UKRAINE
POWER RESOURCES

NON-TECHNICAL SUMMARY

DNISTROVSKIY 100 MW WIND POWER PROJECT

UKRAINE

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Document History

Version	Purpose description	Originated by	Date
1.0	Initial draft		April 2019
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1. Introduction

This Non-Technical Summary (NTS) is for Dnistr Wind Power Project (DWPP) that provides a summary of the project description, the benefits of the project, public consultation activities undertaken and the mitigation of potential environmental and social (E&S) impacts which have informed the development of an Environmental and Social Action Plan (ESAP) to address these potential E&S impacts. Contact information for this project, as provided below.

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The project is for a 100 megawatts electric (MWe) wind farm comprising two phases (Phase 1 and Phase 2) of development initially, with the possibility of an extension of up to 150 MWe (Phase 3).

Ukraine Power Resources (UPR), acquired the rights to Dnistrovska Vitroelektronstantsiia LLC (Dnistr Wind) and has approached the European Bank for Reconstruction and Development (EBRD) and will possibly also approach the International Finance Corporation (IFC) for a loan for Phase 1 and 2.

The total project costs have been estimated at €117.9 m for 100 MWe of generating capacity that will comprise 26 wind turbines, approximately 13 km of new or improved access and site roads, a new substation, 15 km of underground cables to convey electricity from the turbines to the new substation and a 2.7 km 110 kV underground transmission line to convey electricity from the new substation to the regional grid at the existing Starokozache substation operated by the utility company, Odesaoblenergo.

The project has been screened as Category A under the EBRD's Environmental and Social Policy[1].

[1] EBRD (2014) Environment and Social Policy, [Online]. Available at: http://www.ebrd.com/news/publications/policies/environmental-and-social-policy-esp.html

A site layout of the Phase 1 and Phase 2 is provided in Figure 1 below, and a map of the wider area for orientation is shown in Figure 2 below.

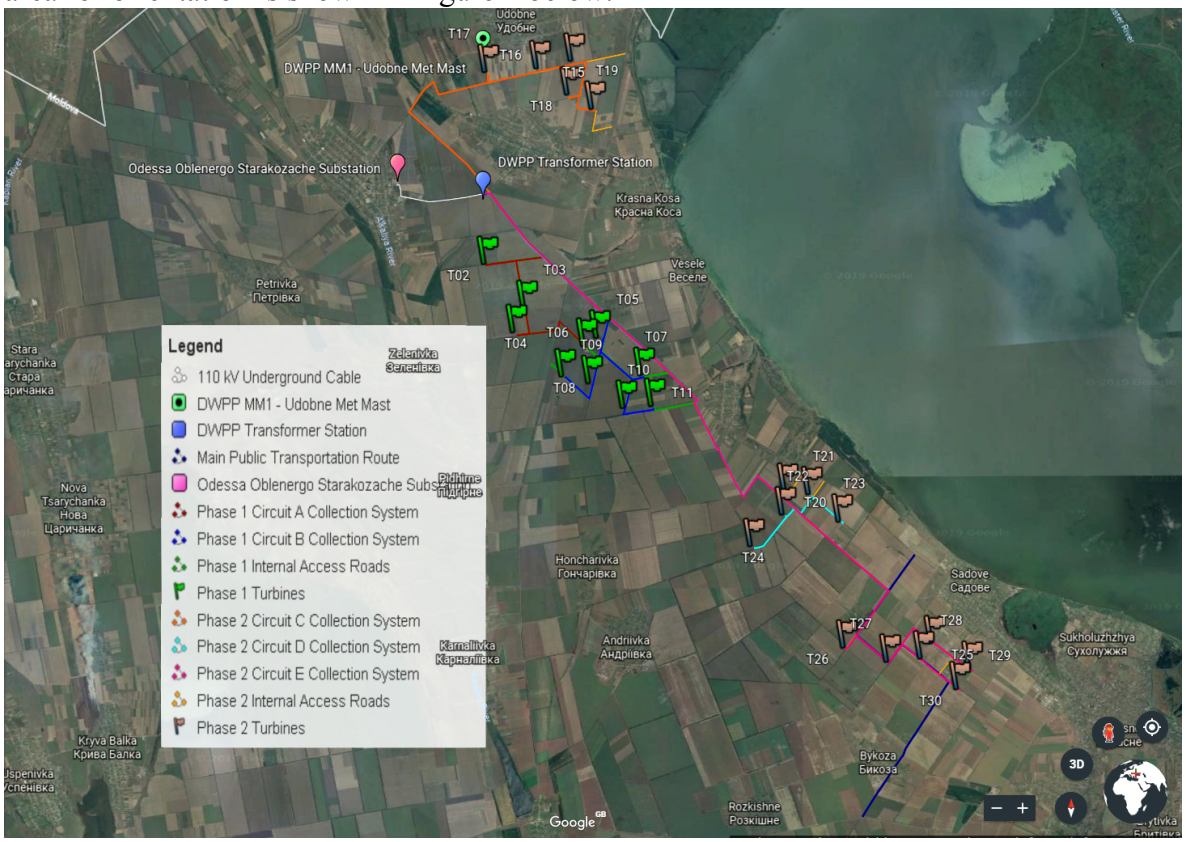

Figure 1 – Map of Phase 1 and 2 Layout (including Roads and Power Line Connections)

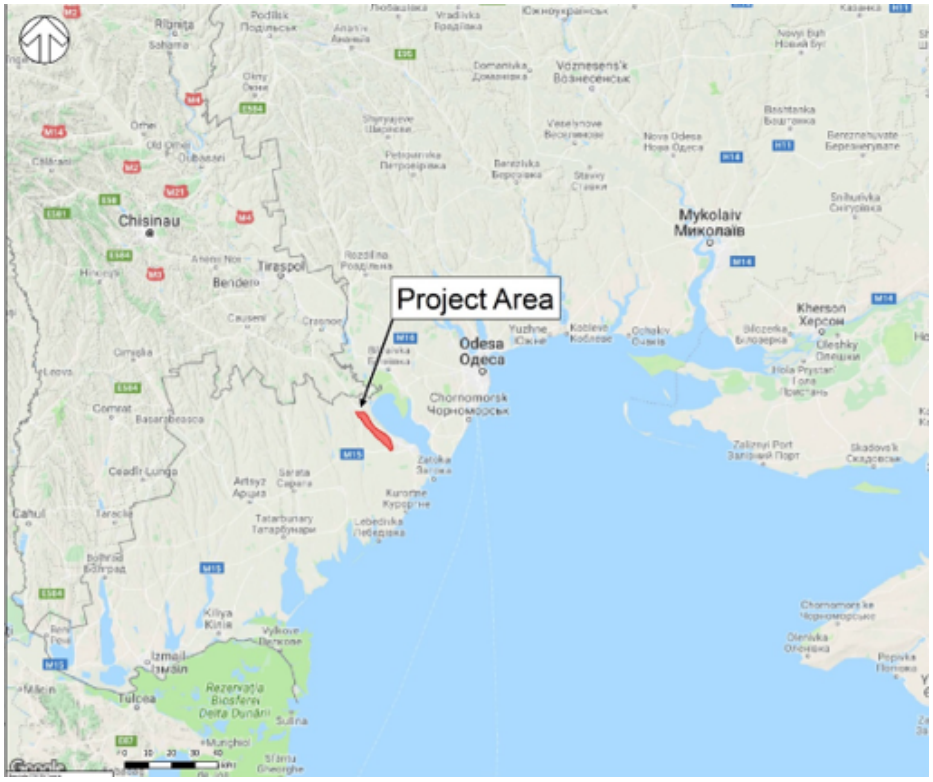

Figure 2 – location of project area

2. Setting and Location of Wind Farm

The DWPP project site is located in the Odessa Oblast Region of south western Ukraine. The wind farm project area, stretches from approximately 25 to 52 km north-west from the closest point on the Black Sea coast in the Odessa Region. The wind turbines will be located north-west of Bilogorod-Dnister and near to the Dnistr Estuary at a distance of around 1.5 km from the closest point on the boundary of the project area to the shoreline of the estuary.

The project area is in a rural landscape in the vicinity of predominantly farmland and the small villages of Starokozache, Kozatske, Udobne, Semenivka and Moloha. On the boundaries and surrounding the project area are the villages of Zelenivka, Petrivka, Krutoyarivka, Krasnaya Kosa, Vesele, Honcharivka and Pivdenne. There are no residential properties within 700 m of the position of any of the wind turbines. Within the project area the agricultural fields are separated by artificial wood strips. Dirt roads cross the site, allowing access to the large fields for farming.

The total amount of land that will be occupied during construction is approximately 17.51 hectares (ha) (0.175km^2). Of this, approximately 5.64 ha will be occupied temporarily. UPR has voluntarily acquired 30 plots (26 plus 4 spare) for Phase 1 and 2 from landowners that have been compensated. All lease agreements are in place.

There is also a 400 m protection zone from existing roads on both sides of the project area and the Odessa-Izmail Motorway (E 87) which passes through the project site. There is also a protection zone of 210 m on both sides of existing overhead power lines.

The closest water body is located to the east of the site i.e. the Dnistr Estuary and Dnistr Delta Important Bird Area (IBA), and to the west it borders agricultural land.

Figure 3 below shows the location of the wind farm project site, the Dnistr Estuary and the Odessa-Izmail motorway (E 87) that crosses the project site.

Figure 3 Plan of the project territory placement of the Dnistrovskiy wind power plant

3. Description of the Wind Farm

3.1 Description of Equipment and Infrastructure

A summary of the equipment and infrastructure is provided as follows:

- Three suppliers have been shortlisted – GE, Nordex and Vestas;
- 26 wind turbine generators (WTG) each with a rated output of between 3.8 MW and 4.0 MW to be selected, currently a 3.8 MW type WTG provided by GE is being evaluated;
- Tower height is 131 m and the rotor diameter is 137 m;
- Design operational life is approximately 20 years with the option of replacement or decommissioning at the end of this period;
- The new substation, i.e. the Main Transformer Station (MTS) to be built that will be located south of the village of Kozatske;
- Reconstruction of access roads (see Figure 4) and around 13 km of road connecting route P70 near Bykoza to route P72 near Moloha (see Figure 5) ; and
- A 2.7 km 110 kV underground cable running west of the wind farm MTS to the main grid connection at the Starakazoche substation.

Figure 4 Public Road Modifications (Road shown in yellow)

Figure 5 Public Road Reconstruction (shown in dark blue, route connecting P70 near Byzoka and P72 at Moloha)

3.2 Project Timetable

It is planned that construction and installation will commence in Q3 2019 for Phase 1 (10 wind turbines installed with a total capacity of 38.0 MW) and completed in Q2 2020 when commissioning will be undertaken. They will start operating in Q2 2020.

As part of Phase 2 (the remaining 16 wind turbines with a total capacity of 60.8 MW), construction and installation will commence in Q3 2019 and completed in Q2 2020 when commissioning will be undertaken. They will start operating in Q3 2020.

Part of the project, will involve the development of the main access roads to the site and the access roads to the turbine plots early in the construction phase.

4. Environmental, Health, Safety and Social Assessment of Proposed Scheme

4.1 Work Undertaken

The following key documentation has been prepared by UPR:

- A national Environmental Impact Assessment (EIA) that has been received a positive conclusion on 24.10.18 (registry 25.10.18 reference N201829881) and is valid for 5 years;
- A Scoping Study Report (April 2018) that was developed to identify the project expectations against the EBRD's Performance Requirements (PRs) and to ensure the ESIA prepared met these requirements;
- A Stakeholder Engagement Plan (SEP) that includes a grievance mechanism (May 2019) that was developed to describe the planned stakeholder consultation and engagement process for the Project;
- A Land Acquisition Plan (LAP) (May 2019) that describes the land acquisition and compensation process;
- A supplemental ESIA (November 2018) that was developed for international lenders such as the EBRD and IFC and uses their standards; and
- An ESAP (May 2019) that was developed of actions to be implemented to ensure and verify that the Project is compliant with Ukrainian Law, the EBRD / IFC standards and Good International Industry Practice (GIIP).

4.2 Project Benefits

The project benefits are:

- The creation of a clean renewable energy source which will go towards meeting Ukrainian national renewable energy goals thereby reducing the reliance on electricity generation from fossil fuel thermal powers and outdated Soviet-era nuclear power plants. This will achieve significant greenhouse gas emissions (GHG) savings;
- The provision of much needed power generation capacity in the region and the support of infrastructure development in the region; and
- Economic development through the creation of jobs including local jobs (direct and indirect) particularly during the construction phase and the generation of revenue for the local budget.

4.3 National Environmental Impact Assessment (EIA)

A national EIA has been undertaken for the wider project which consists of 3 phases with a total installed capacity of 150 MW. An application was made to the Ministry of Environment and the project was officially registered in the State Registry of OVD (EIA under Ukrainian Law). Subsequently, public hearings were passed and documents were submitted to the Ministry to obtain the "Conclusion". No notices from the public were received. The "Conclusion" was received in October 2018 and is valid for 5 years. The "Conclusion" has environmental conditions for the activity which the company has to follow and fully comply with.

The national EIA and the ESIA are largely aligned, with the former prepared for national regulatory approval and the latter prepared to meet EBRD requirements. The ESIA has adopted the more stringent of the two when there was a variation between standards.

As the national EIA was for 3 phases with a total installed capacity of 150 MW and the current plans as presented in the ESIA are for 2 phases with a total installed capacity of 100 MW, UPR will seek verification to confirm that there are no fundamental changes from the national EIA, other than reduced total capacity which should be presented to the authorities to verify that conclusion remains valid. The 5 year conclusion validity will allow within this time period for the expansion to 3 phases, although this will depend on additional interconnection capacity and UPR will invest in this interconnection infrastructure owned and operated by Ukrenergo, the electricity utility company. This is not part of the current project, as sufficient capacity already exists, this is only an obligation under agreement to Ukrenergo to obtain approval for the project. Approval is pending. UPR / Dnistr Wind will specifically invest in the Starokozache-MIZ line.

4.4 Permits and Approvals

A number of permits and approvals have been obtained such as conclusions (permits) from the OVD process from a number of government departments. Other permits and approvals will need to be obtained during the development of the project and activities that require permits / approvals will only be undertaken after such permits / approvals are in place.

The location of the wind turbines will comply with the requirements for Sanitary Protective Zones (SPZ) under Ukrainian legislation for sensitive objects – water bodies, transmission lines, railway tracks, roads, utility lines etc.

4.5 Corporate EHSS Management

UPR is a newly established company and will be developing EHSS policies and procedures to ensure they are in place during construction and operation of the wind farm. This will cover social, labour, environmental protection and health and safety policies and procedures, underpinned by the development of an integrated management system for environmental and social performance and for occupational health and safety and an also an Environmental and Social Management System (ESMS) for the project comprising full details of environmental, social, health and safety performance requirements and obligations for construction, operation and decommissioning of the project.

5. Environmental Impacts and Mitigation

The key findings in terms of impacts and mitigation are summarised below:

5.1 Landscape and Visual

A landscape and visual assessment has been developed to consider relevant sensitive receptors and the likelihood of significant landscape and visual impacts (including cumulative effects).

The main landscape effects will occur during construction activities, including the use of and movement of cranes. The Dnistr Estuary and Dnistr Delta IBA are adjacent to the eastern border of the proposed development. The development itself will be located at least 1.5 km from the designated landscape, and with vegetation cover it is unlikely that the estuary or IBA will be directly affected by construction landscape effects. A landscape management plan will be created by UPR.

In addition, it should be noted that operationally there will be landscape effects as the wind turbine generators are tall structures in a mainly agricultural area with a low and open landscape. As a result of the variation in topography, and the presence of dense woody vegetation in the Riparian habitat near the Estuary coast, only a limited number of turbines would be visible, or partially visible from within the Dnistr Delta and Estuary areas.

5.2 Shadow Flicker

The term 'shadow flicker' refers to the flickering effect caused when rotating wind turbine blades periodically cast shadows over neighbouring properties as they turn, through constrained openings such as windows[2]. The closest house is 800 metres from the nearest wind turbine, and shadow flicker is not expected to occur at that distance. However, a community grievance procedure has been implemented and reports of shadow flicker will be investigated.

5.3 Noise and Vibration

Noise simulations and impact assessments have been carried out. From the noise associated with the proposed wind farm and the distances to the nearest permanent residential areas, noise and vibration impacts are considered unlikely to be a significant concern. Equipment will be maintained and its use will be restricted e.g. avoidance of its use at night. Noise will be monitored at houses if there are any affected people and appropriate noise mitigation measures will be implemented if noise standards are breached.

5.4 Biodiversity including Bats and Birds

An extensive array of biodiversity work has been completed to support the EIA (and supplementary ESIA), including both an in-depth review of existing studies relevant to the project site (e.g. an interrogation of bird data collected between 1993-2007) and completion of novel field studies, such as bat and bird surveys completed between autumn 2017 and summer 2018. Further work will be undertaken and mitigation measures proposed to demonstrate full compliance with accepted guidance.

No significant biodiversity impacts have been identified to date, although this conclusion is based upon baseline studies for which gaps have been identified. The project has been located within an area of relatively low terrestrial biodiversity value (and a distance of at least 1.5km from the Dnistr estuary). The gaps identified are most applicable in terms of baseline studies completed for bats

[2] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/48052/1416-update-uk-shadow-flicker-evidence-base.pdf

and birds (the two key broad receptors), with both spatial and temporal gaps in survey coverage identified. Additional studies will be completed (both during, and post-construction), and the findings assessed accordingly, which will ensure that there is not an underestimate of the predicted impacts. These studies will also inform and tailor mitigation proposals, including any curtailment requirements, which will be produced jointly by local and international ornithologists to ensure no significant residual impacts remain.

A review of potential Critical Habitat (CH) and Priority Biodiversity Features (PBF) presence (as defined by EBRD PR6) has been undertaken, although additional studies are required, as per the gaps identified. The additional studies will comprise a further review of existing information and targeted stakeholder consultation. This will be provided as an annex to the disclosure reports. Potential Critical Habitat triggers are summarised below:

Potential Critical Habitat/Priority Biodiversity Features*:	
CH/PBF as per EBRD PR 6	**Potential CH/PBF triggers**
(i) Highly threatened or unique ecosystems *(i) Threatened habitats* *(iii) Significant biodiversity features identified by a broad set of stakeholders of governments (such as Key Biodiversity Areas or Important Bird Areas)*	The project site is located within an area of limited biodiversity value, and has no direct connectivity with any areas recognized for their importance to biodiversity.
(ii) Habitats of significant importance to endangered or critically endangered species *(ii) Vulnerable species*	The project site does not support any terrestrial habitat considered to be of importance to species of requisite biodiversity value to trigger this criterion. The project site is located within proximity of habitats of significant importance (i.e. a Ramsar sites and Important Bird Area), although it is not considered to be located on an important route for birds associated with these habitats. An additional desk study is currently being undertaken to further corroborate this and also inform ongoing mitigation proposals, to be documented within a Biodiversity Management Plan (BMP.
(iii) Habitats of significant importance to endemic or geographically restricted species	The project site is located within an area of limited biodiversity value, and has no direct connectivity with any areas recognized for their importance to endemic or geographically restricted species.
(iv) Habitats supporting globally significant (concentrations of) migratory or congregatory species	The project site does not support any habitats of terrestrial supporting globally significant (concentrations of) migratory or congregatory species. The project site is located within proximity of habitats of significant importance (i.e. a Ramsar sites and Important Bird Area), although it is not considered to be located on an important route for birds associated with these habitats. An additional desk study is currently being undertaken to further corroborate this and also inform ongoing mitigation proposals, to be documented within a Biodiversity Management Plan (BMP.
(v) Areas associated with key evolutionary processes	The project site is not within, nor connected to, areas associated with key evolutionary processes.
(vi) Ecological functions that are vital to maintaining the viability of biodiversity features described (as critical habitat feature)	The project site does not perform any ecological functions that play an important role in supporting the viability of important biodiversity (i.e. as might be considered CH or PBF).

Potential Critical Habitat/Priority Biodiversity Features*:	
CH/PBF as per EBRD PR 6	**Potential CH/PBF triggers**
(iv) Ecological structure and functions needed to maintain the viability of priority biodiversity features described in this paragraph	

*comparable PBF criterion in italics

A Biodiversity Management Plan (BMP) is to be produced to capture specific mitigation measures informed by findings from the studies still to be undertaken. The BMP should capture general ecological protection measures and monitoring requirements to ensure that the project does not pose any significant biodiversity risks.

5.5 Water Quality

Water uses will include fire-fighting, drinking water, wash down / cleaning, dust suppression by spraying. There will also possibly be an on-site batch cement plant that will require water during the construction phase. Water will be provided from tanks or possibly a groundwater well. Water use permits will be obtained and a water management plan developed during the construction phase.

5.6 Waste management

Although waste materials generated as part of the proposed development are likely to be minimal, a waste and hazardous materials management plan will be developed. Disposal of any hazardous substances will be undertaken in accordance with Ukrainian Legislation.

5.7 Top Soil Removal

Permits will be obtained to remove fertile top soil layers which will be stored and re-cultivated, which will need to be approved by the regional authorities.

5.8 Air Quality

The main sources of air emissions will be via dust during construction and ground works and emissions from generators and vehicles. A construction dust management plan and an emissions control plan for the concrete batch plan will be developed and implemented.

5.9 Cultural Heritage

A number of burial mounds are located in the vicinity of the project area. UPR have instructed archaeologists to undertake site surveys to identify and map out location of the burial mounds. If mounds are identified close by once the survey has been completed, it would still be possible to adjust the locations of the wind turbines. In addition, archaeologists will be present during the construction period to ensure workers do not excavate mounds.

5.5 Decommissioning

Potential impacts associated with decommissioning the wind turbines at the end of their operational life have been considered and UPR are committed to developing a Decommissioning and Restoration plan.

6. Social Impacts and Mitigation

6.1 Land Acquisition

The land that is required for the wind farm was identified and discussed at Village Council sessions. All land that is required has been obtained on a voluntary basis in accordance with a Land Acquisition Plan (LAP) and compensation payments have been made to both land owners and tenants and lease agreements are in place. There will be no temporary or permanent access disruption to the existing fields.

Access roads to the plots where wind turbines will be located will be rehabilitated to the benefit of local farmers.

6.2 Community Benefits

UPR has a corporate social responsibility (CSR) programme that aims to work in cooperation with local communities to enhance local economic and cultural development. Prospective CSR projects using a community based approach have been identified

7. Health and Safety Impacts and Mitigation

7.1 Occupation Health and Safety

All construction work that is undertaken will be required to comply with Ukrainian legislation and EBRD requirements. UPR and their contractors will develop HR policies that include a code of conduct policy and an occupational health and safety plan. In addition, a specific grievance mechanism procedure for workers will be developed.

It is likely that a labour accommodation camp will be required and a plan will be developed on the strategy and principles of accommodation for construction workers that will also include a code of conduct to be adopted to govern life in the workers camp. The camp will be constructed in accordance with EBRD/IFC Workers' Accommodation: Processes and Standards[3]. Selection of the camp should consider assessment of impacts. A camp management plan will be implemented to mitigate impacts, including:

- emergency responses;
- security;
- workers' rights; and
- relationships with the communities.

7.2 Community Health and Safety

Potential community impacts that have been identified associated with blade and ice throw, aviation, electromagnetic interference and radiation, transporting equipment and public access.

The risk of frosting/ice build-up leading to ice throw and potential injury is considered to be low as the risk of ice build-up will be relatively short term (based on climatological data), and the turbines will be equipped with sensors as part of their design to detected imbalances on the turbine

[3] IFC and EBRD (2009) Workers' Accommodation: Processes and Standards. A guidance note by IFC and the EBRD. [Online]. Available at: https://www.ifc.org/wps/wcm/connect/topics_ext_content/ifc_external_corporate_site/sustainability-at-ifc/publications/publications_gpn_workersaccommodation

blades. This imbalance will indicate ice build-up leading to shut down of the turbines, therefore preventing ice throw. In addition, blade heating and de-icing will take place to prevent damage to wind turbines which also minimises ice build-up.

The nearest airport is over 45 km to the north east. Approval has been received from The Ministry of Infrastructure of Ukraine, Ukrainian State Air traffic Services Enterprise to confirm that the wind turbines will not influence aircraft flights.

It is unlikely that there will be any electromagnetic interference and radiation, however a number of remedies are proposed should this be the case.

For abnormal road transportation of wind turbines and associated equipment, some sections of roads will need to be upgraded. A route has been planned for the delivery of the wind turbines and related equipment from the port to the site and there is planning in place to minimise disruption. There will be no public access restrictions for farmers and the general public in the area where the turbines will be installed.

8. Environmental and Social Action Plan

An ESAP has been developed to set out specific environmental and social actions required to minimise impacts associated with the project. Actions have been developed around the following themes.

- Developing EHSS policies, procedures and systems for use by UPR and its contractors;
- Obtaining the necessary permits / approvals prior to undertaking those activities for which those permits / approvals are needed and to comply with all required conditions;
- Developing HR policies, occupational health and safety plans and a workers grievance procedure;
- Developing plans to protect the community during construction e.g. traffic management, emergency preparedness;
- Minimising noise, air quality, waste generation and water use impacts;
- Investigating any impacts on the community e.g. noise, shadow flicker;
- Protecting top soil evacuated during construction;
- Protecting biodiversity;
- Protecting cultural heritage sites;
- Developing a Decommissioning and Restoration Plan at the end of the life of the project; and
- Implementing a SEP and grievance mechanism.

9. Stakeholder Engagement Plan (SEP)

A SEP has been developed with the objective of identifying key stakeholders and ensuring that, where relevant, they are informed in a timely manner of the potential impacts of projects. The plan also identifies a formal grievance mechanism to be used by stakeholders for dealing with complaints, concerns, queries and comments. It will be reviewed and updated on a regular basis. If activities change or new activities relating to stakeholder engagement commence, the SEP will be brought up to date. The SEP will also be reviewed periodically during project implementation and updated as necessary. The SEP includes the following:

- Public consultations and information disclosure requirements;

- Identification of stakeholders and other affected parties;
- Overview of previous engagement activities;
- Stakeholder engagement programme including methods of engagement and resources, future and upcoming engagements; and a
- Grievance mechanism.

Stakeholders could be individuals and organisations that may be directly or indirectly affected by the project either in a positive or negative way, who wish to express their views. The definition applied to identify the key stakeholders is:

'any stakeholders with significant influence on or significantly impacted by, the work and where these interests and influence must be recognised if the work is to be successful'.