



Non-Technical Summary

Sainshand Wind Farm

14 February 2017



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1 Introduction

This non-technical summary (NTS) provides a summary of the project description, the benefits of the project and the mitigation of potentially adverse environmental and social impacts for the proposed Sainshand Wind Park Project in Mongolia (hereafter referred as ‘the Project’). The information in this document is based on the findings of the Detailed Environmental Impact Assessment (DEIA) studies undertaken by Baigali Ecology LLC in 2015 and subsequent studies completed by Tecol LLC and independent consultants to support developing additional best practice mitigation measures for the Project.

1.1 What is the Project?

The Project is a wind farm with a total installed capacity of 55 megawatts (MW) comprising 25 wind turbine generators (WTGs). In addition to the WTGs and their foundations. In addition to the WTGs and their foundations, a network of underground cabling will be installed to collect the energy generated by the WTGs and transmitted to an on-site substation. The on-site substation will transport the electricity generated via an 8km overhead transmission line to an off-site 110/35 kilovolt (kV) transformer substation at Sainshand city (which will be expanded to accommodate the project), which will then feed electricity into the main grid. A network of on-site roads will be constructed to allow construction and maintenance of the Project.

Construction activities are expected to start in Q2 2017, with operation of the project commencing in 2018.

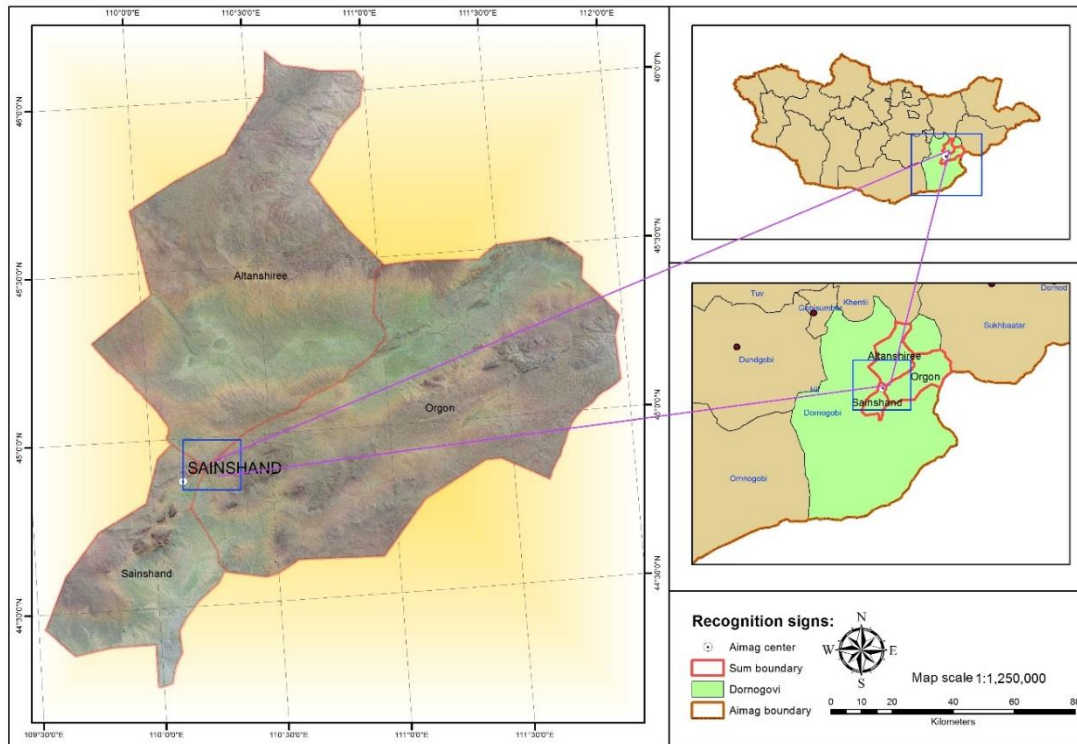
1.2 Who is developing the Project?

The Project is being developed by Sainshand Salkhin Park LLC, which is a partnership between Ferrostaal, Engie and other equity partners (together the “Sponsor”).

1.3 Where is the Project located?

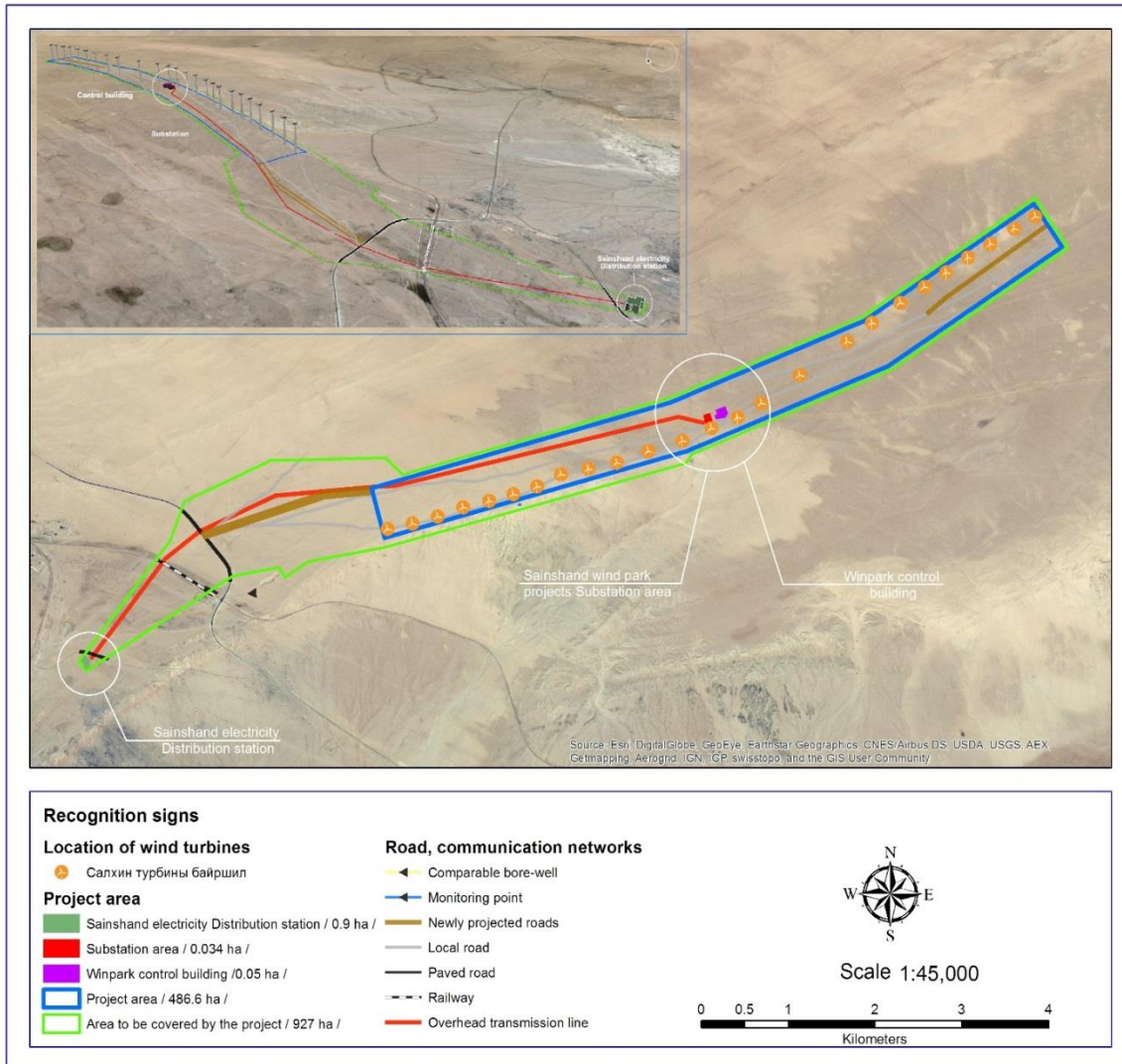
The Project is located approximately 450km southeast of Ulaanbaatar at the junction of the Sainshand, Urgun and Altanshiree soums in the Dornogobi aimag (province-level administrative unit) of Mongolia. The general area is open desert and the site itself is very sparsely vegetated. The closest settlement to the site is Sainshand town, located approximately 15km to the northwest. Nomadic herders graze their animals periodically and utilise wells and winter shelters around the project site. The land for the Project is government owned land and has been leased by the project company from the government. The location of the Project is presented below in Figure 1 and the proposed layout of the WTGs is presented in Figure 2.

Figure 1: Sainshand Wind Farm Project Location



Source: Detailed Environmental Impact Assessment for the Sainshand Wind Park Project, Baigali Ecology LLC (2015)

Figure 2: Project layout



Source: Detailed Environmental Impact Assessment for the Sainshand Wind Park Project, Baigali Ecology LLC (2015)

The components of the Project are:

- 25 WTGs (currently the model being considered is the Vestas V110-2.2MW, with a hub height of 95m, rotor diameter of 110m and a total maximum capacity of 55MW and an overall height of 150m including blades.
- On-site substation (35/110kV) and control centre compound including workers' accommodation and a permanent site office.
- An underground electrical collection system which interconnects the WTGs with the site substation.
- Double 110kV overhead transmission line 8km from the on-site substation to the electricity 110kV substation at Sainshand (which will be expanded to accept electricity from the Project).
- On-site access roads from paved highway to the Project site and from control centre to the WTGs.

1.4 How will materials and WTGs be transported?

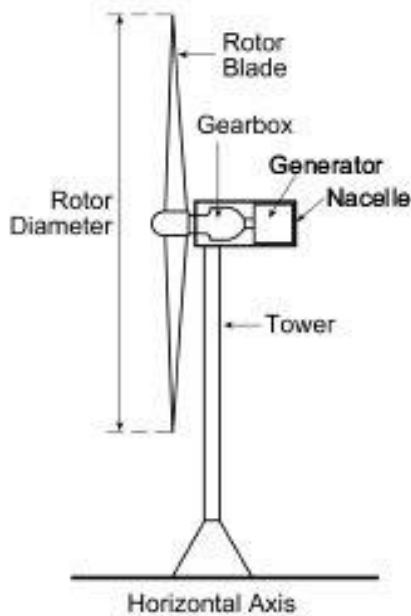
Wind turbines will be transported by road from the city of Baotou in China to the Erlian Border Station in Mongolia (a distance of 660km). Once the wind turbines have passed the Zamyn-Uud border crossing they will be transported the remaining 232km on the asphalt road to Sainshand. The final 4km of this journey are unpaved road.

Internal roads on the Project site will also be constructed and used during both construction and operation.

1.5 How does a WTG generate electricity?

There are three main parts of a wind turbine¹; rotor blades, gearbox and tower. The electricity is generated when the wind naturally passes over the blades, and blades turn a shaft located inside the gearbox. The rotational movement is increased by the gearbox and turned into electricity by using magnetic fields. The generated power is then regulated by a transformer to the right voltage and fed into the national grid system. Figure 3 presents the components of a typical wind turbine.

Figure 3: Components of a typical wind turbine



Source: <http://www.gov.scot/Resource/Img/150324/0044577.jpg>

¹ <https://www.nottingham.ac.uk/renewableenergyproject/documents/windturbine technology.pdf>

2 Rationale for the Project

2.1 Why is the Project needed?

Mongolia has adopted a national program aimed at reducing greenhouse gas emission and promoting the use of renewable power which includes wind, solar, geothermal and hydropower-based energy. The government led initiative aims for an increase in renewable energy usage to provide 20-25% of national energy production by 2020.

The proposed Project will play in role in addressing some of these challenges face by Mongolia by the increasing capacity of the power system, developing additional renewable energy supply, and reducing distribution losses to the Gobi desert.

Wind energy is a form of renewable energy which provides a more sustainable energy source than conventional methods such as coal and gas fired power stations. As well as providing a renewable source of energy, wind farms do not cause impact on air quality, water quality or generate greenhouse gas emissions. There are potential environmental and social impacts associated with wind farms which are identified in section 3, along with information on the mitigation that will reduce the impacts of the Project.

2.2 What are the Project benefits?

The Project will have a positive benefit through the avoidance of greenhouse gas emissions produced through thermal energy generation. If the energy that will be generated by this Project was produced using current Mongolian generation technologies, emissions of between 182,000 tonnes CO₂e² and 437,000 tCO₂e³ per annum⁴ would be produced.

In addition there is a number of local benefits, including:

- Reduction in the emissions of other pollutants released from thermal power plants (such as coal)
- Creation of some employment opportunities
- Local income will be increased through taxes and salaries

2.3 What alternatives were considered?

The government led initiative to increase use of renewable energy in Mongolia aims for renewable energy to provide 20-25% of national energy production by 2020, therefore the 'do nothing' scenario was not considered.

There were a number of iterations of the project layout to ensure that the final design met the technical requirements and minimised impacts on environment with special attention on human health and the birds and bats. Through the permitting process, the competent authorities confirm that the Project is compliant with legal environmental requirements.

The locations and layouts of project related infrastructure including access roads, worker accommodation and transmission lines were also evaluated and alternative options were

² Based on data published in the IFC Environmental, Health, and Safety Guidelines for Thermal Power Plants.

³ International Energy Agency's *CO2 Emissions from Fuel Combustion* 2016.

⁴ An avoided emissions range has been calculated as the data available to estimate avoided emissions is limited and there is uncertainty inherent in the calculations.

proposed. The current locations have been selected to minimise environmental and social impacts as much as possible.

2.4 What is the environmental and social impact assessment process?

Since the national DEIA was produced in 2015, further studies have been undertaken to bring the project assessment process in line with the requirements of international lending institutions. This has included an assessment of the potential environmental and social impacts of the associated project infrastructure, a resettlement action plan and preparation of a biodiversity action plan.

In addition to these assessments, an environmental and social appraisal has been undertaken against the provisions of the European Bank for Reconstruction and Development's (EBRD) Environmental and Social Policy (ESP)2014 and a number of other international standards to determine the potential environmental and social risks associated with the Project including:

- International Finance Corporation (IFC) Performance Standards (IFC PS) 2012
- World Bank General Environmental, Health, and Social (EHS) Guidelines 2007
- World Bank Environmental, Health and Safety (EHS) Guidelines for Electric Power Transmission and Distribution 2007
- World Bank EHS Guidelines for Wind Energy 2015
- EIB Standards on Assessment and Management of Environmental and Social Standards and Risks (Standard 1) 2013
- EIB Standards on Biodiversity and Ecosystems (Standard 3) 2013.

The Project has been assessed as a category "B" project. Category B projects are defined as "potential adverse future environmental and/or social impacts are typically site-specific, and/or readily identified and addressed through mitigation measures".

2.5 Who has been consulted and what consultation will be undertaken in the future?

During the DEIA process consultations were undertaken with soum officials, household samples in Sainshand soum centre and herders. Community meetings were also organised in Sainshand, Ulgun and Altanshiree soums to disclose the findings of the environmental and social assessments. Broad support for the Project was obtained during the public consultation events held. Key issues raised by stakeholders during the consultation included impacts on pasture land, safety of local herders and animals, water resources and employment opportunities.

A stakeholder engagement plan (SEP) has been developed, which identifies stakeholders who will be consulted during the construction and operation of the Project. The SEP is disclosed alongside this document.

2.6 What are the current environmental and social conditions at the site?

The Project site is located at "Ulaantolgoin khundii" elevated at the altitude of 1,005m, 460km southeast from Ulaanbaatar. The total project area is 486.6 hectare which have been leased for 30 years from the three soums of Sainshand, Ulgun and Altanshiree.

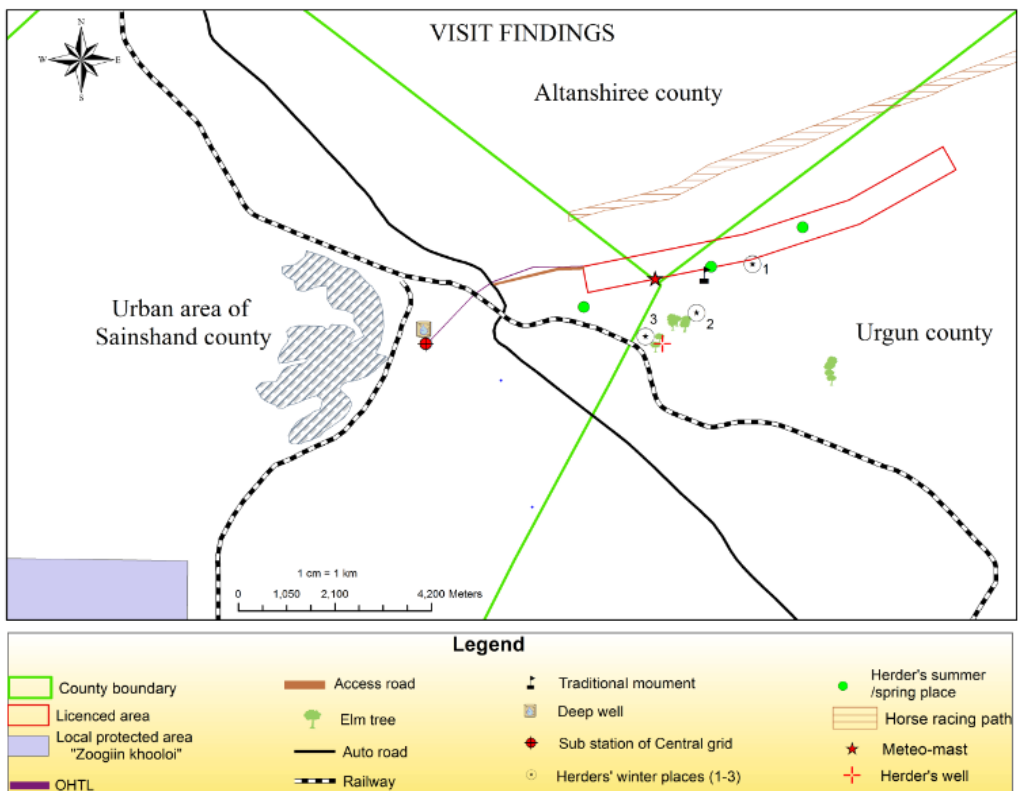
The Project site itself is flat, with low hills to the south of the site. The WTGs will be installed in a line pattern stretching from west to east on a flat elevated terrain. The site is sparsely vegetated and is used as pastureland. There are no trees on the site but there are several elm trees approximately 1km to the south.

No towns or villages are located within five kilometres of the Project. The closest settlement is Sainshand city located approximately 7km northwest of the site. There are however a number of herder families who graze their animals in project area and utilise a well and winter shelters in the close proximity of the site.

There are no special protected areas (SPAs) located within the Project area. The closest locally protected area is Zooginkhooloi located approximately 9km west, which receives protection because of the recognised cultural value⁵. No sites of archaeological importance are located in the proximity of the site.

Figure 4 provides an overview of the Project site.

Figure 4: Map of Sainshand Wind Farm



Source: Environ LLC, March 2016

⁵ Contains cultural and historic monuments such as remains of a Choilonguin Uliin monastery

3 Potential environmental and social impacts and benefits of the Project

3.1 Overview

Table 1 describes the main environmental and social impacts (positive and negative) identified in the DEIA for the Project during construction and operation and the mitigation measures which will be implemented to remove or reduce the level of impact from the Project.

Table 1: Summary of key environmental and social impacts of the Project

Environmental / social aspect	Key issues identified and proposed mitigation
Landscape and visual	
Potential impact	The windfarm has the potential to result in visual impact on nearby residential receptors.
Assessment and mitigation	<p>The landscape character is largely pastoral and is not protected or considered to be sensitive. However, the turbines will create large elements, contrasting with the existing character and there are limited opportunities for additional mitigation. The new wind turbines would become prominent features in the landscape and be visible from nearby receptors.</p> <p>Some of the gers currently located at and near to the site will be relocated, reducing the level of visual impact from these receptors. There will be some screening occurs due to the slightly hilly landscape between the gers and the Project. No further mitigation is proposed.</p>
Noise	
Potential impact	Potential noise disturbance to winter and summer gers located near to the project site could be caused by construction activities and during operation.
Assessment and mitigation	<p>A noise assessment was completed which showed that the establishment of a 500m setback area should be established to avoid noise impacts at the gers currently located within this area. Noise levels at receptors located over 500m from the Project will be within national and international noise guidelines.</p> <p>Good practice measures to minimise noise impacts during construction and operational maintenance periods will be implemented.</p> <p>Operational noise will be monitored to ensure compliance with national and international guidelines.</p>
Ecology and nature conservation	
Designated sites for nature conservation	The Project is not located within any internationally recognized or legally protected areas for nature conservation.
Habitats and flora	<p>The project area is located within the eastern Gobi desert steppe eco-region. The majority of the site comprises predominately degraded habitat through intensive livestock grazing and unregulated vehicle movements. The north-east extent of the WTG array is less affected and subsequently supports habitats more indicative of the natural steppe environment. Of the 36 plant species identified during the baseline botanical surveys; one species, <i>Caragana brachypoda</i>, is found within the site and is classified as vulnerable on the International Union for Conservation of Nature (IUCN) Red List.</p> <p>The key impacts will be from direct habitat loss as a result of the construction of the WTGs and associated facilities. A biodiversity action plan has been developed to set out the key mitigation and monitoring that will be undertaken going forward. Mitigation measures will include the minimisation of habitats affected through the creation of the designated access roads and the demarcation of construction areas. Habitats within the project area not within the footprint of the works will be excluded from vehicle use and previously degraded habitats will be restored.</p>
Fauna	<p>Two threatened species of mammals have been recorded within the project area: Mongolian gazelle (<i>Procapra gutturosa</i>) IUCN Mongolian Red List (MRL) endangered and goitered gazelle (<i>Gazella subgutturosa</i>) IUCN Red List and MRL vulnerable. The Project area also supports various small burrowing mammals and reptiles.</p> <p>Impacts on migratory gazelle include displacement through disturbance (predominately during construction); however, as the area is considered to be outside of the core range for</p>

Environmental / social aspect	Key issues identified and proposed mitigation
	<p>these species this is considered not likely to be significant. Fencing will be limited to the substation only, therefore movement through the site will not be inhibited.</p> <p>The construction works may result in the death or injury of small mammals and reptiles. Displacement will therefore be undertaken prior to construction.</p>
Bats	<p>Two species of bats were recorded in the Project area: particoloured bat (<i>Vespertilio murinus</i>) and asian particoloured bat (<i>Vespertilio sinensis</i>). Both species are classified as least concern on the IUCN Red List and MRL.</p> <p>No bat roost sites are present within the Project area; however, evidence of foraging activity was recorded in the vicinity of the proposed turbines (albeit in low numbers).</p> <p>Key potential impacts on bats include the collision with operational WTGs and displacement due to artificial lighting. The mortality of bats is not considered to be significant; however, this will be monitored during carcass search surveys. The use of outdoor lighting will be minimised as well as the use of directional lighting.</p>
Birds	<p>Two threatened species of birds considered at risk of collision with operational WTGs and transmission lines have been recorded in the project areas: saker falcon (<i>Falco cherrug</i>) MRL vulnerable and IUCN Red List endangered, and steppe eagle (<i>Aquila nipalensis</i>) MRL least concern and IUCN Red List endangered. Mitigation measures include the placement of bird diverters on the overhead lines, the removal of animal carcasses within the project area to discourage scavenging and the erection of the artificial nesting platforms away from the site to increase the local raptor populations.</p> <p>The construction of the WTGs and associated facilities also has the potential to kill ground nesting birds. Vegetation clearance will therefore be undertaken outside of the breeding season to discourage birds as well as pre-works checks to avoid active nests.</p>
Traffic and transportation	
Potential impact	Increased number of large vehicles on local roads and potential damage to roads during construction works.
Assessment and mitigation	<p>Impacts from construction will result in a short term increase in vehicle movements, typically heavy goods vehicles and large load vehicles. Impacts will be short term and not significant.</p> <p>Damage to road edges and general 'wear and tear' of the road may occur through increased heavy good vehicles movements. Any impact to roads, road infrastructure or private property along the road side as a result of transporting equipment to site will be made good at the end of the Project construction phase.</p> <p>Mitigation to minimise disturbance and damage to roads from construction vehicles will include:</p> <ul style="list-style-type: none"> ● Selecting routes for construction vehicles to minimise impact on local community areas, in accordance with road authorities and agreements with communes. ● Use of existing access roads for the delivery of turbines components. Existing access roads will be re-built or upgraded during construction which will also benefit the community that use these roads. <p>Minimal traffic will be generated during the operation of the wind farm.</p>
Shadow flicker	
Potential impact	Rotating blades of the wind turbines can create a flickering effect which can cast shadows periodically over buildings.
Assessment and mitigation	<p>The shadow flicker impact assessment concluded that nomadic herders living in gers near the site could be potentially be affected by shadow flicker for a proportion of the year. As such, a setback area of 500m from the wind turbines in which gers will not be located, has been established to avoid significant nuisance.</p> <p>Should impacts occur these will be managed through the community grievance mechanism to identify receptors that adversely affected, allowing appropriate mitigation to be implemented.</p>
Archaeology	
Potential Impact	Construction activities can disturb archaeological features.
Assessment and Mitigation	<p>Direct impacts on known archaeological or cultural heritage features are not anticipated given that the site is not part of any nature protection zone or listed as heritage site.</p> <p>The closest locally protected area is Zooginkhooloi located 7.5km west from the site which receives protection due to its recognised cultural value.</p> <p>An 'ovoo', a traditional monument is located approximately 230m to the south of the project site on a hilltop. During construction, these monuments will be left undisturbed and will not experience any direct impact.</p>

Environmental / social aspect	Key issues identified and proposed mitigation
	Given there is the potential to uncover previously buried archaeology (chance finds) during construction works, procedure will be developed. Should any finds of potential archaeological significance be identified, steps for stopping work and reporting finds to the appropriate authority for assessment will be put in place, as well as providing training to workers.
Employment	
Potential Impact	Provision of fair employment for all employees.
Assessment and Mitigation	Some employment opportunities will be generated during the construction phase through the employment of a number of contractor firms. Due to the nature of the work, some activities will need to be completed by a specialist contractor.
Community health and safety	
Potential impact	Potential impacts arising during construction and operation of the project to local infrastructure and public safety.
Assessment and mitigation	<p>Construction safety plan/procedures will be implemented throughout construction to minimise construction impacts to local communities.</p> <p>Signs and other means of enhancing community awareness of setback zones will be established to avoid danger to the local community during construction.</p> <p>Construction work and non-emergency maintenance works will be undertaken during daylight hours.</p> <p>The stakeholder engagement plan outlines ongoing community consultations which will need to be undertaken throughout construction and operation. The local community local community will also be informed of the grievance mechanism that can be used to raise any concerns about risks from the Project; for example, regarding non-adherence to traffic speed limits and safe driving rules.</p>
Land acquisition, physical and economic displacement	
Potential impact	Potential impact to residents and livelihoods of those who use the agricultural land being used for the wind farm and transmission line.
Assessment and mitigation	<p>The Project has land lease agreements in place for all land required for the wind turbines, access roads and transmission and cable lines.</p> <p>The assessments identified that a setback area of 500 metres around the wind turbines should be established for the Project to minimise potential impacts of noise, shadow flicker and blade / ice throw. Two nomadic herder families' winter camps will be physically displaced, with three or four herder families expected to experience economic displacement by temporary loss of summer pasture. An abbreviated resettlement action plan (ARAP) has been produced. A new deep well will be constructed to benefit those experiencing economic displacement and livelihood restoration through compensation (animal fodder provided for three months during summer for two years).</p>
Cumulative impacts	
Potential cumulative impacts of the Project in combination with the development and operation of other projects is considered to be negligible. Additional mitigation may be implemented if any significant environmental and social impacts are identified.	
Decommissioning	
<p>Prior to decommissioning, procedures will be agreed with relevant stakeholders for traffic management during this phase. Following decommissioning, reinstatement will be important to re-establishing the ecosystem in areas previously occupied by WTGs, site roads and other structures.</p> <p>Along with reinstatement work contaminated materials such as oil storage tanks would need to be removed from the site and taken to a suitable disposal site to prevent future contamination of surface and groundwater.</p>	

3.2 How will mitigation measures be implemented?

A construction environmental and social management plan has been developed for the project, which details the specific management plans that will be produced and implemented by the EPC contractor. A detailed ESMP will also be developed for the operational phase of the Project. The ESMPs provide a framework for wider environmental and social management systems (ESMS) that will be created during the construction phase by the project company and the EPC contractor. The ESMS developed will be aligned to the international standard ISO 14001.

In order to ensure implementation and effective management of the planned mitigation measures during the life of the Project, an environmental and social action plan (ESAP) will be developed for the Project based on the findings of the environmental and social impact assessment and consultation with the public and key stakeholders. The ESAP supplements the management plans and systems already developed for the Project and provides focus on areas where additional mitigation and monitoring is required for the Project to comply with the requirements of international finance institutions.

A health and safety system aligned to the international standard OHSAS 18001 will be developed and implemented, this will include an accommodation management plan.

Additionally, a general community grievance mechanism will be developed as part of the SEP which will include provisions for collecting and responding to resettlement (economic) specific grievances and general stakeholder grievances.

The Project Company and the EPC contractor will employ environmental and health and safety professional as well as community liaison officer (CLO) to oversee the implementation of environmental and social management and stakeholder engagement at the site during construction and operation.

4 Additional Information

4.1 How do I find out more about the Project?

A SEP has been developed for the Project to guide disclosure of its public information and stakeholder engagement in the Project. The SEP will be reviewed and updated on a regular basis and updated as necessary. The SEP includes the following:

- Identification of stakeholders and other affected parties
- Public consultations and information disclosure requirements
- Overview of previous engagement activities
- Stakeholder engagement programme including methods of engagement and resources
- A grievance mechanism

A CLO has been appointed for the Project. The CLO will manage stakeholder engagement and grievances.

All requests for further information may be addressed to the contact presented below.

Company contact name:	D. Nandinbayar
Local address:	To be confirmed once Project Site has been established
Ulaanbaatar address:	Sainshand Salkhin Park LLC 9F DHL Office Building/ Suite 801 Peace Avenue – 10/5 Ulaanbaatar - 14210 MONGOLIA
Telephone number:	+976-11-32-5867
Email:	nandinbayar@euro-khan.com
Project website:	www.sainshandwindpark.mn

4.2 How do I have my say?

All concerns and requests can be submitted by filling the grievance form given in Appendix A by post or e-mail or to CLO, or by telephoning the company on the number using the details given above.

Appendices

A. Community Grievance Form

14

A. Community Grievance Form

I, (full name)	
Resident at:	
Tel:	Fax:
Wish to raise the following complaint or concern (include location and duration of problem):	
Suggestions to solve problem:	
Preferred method of communication (<u>verbal</u> : <input type="checkbox"/> face to face, <input type="checkbox"/> telephone; <u>written</u> : <input type="checkbox"/> e-mail, <input type="checkbox"/> online):	
Signed:	Date:
.....

