Inhulets Solar Project
Non-Technical Summary

31 Oct 2018

1 Introduction

This document provides a non-technical overview of the proposed development plans of private company *Inhulets Energo – 2* to construct a solar photovoltaic power plant in Mykolayiv Oblast of Ukraine.

It also presents a summary of potential environmental and social impacts and other environmental and social issues relevant to the project activities. Appropriate measures to mitigate key adverse environmental and social effects that may arise during project construction and operation are provided in *Table 1* at the end of this document.

The project developer *Inhulets Energo - 2* has approached the European Bank for Reconstruction and Development (EBRD) for financing this development. The project is thus subject to EBRD's 2014 Environmental and Social Policy and has been determined as a Category B project.

This Non-Technical Summary (NTS) document, and a Stakeholder Engagement Plan (SEP) for the project will be placed in the locations shown below for public review and comment:

- *Inhulets Energo - 2 LLC* company offices
  Address: 15, Suvorova Street, Snihurivka, Snihurivskiy district, Mykolayiv Oblast, 57300
  Phone: +38 067 985 24 84

- Afanasiyivka Village Council
  Address: 14, Lenina Street, Afanasiyivka, Snihurivskiy district, Mykolayiv Oblast, 57342
  Phone: +38 05162 23252

Furthermore, the documents will be available online at www.uself.com.ua and clean-energy.com.ua. Any interested party is encouraged to provide comments and suggestions on the environmental, social and other aspects of the project. For further information or comments please contact:

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2 Description of the Proposed Development

The project will put in 211,750 photovoltaic modules and associated equipment, which will provide an installed capacity of 47 MW_{AC}, and approximately 70,400 megawatt-hours of net electricity generated per year.

The plant will be operated on an area of 99.0227 hectares that is leased for the project. The plant will be connected to the distribution grid by two parallel 35kV overhead transmission lines (2.80km and 4.35km

long) attached to an existing substation "*Snigurivka*" owned by Oblenergo. Electricity will be sold to the national grid at the "green tariff".

The Project will be located near the villages of Afanasiyivka (630 residents), Novovasylivka (776 residents), and Novokondakove (530 residents) in Snihurivskiy district of Mykolayiv Oblast. The nearest residential area (village Novovasylivka, across Inhulets river) is at 450m from the Project site. The location of the project site is shown on the Figures 1 and 2 below.

Figure 1 General map view

Figure 2 Close-in satellite image

The plant will be constructed, commissioned and operated by *Inhulets Energo - 2 Limited Liability Company*, which was established for implementation of this project. The parent company, Clean Energy Group, is one of the leading players in solar power development in Ukraine.

By employing the renewable solar power, the project will provide significant environmental benefits over other types of energy generation, such as those using fossils fuels (gas, coal) or nuclear. It will contribute to the reduction of emissions of greenhouse gases (expected annual emission reductions are 54,161 tons of carbon dioxide equivalent), create some temporary construction jobs, and improve the security of energy supply in the area.

3 Environmental, Health, Safety and Social Review

3.1 Project studies and documents

Solar energy power plants can be considered as having perhaps the least impact on the environment and the biodiversity of the surroundings. However, to assess and manage their impacts, several environmental documents have been prepared, as explained below.

The project preparation included assessment of the environmental conditions of the site, surrounding area, as well as environmental and social impacts. These have been summarized in a separate EIA/OVNS report which is a of the project design documentation. Also, an Environmental and Social Action Plan (ESAP) has been developed as part of the environmental and social due diligence process. The ESAP identified mitigation measures to prevent or reduce potential negative impacts of the project and ensure its compliance with EBRD's Performance Requirements.

A Stakeholder Engagement Plant (SEP) has been developed to describe how *Inhulets Energo - 2* will communicate with people and institutions who may be affected by, or interested in the project, at various stages of project preparation and implementation. The SEP will be disclosed to the public together with this NTS. The company will assign a social liaison function to one of its staff, who will be

responsible for keeping an open dialogue with stakeholder groups and local residents. At any time before and during construction and operation, any stakeholder can raise concerns, provide comments and feedback about the project. All such comments or grievances will be accepted, processed and answered by *Inhulets Energo - 2* in a timely manner. The grievance mechanism is outlined in the SEP.

3.2 Sensitive locations

The project is located in an agricultural area, at the bend of river Inhulets. There are no environmentally protected areas on, or in the immediate vicinity of, the project site.

River Inhulets has a water protection zone, which ranges from 50m (standard for medium-sized river) to 100m (in the areas where the river bank slope is more than 3 degree). Generally no construction is allowed within the water protection zone (with some exceptions).

A group of three archaeological heritage sites (kurgans) - Group No 4 - is located nearby, but outside of the project boundaries, at a distance of 51m or more. The project is not expected to have any impacts on these sites, as all project facilities will be located outside of kurgans' respective protection zone.

The nearest residential properties of the village Novovasylivka are located at 450m south of the project, across Inhulets river. The closest properties of Afanasiyivka village are located at 650m north of the project. Some increased traffic, dust and noise can be expected during the short period of construction works, and these public nuisances will be accordingly mitigated. The operating plant will not generate any emissions, noise or flickering, and thus will not disturb the residents of the nearby village. The glint/glare impacts are assessed as low, because due to panel inclination the sun rays will generally be reflected upwards.

3.3 Project impacts and their mitigation

The evaluation of potential environmental and social impacts has determined that, in addition to its benefits, the project may have some negative impacts on the environment and people, if not managed carefully. Therefore, *Inhulets Energo - 2* will implement certain actions (called "mitigation measures") to prevent or reduce potential negative impacts of the project as outlined in the ESAP. Key mitigation measures are summarized in the table below.

Table 1 Overview of Key Potential Project Impacts and Their Mitigation

No	Issue	Potential impact	Mitigation measures
1	General construction activities	Impacts during construction of the main (solar modules and inverter stations) and associated (transmission lines and access road) project facilities, such as land excavation, dust, noise, air emissions from vehicles involved, vehicle traffic, generation of construction wastes, etc.	- Prepare and implement construction management plan to reduce and mitigate general construction impacts, including noise, air emissions, waste generation and disposal, land erosion. - Prepare and implement traffic management plan, including consideration of delivery routes, other road users, speed limits, and warning signs. - Ensure project contractors adhere to relevant environmental and social requirements. - Continuously monitor impacts to comply with appropriate national environmental standards and EBRD requirements.
2	Cultural (archaeological) heritage	Impacts on the group of Kurgans (Group No 4) located close-by during project construction	- Mark the location of the Kurgans and their respective protection zone on the ground. - Ensure no physical impacts on the sites or their protection zone during the project construction.
3	Transmission lines	Impacts of construction of two 35kV overhead transmission lines (2.80km and 4.35km) for grid connection.	- Ensure appropriate design and routing of the transmission lines to avoid sensitive locations where possible. - Comply with relevant sanitary and environmental and social requirements and norms, including those of the EBRD. - Conclude land-lease agreements with the land-owners for siting the TL towers. - Mitigate any residual impacts after the completion of construction.
4	Plant decommissioning	Waste generation and disposal during decommissioning of the plant at the end of the 25-year life cycle.	- Ensure recycling and appropriate disposal of PV modules at the end of their lifetime in line with best environmental practices, including the ones under the PVCycle international initiative.