additional effects anticipated as a result of several topics interacting with this receptor, dependent. Mitigation measures for these effects have been proposed within the technical chapters. Additional measures will be employed by the PIU</p>	<p><b>Minor Adverse (Not Significant) effects</b> – are anticipated in relation to water bodies with no additional effects anticipated as a result of several topics interacting with this receptor. Mitigation measures for these effects have been proposed within the technical chapters and additional measures to those already proposed are not practicable.</p>	<p><b>Minor Adverse (Not Significant) effects</b> – are anticipated in relation to flora and fauna. The assessment has considered the impacts of dust and noise, soils and pollution events and therefore, no additional effects are anticipated. Mitigation measures for these effects have been</p>

Technical topic	Local communities	Herder household	Customers of CES / Local businesses	Social infrastructure and utility owners	Construction workers	Water Environment	Flora and fauna
	<p>proposed within the technical chapters and additional measures to those already proposed are not practicable as it is not practical to screen the works whilst they are underway; for the most part, impacts will be very localised and short term.</p> <p><b>Moderate to Major beneficial effects (significant)</b> – are anticipated in relation to local communities primarily due to short-term employment opportunities and the potential for up-skilling and knock on effects on livelihoods within the community.</p>	<p>on herder households closer to the works.</p> <p>Mitigation measures for these effects have been proposed within the technical chapters and additional measures to those already proposed are not practicable.</p> <p><b>Moderate to Major beneficial effects (significant)</b> – are anticipated in relation to short-term livelihood opportunities and potential employment opportunities.</p>		<p>technical chapters. A strategy should be prepared to ensure that demand for services does not affect other users.</p>	<p>to ensure that labour practices are in line with Mongolian and International Good Practice; this will include auditing of the Construction Contractor practices and ensuring that any non-compliances are addressed in a timely and efficient manner. Repeated offences may require the use of penalties on the contract to encourage continuous improvements.</p> <p><b>Moderate to Major beneficial effects (significant)</b> – are anticipated in relation to construction workers primarily due to short-term employment opportunities and the potential for up-skilling.</p>		<p>proposed within the technical chapters.</p>



Table 19-3 Matrix of Effects Interrelationships for the Operation Phase

Technical topic	Local communities	Herder households	Customers of CES / Local Businesses	Social infrastructure and utility owners	O&M workers	Flora and fauna
<b>Air Quality</b>	n/a				n/a	n/a
<b>Noise and Vibration</b>	<b>Not significant</b> – Noise and vibration impacts <ul style="list-style-type: none"> <li>Noise and vibration generation as a result of additional substation plant</li> <li>Corona noise from OHTL</li> </ul>				<b>Not significant</b> – Noise and vibration impacts <ul style="list-style-type: none"> <li>Noise and vibration generation as a result of additional substation plant</li> <li>Corona noise from OHTL</li> </ul>	<b>Not significant</b> – Noise and vibration impacts <ul style="list-style-type: none"> <li>Noise and vibration generation as a result of additional substation plant</li> <li>Corona noise from OHTL</li> </ul>
<b>Biodiversity, Flora and Fauna</b>	n/a	n/a	n/a	n/a	n/a	<b>Negligible</b> Direct loss and degradation, Pollution events and Maintenance worker pressures on habitats Maintenance worker pressures on small mammals Collision mortality, Nesting mortality, Disturbance and Maintenance worker pressures on Birds not of Conservation Concern Maintenance worker pressures on reptiles and Invertebrates <b>Minor Adverse</b>



Technical topic	Local communities	Herder households	Customers of CES / Local Businesses	Social infrastructure and utility owners	O&M workers	Flora and fauna
						<p>Direct loss and degradation, Pollution events and Maintenance worker pressures on Rare / Endangered Flora</p> <p>Habitat loss and degradation, Disturbance and Maintenance worker pressures on large mammals</p> <p>Collision mortality, Nesting mortality, disturbance and Maintenance worker pressures on Birds of Conservation Concern</p>
<b>Landscape and Visual</b>	<p><b>Minor/moderate adverse</b> – for landscape character.</p> <p><b>Minor adverse</b> – Visual impacts for the community of Sainshand and visitors to Khan bayanzurkh mountain top visual amenity.</p> <p><b>Moderate adverse</b> –visual impacts for users and visitors to Khiimoriin ovoo and the adjacent part of the Ulaan Tolgoi valley race horse competition area visual amenity.</p>	As for local community	n/a	n/a	n/a	n/a

Technical topic	Local communities	Herder households	Customers of CES / Local Businesses	Social infrastructure and utility owners	O&M workers	Flora and fauna
<b>Soils</b>	n/a	n/a	n/a	n/a	n/a	n/a
<b>Natural Hazards</b>	n/a	n/a	n/a	<b>Significant</b> - There are a number of events that could specifically have an impact on the Project infrastructure, including: impacts on the operation of project machinery and equipment e.g. extreme cold affecting equipment operation; and collapse of transmission lines e.g. due to heavy snowfall, wind speeds.	<b>Significant</b> - There are a number of events that could specifically have an impact on the Project infrastructure, including: impacts on the operation of project machinery and equipment e.g. extreme cold affecting equipment operation; and collapse of transmission lines e.g. due to heavy snowfall, wind speeds.	n/a
<b>Water – Flood risk and land drainage</b>	Negligible - Towers located in or nearby watercourses have the potential to change the hydrological regime following a flood. Potentially changing the route of floodwaters to impact nearby herder households or settlements further downstream.	Negligible - Towers located in or nearby watercourses have the potential to change the hydrological regime following a flood. Potentially changing the route of floodwaters to impact nearby herder households or settlements further downstream.	n/a	n/a	n/a	n/a
<b>Water – water quality</b>	n/a	<b>Negligible</b> - Pollution impact pathways to surface watercourses and groundwater would be	n/a	n/a	n/a	n/a

Technical topic	Local communities	Herder households	Customers of CES / Local Businesses	Social infrastructure and utility owners	O&M workers	Flora and fauna
		relatively limited. Risk of accidental spillage of oils and fuels from maintenance vehicles and activities, which could lead to risk of pollution of drinking water wells or the wetland.				
<b>Social and Community - Wellbeing</b>	<p><b>Negligible</b> - O&amp;M activities could result in disturbances locally (noise, dust and vibration), especially for herders near the OHTL.</p> <p><b>Negligible</b> - The proposed transmission may pose potential health risks limited to areas where the distance from the centreline are limited to around 20m or less.</p>	<p><b>Negligible</b> - O&amp;M activities could result in disturbances locally (noise, dust and vibration), especially for herders near the OHTL.</p> <p><b>Negligible</b> - The proposed transmission may pose potential health risks limited to areas where the distance from the centreline are limited to around 20m or less.</p>	<p><b>Moderate Beneficial</b> - The Project will strengthen the reliability and stability of the transmission network which will have a positive impact on wellbeing in relation to existing users of the CES.</p>	n/a	n/a	n/a
<b>Social and Community - Safety and security</b>	<p><b>Minor Adverse</b> - Risks to the general public include: risk of electrocutions, fire generation from falling overhead lines and from lightening; falling and/or swinging objects; falling of live electrical conductor due to mechanical failure of an insulator string or snapping</p>	<p><b>Minor Adverse</b> - Risks to the general public include: risk of electrocutions, fire generation from falling overhead lines and from lightening; falling and/or swinging objects; falling of live electrical conductor due to mechanical failure of an insulator string or</p>	n/a	n/a	n/a	n/a

Technical topic	Local communities	Herder households	Customers of CES / Local Businesses	Social infrastructure and utility owners	O&M workers	Flora and fauna
	of the conductor itself; and potential collapse of poles/towers; and EMFs. EMFs are addressed above under health and well being.	snapping of the conductor itself; and potential collapse of poles/towers; and EMFs. EMFs are addressed above under health and well being.				
<b>Social and Community -</b> Gender safety and security	<b>Minor Adverse to Negligible</b> - some construction workers might remain in the area e.g. related to other employment opportunities, overall, the Project will not necessitate a permanent increase in workers in the Project Area	<b>Minor Adverse to Negligible</b> - some construction workers might remain in the area e.g. related to other employment opportunities, overall, the Project will not necessitate a permanent increase in workers in the Project Area	n/a	n/a	n/a	n/a
<b>Social and Community -</b> Infrastructure and services	n/a	n/a	<b>Moderate Beneficial</b> - The Project will strengthen the reliability and stability of the transmission network and improve capacity of the electricity system in the CES.	Hospitals - Minor Adverse  Utilities (water, wastewater) – Negligible  Transport infrastructure - Negligible  Potential for incidents and accidents specifically associated with the risks of working at a substation and with OHTLs could put pressure on the	n/a	n/a

Technical topic	Local communities	Herder households	Customers of CES / Local Businesses	Social infrastructure and utility owners	O&M workers	Flora and fauna
				<p>capacity of emergency health care services during operation. However, the likelihood of incidences would likely be substantially reduced from the construction phase.</p> <p>During operation, only very low levels of water, wastewater, etc. are anticipated associated with general O&amp;M activities.</p>		
<b>Economy, Employment and Livelihoods - Employment and Gender</b>	<b>Negligible to Minor Beneficial (from indirect effects)</b> - Following the completion of the construction phase of the Project, construction workers will need to find alternative employment opportunities. There will be relatively limited direct employment opportunities for O&M of the OHTL as it will be operated by the existing NPTG.	<b>Negligible to Minor Beneficial (from indirect effects)</b> - Following the completion of the construction phase of the Project, construction workers will need to find alternative employment opportunities. There will be relatively limited direct employment opportunities for O&M of the OHTL as it will be operated by the existing NPTG.	n/a	n/a	n/a	n/a
<b>Economy, Employment and</b>	<b>Moderate Beneficial over time</b> - Increase reliability and resilience of energy	n/a	<b>Moderate Beneficial over time</b> - Increase reliability and resilience	n/a	n/a	n/a

Technical topic	Local communities	Herder households	Customers of CES / Local Businesses	Social infrastructure and utility owners	O&M workers	Flora and fauna
<b>Livelihoods – Regional economy</b>	transmission through completion closed-loop system which may stimulate development of new businesses in the Project Area.		of energy transmission through completion closed-loop system.			
<b>Economy, Employment and Livelihoods – Local economy</b>	<b>Moderate Beneficial over time</b> - improved transmission service can stimulate development of new businesses in the Project Area, which will have knock on effects on the local economy (demand for services) and provide revenue at the regional and national level.	n/a	<b>Moderate Beneficial over time</b> - improved transmission service can stimulate development of new businesses in the Project Area, which will have knock on effects on the local economy (demand for services) and provide revenue at the regional and national level.	n/a	n/a	n/a
<b>Economy, Employment and Livelihoods – Livelihoods</b>	<b>Minor to Moderate Beneficial</b> - training, qualifications and experience of the construction workforce will assist in seeking other employment on developments in and outside the region.		<b>Minor to Moderate Beneficial</b> - improvement in transmission will result in an improvement in energy transmission, which will contribute to the local economy, which in turn will have a positive effect on livelihoods.			

Technical topic	Local communities	Herder households	Customers of CES / Local Businesses	Social infrastructure and utility owners	O&M workers	Flora and fauna
<b>Economy, Employment and Livelihoods – Living costs</b>	<b>Negligible</b> - the Project is unlikely to have an ongoing direct impact on living costs.	<b>Negligible</b> - the Project is unlikely to have an ongoing direct impact on living costs.	n/a	n/a	n/a	n/a
<b>Land Use, Tenure and Displacement – land use</b>	n/a	<b>Negligible</b> – no change of existing land uses for herder camps or wells along the route, as there are no camps or wells within the 25m RoW. Grazing will still be permitted within the RoW.	<b>Negligible</b> – potential impact on exploratory mine land use at Ungut and Tsagaan tsaviin khudag; and explosives storage site near Tsagaan Suvarga – however, it is assumed that agreement would have been sought with these business owners or the route re-sited to avoid the land.	<b>Negligible</b> - During normal operation, it is not considered that the Project will have an impact on the various infrastructure it crosses.  <b>Minor Adverse</b> - During emergency situations (e.g. storm) there is a possibility that failure of the OHTL could impact adjacent infrastructure.	n/a	n/a
<b>Land Use, Tenure and Displacement – Displacement</b>	n/a	<b>No impact</b> - Permanent loss of access to pastureland under the tower footprints and associated impacts on herder livelihoods. However, grazing will be permitted within the RoW.	<b>Negligible (Tsagaan Suvarga / Tsagaan tsaviin khudag) to Minor Adverse (Ungut and Blast storage site)</b> – impacts associated with permanent loss of land and potential impacts on business income.  <b>Negligible if other suitable areas for</b>	<b>No impact</b> - The Project is not anticipated to have any displacement impacts on infrastructure such as transmission lines, roads and railways it crosses. None of these features will need to be moved or dismantled as a result of the Project. Whilst there could be economic impacts	n/a	n/a

Technical topic	Local communities	Herder households	Customers of CES / Local Businesses	Social infrastructure and utility owners	O&M workers	Flora and fauna
			<b>development are identified (or if the developments are</b> no longer required - impacts associated with permanent loss of land and potential impacts on business income associated with the land allocated for development.	during an emergency scenario, this cannot be predicted with certainty and any loss of use of utilities will be addressed under compensation rights associated with the relevant legislation.		
<b>Labour and Working Conditions</b>	<b>Minor adverse</b> – Risk of exploitative work practices including child and forced or compulsory labour.	n/a	n/a	n/a	<b>Minor adverse</b> – Risk of exploitative work practices including child and forced or compulsory labour.	n/a
<b>Labour and Working Conditions – Gender</b>	<b>Negligible</b> – No additional staff anticipated to be required during the O&M phase.	n/a	n/a	n/a	<b>Negligible</b> – No additional staff anticipated to be required during the O&M phase.	n/a
<b>Labour and Working Conditions - GBVH</b>	n/a	n/a	n/a	n/a	<b>Minor Adverse</b> - there is a risk of GBVH in the workplace.	n/a
<b>Labour and Working Conditions – supply chain</b>	n/a	n/a	n/a	n/a	<b>Minor Adverse</b> - Risk of exploitative work practices including child and forced or compulsory labour	n/a
<b>Labour and Working Conditions – OHS</b>	n/a	n/a	n/a	n/a	<b>Minor to Major adverse</b> – Risks of electrocutions, fire generation from falling	n/a



Technical topic	Local communities	Herder households	Customers of CES / Local Businesses	Social infrastructure and utility owners	O&M workers	Flora and fauna
					overhead lines and from lightening, falling of live electrical conductors due to mechanical failure, potential collapse of poles/towers and EMFs	
<b>Overall Effect Interrelationships</b>	<p><b>Minor (Not Significant) to Moderate Adverse effects (Significant)</b> – are anticipated from the multiple topics during operation, no additional effects anticipated. Mitigation measures for these effects have been proposed within the technical chapters and additional measures to those already proposed are not practicable.</p> <p><b>Major to Minor Beneficial effects</b> – are anticipated on the economy and livelihoods from the interrelationship of topics.</p>	<p><b>Minor Adverse effects (Not Significant)</b> – are anticipated from the multiple topics during operation, with no additional effects anticipated. Mitigation measures for these effects have been proposed within the technical chapters and additional measures to those already proposed are not practicable.</p> <p><b>Negligible to Minor Beneficial effects</b> – are anticipated on livelihoods from the interrelationship of topics.</p>	<p><b>Minor Adverse effect</b> specifically to the business of Ungut and Blast, with no additional effects anticipated.</p> <p><b>Major to Minor Beneficial effects</b> – are anticipated; additional effects have been accounted for in relation to the potential for the Project to stimulate growth of projects/businesses in the Project Area.</p>	<p><b>Significant</b> - There are a number of events that could specifically have an impact on the Project infrastructure which in turn could impact on adjacent infrastructure, however, it is assumed that the majority of risks will be designed out and/or managed through the NPTG O&amp;M Plan.</p> <p>An ongoing <b>Minor Adverse</b> (Not Significant) impact is predicted on hospital services due to the potential for injuries related to the Project – however, additional effects are anticipated</p>	<p>Up to <b>Major Adverse</b> (Significant) on health and wellbeing, given that whilst the likelihood of occurrence may be low, the severity of an impact could be fatal. No additional effects are anticipated because of topics interacting with this receptor. These effects are, however, considered generally to be localised and short term in nature and, with appropriate signage and inspections in place, unlikely to occur. NOTG should ensure that the final design, protection measures and OHS measures are based on a thorough risk assessment.</p>	<p><b>Minor Adverse (Not Significant) effects</b> – are anticipated in relation to flora and fauna. The main potential impact is in relation to the collision risk for birds of conservation concern. No other topics are considered to interact with this impact in a manner that would result in additional effects. Mitigation measures for these effects have been proposed within <b>Chapter 9: Biodiversity Flora and Fauna</b>.</p>

## 19.5 Assessment of In-Combination Effects

- 19.5.1 There are no known major planned developments that will currently coincide with the Project in the Project Area. Specific dates for the expansion of the Tsagaan Suvarga mine are not known however, it is possible that this could coincide with the construction of the Project. Also, at a national or regional level they could place a demand on the same resources and receptors and therefore have been considered generically below.
- 19.5.2 In terms of operational effects, no specific developments have been considered however, it is anticipated that the Project could be the catalyst for further development in Dornogovi aimag and therefore, that is considered below. The EBRD-funded Choir-Sainshand OTHL project is not considered as the delivery of its substation, and its operation, is a requirement for this Project and is due to be completed prior to construction for this Project.

### Construction

- 19.5.3 The demand for a workforce from more than one project being constructed at the same time could have cumulative effects through a combined demand for construction workers, raw materials, equipment and goods and services. This would result in increased employment opportunities and increased revenue which will be greater than those for the Project alone. It could also result in a larger influx of construction workers and retrenchment following the construction phase, having a heightened adverse impact on the local economy and livelihoods without alternatives available for employment. However, equally, given that different skills are required at different stages in a construction programme, there could also be ongoing benefits as upskilled local construction workers from one project are then able to provide these skills to further projects in the region.
- 19.5.4 An increased influx of personnel could result in increased pressure on local communities and bring with it an increased risk of the spread of communicable diseases and exposure to GBVH and SEAH.
- 19.5.5 In the event that the Project works are undertaken at the same time as other projects, the demand for resources and services could put additional pressure on the local communities and facilities (e.g., workers, water supply, health care centres, electricity supply) which could in particular affect more vulnerable users. It is likely that these effects would be felt predominantly in Sainshand city. Given the proposal for workers' camps as part of the Project, significant effects from the Tsagaan Suvarga Project in Sainshand city are not anticipated.
- 19.5.6 The extent of the demand on labour and resources and pressure on the local communities will depend on workforce numbers, the location of any other large developments and the use or otherwise of workers' camps outside of the city. As the Tsagaan Suvarga Project will not have direct effects on the local communities, it is unlikely to result in a significant adverse cumulative effect (for example, combined effects of dust, air emissions and noise) on the local communities.

- 19.5.7 The construction of several projects at the same time could also result in a cumulative effect on waste management facilities, with an increased generation of construction wastes.
- 19.5.8 It is considered unlikely that another project will impact on the same herder households at the same time as this Project; though it is noted that expansion is currently underway at the Tsagaan Suvarga mine, but this is at the far end of the Project route, away from identified herder camps. Furthermore,
- 19.5.9 However, there is the potential for the combined total of direct and indirect impacts on the economy, employment and livelihoods, both positive and negative, could be greater if the Project is undertaken at the same time as the other projects.
- 19.5.10 As identified in the previous chapters, a number of mitigation measures have been proposed to manage the Project, such as the use of CESMP, CSEP, Labour Management Plan, Influx Management Plan, etc. Should another development project occur at the same time as the Project, the PIU and the Construction Contractor will be required to liaise with the developer(s) and the local administrations (aimag, soum, bagh) to enable a coordinated approach to aspects such as stakeholder engagement, accommodation requirements, demand for services and traffic movements. Any grievances should be shared between developers so that common themes can be identified and addressed in a collaborative manner.

## Operation

- 19.5.11 The Project will result in the provision of a more efficient and reliable transmission network, which will have an overall cumulative positive effect on the economy through a combination of various impacts, including the encouragement of the provision of more renewable energy sources and development locally, which will in turn improve employment opportunities and the local economy.

Current investment in the energy sector by the Government is linked to Mongolia's Long-Term Development Policy: Vision 2050, which sets out various sector development to increase productivity in the country. The Government has recognised that a lack of reliable electricity has hindered development and therefore, it is assumed that the provision of a more reliable electricity source in the Project Area has the potential to support development projects in the area, that also form part of the Vision 2050 and other more local development goals. The Project will help enhance the transmission capacity of the CES, enabling technical integration of electricity generated by newly planned energy source developments; and improved electricity supply is expected to support proposed developments in the Project Area, such as the Tsagaan Suvarga copper mine expansion, the Altanshireet Metallurgical Complex and the Zamyn Uud Free Economic Zone development. Further development can have a negative cumulative effect on the environment, pasture degradation and ultimately a decrease in traditional livelihoods if not managed in an integrated way. Ultimately, mitigation measures for wider development are outside the scope of this Project however, many of the proposed mitigation measures proposed for the Project could be applied to other developments in the Project Area in order to deliver enhanced benefits and reduce adverse developmental effects.

## 20 Summary

- 20.1.1 The EBRD is considering providing a sovereign loan to the Government of Mongolia to finance the construction of a 204km double circuit 220 kV OHTL in Dornogovi aimag. The route alignment will commence with a connection to a planned substation in Sainshand (to be constructed as part of the EBRD-funded Choir – Sainshand OHTL project) and end with a connection to an existing 220/35/22 kV substation operated by the National Power Transmission Grid (NPTG), located within Tsagaan Suvarga mine licence area. The 204km OHTL and substation connections are referred to as ‘the Project’.
- 20.1.2 In line with Appendix 2 of the ESP 2019, the EBRD has assigned the Project a Category A status as the Project is a greenfield development and comprises “Construction of high voltage overhead electrical power lines”. This categorisation means that a comprehensive ESIA must be prepared, and a review of associated documents must be carried out, and, in line with EBRD’s Access to Information Directive 2019, as a public sector project it must be subject public disclosure for a minimum period of 120 calendar days. This document presents the ESIA Report. It forms one of several documents prepared to meet EBRD disclosure requirements as follows:
- Non-Technical Summary (NTS)
  - Stakeholder Engagement Plan (SEP)
  - Environmental and Social Management Plan (ESMP)
  - Land Acquisition and Resettlement Framework (LARF)
  - Environmental and Social Action Plan (ESAP)
- 20.1.3 **Table 20-1** provides a summary of all the potential effects assessed as part of this ESIA. Overall, the conclusion of the ESIA is that the impacts of the Project are manageable, and construction and operation of the Project will not result in irreversible, unacceptable risks to people or the environment.
- 20.1.4 The MoE has overall responsibility for delivery of the Project and will be assisted in this role by a PIU and a Supervision Engineer during construction. The environmental and social impacts of the Project will be managed through a Project ESMS to be developed by the MoE/PIU. Whilst currently considered unlikely to be required, the PIU, or appointed external consultant, may also need to develop a RAP and/or LRP, depending on the final location of the towers.
- 20.1.5 A Construction Contractor will be appointed to construct the Project. The ESMP prepared for the ESIA disclosure package will form part of the tender documentation for the Construction Contractor. The Construction Contractor shall provide sufficient staffing to manage the environmental and social (E&S) performance of the Project, to be approved by the PIU and Supervision Engineer.
- 20.1.6 The Construction Contractor, likewise, will need to develop, for Supervision Engineer/PIU approval, and implement a detailed CESMP and SEP. The performance of the Construction Contractor during construction will be overseen by the Supervision Engineer/PIU.

- 20.1.7 With appropriate mitigation in place through a Project ESMS and ESMP, the majority of the effects are anticipated to be reduced to Minor Adverse or lower and are, for the most part, temporary i.e., occurring for the period of the construction works only.
- 20.1.8 The following significant ('major', 'moderate', 'moderate to minor', or 'significant') adverse effects remain during construction following mitigation:
- Visual impacts on users and visitors to Khiimoriin ovoo and the adjacent part of Ulaan Tolgoi valley race horse competition area – Moderate Adverse
  - Impacts on ecology, namely habitats, rare / endangered flora, large mammals and birds of conservation concern - Minor Adverse
  - Health and wellbeing construction effects on herder camps within 1km of the route and vulnerable herder household members – Moderate Adverse.
  - Health and wellbeing influx effects and risk of communicable disease spread on women and children - Moderate to Minor Adverse
  - Gender safety and security effects - Moderate or Minor Adverse
  - Proposed construction activities, and any net increase in local population because of an influx of migrant workers, will increase demand on existing local services and infrastructure during construction - Moderate to Minor Adverse
  - Potential for poor labour and working conditions - Moderate to Minor Adverse
  - Poor OHS on construction sites, lack of monitoring and management - Minor to Major Adverse
- 20.1.9 Whilst not a significant impact currently, the MoE will be required to commission a specialist Mongolian organisation to undertake archaeological and paleontological surveys (and potentially also an ethnographical study) in line with Mongolian law relating to land use and cultural heritage. Should any archaeological/ paleontological assets be identified within the Project route during the course of further survey, the preferred method of mitigation would be avoidance. If the impacts to any identified archaeological/ paleontological assets cannot be avoided and design mitigation is not successful, a phase of archaeological/ paleontological recording and excavation would be required to remove the assets. The detail of these measures should be included in a specific Cultural Heritage Management Plan to be developed by the MoE/their specialised consultants.
- 20.1.10 The following beneficial effects are anticipated during construction:
- Construction employment, with salaries likely to be comparable to sector averages and likely to exceed remuneration in other sectors of the local informal economy.
  - Opportunity to up-skill, both through obligatory induction training and through more applied short courses.
  - The regional economy will be positively affected during construction through any direct demand by the Construction Contractor for project materials, provisions and services.
  - Livelihoods through the purchase of locally produced dairy products, meat and vegetables will also contribute to herder household incomes; and the construction phase employment can markedly increase the earnings and disposable income of local working age people in the Project Area.
  - Potential opportunities for local women to obtain jobs in catering, the workers' accommodation camp, the service industry and administration.

20.1.11 During operation, the Project will contribute to significantly improve the reliability and resilience of power transmission in the CES. As such, it will contribute directly to the government's strategy in the energy sector and in so doing, provide integral infrastructure to achieve the Government's long-term development agenda of economic growth through providing reliable energy supply to industry in the region.

20.1.12 However, the following significant effects may remain during O&M following mitigation:

- Impacts on landscape character - Minor/Moderate Adverse.
- Visual impacts on users and visitors to Khiimoriin ovoo and the adjacent part of Ulaan Tolgoi valley race horse competition area – Moderate Adverse.
- Impacts on ecology, namely rare/endangered species, large mammals and birds of conservation concern – Minor Adverse
- Natural hazard events that could specifically have an impact on the Project infrastructure, including: impacts on the operation of project machinery and equipment e.g. extreme cold affecting equipment operation; and collapse of transmission lines e.g. due to heavy snowfall, wind speeds – Significant.
- Due to the nature of the Project, OHS hazards include risk of electrocutions; fire generation from falling overhead lines and from lightening; falling and/or swinging objects; electrocution, electric shock and arc flash incidents; potential collapse of towers; falling from heights; EMFs; fire risk at substations; exposure to chemicals, hazardous or flammable materials; and potential injuries from handling heavy equipment, tools, and materials - Minor to Major Adverse.
- Climate - overheating of the OHTL may result in sagging, risking damage or connection with vegetation, structures, or the public, resulting in loss of power, fire, injury and/or repair costs - Significant.
- Climate - Dust deposition on transmission lines can reduce effectiveness of insulators, causing flashovers which may result in fire or injury to the public and requiring line to be de-energised. Impacts may be exacerbated when combined with high humidity and/or rainfall - Significant.
- Climate - Wildfire resulting in damage to the OHTL and towers, reducing power transfer and potentially resulting in power outages and repair costs - Significant.
- Climate - Wildfires pose a significant risk to human health and wellbeing, potentially resulting in permanent injury or fatality - Significant.

20.1.13 The final design will take into account any measures that are relevant to address the risk from natural hazards on operation of the infrastructure. An O&M ESMP will be prepared, or an existing operational manual will be updated to meet the requirements set out in the ESAP and associated supporting documents (this report, ESMP, LARF), and its implementation will be managed by the NPTG.

20.1.14 Beneficial effects are anticipated in relation to:

- Currently, the Protect Area and the CES suffer from power grid capacity shortages reliable power supply. Whilst the Project does not increase electricity supply or distribution directly to new or existing consumers, the Project will contribute to significantly improve the reliability and resilience of power transmission in the CES.
- Improved reliability and resilience of power transmission in the CES will have a positive impact on existing businesses within Dornogovi aimag and the CES more widely, supporting growing and future demand for electricity through improving transmission capacity of the network. An



improved transmission service can stimulate development of new businesses in the Project Area, which will have knock on effects on the local economy (demand for services) and provide revenue at the regional and national level.

- Improved reliability and stability of the transmission network which will have a positive impact on wellbeing in relation to existing users of the CES.
- Overall, and combined with other development related to the energy sector and business development in the local area, an improvement in transmission will result in an improvement in energy supply, which will contribute to the local economy, which in turn will have a positive effect on livelihoods.
- Training, qualifications and experience from the construction stage that will be valuable to the local economy and can be taken to other developments in the area and Mongolia.

Table 20-1 Summary of Potential Impacts, Effects and Mitigation

Baseline Summary	Phase	Potential Impact(s)	Effect (without mitigation)	Mitigation Measures	Residual Effects (after mitigation)
<b>Air Quality</b>					
<p>The Sainshand automatic air quality monitor located in Sainshand city shows that NO<sub>2</sub> and SO<sub>2</sub> concentrations in Sainshand are below the annual Mongolian and EU Limit values.</p> <p>PM<sub>10</sub> concentrations in Sainshand city have been in exceedance of the annual mean EU Limit Value of 20µg/m<sup>3</sup> since PM<sub>10</sub> monitoring began in 2022. PM<sub>2.5</sub> concentrations have also been in exceedance of the annual mean EU Limit Value of 10µg/m<sup>3</sup> since PM<sub>2.5</sub> monitoring began in 2022. The Mongolian annual mean Limit Value for PM<sub>2.5</sub> was exceeded in 2022 only.</p> <p>Project air quality monitoring undertaken in June 2025 indicated that the monitored PM<sub>10</sub> and PM<sub>2.5</sub> concentrations over the 24-hour monitoring period are below the limits set by Mongolia's National Air Quality Standard and WHO.</p>	Construction	Dust emissions as a result of construction activities. Potential dust emission magnitudes have been determined in accordance with the IAQM construction dust guidance for the following construction activities; earthworks, construction and trackout. The length of time that any construction activities are to fall within 250m of any receptors is likely to be minimal as the proposed construction activities are transient both geographically and temporally.	Low risk	<p>Application of best practice mitigation measures to control dust as recommended by the IAQM construction dust guidance for a low-risk sites. This includes:</p> <ul style="list-style-type: none"> <li>• Develop and implement a stakeholder communication plan with nearby herder camps within 250m of proposed works.</li> <li>• Record all dust and air quality complaints, identify cause(s), take appropriate measures to reduce emissions in a timely manner, and record the measures taken.</li> <li>• Maintain a log of dust-based complaints.</li> <li>• Maintain a log of dust-based complaints.</li> <li>• Record any exceptional incidents that cause dust and/or air emissions, either on- or off-site, and the action taken to resolve the situation in the log book.</li> <li>• Undertake inspections where receptors (including roads) are nearby, to monitor dust, record inspection results.</li> </ul>	Not significant



Baseline Summary	Phase	Potential Impact(s)	Effect (without mitigation)	Mitigation Measures	Residual Effects (after mitigation)
There are 16 herder household camps within 1km of the OHTL route centreline.				<ul style="list-style-type: none"> <li>Carry out regular site inspections to monitor compliance with the schedule of mitigation measures.</li> <li>Plan site layout so that machinery and dust causing activities are located away from receptors, as far as is possible.</li> <li>Erect solid screens or barriers around dusty activities or the site boundary so that are at least as high as any stockpiles on site if the construction activity is prolonged and there are receptors nearby.</li> <li>Remove materials that have a potential to produce dust from site as soon as possible, unless being re-used on site. If they are being re-used on-site, cover as described below.</li> <li>Cover, seed or fence stockpiles to prevent wind whipping.</li> <li>Only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques such as water sprays.</li> <li>Ensure an adequate water supply on the site for effective dust/particulate matter suppression/mitigation, using non-potable water where possible and appropriate.</li> </ul>	

Baseline Summary	Phase	Potential Impact(s)	Effect (without mitigation)	Mitigation Measures	Residual Effects (after mitigation)
				<ul style="list-style-type: none"> <li>• Use enclosed chutes and covered waste or materials containers.</li> <li>• Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate.</li> <li>• Ensure equipment is readily available on site to clean any dry spillages, and clean up spillages as soon as reasonably practicable after the event using wet cleaning methods.</li> <li>• Avoid bonfires and burning of waste materials.</li> <li>• Avoid scabbling (roughening of concrete surfaces) if possible.</li> <li>• Ensure sand and other aggregates are stored in bunded areas and are not allowed to dry out, unless this is required for a particular process, in which case ensure that appropriate additional control measures are in place.</li> <li>• Avoid dry sweeping of large areas.</li> <li>• Ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport.</li> </ul>	
		Emissions from construction vehicles.	Not significant	<ul style="list-style-type: none"> <li>• Ensure all vehicles switch off engines when stationary - no idling vehicles.</li> </ul>	Not significant

Baseline Summary	Phase	Potential Impact(s)	Effect (without mitigation)	Mitigation Measures	Residual Effects (after mitigation)
				<ul style="list-style-type: none"> <li>A separation distance of 100m is maintained between gers and construction related vehicles and NRMM.</li> </ul>	
	Operation	No impacts are anticipated.	n/a	n/a	n/a
<b>Noise and Vibration</b>					
Baseline noise measurements conducted at the six, 24-hour monitoring locations along the OHTL route in June 2024 revealed that both daytime and night-time noise levels are consistently below the permissible limits set by the Mongolian National Air Quality Standard MNS 4585:2016 and the IFC General EHS Guidelines. There are 16 herder household camps within 1km of the OHTL route centreline.	Construction	Construction activities and plant resulting elevated noise. Vibration levels from typical mobile construction equipment and CFA piling operations are generally imperceptible at distances greater than around 20m from the source. It is expected that vibration generating equipment will not be located at distances less than 20m from any noise sensitive receptor for any prolonged period of time. On this basis there are no anticipated significant adverse effects from construction vibration.	<p>Potential for Significant Effects only if any new herder camps are located within 90m of the route (noise)</p> <p>Currently, no noise sensitive receptors have been located within this 90m</p>	<p>Development and implementation of a Noise and Vibration Management Plan and implementation of BPM, which can reduce construction noise levels by up to 20dB for specific activities and up to 10dB for general construction activities, construction noise and vibration can be suitably controlled to remove all significant adverse effects. BPM includes:</p> <p>The construction machinery and equipment specified, purchased, and used should produce noise and vibration within the permissible levels of relevant standards; or be equipped with noise reduction devices where necessary to ensure noise emission levels of vehicles and machineries comply to national standards.</p> <p>Regular inspection of vehicle noise emission and timely maintenance to prevent noise emissions from increasing due to poor maintenance.</p> <p>Conduct regular noise monitoring at active construction sites to consider the</p>	Not Significant

Baseline Summary	Phase	Potential Impact(s)	Effect (without mitigation)	Mitigation Measures	Residual Effects (after mitigation)
				<p>noise generation against the appropriate local standards.</p> <p>Communication will be undertaken with the local herder households along the route to notify in advance of activities with the potential to generate higher levels of noise and/or vibration and the measures implemented to control noise and/or vibration.</p> <p>A dedicated grievance mechanism will be in place.</p> <p>Construction operational hours will be used as a primary methodology for the control of significant noise effects, limiting construction activities to daytime periods only defined as: Monday to Friday 07:00 – 19:00.</p>	
	Operation	Assuming the source noise level as 85 dB (A) at 1m, and assuming one extra point source transformer propagating as such, anything within approximately 100m of the assumed source noise would potentially be subject to a significant effect at night-time noise level of greater than 45 dB. It should be noted however, that no sensitive receptors have been identified within this distance at the time of undertaking this assessment, with the nearest	Not Significant	It is recommended that any future potential accommodation related to the mining site is located at least 100m from the substation to avoid the potential for significant effects.	Not Significant

Baseline Summary	Phase	Potential Impact(s)	Effect (without mitigation)	Mitigation Measures	Residual Effects (after mitigation)
		receptor being over 2km away from the substations.			
	Operation	Corona noise - the current National Grid advise that operational audible noise from electricity OHTLs occurs at a conductor surface voltage gradient or electrical stress level of approximately 17 to 20 kilovolts per centimetre (kV/cm). The electrical stresses on a 220kV circuit would be significantly lower than 17 to 20 kV/cm, and as such, these circuits would virtually never produce noise. No impacts associated with corona noise are therefore anticipated.	n/a	n/a	n/a
	Operation	No impacts anticipated.	n/a	n/a	n/a
Ecology and Biodiversity					
<p>The OHTL does not traverse any internationally or nationally protected sites or critical habitat.</p> <p>The habitats along the OHTL are of medium value, including two active locally protected areas (LPAs) of medium importance within 5km of the Project:</p> <ul style="list-style-type: none"> <li>Uushiin Govi LPA – designated for migratory ungulates.</li> <li>Ganzaga Uuliin Urgutgul LPA – supports ungulates and birds.</li> </ul>	Construction	Direct loss and degradation, pollution events, construction worker pressures, animal mortality and disturbance.	Minor to Major	<ul style="list-style-type: none"> <li>Avoidance of habitats in vicinity of ephemeral pond</li> <li>Infrastructure micro-siting</li> <li>Pre-works checks</li> <li>Receptor protection measures</li> <li>Worker briefings &amp; best practice / precautionary working measures</li> <li>Monitoring of activities</li> <li>Translocation (last resort)</li> </ul>	Negligible to Minor
	Operation	Direct loss and degradation, pollution events, water drainage changes, maintenance worker	Minor to Major	<ul style="list-style-type: none"> <li>Avoidance of habitats with high bird abundance</li> </ul>	Negligible to Minor

Baseline Summary	Phase	Potential Impact(s)	Effect (without mitigation)	Mitigation Measures	Residual Effects (after mitigation)
<p>There are further medium value habitats along the OHTL, which are in good condition and typical of arid steppe, semi-desert.</p> <p>The value of the flora is high due to the presence of two species are classified as Endangered (<i>Brachanthemum gobica</i> and Spotted Arnebia), and four listed as Rare (<i>Cynomorium songaricum</i>, <i>Potania Mongolia</i>, <i>Oxytropis aciphylla</i>, <i>Phragmites communis</i>).</p> <p>There are nationally important mammals along the OHTL: Goitered Gazelle (Vulnerable on global and regional Red Lists); Asiatic Wild Ass (Near Threatened on IUCN Red List, and Largely Depleted in the Green Status Assessment); Mongolian Gazelle (Least Concern on IUCN Red List and Endangered on Regional Red List).</p> <p>There are bird species of national importance including: Saker Falcon, Swan Goose, Common Pochard, Ferruginous Duck, Cinerous Vulture, Eurasian Curlew, Black-tailed Godwit, Northern Lapwing, Common Crane and Falcated Duck. There were also</p>		pressures, habitat fragmentation, animal mortality, disturbance, collision mortality and nesting mortality.		<ul style="list-style-type: none"> <li>• Installation of bird diverters in locations of high bird abundance</li> <li>• Pre-works checks</li> <li>• Receptor protection measures</li> <li>• Worker briefings &amp; best practice / precautionary working measures</li> <li>• Avifauna monitoring programme</li> </ul>	

Baseline Summary	Phase	Potential Impact(s)	Effect (without mitigation)	Mitigation Measures	Residual Effects (after mitigation)
<p>regionally important species along the OHTL.</p> <p>There were also locally important / common: small mammals, reptiles, invertebrates and bats.</p>					
<b>Landscape and visual</b>					
<p>The broad landscape is characterised by expansive plains lying just below 1,000m in elevation. The plains are generally open, arid steppe with very little surface water, trees or other vegetation. Landscape character includes relative remoteness and tranquillity; openness and vastness of the semi-desert steppe landscape; Long panoramic views along open valleys and from hilltops; Areas of occasional seasonal wetland and watercourse; and A few locations of local cultural and social significance. Visual receptors include: Sainshand residents; those people working at Tsagaan Suvarga mine; and Visitors to Recreational, Social and Cultural sites.</p>	Construction	<p>The Project's construction phase would temporarily introduce:</p> <ul style="list-style-type: none"> <li>• construction compounds and lay down areas, with some artificial lighting;</li> <li>• material stockpiles;</li> <li>• vehicle movement;</li> <li>• temporary earthworks (e.g. excavation for OHTL tower foundations, the creation of spoil mounds, and the re-grading of levels upon completion);</li> <li>• access/construction roads, with signage;</li> <li>• workers' accommodation camps, with some artificial lighting; and</li> <li>• erection of towers and poles and stringing of overhead lines.</li> </ul>	<p><u>Landscape Character</u> Minor Adverse</p> <p><u>Visual Amenity</u> Community of Sainshand - Minor Adverse</p> <p>Visitors to Khan bayanzurkh mountain top- Minor Adverse</p> <p>Users and visitors to Khiimoriin ovoo and the adjacent part of Ulaan Tolgoi valley race horse competition area – Moderate Adverse</p>	<p>Programming the most intense parts of the construction activity that occurs near to areas of identified cultural and social value (i.e. Khiimoriin ovoo and the adjacent part of the Ulaan Tolgoi valley that is used for horseraces and parts of the annual naadam sports festival) to avoid those times of year that they are most visited/considered important.</p> <p>Considerate placement of particularly visually incongruous elements of the construction, i.e. compounds, stockpiles of materials, worker accommodation areas, so that they cover the minimum area required and are located away from the areas used by sensitive receptors (i.e. Khiimoriin ovoo and residential areas in Sainshand);</p> <p>Restrictions that limit the use of lighting to the minimum quantity and illumination necessary to ensure safety, and so to minimise light spillage, sky glow and to</p>	<p><u>Landscape Character</u> Minor Adverse</p> <p><u>Visual Amenity</u> Community of Sainshand - Minor Adverse</p> <p>Visitors to Khan bayanzurkh mountain top- Minor Adverse</p> <p>Users and visitors to Khiimoriin ovoo and the adjacent part of Ulaan Tolgoi valley race horse competition area – Moderate Adverse</p>

Baseline Summary	Phase	Potential Impact(s)	Effect (without mitigation)	Mitigation Measures	Residual Effects (after mitigation)
				<p>minimise glare to surrounding sensitive receptors.</p> <p>Re-contouring of disturbed land to original formations, where appropriate.</p>	
	Operation	<p>The Project's operational phase would introduce:</p> <ul style="list-style-type: none"> <li>• 690no. OHTL towers, varying in height between 36-41.5m and located approximately 280m apart (though distances will depend on terrain) across a total Project length of 204km from the planned Sainshand substation (yet to be constructed by the approved Choir-Sainshand OHTL link) to the Tsagaan Suvarga mine substation.</li> <li>• Periodic refurbishment of the towers and overhead lines in order to maintain the network, including replacement of the insulation of sections of the overhead line; treatment of rust and re-painting of tower components; inspection and maintenance of switchgears and protection systems, etc.</li> </ul>	<p><u>Landscape Character</u> Moderate Adverse</p> <p><u>Visual Amenity</u> Community of Sainshand - Minor Adverse</p> <p>Visitors to Khan bayanzurkh mountain top- Minor Adverse</p> <p>Users and visitors to Khiimoriin ovoo and the adjacent part of Ulaan Tolgoi valley race horse competition area – Moderate/Minor adverse</p>	<p>Detailed routing of the proposed OHTL that avoids the creation of 'wirescape' impacts where it crosses existing overhead lines.</p> <p>Micro-siting of proposed towers away from the locations where sensitive receptors reside / visit (i.e. residential areas in Sainshand, Khiimoriin ovoo and the adjacent part of the Ulaan Tolgoi valley that is used for horseraces and parts of the annual naadam sports festival).</p>	<p><u>Landscape Character</u> Minor/Moderate Adverse</p> <p><u>Visual Amenity</u> Community of Sainshand - Minor Adverse</p> <p>Visitors to Khan bayanzurkh mountain top - Minor Adverse</p> <p>Users and visitors to Khiimoriin ovoo and the adjacent part of Ulaan Tolgoi valley race horse competition area - Moderate adverse</p>
<b>Soils</b>					
Land within the Project Study Area comprises mainly flat plains, with some marshy areas, low hills and sandy valley and steepe. A soil survey indicates that land along the OHTL	Construction	Temporary use of land for project facilities (e.g. temporary access roads and main and ancillary compounds/camps); Land permanently removed from	Negligible	Soil protection measures in Soil Management Plan and preconstruction soil handling training.	Negligible



Baseline Summary	Phase	Potential Impact(s)	Effect (without mitigation)	Mitigation Measures	Residual Effects (after mitigation)
corridor predominantly comprised sand and/or gravel. Soil profiles recorded are strongly influenced by the movement of sediment carried by intense summer rains, and by sand transported by strong winds, which accumulate in low-lying areas Three major soil categories: Semi-desert brown soils, Semi-desert light brown soil and Desert grey-brown soil.		grazing; Soil permanently excavated to provide foundations for the towers resulting in erosion, deterioration, compaction and contamination.			
	Operation	All land used during the operation phase will have been removed from its baseline state during construction. Therefore, no additional impact on land use will occur during the operational phase.	n/a	n/a	n/a
<b>Natural Hazards</b>					
Mongolia is vulnerable to a wide range of natural hazards, including floods, dust storms, droughts, wildfires and earthquakes. The country is in a seismically active zone. Notable hazards that have affected Mongolia in recent years include snow and dust storms, thunderstorms, floods, earthquakes, drought, steppe and forest fires, infectious diseases, and dzud.	Construction	The main impact during construction is related to natural hazards that could affect construction activities, including access to site, ability to dig tower foundations and the health and safety of construction workers; particularly given the open nature of the terrain in the Study Area	Significant	Develop, implement and maintain an Emergency Preparedness and Response Plan. Monitor weather forecasts prior to undertaking work and reschedule works where possible. Construction staff will be provisioned with appropriate PPE to mitigate weather risks. Risk assessments including consideration of natural hazards. Health and safety training will be provided. Flammable materials will be stored away from areas frequently used by workers to reduce risk of fire spread.	Not Significant
	Operation	There are a number of events that could specifically have an impact on the Project infrastructure,	Significant	The final design will be developed in accordance with relevant regulations and norms, especially those with	Significant

Baseline Summary	Phase	Potential Impact(s)	Effect (without mitigation)	Mitigation Measures	Residual Effects (after mitigation)
		including: impacts on the operation of project machinery and equipment e.g. extreme cold affecting equipment operation; and collapse of transmission lines e.g. due to heavy snowfall, wind speeds.		<p>reference to weather conditions. Consideration should be given to:</p> <ul style="list-style-type: none"> <li>Implementing overhead line sag monitoring techniques regularly to assess and proactively manage sagging.</li> <li>Utilising granite dust in paved areas to reduce the risk of road melt during periods of extreme heat.</li> <li>Planting indigenous heat, fire, and drought resistant vegetation.</li> <li>Utilising hydrophobic coatings to reduce ice and snow accumulation and mitigate impacts of heavy rainfall.</li> <li>Increasing the tension of the OHTL to reduce wind-induced oscillation and utilise wind-breaks or sand fences to trap wind-blown sand and reduce the impacts associated with windblown debris.</li> <li>Installing sand fences to reduce sand accumulation around assets and reduce the risk of arcing.</li> <li>Installing current-limited fuses to allow for automatic interruption of power flow should overheating occur, mitigating the risk of arcing and minimising fire risk.</li> </ul>	



Baseline Summary	Phase	Potential Impact(s)	Effect (without mitigation)	Mitigation Measures	Residual Effects (after mitigation)
				<ul style="list-style-type: none"> <li>Implementing lightning arresters to divert potential lightning strikes during storm events.</li> </ul> <p>O&amp;M should consider:</p> <ul style="list-style-type: none"> <li>A proactive maintenance regime to ensure that potential faults are identified and repaired early.</li> <li>Risk assessments including consideration of natural hazards.</li> <li>Avoid carrying out maintenance works during periods of high wind speed or other high risk weather events, particularly tasks that require staff to work at height.</li> <li>Ensuring that vegetation is heat and fire resistant and regularly maintained to reduce the volume of flammable material near assets.</li> <li>Staff should be provisioned with appropriate PPE to mitigate risks of the weather.</li> <li>Health and safety training should be delivered to all staff prior to beginning work, and should include information on the signs of heat exhaustion and related health impacts.</li> <li>A Project-specific O&amp;M Emergency Preparedness and Response Plan should be developed and implemented by NPTG.</li> </ul>	

Baseline Summary	Phase	Potential Impact(s)	Effect (without mitigation)	Mitigation Measures	Residual Effects (after mitigation)
<b>Cultural Heritage</b>					
<p>The Cretaceous Dinosaur Fossil Sites in the Mongolian Gobi on the UNESCO's Tentative List is located c. 104km to the south of the Project. There may be potential for palaeontological receptors to be present within the Project Area. Based on field surveys and local feedback, there are 22 cultural heritage receptors identified within the soums that the OHTL passes through. The vast majority of these receptors are not considered sensitive due to the distance from the OHTL. Only one receptor, the Hiimoriin Ovoo, is located within 1km of the OHTL. This number may increase following the results of the MoE-commissioned archaeological survey.</p>	Construction	<p>Construction activities have the potential to cause adverse permanent physical impacts to cultural heritage assets, including buried archaeology, built heritage and historic landscape features. All works that involve earthworks/groundworks could potentially result in physical damage to previously identified or unidentified cultural heritage assets. Due to the distance of the eight identified assets from the Project OHTL route, no direct or indirect impacts are anticipated.</p>	Not significant	<p>Based on our current understanding of the Project and the Project location, it has been assessed that there will be no adverse impacts to the known cultural heritage resource. Should the Project design change, or new assets be identified during the course of additional surveys, this assessment may be subject to change.</p> <p>The MoE must commission a specialist Mongolian organisation to undertake archaeological and paleontological surveys (and potentially also an ethnographical study) in line with Mongolian law relating to land use and cultural heritage. Should any archaeological/ paleontological assets be identified within the Project route during the course of further survey, the preferred method of mitigation would be avoidance. If the impacts to any identified archaeological/ paleontological assets cannot be avoided and design mitigation is not successful, a phase of archaeological/ paleontological recording and excavation would be required to remove the assets. The detail of these measures would be included in a specific Cultural Heritage Management Plan and chance finds procedure to be</p>	Not significant

Baseline Summary	Phase	Potential Impact(s)	Effect (without mitigation)	Mitigation Measures	Residual Effects (after mitigation)
				developed by the MoE/their specialised consultants and included in contractor contractual documents.  A chance finds procedure should be in place during construction works.	
	Operation	During the operation phase of the Project the impacts will remain as those identified in relation to the construction phase. No additional physical impacts will occur and the changes to setting of assets will become permanent, as a result of the presence of the OHTL (although no such assets have currently been identified).	n/a	Application of the Cultural Heritage Management Pla and chance finds procedure for O&M works.	n/a
<b>Flood Risk and Land Drainage</b>					
The Project crosses more than 14 dry riverbeds, with widths ranging between 5 and 80km. These rivers are predominantly dry, but they can support flow or become flooded in response to heavy rainfall and they serve a land drainage function to the region.	Construction	During construction there is the potential for impacts on current land drainage systems and on current rainfall runoff regimes. Land clearing, earthworks and construction of towers have the potential to increase impermeable land cover which could lead to an increase in the rates and volumes of surface water runoff that are generated in response to rainfall. Uncontrolled discharges of surface water during construction activities do not have the potential to increase flood risk downstream.	Minor Adverse	Water, Wastewater and Drainage Management Plan to manage wastewater and surface water runoff.  Construction manager will regularly monitor weather forecasts in order to ensure there is enough time to evacuate if a flash flood is expected to occur.  Temporary drainage systems would be implemented to alleviate localised surface water flood risk and prevent obstruction of existing surface runoff pathways.  Flood protection trenches (construction drainage) will be installed around all	Negligible

Baseline Summary	Phase	Potential Impact(s)	Effect (without mitigation)	Mitigation Measures	Residual Effects (after mitigation)
				<p>sites liable to be subject to surface water and/or flooding.</p> <p>Natural drainage patterns should be maintained and not obstructed where practicable. This includes in the siting of any construction workers' accommodation camp(s) or laydown areas which should provide enough time to evacuate following a warning of a potential flash flood.</p> <p>Any temporary crossings will be constructed in such following a flood warning can be demountable or if swept away not cause a risk to downstream.</p>	
	Operation	Towers located in or nearby watercourses have the potential to change the hydrological regime following a flood. Potentially changing the route of floodwaters to impact nearby herder households or settlements further downstream.	Minor Adverse	Towers will not be located near a nearby watercourse, or have the ability to reroute flows to other areas.	Negligible
Land is permeable ground with no formal land drainage.	Construction	Construction of temporary in-channel structures to facilitate construction access crossings of dry riverbeds can also act as an impediment to flow which may cause local changes in flow velocities, scour and increased flood risk upstream. Founding a tower in an unknown dry stream may reduce the tower's structural	Minor Adverse	As above for Flood Risk and Land Drainage - effects on the dry riverbeds construction mitigation.	Negligible

Baseline Summary	Phase	Potential Impact(s)	Effect (without mitigation)	Mitigation Measures	Residual Effects (after mitigation)
		integrity and impact on the surface water hydromorphology.			
	Operation	None identified.	n/a	n/a	n/a
<b>Water Resources</b>					
There are currently nine wells located within the Study Area of 1km from the OHTL route.	Construction	<p>During construction, water will be required for the construction workforce, to supply welfare facilities at any temporary camps and construction activities such as concrete mixing and water dousing for dust suppression.</p> <p>During construction, construction activities near to any drinking water wells or the increased usage of groundwater has the potential to cause accidental damage to the well infrastructure, potentially impacting access to groundwater supplies.</p>	Major Adverse	<p>Develop a Water, Wastewater and Drainage Management Plan.</p> <p>Identify existing water sources, providing calculations for Project water demand and promote water use efficiency onsite.</p> <p>No surface or groundwater will be used without prior permissions in place. Construction workers will be provided with potable water from approved sources.</p> <p>The plan should include measures to minimise water usage and explore opportunities for water reuse where possible, with the promotion of water efficiency through training.</p> <p>Local herder wells within Project footprint and/or adjacent to Project works will be demarcated and protected from damage. Any loss of wells used by local herders will be replaced.</p>	Minor Adverse
	Operation	None identified.	n/a	n/a	n/a
<b>Water Quality – Groundwater and surface water</b>					
Water quality data was obtained from samples collected from the three wells during the site visit undertaken in July	Construction	Wastewater and communal waste generation which could enter the wetland, groundwater table or dry	Major to Minor Adverse	Appropriate water quality monitoring when working near the wetland/existing water supply wells.	Negligible

Baseline Summary	Phase	Potential Impact(s)	Effect (without mitigation)	Mitigation Measures	Residual Effects (after mitigation)
<p>2025. The results show that Well05 and Well02 water belongs to the hydrocarbonate type, sodium group with the majority of the key chemical indicators meet the requirements specified in the MNS 0900:2018 National Standards. Well01 water belongs to the mixed type, sodium group, with the mineral and sodium ion concentration exceeding the limits specified in the MNS 0900:2018 National Standards.</p> <p>During the site visit the wetland was observed to be dry and so water quality samples could not be taken.</p>		<p>riverbeds, impacting on water quality</p> <p>Uncontrolled discharges of contaminated water may lead to surface and groundwater quality degradation, which has the potential to impact the integrity of the existing drinking water wells and the wetland.</p> <p>Accidental spills of oils/ chemicals which infiltrate into the ground.</p>		<p>No direct or indirect discharge from the site to ground or surface water features would be permitted, with wastewater to be tankered off site.</p> <p>Secure relevant environmental permits and consents for all qualifying works.</p> <p>Spill kits will be readily available to allow for the rapid clean up of any accidental spills.</p> <p>Fuels, oils, flammable liquids and chemicals will be stored responsibly, away from sensitive water receptors. All refuelling, oiling and use of chemicals will use suitable drip trays and in the event of a spill be cleaned up immediately.</p> <p>Wash down of vehicles and wheels will be in designated areas, such that wash water would be prevented from passing untreated into dry riverbeds or infiltrate into the ground.</p> <p>An Emergency Preparedness and Response Plan will be developed which outlines procedures to be implemented in case of unplanned events, including but not limited to extreme weather events and pollution incidents.</p> <p>Ensure any on site toilets are lined with water-absorbing material and are located outside of areas that could spill into the wetland, infiltrate into the</p>	



Baseline Summary	Phase	Potential Impact(s)	Effect (without mitigation)	Mitigation Measures	Residual Effects (after mitigation)
				ground near the wells or the dry riverbeds.	
	Operation	<p>Pollution impact pathways to surface watercourses and groundwater would be relatively limited. This is because land would be reinstated following completion of construction works and there would be no operational discharges to surface watercourses from the OHTL.</p> <p>there is a risk of accidental spillage of oils and fuels from maintenance vehicles and activities, which could lead to risk of pollution of drinking water wells or the wetland.</p>	Major Adverse	<p>Post-construction monitoring of water quality at public water supply wells for an agreed period to compare against pre-Project baseline conditions.</p> <p>Suitable measures would be in place to reduce the risk of spills from maintenance vehicles, with appropriate spill kits and any refuelling if required away from the dry watercourses, wells or wetland.</p>	Negligible
<b>Hydromorphology</b>					
None of the dry riverbed watercourses or the wetland in the Study Area have been subject to modifications for the purposes of land drainage or flood defence, but have the potential to flood during seasonal events.	Construction	<p>During construction of the Project, there is the potential for temporary physical disturbances to the beds or banks of the dry riverbeds during crossing construction. Temporary culverting of any dry watercourses could lead to changes in the hydromorphology features of the watercourse. In-channel structures can also act as a barrier to flow which may cause local changes in velocities and cause increased erosional and depositional processes.</p>	Minor Adverse	<p>Heavy machinery will not cross smaller riverbeds except at formal temporary crossing locations.</p> <p>Channels shall be restored if altered by temporary construction activities.</p>	Minor Adverse

Baseline Summary	Phase	Potential Impact(s)	Effect (without mitigation)	Mitigation Measures	Residual Effects (after mitigation)
<b>Health and wellbeing</b>					
<p>There are no settlements immediately adjacent to the Project substations or OHTL route; the nearest sensitive settlement receptor being Sainshand around 4.4km from the Project; and the Tsagaan Suvarga mine and associated workers at the second substation. There are 16 herder camps and associated herder households within 1km of the route, all of which are outside of the 25m RoW. Two of the households interviewed had an elderly person; none had household members with chronic health conditions.</p> <p>Sainshand city and Dornogovi aimag itself has many ongoing developments and mining projects funded by foreign investment, with a higher degree of familiarity of local communities with migrant workers (Chinese, French, Indians, etc.) and their culture and habits. This is against a back drop of STIs in the aimag showing relative stability over the 2020-2024 period, with a reduction from 62.2 in 2020 to 44.1 in 2024. The STI trends across soums also showed consistent decline over this period.</p>	Construction	Direct effects of OHTL construction activities such as increased road traffic, land clearance, earthworks and excavation, stockpiling, backfilling, and levelling, unprotected tower base excavations (risk to children and livestock in particular), as well as the movement of construction personnel, and HGV material and equipment transport and handling.	Local communities - Minor Adverse Herders with camps near the route - Moderate to Major Adverse Vulnerable herder household members - Major Adverse	<p>The PIU will develop and implement:</p> <ul style="list-style-type: none"> <li>Project policies including a Project Discrimination and Harassment Policy</li> <li>A stand-alone Project Gender Equality and GBVH Action Plan</li> <li>A Project Code of Conduct</li> <li>An overarching Labour Management Plan</li> </ul> <p>The PIU will set up a Project-specific community grievance mechanism.</p>	Local communities - Minor Adverse to Negligible Herders with camps near the route - Moderate Adverse Vulnerable herder household members Moderate Adverse
	Construction	<p>An influx of non-local, expatriate, or inter-regional, workers heighten the risk of communicable disease spread because of the increased number of carriers from outside the area and more concentration human interaction.</p> <p>An influx of construction workers can also result in friction with the local community, affecting community cohesion. Local workers may feel threatened or disadvantaged because of labour influx and, potentially, overseas construction workers moving to the Project area.</p>	Local communities - Negligible to Minor Adverse Herders with camps near the route - Minor to Moderate Adverse Women and children - Major to Moderate Adverse	<p>The Construction Contractor will need to comply with the above, and develop and implement:</p> <ul style="list-style-type: none"> <li>A Community Health, Safety and Security Plan.</li> <li>An Influx Management Plan.</li> <li>A Labour Management Plan.</li> <li>A Local Employment and Procurement Plan.</li> <li>Air Quality Management Plan.</li> <li>Noise and Vibration Management Plan.</li> <li>A Traffic Management Plan.</li> <li>A Water, Wastewater and Drainage Management Plan.</li> <li>OHS Plan.</li> <li>An Emergency Preparedness and Response Plan. Drills will be</li> </ul>	Local communities - Negligible to Minor Adverse Herders with camps near the route - Minor Adverse Women and children - Moderate to Minor Adverse

Baseline Summary	Phase	Potential Impact(s)	Effect (without mitigation)	Mitigation Measures	Residual Effects (after mitigation)
				<p>undertaken with the local community.</p> <ul style="list-style-type: none"> <li>• A Construction Workers' Accommodation Management Plan.</li> <li>• A Security Management Plan</li> <li>• A CSEP and Community Grievance Mechanism.</li> </ul> <p>With respect to vulnerable people, additional measures will be put in place by the Construction Contractor where they may be affected by the construction phase. This will include, for example, targeted stakeholder engagement (at a location suitable for the stakeholder), support with applications for employment, accessible grievance channels and support in transport to engagement events.</p> <p>The Construction Contractor will be required to report to the MoE/PIU weekly, monthly and annually.</p> <p>The Construction Contractor will be required to report any trespassing incidents and the measures undertaken in such cases to control the situation and prevent it from occurring again.</p>	
	Operation	O&M activities could result in disturbances locally (noise, dust and vibration), especially for herders near the OHTL	Minor Adverse	The NPTG will ensure that either an O&M ESMP is prepared or that the measures set out in this ESIA	Negligible

Baseline Summary	Phase	Potential Impact(s)	Effect (without mitigation)	Mitigation Measures	Residual Effects (after mitigation)
				disclosure documents are incorporated into an existing O&M manual.	
	Operation	The Project will strengthen the reliability and stability of the transmission network which will have a positive impact on wellbeing in relation to existing users of the CES.	Moderate Beneficial	None required.	Moderate Beneficial
	Operation	Electromagnetic fields (EMFs) are created both naturally and as a result of human activity. All overhead powerlines generate EMFs. The proposed transmission may pose potential health risks limited to areas where the distance from the centreline are limited to around 20m or less.  There are no residential properties within 250m of the substations.	Negligible	Whilst the Project is not considered to result in a significant impact in relation to EMFs, the design of the Project should be such to ensure that EMF levels are within accepted guidelines for occupational and human health exposure, in accordance with national legislation and international best practice. Any micro-siting of the towers should avoid siting ideally no closer than 100m to a herder camps but always maintaining a 25m RoW from camps.  If considered necessary (e.g. complaints), NPTG should model the levels of exposure given the boundary conditions e.g. geometry of the site and conductors, current flows. A bi-dimensional model would suffice in most of the cases. In the case of the presence of other parallel or crossing lines, or if the line is deviating from a straight line, in the vicinity of the	Negligible

Baseline Summary	Phase	Potential Impact(s)	Effect (without mitigation)	Mitigation Measures	Residual Effects (after mitigation)
				receptor, a three-dimensional model may be required.	
<b>Safety and security</b>					
<p>From stakeholder engagement it is understood that in general terms, there is a good understanding of the risks of OHTLs with the general public. However, children in particular could be seen to be at higher risk.</p> <p>Each soum has one police station.</p> <p>The majority of existing crime in the aimag is associated with the built up area of Sainshand city/soum.</p> <p>Emergency Command is provided in each aimag centre in Mongolia.</p>	Construction	There are several community safety and security risks and impacts that need to be considered during construction, including public injuries as a result, for example, of increased construction traffic to and from the site and around the works sites; unprotected excavations (risk to children and livestock in particular); and machinery or operator loss of control.	Major Adverse	As above for health and wellbeing during construction.	Minor Adverse
	Operation	Risks to the general public include: risk of electrocutions, fire generation from falling overhead lines and from lightening; falling and/or swinging objects; falling of live electrical conductor due to mechanical failure of an insulator string or snapping of the conductor itself; and potential collapse of poles/towers; and EMFs. EMFs are addressed above under health and well being.	Major Adverse	Additional measures to address health, safety and security should be considered in the final design of the Project such as adequately earthed and earthing cable, signs, fencing and other barriers such as barbed wire. Measures will be taken to ensure that the general public cannot climb the towers using such barriers as anti-climb barriers or barbed wire. Appropriate warning signs as required under national legislation and international best practice will be used on the towers to warn of the risk to life. The substations will be made secure at all times and unauthorised persons will be kept away from the premises. Appropriate firefighting	Minor Adverse

Baseline Summary	Phase	Potential Impact(s)	Effect (without mitigation)	Mitigation Measures	Residual Effects (after mitigation)
				<p>facilities will be available at the substations. The use of fire within the RoW will not be permitted.</p> <p>The NPTG should develop a communication strategy and undertake a series of educational meetings with local communities and herder households in the aimag in relation to safety and the risks associated with higher voltage lines prior to operation of the line and following any serious incidents of accidents involving the general public.</p>	
<b>Gender safety and security</b>					
Mongolia has a high rate of GBVH and exploitation, sexual abuse, and sexual harassment (SEAH). GBVH is known to be a risk in the construction sector, especially within local communities when there are large influxes of male workers from outside the area.	Construction	Construction workers often come without their families and have large disposable incomes relative to the local community and can pose a risk in terms of sexual harassment, violence and exploitative transactional relationships.	Major to Adverse	<p>The PIU will:</p> <ul style="list-style-type: none"> <li>• Undertake a review of GBVH and gender risk assessment.</li> <li>• Develop a Project Discrimination and Harassment Policy.</li> <li>• Develop a stand-alone Project Gender Equality and GBVH Action Plan based on a completed GBVH and gender risk assessment. The Action Plan will include proactive measures to promote women's employment.</li> <li>• Provide training to project employees, suppliers and contractors on GBVH and SEAH associated risks.</li> <li>• Promote open discussions about GBVH and SEAH concerns</li> </ul>	Moderate or Minor Adverse

Baseline Summary	Phase	Potential Impact(s)	Effect (without mitigation)	Mitigation Measures	Residual Effects (after mitigation)
				<p>through disclosure of gender awareness materials.</p> <ul style="list-style-type: none"> <li>• Provide training and implementation of effective Project and employee grievance mechanisms.</li> <li>• Monitor the implementation of the Plan by PIU internally and the Construction Contractor and their supply chain.</li> <li>• Maintain gender disaggregated data on staff and contractors.</li> </ul> <p>The Construction Contractor will:</p> <ul style="list-style-type: none"> <li>• Comply with the Project Discrimination and Harassment Policy and Project Gender Equality and GBVH Action Plan.</li> <li>• Raise awareness about gender and GBVH risks, and necessary actions for workforce security.</li> <li>• Promote open discussions about GBVH and SEAH concerns through disclosure of gender awareness materials/training and implementation of effective Project and employee grievance mechanisms.</li> <li>• Attend / support training on the Code of Conduct and GBVH.</li> <li>• Maintain gender disaggregated workforce data and provide such</li> </ul>	

Baseline Summary	Phase	Potential Impact(s)	Effect (without mitigation)	Mitigation Measures	Residual Effects (after mitigation)
				data as part of monthly reporting to the MoE/PIU. and:	
	Operation	With respect to safety and security and gender, whilst some construction workers might remain in the area e.g. related to other employment opportunities, overall, the Project will not necessitate a permanent increase in workers in the Project Area	Moderate to Minor Adverse	<p>The NPTG will:</p> <ul style="list-style-type: none"> <li>• Develop a Discrimination and Harassment Policy based on the Project Discrimination and Harassment Policy prepared by the PIU.</li> <li>• Adapt the PIU Gender Equality and GBVH Action Plan for O&amp;M purposes, covering training to project employees, suppliers and contractors on GBVH and SEAH associated risks.</li> <li>• Promote open discussions about GBVH and SEAH concerns through disclosure of gender awareness materials/training and implementation of effective Project and employee grievance mechanisms.</li> <li>• Provide training to staff and suppliers on the Code of Conduct and GBVH.</li> <li>• Maintain gender disaggregated data of staff.</li> <li>•</li> </ul>	Minor Adverse to Negligible
Infrastructure and services					



Baseline Summary	Phase	Potential Impact(s)	Effect (without mitigation)	Mitigation Measures	Residual Effects (after mitigation)
<p>Across the proposed OHTL route, the baseline indicates that the availability and capacity of existing host community social infrastructure is low outside of Sainshand city.</p> <p>There are hospitals located in each soum centre; Sainshand has an emergency hospital.</p> <p>Dornogovi aimag's emergency services only has 11 active personnel employed out of 167 authorized positions, resulting in a staffing utilization rate of just 6.6%.</p> <p>Dornogovi aimag is connected to Ulaanbaatar by paved road A0101 and A0102, a part of the Asian highway 3 (AH3). AH3 connects Mongolia's northern border with Russia at Altanbulag and southern border with the People's Republic of China at Zamyn-Uud. The aimag centre and soum centres all have paved roads, though the Project soums are connected to each other by a mixture of paved roads (soums along the AH3) and unpaved (earth) roads (from Sainshand to other aimag towns). There is no direct paved access to the Project.</p>	Construction	<p>Proposed construction activities, and any net increase in local population because of an influx of migrant workers, will increase demand on existing local services and infrastructure during construction.</p> <p>Increases in traffic movements and the transportation of equipment and workers can have a negative effect on the local transportation network.</p>	<p>Social infrastructure - Major Adverse</p> <p>Transport infrastructure - Negligible</p>	<ul style="list-style-type: none"> <li>The Construction Contractor will be required to develop an <b>Infrastructure Strategy</b>, covering engagement with infrastructure owners and activities to prevent damage to infrastructure. All consultations will include formal communications.</li> </ul> <p>The Construction Contractor will avoid damage to existing infrastructure and utilities during the construction of the substation and the OHTL from inappropriate construction activities (e.g. driving of machinery). Should any damage occur, restoration and/or compensation activities will be undertaken by the Construction Contractor.</p> <ul style="list-style-type: none"> <li>Develop and implement a Water Management Plan to identify sources of water for the Project for potable and non-potable use, estimation of quantities required, impact on other water users, measures to minimise water usage, and measures to ensure quality is suitable for Project requirements. Coordinate with the relevant water utility company(ies) for securing additional water requirements of the Project.</li> </ul>	<p>Social infrastructure - Moderate to Minor Adverse</p> <p>Transport infrastructure - Negligible</p>

Baseline Summary	Phase	Potential Impact(s)	Effect (without mitigation)	Mitigation Measures	Residual Effects (after mitigation)
				<ul style="list-style-type: none"> <li>• Coordinate with the relevant water utility company for disposal of wastewater at the nearest WWTP or other arrangements as appropriate.</li> <li>• Coordinate with the relevant aimag or hire a qualified private contractor to collect solid waste from the site and transport it to the nearest authorised landfill.</li> <li>• Coordinate with a private contractor for the collection of hazardous waste from the site to dispose of at a Hazardous Waste Treatment Facility.</li> <li>• Develop and implement a Traffic and Transport Plan before commencement of any transportation activities to ensure that the transportation process is properly and adequately managed.</li> <li>• As part of induction training, it must be emphasised to all workers the presence of such infrastructure elements within the Project site. It must also be emphasised that all activities should be restricted to designated areas and that it is strictly prohibited to approach such elements or its buffer area.</li> </ul> <p>The Construction Contractor should prioritise local recruitment to reduce accommodation, catering and utility</p>	

Baseline Summary	Phase	Potential Impact(s)	Effect (without mitigation)	Mitigation Measures	Residual Effects (after mitigation)
				<p>demands where these are limited, and prepare details on water and power requirements in liaison with suppliers and regulators, to avoid exceeding local capacity.</p> <p>As part of their Emergency Preparedness and Response Plan, the Construction Contractor will also need to identify suitable health facilities in liaison with local health authorities to ensure workforce healthcare demands do not detriment resident users.</p>	
	Operation	The Project will strengthen the reliability and stability of the transmission network and improve capacity of the electricity system in the CES.	Moderate Beneficial	None required.	Moderate Beneficial
	Operation	<p>The potential for incidents and accidents specifically associated with the risks of working at a substation and with OHTLs could put pressure on the capacity of emergency health care services during operation. However, the likelihood of incidences would likely be substantially reduced from the construction phase.</p> <p>During operation, only very low levels of water, wastewater, etc. are anticipated associated with general O&amp;M activities.</p>	<p>Hospitals - Moderate Adverse</p> <p>Utilities (water, wastewater) – Negligible</p> <p>Transport infrastructure - Negligible</p>	<p>To reduce incidents and accidents, the NPTG should:</p> <ul style="list-style-type: none"> <li>undertake a series of educational meetings with local communities and herder households in the aimag in relation to safety and the risks associated with higher voltage lines.</li> <li>provide appropriate training and PPE for O&amp;M workers.</li> </ul> <p>The NPTG will ensure that an O&amp;M Emergency Preparedness and Response Plan is in place and implemented; and that the relevant health services have been engaged in</p>	<p>Hospitals - Minor Adverse</p> <p>Utilities (water, wastewater) – Negligible</p> <p>Transport infrastructure - Negligible</p>

Baseline Summary	Phase	Potential Impact(s)	Effect (without mitigation)	Mitigation Measures	Residual Effects (after mitigation)
				relation to how emergencies will be addressed, with specific attention to incidents and accidents related to high voltage lines and substation. There should be a clear guidelines in terms of which hospitals locally and nationally provide such services. Drills will be undertaken with the local community.	
<b>Employment and Gender</b>					
In 2024, Dornogovi aimag had 30,473 economically active persons, of which 64.1% of males and 58.2% of females were employed and 5.4% were unemployed. A slightly higher percentage of men than women were employed in the labour force. The labour force participation rate was 64.5% overall, 69.3% for males and 60.1% for females. Dornogovi showcased more female labour participation than the national average. In terms of trends in the labour force participation rate, Dornogovi aimag has seen a steady decrease since 2020. 15.4.15 In 2024, in Dornogovi aimag, in the sectors of agriculture, mining and manufacturing, the following numbers of people were informally employed, respectively; 560, 0, 107, and 0.	Construction	The construction phase is anticipated to be in the order of 24 months, and it is expected that during this time, short-term direct employment opportunities will be created. A potentially positive and significant socio-economic impact relates to OHTL construction employment, with salaries likely to be comparable to sector averages and likely to exceed remuneration in other sectors of the local informal economy. Most direct construction employment opportunities will be for unskilled labouring and semi-skilled machine operative jobs, and it is anticipated that these will be largely contracted to, and undertaken by, men. However, Construction Contractor and employee expenditure on local goods and support services, including administration, hospitality,	Minor to Moderate Beneficial	<p>The PIU will develop and implement:</p> <ul style="list-style-type: none"> <li>• A Project Discrimination and Harassment Policy</li> <li>• A stand-alone Project Gender Equality and GBVH Action Plan, based on a completed GBVH and gender risk assessment</li> <li>• A Project Code of Conduct</li> <li>• A Project Supply Chain Policy and Supply Chain Management Plan</li> <li>• An overarching Project Labour Management Plan</li> </ul> <p>The Construction Contractor will be required to comply with the above and develop and implement:</p> <ul style="list-style-type: none"> <li>• A Labour Management Plan</li> <li>• A Local Employment and Procurement Policy and Plan</li> <li>• A Training Plan.</li> <li>• to promote gender quality.</li> <li>• A Supply Chain Management Plan, to ensure that all sub-contractors</li> </ul>	Moderate to Major Beneficial

Baseline Summary	Phase	Potential Impact(s)	Effect (without mitigation)	Mitigation Measures	Residual Effects (after mitigation)
<p>In relation to underemployment, the time-related underemployment rate was 0 in Dornogovi aimag in 2024, compared to a national level of 4,315. For labour underutilisation (the difference between labour supply and demand, which translates into an unmet need for employment among the working age population), the number was 2,388 in Dornogovi aimag, compared to a national level of 113,957.</p>		<p>transport, assets, hard goods and consumables, would result in further direct and indirect “spin-off” employment.</p> <p>Construction of the Project will provide workers with the opportunity to up-skill, both through obligatory induction training and through more applied short courses in excavating, levelling, compacting and vehicle and equipment use.</p> <p>Based on similar projects it is anticipated that this could be in the region of 200 staff, though the composition of the staff is likely to require more skilled than unskilled staff.</p>		<p>will need to comply with the same requirements as the main Construction Contractor.</p> <ul style="list-style-type: none"> <li>A CSEP and Local Community Grievance Mechanism. A CLO will be appointed by the Construction Contractor to facilitate engagement with the local communities in relation to labour opportunities.</li> </ul> <p>Preference will be given to suitably qualified and experienced applicants from local communities, working with the local authorities to identify suitable candidates. The recruitment process will be fully disclosed to the public and open to all people locally of working age and ability, including women.</p>	
	Operation	<p>Following the completion of the construction phase of the Project, construction workers will need to find alternative employment opportunities. There will be relatively limited direct employment opportunities for O&amp;M of the OHTL as it will be operated by the existing NPTG.</p>	Negligible to Minor Beneficial (from indirect effects)	<p>The NPTG will develop and implement the following:</p> <ul style="list-style-type: none"> <li>Project-specific Operational HR policy and Labour Management Plan compliant with EBRD PR2.</li> <li>A Discrimination and Harassment Policy, to promote equal opportunities.</li> <li>A stand-alone Gender Equality and GBVH Action Plan, to promote gender quality.</li> <li>A Supply Chain Management Plan, to ensure that all sub-contractors will need to comply with the same</li> </ul>	Negligible to Minor Beneficial (from indirect effects)

Baseline Summary	Phase	Potential Impact(s)	Effect (without mitigation)	Mitigation Measures	Residual Effects (after mitigation)
				requirements as the main Construction Contractor including compliance with national legislation and EBRD PRs.	
<b>Regional Economy</b>					
<p>GDP per capita has increased by 101.4% on the national average in the last 45 years, while in Dornogovi Province it increased by 40.42%. Even though the level of increase is comparatively low at the local level when compared to the national level, it is still a considerable increase.</p> <p>In 2023, the total GDP of Dornogovi aimag was 824.9 billion MNT. However, in 2024, Dornogovi aimag's GDP declined to 732.0 billion MNT.</p> <p>Services sector is the highest contributor to GDP, followed by Industry with Agriculture remaining a low contributor and having reduced from 13% to 7% over that period.</p>	Construction	The regional economy will be positively affected during construction through any direct demand by the Construction Contractor for project materials, provisions and services.	Minor Beneficial	The Construction Contractor will develop a Local Employment and Procurement Policy and Plan. The Plan will include a mapping exercise of local, regional and national small and medium enterprises, including the local herder supply chain.	Moderate Beneficial
	Operation	Currently, the Protect Area and the CES suffer from power grid capacity shortages reliable power supply. Whilst the Project does not increase electricity supply or distribution directly to new or existing consumers, the Project will contribute to significantly improve the reliability and resilience of power transmission in the CES. As such, it will contribute directly to the government's strategy in the energy sector and in so doing, provide integral infrastructure to achieve the Government's long-term development agenda of economic growth through providing reliable energy supply to industry in the region. Improved reliability and resilience of power transmission in	Minor to Moderate Beneficial	The positive impacts on the regional economy will mainly be indirect. No additional measures are identified for the regional economy.	Moderate Beneficial over time

Baseline Summary	Phase	Potential Impact(s)	Effect (without mitigation)	Mitigation Measures	Residual Effects (after mitigation)
		the CES will have a positive impact on existing businesses within Dornogovi aimag and the CES more widely, supporting growing and future demand for electricity through improving transmission capacity of the network. An improved transmission service can stimulate development of new businesses in the Project Area, which will have knock on effects on the local economy (demand for services) and provide revenue at the regional and national level.			
<b>Local Economy</b>					
<p>In Sainshand soum, agriculture was reported as a key sector. In Ulaanbadrakh soum, mining was reported as the key economic sector. In Saikhandulaan soum, livestock husbandry is the main economic sector. In Mandakh soum, the main economic sectors were reported as mining, railway, and livestock husbandry.</p> <p>Four of the households surveyed as part of the ESIA have up to 1-2 mln. MNT monthly income. Two households had an income ranging from 2 mln. MNT to 2.5 mln. MNT, and four households have monthly</p>	Construction	The local economy will be positively affected during construction through construction employee expenditure on transport, assets, hard goods and consumables. In particular, where set out as a requirement for the Construction Contractor, the purchase of locally produced dairy products, meat and vegetables will stimulate the local economy and local producer and seller incomes.	Moderate Beneficial	The Construction Contractor will develop a Local Employment and Procurement Policy and Plan. This should include purchase of goods from local herders, especially those directly affected by the Project. The Plan will include a mapping exercise of local, regional and national small and medium enterprises, including the local herder supply chain.	Moderate to potentially Major Beneficial over time
	Operation	As above for regional economy, an improved transmission service can stimulate development of new businesses in the Project Area, which will have knock on effects on	Minor to Moderate Beneficial	All construction workers will be provided with a reference/confirmation of employment letter and a skills/training log, to enhance their employment prospects.	Moderate Beneficial over time

Baseline Summary	Phase	Potential Impact(s)	Effect (without mitigation)	Mitigation Measures	Residual Effects (after mitigation)
average income 2.5 mln. MNT or more.		the local economy (demand for services) and provide revenue at the regional and national level.		The MoE should work with the local developments in the area, such as the mines, to help provide for a proportion of the construction workforce to be recruited on local projects, which will benefit the local economy once the Project has been finished as skilled workers will be available to the workforce.	
<b>Livelihoods</b>					
At the national level, the average monthly household income was MNT 2,409,836 in 2024, which rose by 72.86% from 2020. At the national level, the average monthly household expenditure was 2,626,520 MNT in 2024, which is an increase of 72.36% from 2020. The monthly average income of households residing in rural areas was MNT 1,729,754, which is 63.33% of the urban average. No data is available at aimag or soum level.  In Dornogovi aimag, 17,932 people received social welfare pensions and allowances of MNT 58,400,000 thousand in 2024.  As of 2024, the number of herder households recorded nationally was 249,450, with 5,534 in Dornogovi aimag. Sainshand had 271 herder households, Ulaanbadrakh had 326,	Construction	The construction phase employment can markedly increase the earnings and disposable income of local working age people in the Project Area.  Construction workers will also gain qualifications and experience through training and employment that will potentially also contribute to more sustained employment opportunities in the future related to the construction industry.  The purchase of locally produced dairy products, meat and vegetables will also contribute to herder household incomes.	Minor to Moderate Beneficial	The Construction Contractor will develop a Local Employment and Procurement Policy and Plan, in collaboration with local authorities and businesses, that identifies and outlines local content requirements that can be met locally wherever feasible, including aggregates, perishable agricultural products, and cleaning and catering services. This should include purchase of goods from local herders, especially those directly affected by the Project.	Minor to Moderate Beneficial
	Operation	Following the completion of the construction phase of the Project, construction workers will need to find alternative employment opportunities. The training,	Minor to Moderate Beneficial	All construction workers will be provided with a reference/confirmation of employment letter and a skills/training log, to enhance their employment prospects.	Minor to Moderate Beneficial



Baseline Summary	Phase	Potential Impact(s)	Effect (without mitigation)	Mitigation Measures	Residual Effects (after mitigation)
<p>Mandakh had 355 and Saikhandulaan had 294.</p> <p>Four of the households surveyed as part of the ESIA have up to 1-2 mln. MNT monthly income. Two households had an income ranging from 2 mln. MNT to 2.5 mln. MNT, and four households have monthly average income 2.5 mln. MNT or more.</p>		<p>qualifications and experience of the construction workforce will assist in seeking other employment on developments in and outside the region.</p> <p>The Project will provide more reliable electricity to Dornogovi aimag, with the intention as stated in policy that this facilitates growth of development in the area. Overall, and combined with other development related to the energy sector and business development in the local area, an improvement in transmission will result in an improvement in energy supply, which will contribute to the local economy, which in turn will have a positive effect on livelihoods.</p>		<p>The MoE should work with the local developments in the area, such as the mines, to help provide for a proportion of the construction workforce to be recruited on local projects, which will benefit the local economy once the Project has been finished as skilled workers will be available to the workforce.</p>	
<b>Living Costs</b>					
<p>Dornogovi aimag is relatively better off with respect to poverty compared to the national levels. Within the soums, Sainshand had the lowest count for the share of the population whose consumption is below the poverty line in 2024 (15.9), followed by Mandakh and Saikhandulaan (both 19.2) and Ulaanbadrakh (19.4).</p> <p>The poverty gap is the average distance below the poverty line as a proportion of the poverty line where</p>	Construction	Contingent on local surpluses and productive capacity and responsiveness, a significant increase in demand for goods and services due to a temporary labour influx can lead to local inflationary pressures and increased living costs if supplies of labour, goods and services cannot be met.	Minor Adverse to Negligible	In addition to promoting the local supply chain, the Local Employment and Procurement Plan will include a requirement to monitor local demand and supply for basic goods and local price trends, to avoid pressures on basic foodstuffs and to help manage inflationary pressures. Mitigation measures will be required in the event of increased living costs.	Negligible
	Operation	During operation, the Project is unlikely to have an ongoing direct	Negligible	None proposed.	Negligible

Baseline Summary	Phase	Potential Impact(s)	Effect (without mitigation)	Mitigation Measures	Residual Effects (after mitigation)
<p>the mean is taken over the whole population, counting the non-poor as having zero poverty gaps. The poverty gap was lowest in Sainshand (4.3) followed by Saikhandulaan (both 5.2) and Ulaanbadrakh (5.3).</p> <p>The poverty severity (the distribution of the consumption among the poor population) for 2024 also shows a similar trend, being 1.9 in Dornogovi aimag. Poverty severity was lowest in Sainshand (1.8) followed by Mandakh and Saikhandulaan (both 2.1) and Ulaanbadrakh (2.2).</p>		<p>impact on living costs as there is no requirement for local employment as a result of the Project, and therefore potential for influx. The Project itself is not directly related to distribution of electricity to the buyer and tariffs are controlled by legislation.</p>			
<b>Land use</b>					
<p>The land along the OHTL route is predominantly land used as pasture for grazing livestock. Herders in the Project area reside in <i>gers</i> within winter, autumn or summer camps, depending on the time of year.</p> <p>At the time of the ESIA surveys in 2025, a total of 10 winter camps, five summer camps and one autumn camp were identified within a 1km buffer from the OHTL route. All but one camp was located in Sainshand soum. None of these camps or assets are within the 25m RoW, the closest are two camps within 100m of the OHTL route (in 2nd bagh, Chandmani and 5th bagh, Zuunbayan, both in Sainshand</p>	Construction	<p>During construction, there could be some disruption to existing land uses as a result of access restrictions for safe construction working along the OHTL route. As the land is currently mainly used for grazing, access for grazing is likely to be most affected.</p> <p>No impact is anticipated on the use of land for exploration mining or allocated developments, as these land parcels are not currently in use. No impact is anticipated on the use of land as LPAs, as despite their designations, they are currently still used as grazing lands.</p>	Negligible to Minor Adverse and Moderate Adverse (for the explosives storage land use)	<p>The Construction Contractor will implement a CESMP to limit adverse effects occurring beyond working areas and a Construction Traffic Management Plan to manage construction and local traffic within agreed routes.</p> <p>Communication will be undertaken at the local soum and bagh level, with the local herder households along the route, and with infrastructure owners to notify in advance of activities with the potential to affect land uses.</p> <p>Specifically with respect to the infrastructure and utilities, the Construction Contractor will be required to develop an Infrastructure Strategy together with the MoE/PIU/NPTG,</p>	Negligible

Baseline Summary	Phase	Potential Impact(s)	Effect (without mitigation)	Mitigation Measures	Residual Effects (after mitigation)
<p>soum). Nine herder wells were also identified within 1km corridor on both sides of the OHTL route.</p> <p>Mining is practiced in the Project Area, with a total of 96 active licences (exploration and mining) identified in the Project soums. One operational mine, two exploratory licence areas and one explosives storage area are crossed by the OHTL route and its RoW.</p> <p>According to data provided by the Land Agency in the Project soums, there are two areas that have been identified as land allocated for development; however, to date there has been no development on either site.</p>		<p>There may be some impact on the use of the land for storage of explosives, depending on the extent of that development.</p> <p>There may be some impact localised on land uses such as the use of paved and dirt roads, the use of the railways and the use of other OHTLs/ communications lines, where works are close to or cross these features.</p>		<p>covering engagement with infrastructure and utility owners and activities to prevent damage to infrastructure; agreements should be made in writing and all relevant construction considerations will be employed on the Project to avoid interruption of services. Agreement will be reached with land uses and owners as set out below under displacement. for use of their land</p> <p>Further details are provided under Physical and economic displacement below.</p>	
	Operation	<p>Certain activities are restricted within the RoW, including the presence/ construction of gers, housing or building or any activities other than those permitted by the network owners or possessors within such boundaries. This will not result in a change of existing land uses for herder camps or wells along the route, as there are no camps or wells within the 25m RoW. Grazing will still be permitted within the RoW, and therefore no impact on the use of the land for grazing is anticipated either.</p> <p>The Project could impact the exploratory mine land use at Ungut and Tsagaan tsaviin khudag,</p>	Negligible to Moderate Adverse (explosives land use)	See Physical and economic development below.	Negligible

Baseline Summary	Phase	Potential Impact(s)	Effect (without mitigation)	Mitigation Measures	Residual Effects (after mitigation)
		<p>however, neither are currently active and the Ungut licence expires in 2027. The route of the OHTL has been agreed in liaison with MAK at Tsagaan Suvarga mine, therefore no impact at in this area is anticipated.</p> <p>It is not known if the MoE has undertaken engagement with Blast in relation to the explosives area to the north of Tsagaan Suvarga mine; there is a potential that the OHTL route that passes through the centre of this area could impact on the use of this land for explosives storage</p> <p>Although the Project will result in a permanent loss of land within the three locally protected areas and the land parcels allocated for development, it will not change how these areas are currently used.</p> <p>During normal operation, it is not considered that the Project will have an impact on the various infrastructure it crosses.</p>			
	Operation	<p>During emergency situations (e.g. storm) there is a possibility that failure of the OHTL could impact adjacent infrastructure. For example, if the power cables are</p>	Moderate Adverse in emergency situations	The MoE/NPTG will ensure that appropriate agreement is reached with the relevant infrastructure owners where the route crosses them; and all relevant	Minor Adverse in emergency situations

Baseline Summary	Phase	Potential Impact(s)	Effect (without mitigation)	Mitigation Measures	Residual Effects (after mitigation)
		blown down and pull down a nearby OHTL or fall on the railway line, preventing operation.		operating criteria will be employed on the Project.	
<b>Physical and economic displacement</b>					
<p>The land along the OHTL route is predominantly land used as pasture for grazing livestock. Sixteen herder camps and nine wells were identified within a 1km distance from the OHTL route. There are no structures within the OHTL route or its RoW.</p> <p>The land along the OHTL route is predominantly land used as pasture for grazing livestock. Sixteen herder camps and nine wells were identified within a 1km distance from the OHTL route.</p> <p>At the time of the ESIA surveys in 2025, a total of 10 winter camps, five summer camps and one autumn camp were identified within a 1km buffer from the OHTL route; associated with herder households.</p> <p>Nine herder wells were identified within 1km corridor on both sides of the OHTL route.</p>	Construction and operation	<p>No physical displacement is anticipated as a result of the Project; there are no structures or residential uses within the OHTL route or its RoW.</p> <p>Temporary loss of access to pasturelands and associated impacts on herder livelihoods.</p> <p>Temporary impact on herder livelihoods through dust, traffic collisions and other construction-related risks.</p> <p>Temporary impact on access to water resources mainly for herders</p>	No impact to Moderate Adverse	<p>The NPTG as the final operator of the transmission line will need to secure possession rights for the OHTL route and its RoW in accordance with the Law on Land. This will entail confirming the final route of the line and an Application for Land Possession. Prior to this, agreement will be required with the various land users and owners along the Project route:</p> <ul style="list-style-type: none"> <li>• Individuals or organisations that possess access to the areas of land allocated for development and agree that the land can be used for the Project;</li> <li>• Mining licence holders;</li> <li>• Mineral Resources and Petroleum Authority;</li> <li>• The company Blast, who own the site for explosives storage near Tsagaan Suvarga mine;</li> <li>• Aimag and soum leaders, for any changes to the existing route; and</li> <li>• Local herders within 1km of any final route.</li> </ul> <p>Where agreement is not possible, a new alignment may be required. As such,</p>	Minor Adverse to Negligible

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				<p>the PIU will establish a Change Management Procedure that triggers the requirement for additional or new E&amp;S assessment for changes to project components, such as route and location changes, especially if the route changes to the route identified and assessed in this ESIA.</p> <p>In alignment with best practice and given the transient nature of herder summer and autumn camps, the MoE/PIU together with the Construction Contractor should undertake a full survey along the route of the OHTL for any structures that may be located within the final route alignment 25m RoW. physical displacement should be avoided wherever feasible. If, following the pre-construction surveys, it is determined that physical or economic displacement impacts of significance are unavoidable, then a Resettlement Action Plan (RAP) or Livelihoods Restoration Plan (LRP), with targeted livelihood, land, and asset, surveying, will be prepared for the Project in accordance with the Project LARF.</p> <p>It is also advised that the MoE together with the local soums inform local herders of the route of the OHTL to avoid the establishment of any new camps or structures within the RoW corridor. Whilst it is a legal requirement</p>	

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				<p>to maintain the RoW clear of structures, given the lack of knowledge on the Project further engagement is required to prevent new development.</p> <p>The timing of construction works will be such to minimise impact on herders, where possible e.g. during summer months when there are fewer herders present and/or residing in the vicinity of the route.</p> <p>To ensure there are no additional impacts that could affect use of grazing lands, the Construction Contractor will:</p> <ul style="list-style-type: none"> <li>• Advise local communities and herders in advance of works, so they can avoid being in close proximity to the construction sites with increased risks e.g. of construction traffic collisions with livestock.</li> <li>• Restrict clearance and construction works to within designated working areas.</li> <li>• Non-potable water sources will be determined to minimise local impacts on water supply and drinking water for construction workers will be sourced from bottled containers which will be delivered to the construction compounds.</li> <li>• A Code of Conduct for Construction Workers, which will</li> </ul>	

Baseline Summary	Phase	Potential Impact(s)	Effect (without mitigation)	Mitigation Measures	Residual Effects (after mitigation)
				<p>set out practice measures that the construction workers will have to adhere to ensure a positive relationship is built and maintained with the local communities.</p> <ul style="list-style-type: none"> <li>• A Pollution Prevention Plan to manage the risk of spills and pollution that could affect local livelihoods.</li> <li>• A Waste Management Plan will be implemented, Municipal waste will be segregated and collected by the relevant municipality.</li> </ul> <p>A Grievance Mechanism will be put in place and communicated to stakeholders.</p>	
<p>One operational mine, three exploratory licence areas and one explosive storage area are crossed by the OHTL route and its RoW:</p> <ul style="list-style-type: none"> <li>• Ungut Exploration licence – inactive, due to expire 2027</li> <li>• Tsagaan tsaviin khudag Exploration licence – inactive- due to expire 2049</li> <li>• Tsagaan Suvarga – operational mine</li> <li>• Explosives storage area owned by Blast to north of Tsagaan Suvarga under construction</li> </ul>	Construction and operation	<p>Only a very small part of the active Tsagaan Suvarga mine will be affected, and the mine is aware of this Project given that the Project terminates in the Tsagaan Suvarga substation.</p> <p>The OHTL route passes through the edge of the Tsagaan tsaviin khudag exploration area and the small area of land required is unlikely to affect the viability of this area for mining.</p> <p>The route passes through the middle of the Ungut exploratory mining licence area. There is a potential that this could affect the</p>	Negligible to Minor Adverse (Ungut) and Moderate Adverse (Blast storage site)	<p>As above. The NPTG will also need to: obtain a “no objection” agreement for the mining licence holders to cross their licence areas; and obtain agreement with the and the explosives storage area land owner. The MoE/NPTG will also need to obtain agreement from Blast to cross the land currently planned to be used for explosive storage. This will determine whether additional siting of the towers is required.</p> <p>Clear demarcation will be required of access routes to the OHTL to avoid multiple tracks being made during the O&amp;M phase.</p>	Negligible to Minor Adverse (Ungut and Blast storage site)



Baseline Summary	Phase	Potential Impact(s)	Effect (without mitigation)	Mitigation Measures	Residual Effects (after mitigation)
		<p>viability of future use of this licence, however, the licence is not currently under use and is due to expire in 2027.</p> <p>The route also passes through a section of Dovtsog Khudag the licence is not currently under use and is due to expire in 2027.</p> <p>The route also passes through the middle of the Blast explosives storage site to the north of Tsagaan Suvarga. there is a possibility that an OHTL could restrict the (current or more likely future) development of this site with a knock on effect on business income.</p>			
<p>These Project falls within a priority conservation area (PCA), the Southern Gobi Ecological Region of Mongolia. Overall, there are three locally protected areas (LPAs) that the OHTL route passes through:</p> <ul style="list-style-type: none"> <li>• Zoogiin Hooloi (historical and cultural heritage site)</li> <li>• Uushiin Govi (priority conservation area)</li> <li>• Ganzaga Uuliin Urgutgul (priority conservation area)</li> </ul> <p>Zoogiin Hooloi LPA was released from protection on July 30, 2019; parts of Uushiin Govi have been released from</p>	Construction and operation	<p>Permanent landtake within areas of PCA/LPA. The land for the OHTL route (and its 25m RoW) has been agreed by Dornogovi aimag government and the local soums (who also designate the LPAs), and therefore no permanent physical or economic displacement, including impact on livelihoods, is anticipated in relation to the PCA/LPAs; all of which either have been released or are due to be released from designation.</p>	No significant impact.	As above. Clear demarcation will be required of access routes to the OHTL to avoid multiple tracks being made during the O&M phase.	No significant impact.

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protection; and Ganzaga Uuliin Urgutgul LPA is planned to be released from protection in 2036.					
<p>According to data provided by the Land Agency in the Project soums, there are several areas that have been identified as land allocated for development:</p> <ul style="list-style-type: none"> <li>• A land parcel allocated to an industrial and technological park</li> <li>• A land parcel allocated to commercial and public service facilities, centres, and complexes</li> </ul> <p>Neither of them is currently developed.</p>	Construction and operation	Permanent landtake on the land areas allocated for development. The two areas of land allocated for development would likely be made unviable due to the OHTL route passing over them; however, it is currently understood that whilst allocated, no development has taken place or is due to take place on these sites.	Minor Adverse	<p>With respect to the final route, the MoE/NPTG will need to obtain a Decree from the relevant Governors at the aimag and soum level for official allocation of the land to the Project. This will cover land designations such as the PCA and LPAs; and land allocated for use.</p> <p>Clear demarcation will be required of access routes to the OHTL to avoid multiple tracks being made during the O&amp;M phase.</p>	Negligible if other suitable areas for development are identified (or if the developments are no longer required).
<p>The OHTL route crosses various paved and dirt roads, railways and transmission and communications lines:</p> <ul style="list-style-type: none"> <li>• Communication and information transmission lines – 9</li> <li>• 10kV OHTL – 3</li> <li>• 35kV OHTL – 5</li> <li>• 110kV OHTL – 4</li> <li>• Fibre optic cables – 6</li> <li>• Paved roads – 3</li> <li>• Dirt roads – 6</li> <li>• Railway – 3</li> </ul>	Construction and operation	The Project is not anticipated to have any displacement impacts on infrastructure such as transmission lines, roads and railways it crosses. None of these features will need to be moved or dismantled as a result of the Project. The OHTL route should be positioned at a sufficient distance to avoid direct impact on this infrastructure in the event of a failure such as tower collapse or cable detachment. It is expected due to safety reasons that any failure would be addressed promptly. The MoE/NPTG will ensure that appropriate agreement	No impact	n/a	n/a

Baseline Summary	Phase	Potential Impact(s)	Effect (without mitigation)	Mitigation Measures	Residual Effects (after mitigation)
		<p>is reached with the relevant infrastructure owners where the route crosses them; and all relevant operating criteria will be employed on the Project.</p> <p>Whilst there could be economic impacts during an emergency scenario, this cannot be predicted with certainty and any loss of use of utilities will be addressed under compensation rights associated with the relevant legislation.</p>			
<b>Physical and economic displacement</b>					
The land along the OHTL route is predominantly land used as pasture for grazing livestock. Sainshand city and Tsagaan Suvarga are the only main developments, at either end of the route. There are 16 herder camps within 1km of the route. There are various mining licences in the broader Project Area; areas allocated for development and PCA/LPA areas.	Construction	Physical or Economic Development: associated for Construction Contractor sites.	Negligible	<p>The final micro-siting of the towers will be such to avoid any physical or economic displacement. If, following final micro-siting it is determined that displacement impacts are unavoidable, then an RAP and/or LRP, involving detailed targeted livelihood, land, and asset, surveying, will be prepared in accordance with the Project LARF.</p> <p>With respect to other temporary sites needed during construction, the Construction Contractor will be required to select these site requirements based on minimal environmental and social impacts, including avoiding any mining licences, PCA/LPA and herder camps; and avoiding any economic and physical displacement. They will be required to conduct an E&amp;S screening</p>	Negligible

Baseline Summary	Phase	Potential Impact(s)	Effect (without mitigation)	Mitigation Measures	Residual Effects (after mitigation)
				of impacts, to be approved by PIU/MoE and review by the EBRD; this screening template is provided in the ESMP. Where necessary, additional mitigation measures will be applied to reduce any adverse impacts in the siting of any temporary sites such as camps, the Contractor will consult with local authorities and communities. Should any involuntary resettlement be required, the Construction Contractor will prepare a RAP/LRP in line with the Project LARF.	
<b>Labour and Working Conditions</b>					
All Projects will be required to comply with the Mongolian Labour Code. Mongolia has ratified several key ILO conventions related to forced labour, collective bargaining, discrimination, child labour, and health and safety. Minimum age for work is 16, or 15 with parental consent. Order No.122 sets out construction sector restrictions. High incidence of child, and forced or compulsory, labour in Mongolia. Cases of child and forced or compulsory labour, as well as workplace harassment and exploitation, in the construction sector are also well documented. Boys are	Construction	If not managed in accordance with good practice and legislation, there is a risk of exploitative working practices, labour grievances, supply chain issues, occupational health and safety concerns, and child and forced or compulsory labour. Potential discrimination against workers due to lack of implementation of HR policy and procedures.	Moderate Adverse	A PIU will be set up in the MoE to support the MoE in project implementation. The MoE/PIU will develop and implement: <ul style="list-style-type: none"> <li>• A Project Environmental and Social policy</li> <li>• A Project Human Resources Policy and Procedure</li> <li>• A Project Discrimination and Harassment Policy</li> <li>• A Project Code of Conduct</li> <li>• An overarching Project Labour Management Plan</li> </ul>	Moderate to Minor Adverse

Baseline Summary	Phase	Potential Impact(s)	Effect (without mitigation)	Mitigation Measures	Residual Effects (after mitigation)
more likely to be involved in child labour than girls.				<p>Environmental, social and OHS requirements will be included in MoE's implementation documents.</p> <ul style="list-style-type: none"> <li>The ESAP will be simplified in terms of the requirements to be implemented by contractors. Requirements will be included in contractor contracts. Project construction tendering process to include clauses and policies related to labour practices.</li> </ul> <p>The Construction Contractor will be required to comply with Project policies, procedures and plans; and develop and implement:</p> <ul style="list-style-type: none"> <li>A Labour Management Plan in line with applicable national labour laws, ISO 45001 and EBRD PR2.</li> <li>A workers' camp management plan and ensure it is compliant with EBRD/IFC's (2009) Guidance Note: Workers' accommodation: processes and standards.</li> <li>A Local Employment and Procurement Plan.</li> <li>A Training Plan, to promote upskilling and ensuring workers have the appropriate training to undertake their work.</li> </ul>	

Baseline Summary	Phase	Potential Impact(s)	Effect (without mitigation)	Mitigation Measures	Residual Effects (after mitigation)
				<p>Before work begins, the Construction Contractor will conduct a thorough risk assessment, taking into consideration Project-specific aspects of OHTL construction, remote working and natural hazards. A Construction Risk Register for the Project will be developed and maintained.</p> <p>The Construction Contractor will perform labour audits during construction on a monthly basis; track and report on KPIs; and report on a monthly, quarterly and annual basis.</p> <p>All construction staff will have access to an employee grievance mechanism.</p> <p>Before work begins, the Construction Contractor will conduct a thorough risk assessment.</p> <p>The PIU will conduct a monthly independent labour audit of the Construction Contractor against PR2 requirements; and report on those findings.</p>	
	Operation	If not managed in accordance with good practice and legislation, there is a risk of exploitative working practices, labour grievances, supply chain issues, occupational health and safety concerns, and child and forced or compulsory labour. Potential discrimination	Major Adverse	<p>The NPTG will develop and implement:</p> <ul style="list-style-type: none"> <li>• Environmental and Social policy</li> <li>• Human resources policy</li> <li>• Discrimination and Harassment Policy</li> <li>• Supply Chain Policy and Management Plan.</li> </ul>	Minor Adverse

Baseline Summary	Phase	Potential Impact(s)	Effect (without mitigation)	Mitigation Measures	Residual Effects (after mitigation)
		against workers due to lack of specific HR policy and procedures.		<p>If not already in existence, a Labour Management Plan for the O&amp;M phase should be developed. This will integrate</p> <ul style="list-style-type: none"> <li>• A labour grievance mechanism.</li> <li>•</li> </ul> <p>The NPTG will:</p> <ul style="list-style-type: none"> <li>• Ensure employees and any suppliers have access to human resources policies.</li> <li>• Ensure that employees are aware of their rights to join local trade unions.</li> <li>• Disclose its Labour Grievance Mechanism to all employees and contractors.</li> </ul> <p>Track and report on OHS key performance indicators (KPIs). It is also recommended that the NPTG conduct Annual Labour Audits to assess operational workforce conditions, including pay, working hours, contract compliance, PPE provision, and grievance uptake.</p>	
<b>Gender</b>					
In 2022, the National Committee on gender equality approved the cross-sectoral strategic plan for promoting gender equality in Mongolia (2022-2031). However, in terms of the Global Gender Gap Index, Mongolia ranked 85th out of 146 countries in 2024, a	Construction	Most unskilled and skilled labour jobs are expected to be undertaken by men, with skilled work most likely to be provided by migrant workers. However, there may be opportunities for local women to obtain jobs in catering, the workers'	Major Adverse	<p>The PIU will:</p> <ul style="list-style-type: none"> <li>• Undertake a review of GBVH and gender risk assessment.</li> <li>• Develop a Project Discrimination and Harassment Policy.</li> <li>• Develop a stand-alone Project Gender Equality and GBVH Action</li> </ul>	Minor Beneficial

Baseline Summary	Phase	Potential Impact(s)	Effect (without mitigation)	Mitigation Measures	Residual Effects (after mitigation)
reduction by five positions from 2023. As of 2021, the employment rate of women in Mongolia's construction sector was about 15.8%.		accommodation camp, the service industry and administration.		<p>Plan based on a completed GBVH and gender risk assessment. The Action Plan will include proactive measures to promote women's employment.</p> <ul style="list-style-type: none"> <li>• Provide training to project employees, suppliers and contractors on GBVH and SEAH associated risks.</li> <li>• Promote open discussions about GBVH and SEAH concerns through disclosure of gender awareness materials.</li> <li>• Provide training and implementation of effective Project and employee grievance mechanisms.</li> <li>• Monitor the implementation of the Plan by PIU internally and the Construction Contractor and their supply chain.</li> <li>• Maintain gender disaggregated data on staff and contractors.</li> </ul> <p>The Construction Contractor will:</p> <ul style="list-style-type: none"> <li>• Comply with the Project Discrimination and Harassment Policy and Project Gender Equality and GBVH Action Plan.</li> <li>• Raise awareness about gender and GBVH risks, and necessary actions for workforce security.</li> <li>• Promote open discussions about GBVH and SEAH concerns</li> </ul>	



Baseline Summary	Phase	Potential Impact(s)	Effect (without mitigation)	Mitigation Measures	Residual Effects (after mitigation)
				<p>through disclosure of gender awareness materials/training and implementation of effective Project and employee grievance mechanisms.</p> <ul style="list-style-type: none"> <li>Attend / support training on the Code of Conduct and GBVH.</li> </ul> <p>Maintain gender disaggregated workforce data and provide such data as part of monthly reporting to the MoE/PIU. The MoE/PIU and the Construction Contractor will implement a zero-tolerance process for discrimination against women.</p>	
	Operation	It is not anticipated that any additional staff will be required during the O&M stage. Limited employment opportunities for women. Currently, more women than men work at both the MoE and the NPTG.	Negligible	<p>The NPTG will:</p> <ul style="list-style-type: none"> <li>Develop a stand-alone Gender Adopt a gender-sensitive workplace policies to comply with the revised Labour Code.</li> <li>Develop and implement a stand-alone Gender Equality and GBVH Action Plan, which will include training to project employees, suppliers and contractors on GBVH associated risks.</li> <li>Include requirements related to gender considerations in bidding documents. In particular, the objective of increasing the number of women working in the construction sector should be set for all contractors to reflect this in their policies and operations.</li> </ul>	Negligible

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				<ul style="list-style-type: none"> <li>Promote open discussions about GBVH concerns through disclosure of gender awareness materials/training</li> <li>Provide training to staff and suppliers on GBVH.</li> <li>Implement effective employee grievance mechanisms.</li> </ul>	
<b>GBVH</b>					
High risk of GBVH incidents in Mongolia and in construction activities. Cases of workplace harassment and exploitation in the construction sector are also well documented. A report on gender equality in the energy sector shows that 3% of surveyed employees experienced bullying and GBV at workplace, majority being females. During the KIIs, Mandakh soum reported that child sexual abuse cases are high, with three cases of sexual violence against young children reported since 2014. It is recognised overall that GBVH is probably under recorded.	Construction	The World Bank reports that it is well established that GBVH risks can intensify within communities experiencing large male worker influxes from outside the area, with GBVH being committed mostly by coworkers or construction supervisors. Reduced safety and security for women employed on the Project and potential GBVH risks.	Major Adverse	See Gender – construction above.	Minor Adverse
	Operation	During operation, there is a risk of GBVH in the workplace.	Major Adverse	See Gender – operation above.	Minor Adverse
<b>Supply chain</b>					
In Mongolia there is no national requirement for supply chain audits.	Construction	Without a supply chain management procedure in place and being implemented, there is a risk that social and labour aspects	Major Adverse	The MoE/PIU will: <ul style="list-style-type: none"> <li>Develop and implement a Project supply chain policy and plan.</li> </ul>	Minor Adverse

Baseline Summary	Phase	Potential Impact(s)	Effect (without mitigation)	Mitigation Measures	Residual Effects (after mitigation)
Lack of consideration of social and labour aspects in management of supply chain.		in management of the supply chain are not considered sufficiently. This is known to be a risk for management of international contractors and their supply chain based on other projects in Mongolia.		<ul style="list-style-type: none"> <li>• Ensure that the Project construction tendering process includes clauses and policies on minimum working age, normal working hours, freedom to collective bargaining, good working conditions, supply chain management, and measures to eradicate forced labour risks. Further details are captured in the stand-alone ESMP.</li> <li>• Arrange independent audits and inspections of the construction sites and construction compounds at least every 6 months to ensure compliance with their Labour Management Plan and ESMP.</li> </ul> <p>The Construction Contractor will be required to:</p> <ul style="list-style-type: none"> <li>• Comply with the Project Supply Chain Policy and develop and implement a construction-specific Supply Chain Management Plan, aligning with the Project Supply Chain Management Plan.</li> <li>• Prior to engaging suppliers, perform supply chain due diligence/obtain the third-party supply chain due diligence reports to verify potential suppliers' credentials regarding the occurrence of forced labour child</li> </ul>	

Baseline Summary	Phase	Potential Impact(s)	Effect (without mitigation)	Mitigation Measures	Residual Effects (after mitigation)
				labour or occupational health and safety failures. <ul style="list-style-type: none"> <li>The Construction Contractor will undertake regular compliance audits of the supply chain, at a frequency identified in the Supply Chain Management Plan but recommended to be at least once a year, as appropriate to the length of the supply chain contract.</li> <li>If security companies or personnel are used, the Construction Contractor will carry out appropriate checks to ensure that security companies (if any such companies are engaged) and personnel (where reasonably possible) do not have a history of past abuse.</li> </ul>	
	Operation	The NPTG does not currently monitor O&M Contractors in relation to social and labour aspects, with procurement contracts mainly focused on health and safety and technical requirements. Risks of forced labour and child labour in supply chain.	Major Adverse	The NPTG will: <ul style="list-style-type: none"> <li>Develop and implement a Supply Chain Management Plan.</li> <li>Undertake regular compliance audits of the supply chain, at a frequency identified in the Supply Chain Management Plan but recommended to be at least once a year.</li> </ul>	Minor Adverse
<b>OHS</b>					
Employers under Mongolian law are required to take all necessary measures to provide and maintain a	Construction	Common activities undertaken during construction can introduce high risks to the health and safety	Major Adverse	The Construction Contractor will develop and implement:	Minor to Major Adverse

Baseline Summary	Phase	Potential Impact(s)	Effect (without mitigation)	Mitigation Measures	Residual Effects (after mitigation)
<p>safe and healthy workplace taking in account into account inherent risks in its particular sector and specific classes of hazards that may be present. Employees are also required to obey and observe all measures taken to ensure acceptable occupational health and safety. However, poor OHS on construction and O&amp;M sites, lack of monitoring and management.</p>		<p>of the construction workforce, such as: the movement of machinery, demolition and excavation, electrical works, handling of chemicals, works undertaken at height. In particular, risks are more likely to be apparent for those who are not familiar with the type of works undertaken and/or the associated hazards. The Project site is isolated, and the nearby villages are small and ill-equipped to deal with major accidents or incidents.</p>		<ul style="list-style-type: none"> <li>Undertake a risk assessment and develop a Construction Risk Register for the Project.</li> <li>CESMP.</li> <li>OHS Plan.</li> <li>Emergency Preparedness and Response Plan, to the approval of the PIU and developed in liaison with local community members, authorities, police and emergency services.</li> </ul> <p>Construction workers will be provided with a safe and healthy work environment. Risk assessment to be completed for works.</p> <p>All workers will be equipped with proper PPE.</p> <p>The Construction Contractor will carry out regular site inspections during maintenance activities to verify the proper implementation of safety measures.</p> <p>The Construction Contractor will ensure that all its sub-contractors comply with the above plans.</p> <p>The Construction Contractor will undertake regular reporting on the health and safety performance onsite will be required, in addition to reporting of any accidents, incidents and/or emergencies and the measures undertaken in such cases to control the</p>	

Baseline Summary	Phase	Potential Impact(s)	Effect (without mitigation)	Mitigation Measures	Residual Effects (after mitigation)
				situation and prevent it from occurring again.	
	Operation	OHS hazards include risk of electrocutions; fire generation from falling overhead lines and from lightening; falling and/or swinging objects; electrocution, electric shock and arc flash incidents; potential collapse of towers; falling from heights; EMFs; fire risk at substations; exposure to chemicals, hazardous or flammable materials; and potential injuries from handling heavy equipment, tools, and materials.	Moderate to Major Adverse	<p>The NPTG will prepare and implement or elaborate their existing O&amp;M Plan to cover EBRD PR2 and EBRD PR4. This should include necessary provisions to ensure that the risk of exposure of the workers is assessed, managed and monitored.</p> <p>The NPTG should implement the necessary provisions to ensure that the risk of exposure of the workers, especially at the substations, will be assessed and monitored. This may include:</p> <ul style="list-style-type: none"> <li>Functional testing, commissioning, performance, testing and reliability testing of the complete Project should be undertaken.</li> <li>Conduct a Project specific risk assessment identifying physical chemical, biological and other hazards and prioritising hazard elimination, hazard control and hazard minimisation. Risk assessments should be prepared taking consideration of Briefing Note 01: Underground and overhead services<sup>2</sup>, Electric power</li> </ul>	Minor to Major Adverse

<sup>2</sup> Available at: [How to implement our performance requirements](#)

Baseline Summary	Phase	Potential Impact(s)	Effect (without mitigation)	Mitigation Measures	Residual Effects (after mitigation)
				<p>and distribution health and safety toolkit<sup>3</sup> and Working near Overhead Cables<sup>4</sup>.</p> <ul style="list-style-type: none"> <li>• Ensure appropriate safety signage is on display within the substations and on all towers, following GIP electrical specifications and codes of practice.</li> <li>• Ensure staff are adequately trained. Specialised and electrical PPE will be provided for the workforce in accordance with relevant standards, including those specifically relevant to working with or around electricity.</li> <li>• Staff working near noisy machinery and power tools will be provided with earmuffs to protect them against noise-induced hearing loss damage.</li> <li>• Regular maintenance of equipment will reduce the risk of injury from failing equipment.</li> <li>• Adequate earthing of equipment to prevent shocks and malfunctioning of protection equipment.</li> <li>• Provision of a fire detection and protection system to international standards.</li> </ul>	

<sup>3</sup> Available at: [How to implement our performance requirements](#)

<sup>4</sup> Available at: [Working\\_near\\_overhead\\_cables\\_En.pdf](#)

Baseline Summary	Phase	Potential Impact(s)	Effect (without mitigation)	Mitigation Measures	Residual Effects (after mitigation)
				<ul style="list-style-type: none"> <li>Regular inspection of the RoW to ensure non permitted land uses are not occurring.</li> </ul> <p>A Project-specific O&amp;M Emergency Preparedness and Response Plan should be developed and implemented by NPTG. A medical evacuation procedure should be developed to enable injured workers to access appropriate emergency facilities. First aid facilities should also be provided at the substations.</p> <p>In terms of occupational exposure to EMFs, appropriate consideration will be given to the EU Directive 2013 on the minimum health and safety requirements regarding the exposure of workers to the risks arising from physical agents (electromagnetic fields). NPTG should assess all risks for workers arising from electromagnetic fields at the workplace and, if necessary, measure or calculate the levels of electromagnetic fields to which workers are exposed. Where necessary, an action plan should be developed and additional information and training provided to the employee. Appropriate health surveillance and medical examinations may also be required for staff who exceed the Health Effects Exposure Limit Values and report experiencing a health effect.</p>	



Baseline Summary	Phase	Potential Impact(s)	Effect (without mitigation)	Mitigation Measures	Residual Effects (after mitigation)
				The NPTG's operational HR policy and Labour Management Plan will include a Labour Grievance Mechanism and be readily available and understandable to all employees.	
<b>Climate resilience – Extreme Heat</b>					
Construction equipment (e.g. cranes, vehicles, construction plant)	Construction	Overheating of equipment leading to loss of efficiency or breakdown, resulting in delays to the construction programme and increased costs.	Not Significant	Equipment should be inspected regularly to ensure that cooling systems and ventilation are functioning as expected and clear out any dust or debris that may be accumulating within the systems. During periods of high temperatures, works should be scheduled for cooler periods throughout the day (i.e. morning or evening). Where possible, equipment should be stored in shaded areas when not in use.	Not Significant
Infrastructure (access roads)	Construction	High temperatures can damage road surfaces, soften surface layers, causing deterioration. Damaged road surfaces can cause unstable driving conditions for drivers, posing a risk of accidents.	Not Significant	Road conditions should be monitored during hot weather and staff recommended to reduce speed if road surface conditions deteriorate.	Not Significant
Buildings and infrastructure (OHTL and associated structures)	Operation	If high temperatures and low wind conditions coincide with heavy electrical loading, it will result in elevated conductor temperatures. This could result in a breach of minimum acceptable clearance	Significant	The traditional approach used to ensure that transmission line power flow is limited to a safe value is to adopt conservative static ratings with large safety margins. Traditional fixed seasonal ratings assume worst-case	Not Significant

Baseline Summary	Phase	Potential Impact(s)	Effect (without mitigation)	Mitigation Measures	Residual Effects (after mitigation)
		<p>between the 220kV conductor and ground.</p> <p>Under extreme conditions, there is potential for permanent conductor damage (annealing), Overheating of the OHTL may result in sagging, risking damage or connection with vegetation, structures, or the public, resulting in loss of power, fire, injury and/or repair costs.</p>		<p>40–45 °C ambient, 0.5 m/s perpendicular wind, full sun → conductor almost never reaches conductor annealing temperature even at full rating. The rating of AC - 400/51 conductor should be limited to 222 MW @ +45 degrees Celsius. SCADA monitoring to be used to raise alarms if actual loading approaches the design temperature rating. Sag monitoring techniques, such as infrared laser systems, photographic monitoring, or numerical modelling, should be used regularly to assess sag and proactively maintain the OHTL.</p>	
Landscape receptors	Operation	<p>Prolonged periods of high temperatures leading to die-back of vegetation may lead to desiccation of soils, increasing the risk of instability within foundations and damage to towers.</p>	Significant	<p>Clear and maintain non-heat or -fire resistant vegetation around substations and towers to reduce risks, with potential to replace vegetation with more resilient alternatives.</p>	Not Significant
Human health (e.g. site workers)	Construction	<p>High temperatures may result in uncomfortable working conditions for construction workers, reducing productivity and potentially resulting in health impacts including dehydration, sunburn, heat stroke, and fatality.</p>	Significant	<p>Staff should be provisioned with appropriate PPE to mitigate risks of overheating, including lightweight, breathable, and moisture-wicking fabrics. UV exposure should be limited through UV-protected clothing, shading, and sun screen, and sufficient potable water should be provided to prevent risks associated with dehydration. Health and safety training should be delivered to all staff prior to beginning work, and should include information on</p>	Not Significant

Baseline Summary	Phase	Potential Impact(s)	Effect (without mitigation)	Mitigation Measures	Residual Effects (after mitigation)
				the signs of heat exhaustion and related health impacts.	
Human health (operational and maintenance workers)	Operation	High temperatures can impact productivity of operational/ maintenance workers, leading to reduced transmission capacity. Prolonged exposure to high temperatures may also result in impacts to health and wellbeing, potentially resulting in dehydration, heat stroke, sunburn, and injury.	Not Significant	Staff should be provisioned with appropriate PPE to mitigate risks of overheating, including lightweight, breathable, and moisture-wicking fabrics. UV exposure should be limited through UV-protected clothing, shading, and sun screen, and sufficient potable water should be provided to prevent risks associated with dehydration. Health and safety training should be delivered to all staff prior to beginning work, and should include information on the signs of heat exhaustion and related health impacts.	Not Significant
<b>Climate resilience – Extreme cold</b>					
Construction equipment (e.g. cranes, vehicles, construction plant)	Construction	Reduced efficiency due to low temperatures, leading to delays in the construction programme.	Not Significant	Equipment should be inspected regularly to ensure that heating systems and ventilation are functioning as expected and clear out any dust or debris that may be accumulating within the systems. When not in use, machinery should be stored inside where possible to protect against harsh conditions and prevent heat loss, with batteries properly charged and insulated to prevent loss of power. Consider utilising engine heaters to aid in start ups and reduce the risk of engine damage.	Not Significant

Baseline Summary	Phase	Potential Impact(s)	Effect (without mitigation)	Mitigation Measures	Residual Effects (after mitigation)
Buildings and infrastructure (OHTL and associated structures)	Operation	Heavy snowfall/freezing rain may result in damage to OHTL and/or towers, resulting in a cascading failure event leading to widespread loss of power and potential repair costs.	Significant	Consider utilising hydrophobic coatings and other low-ice adhesion materials to reduce ice and snow accumulation on conductors. Line monitoring systems can also be utilised to monitor and address accumulation early.	Not Significant
Human health (e.g. site workers)	Construction	Low temperatures may result in reduced productivity of workers and potential health impacts including hypothermia, resulting in injury or fatality.	Significant	Staff should be provisioned with appropriate PPE to mitigate risks of from cold, including insulated mid-layers, waterproof and windproof outer layers, insulated gloves and boots, and head and face protections. Health and safety training should be delivered to all staff prior to beginning work, and should include information on the signs of hypothermia and related health impacts. Where possible, work should be limited during periods of extreme low temperatures and staff should be provided with regular breaks in adequate warm shelter.	Not Significant
Human health (operational and maintenance workers)	Operation	Prolonged exposure to low temperatures may reduce productivity and impact health and wellbeing, potentially resulting in hypothermia and injury.	Ensure that surface drainage is regularly maintained to reduce water accumulation on paved surfaces, reducing the risk of freeze-thaw.	Staff should be provisioned with appropriate PPE to mitigate risks of from cold, including insulated mid-layers, waterproof and windproof outer layers, insulated gloves and boots, and head and face protections. Health and safety training should be delivered to all staff prior to beginning work, and should include information on the signs of hypothermia and related health impacts. Where possible, work should be limited	Not Significant

Baseline Summary	Phase	Potential Impact(s)	Effect (without mitigation)	Mitigation Measures	Residual Effects (after mitigation)
				during periods of extreme low temperatures and staff should be provided with regular breaks in adequate warm shelter.	
<b>Climate resilience – Wind</b>					
Construction equipment (e.g. cranes, vehicles, construction plant)	Construction	Potential damage to equipment at height (e.g. cranes, cherry pickers) during periods of high wind speed resulting in increased costs and safety risks.	Significant	When not in use, equipment should be stored away from trees or structures that could fall during high wind to prevent potential damage. Should cranes be utilised, lower the height to minimise wind resistance and prevent falls. Monitor weather forecasts on a weekly basis to ensure that high-risk activities are not being carried out during periods of high winds.	Not Significant
Building site (e.g. temporary structures)	Construction	Damage may occur to structures as a result of windblown debris, potentially affecting the integrity of the structure and resulting in financial costs if repairs are needed.	Not Significant	Monitor weather forecasts on a weekly basis and ensure that all materials are secured to prevent windblow. Ensure that all smaller equipment is removed from the site and/or secured and ensure that all temporary structures are effectively anchored to withstand winds, and larger equipment is stored away from temporary structures to prevent damage in the event of a fall.	Not Significant
Buildings and infrastructure (OHTL and associated structures)	Operation	High wind speeds may cause damage to OHTL and/or pylons, potentially exacerbated by falling trees/ structures or windblown debris, resulting in loss of power and repairs costs.	Significant	High wind speeds may cause damage to OHTL and/or towers, potentially exacerbated by falling trees/structures or windblown debris, resulting in loss of power and repairs costs.	Not Significant

Baseline Summary	Phase	Potential Impact(s)	Effect (without mitigation)	Mitigation Measures	Residual Effects (after mitigation)
Road network (e.g. access roads)	Construction	Windblown debris may block temporary access roads, preventing materials and workers from accessing the construction site and causing delays.	Not Significant	Monitor weather forecasts on a weekly basis and ensure that all materials are secured to prevent windblow. Ensure that all smaller equipment is removed from the site and/or secured.	Not Significant
Infrastructure (access roads)	Operation	Windblown debris may block access for maintenance workers to infrastructure which may result in delays to routine or emergency maintenance leading to reduced transmission capacity.	Not Significant	Consider utilising windbreaks in key risk areas to reduce potential impacts associated with windblown debris.	Not Significant
Landscape receptors	Operation	High winds may lead to increased movement of desert sands, leading to unusual dust deposition and desertification/vegetation die-back resulting in reduced foundation stability. This in turn increases the risk of impacts to towers.	Not Significant	Consider utilising windbreaks to reduce potential impacts associated with windblown debris.	Not Significant
Human health (e.g. site workers)	Construction	High wind speeds may result in health and safety impacts to construction staff as a result of windblown debris, potentially resulting in injury.	Not Significant	Monitor weather forecasts on a weekly basis and ensure that high-risk tasks are scheduled for periods of low wind. Avoid working at height during high wind speeds and ensure that materials and smaller equipment is secured to prevent windblow. Store larger equipment away from temporary structures and areas with high footfall to avoid injury due to falls.	Not Significant
Human health (operational and maintenance workers)	Operation	High wind speeds may increase the risk of injury to maintenance workers as a result of windblown	Not Significant	Avoid carrying out maintenance works during periods of high wind speed,	Not Significant

Baseline Summary	Phase	Potential Impact(s)	Effect (without mitigation)	Mitigation Measures	Residual Effects (after mitigation)
		debris, particularly when working at height.		particularly tasks that require staff to work at height.	
<b>Climate resilience – Storms</b>					
Construction equipment (e.g. cranes, vehicles, construction plant)	Construction	Potential damage to equipment at height (e.g. cranes, cherry pickers) during periods of stormy weather, resulting in increased costs and safety risks.	Significant	When not in use, equipment should be stored away from trees or structures that could fall during high wind to prevent potential damage. Should cranes be utilised, lower the height to minimise wind resistance and prevent falls. Monitor weather forecasts on a weekly basis to ensure that high-risk activities are not being carried out during periods of high winds. Ensure equipment is powered down to prevent damage if a power surge occurs due to lightning.	Not Significant
Building site (e.g. temporary structures)	Construction	Storm events may result in structural damage due to windblown debris or lightning strikes, potentially affecting structural integrity and temporary electrical systems.	Not Significant	Monitor weather forecasts on a weekly basis and ensure that all materials are secured to prevent windblow. Ensure that all smaller equipment is removed from the site and/or secured. Electricals should be powered down where possible to prevent damage if a power surge occurs due to lightning.	Not Significant
Buildings and infrastructure (OHTL and associated structures)	Operation	Thunderstorm activity is rare in the location due to low moisture and high-pressure systems, but convective storms do occur sporadically in summer, often linked to monsoon influences from the southeast. These can bring	Significant	Ensure transmission line design complies with standard lightning protection practice in Mongolia (suitable surge arresters and substation shielding)	Not Significant

Baseline Summary	Phase	Potential Impact(s)	Effect (without mitigation)	Mitigation Measures	Residual Effects (after mitigation)
		<p>brief heavy rain, lightning, and flash floods, but the overall frequency is low.</p> <p>Storm events may result in damage to OHTL and/or towers as a result of falling trees/structures or windblown debris, resulting in line failure and repair costs. Impacts may be exacerbated by concurrent winds during or after a storm event.</p>			
Infrastructure (access roads)	Operation	Windblown debris may block access for maintenance workers to infrastructure which may result in delays to routine or emergency maintenance leading to reduced transmission capacity.	Not Significant	Consider utilising windbreaks to reduce potential impacts associated with windblown debris.	Not Significant
Landscape receptors	Operation	High winds may lead to increased movement of desert sands, leading to unusual sand deposition and desertification/vegetation die-back resulting in reduced slope stability. This in turn increases the risk of landslides and impacts to towers.	Not Significant	Consider utilising windbreaks to reduce potential impacts associated with windblown debris.	Not Significant
Human health (e.g. site workers)	Construction	Storm events including high wind speeds, rainfall, and lightning strikes may result in disruption or injury to construction staff, including injury from windblown debris, flooding, or electrocution.	Significant	Monitor weather forecasts on a weekly basis and reschedule works where possible to prevent working during storm events. Avoid working at height during storm events and ensure that materials and smaller equipment is secured to prevent windblow. Store larger equipment away from temporary	Not Significant



Baseline Summary	Phase	Potential Impact(s)	Effect (without mitigation)	Mitigation Measures	Residual Effects (after mitigation)
				structures and areas with high footfall to avoid injury due to falls.	
Human health (operational and maintenance workers)	Operation	High wind speeds and lightning may increase the risk of injury to maintenance workers as a result of windblown debris and electrocution, particularly when working at height.	Significant	Avoid carrying out maintenance works during storm events, particularly tasks that require staff to work at height.	Not Significant
<b>Climate resilience – Rainfall and Flooding</b>					
Construction equipment (e.g. cranes, vehicles, construction plant)	Construction	Flooding may damage or wash away equipment, leading to delays in the construction programme and increased costs.	Not Significant	Equipment should be stored away from any nearby water bodies and elevated if possible to reduce the risk of flood damage. It is also recommended that temporary flood barriers, such as sandbags, be kept on site and utilised in preparation for any anticipated heavy rainfall events.	Not Significant
Building site (e.g. temporary structures)	Construction	Intense rainfall and/or flooding may result in water ingress, causing damages and reducing access to structures.	Not Significant	It is recommended that temporary flood barriers, such as sandbags, be kept on site and utilised in preparation for any anticipated heavy rainfall events.	Not Significant
Buildings and infrastructure (OHTL and associated structures)	Operation	Flood events can reduce the capacity of substations, reducing transmission rates and potentially resulting in loss of power and repair costs. Flooding of electrical systems may also lead to fire, resulting in significant damage to infrastructure and widespread power outages.	Significant	Consider elevating substations and installing water pumps or other drainage infrastructure to reduce the risk of water attenuation. Hydrophobic coatings and other low-ice adhesion materials may also be used to reduce the risk of water ingress to power lines and conductors, further reducing the risk of electrical fires.	Not Significant

Baseline Summary	Phase	Potential Impact(s)	Effect (without mitigation)	Mitigation Measures	Residual Effects (after mitigation)
Road network (e.g. access roads)	Construction	Flooding may block temporary access roads, preventing materials and workers from accessing the construction site and causing delays.	Not Significant	It is recommended that temporary flood barriers, such as sandbags, be kept on site and utilised in preparation for any anticipated heavy rainfall events. If possible, consider utilising pumps to transport runoff away from access routes.	Not Significant
Infrastructure (access roads)	Operation	Flooding may block access for maintenance workers to infrastructure which may result in delays to routine or emergency maintenance leading to reduced transmission capacity.	Not Significant	Ensure that surface drainage is regularly maintained to reduce water accumulation on paved surfaces.	Not Significant
Landscape receptors	Operation	Heavy rainfall events following prolonged dry conditions can reduce soil stability, increasing the risk of foundation instability and damage to towers.	Not Significant	Plant drought-resistant vegetation in landscaping to reduce the risk of soil degradation and slope instability and improve drainage to avoid surface runoff.	Not Significant
Human health (e.g. site workers)	Construction	High rainfall events resulting in flooding may result in construction staff becoming stranded or injured, up to and including drowning. Water ingress may reduce accessibility to temporary structures, reducing productivity. Exposure of temporary electrical systems to water may increase the risk of fire, further increasing the risk of injury.	Significant	Monitor weather forecasts on a weekly basis and reschedule works where possible to prevent working during heavy rainfall events. It is recommended that temporary flood barriers, such as sandbags, be kept on site and utilised in preparation for any anticipated heavy rainfall events.	Not Significant
Human health (operational and maintenance workers)	Operation	Flood and flash flood events can cause significant safety risks to operational and maintenance	Not Significant	Monitor weather forecasts prior to undertaking work and reschedule works	Not Significant

Baseline Summary	Phase	Potential Impact(s)	Effect (without mitigation)	Mitigation Measures	Residual Effects (after mitigation)
		workers, resulting in injury and/or drowning with potential for fatality.		where possible to prevent working during heavy rainfall events.	
<b>Climate resilience – Dust storms</b>					
Construction equipment (e.g. cranes, vehicles, construction plant)	Construction	Dust storms may result in the build-up of sand deposits within equipment, resulting in failure and delays to construction programme and financial impacts.	Not Significant	Vehicles and equipment should be covered prior to anticipated Dust storm events to prevent sand deposition. Dust suppression techniques and windbreaks should also be utilised on site to reduce dust buildup and wind velocity.	Not Significant
Building site (e.g. temporary structures)	Construction	Dust deposition may occur in any HVAC systems present in the temporary structures, reducing heating/cooling capacity.	Not Significant	HVAC systems should be regularly maintained to remove any potential sand deposition and ensure that systems are working as expected. Dust suppression techniques and windbreaks should also be utilised on site to reduce dust buildup and wind velocity.	Not Significant
Buildings and infrastructure (OHTL and associated structures)	Operation	Sandstorms in the vicinity of transmission lines can result in deposition of heavy dust on insulator sheds.  Light rain / mist can cause the dust to become a 'sludge' reducing the effective creepage distance of insulator strings. In the extreme this can cause a flashover which may result in tripping of the transmission line. Sludge formation is a low risk in the dry, arid conditions of the Gobi.	Significant	Ensure that the design of the transmission line considers the dust pollution levels expected in the Gobi. Consider additional insulator sheds to mitigate against reduced creepage distance.  Sand accumulation in substations can be mitigated by including sand removal as a maintenance activity, (to be performed by substation operator as part of routine duties or by maintenance contractor). Consider incorporating HDPE barriers in cyclone fence.  Consider use of HDPE barriers in areas with highly mobile dune fields. Barrier	Not Significant

Baseline Summary	Phase	Potential Impact(s)	Effect (without mitigation)	Mitigation Measures	Residual Effects (after mitigation)
		Sand may accumulate around substation structures. Sand build up is to be expected. Sand may build up at tower foundations resulting in tilting foundations. Sand build up is to be expected.		fences are 1.5 to 2.5m high, shaped in a semi-circle in the direction of prevailing winds, placed 20 - 50m upwind of the tower. (Adds 1 - 3% to cost of selected towers).	
Road network (e.g. access roads)	Construction	Dust deposits may block temporary access roads, preventing materials and workers from accessing the construction site and causing delays.	Not Significant	Dust suppression techniques and windbreaks should also be utilised on site to reduce dust buildup and wind velocity.	Not Significant
Infrastructure (access roads)	Operation	Dust deposition may block access for maintenance workers to infrastructure which may result in delays to routine or emergency maintenance leading to reduced transmission capacity.	Not Significant	Consider installing sand fences to prevent sand accumulation on access routes for substations.	Not Significant
Human health (e.g. site workers)	Construction	Dust storms may result in health impacts to construction staff, including respiratory illness and impacts to eyes and vision.	Significant	Forecasts should be checked on a weekly basis and activities amended based on current climatic conditions. Staff should be provisioned with appropriate PPE including face and eye coverage to protect against potential health impacts, and shelter should be available to all staff if required.	Not Significant
Human health (operational and maintenance workers)	Operation	Exposure to dust storms may result in respiratory and/or cardiovascular illness, as well as impacts to vision.	Significant	Staff should be provisioned with appropriate PPE including face and eye coverage to protect against potential health impacts, and shelter should be available to all staff if required.	Not Significant

Baseline Summary	Phase	Potential Impact(s)	Effect (without mitigation)	Mitigation Measures	Residual Effects (after mitigation)
<b>Climate resilience – Wildlife</b>					
Construction equipment (e.g. cranes, vehicles, construction plant)	Construction	Equipment exposed to fire may be damaged, especially equipment requiring fossil fuels, resulting in programme delays and financial impacts.	Significant	Ensure that any flammable materials, including fossil fuels, are stored away from equipment to reduce risk of fire spread. Remove any flammable vegetation or materials from areas around equipment and provide fire suppression equipment on site.	Not Significant
Building site (e.g. temporary structures)	Construction	Wildfires may spread to temporary structures and result in damage to and/or loss of assets, and in turn leading to health and safety risks to workers.	Significant	Ensure that any flammable materials, including fossil fuels, are stored away from temporary structures to reduce risk of fire spread. Remove any flammable vegetation or materials from areas around the structures and provide fire suppression equipment on site.	Not Significant
Buildings and infrastructure (OHTL and associated structures)	Operation	Wildfire resulting in damage to the OHTL and towers, reducing power transfer and potentially resulting in power outages and repair costs.	Significant	Consider installing current-limited fuses to allow for automatic interruption of power flow to prevent arcing, minimising fire risk. Ensure that vegetation is heat and fire resistant and regularly maintained to reduce the volume of flammable material near assets.	Not Significant
Human health (e.g. site workers)	Construction	Wildfires pose a significant risk to human health and wellbeing, potentially resulting in permanent injury or fatality.	Significant	Ensure that any flammable materials, including fossil fuels, are stored away from temporary structures and other areas frequently used by workers to reduce risk of fire spread. Remove any flammable vegetation or materials from these areas and provide fire suppression equipment on site. Training should be delivered to staff on fire	Not Significant



Baseline Summary	Phase	Potential Impact(s)	Effect (without mitigation)	Mitigation Measures	Residual Effects (after mitigation)
				prevention and suppression, including information on how to avoid health and safety impacts should a wildfire occur.	
Human health (operational and maintenance workers)	Operation	Exposure to wildfires may result in significant health and safety impacts, including permanent injury and/or fatality.	Significant	Ensure that any flammable materials are stored away from areas frequently used by workers to reduce risk of fire spread. Remove any flammable vegetation or materials from these areas and provide fire suppression equipment to staff. Training should be delivered to staff on fire prevention and suppression, including information on how to avoid health and safety impacts should a wildfire occur.	Not Significant