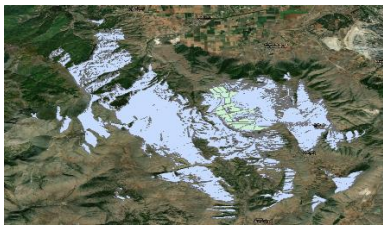
HELLENIC PETROLEUM

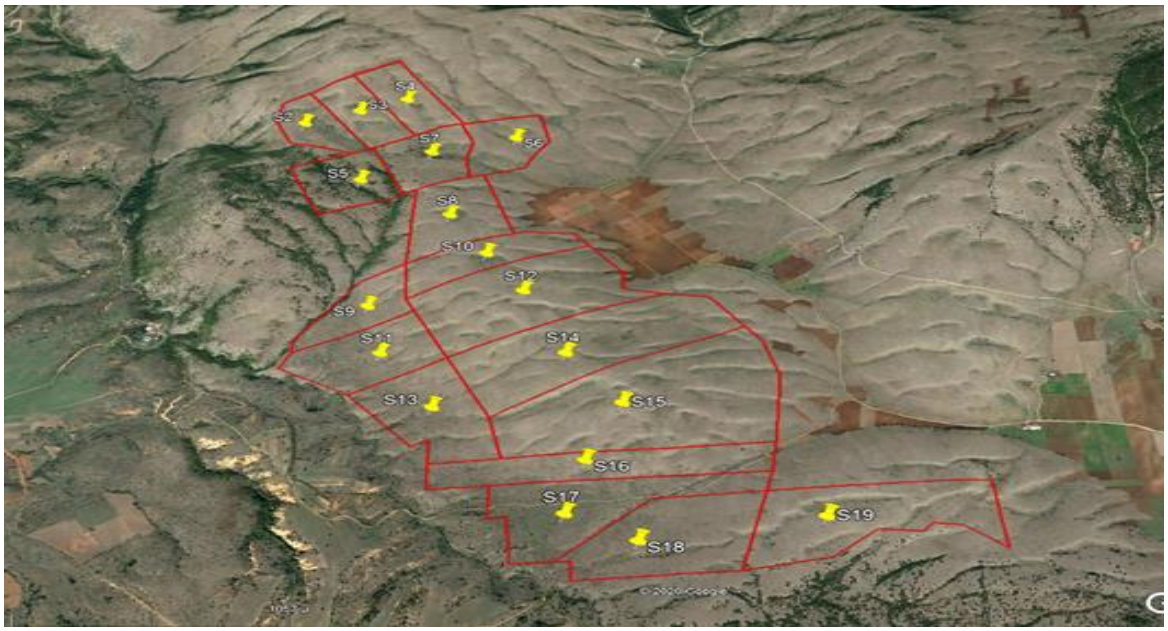
204,23 MW solar park in Kozani Greece

Non-Technical Summary

of

Environmental and Social Assessment Report



ENVECO S.A.
ENVIRONMENTAL PROTECTION MANAGEMENT & ECONOMICS

Athens, September 2020

CHAPTER 1. Introduction

Hellenic Petroleum RES SA (HELPE RES) is planning the construction of a portfolio of PV projects with total installed capacity of 204MW in Kozani, Western Macedonia, Greece (the "Project" or the "solar park"). The Project may be financed by international lenders such as the European Bank for Reconstruction and Development (EBRD).

This document is a Non-Technical Summary (NTS) that explains in a non-technical language, the Project and its associated environmental and social benefits and impacts, relevant mitigation measures considered as well as engagement efforts. The information in this NTS is based on the outcome of the Environmental and Social Due Diligence Reports prepared for the Project by an independent consultant and submitted to HELPE RES and Lenders. This NTS also informs on the means available to the interested public to access additional information and provide feedback to HELPE RES and potential Lenders

For any questions, complaints or concerns about the Project in general, or to receive further information, please contact Hellenic Petroleum RES SA through the contact details stated below.

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Comments during the disclosure period can also be returned to Dr. Sotiris Kapellos, Operations and Development Director. Contact details: Chimarras 8A, 151 25, Maroussi, Greece | T: +30 210 6887245 | F: +30 210 6302245 | www.elperes.gr | s.kapellos@helpe.gr

If you want to raise or follow-up on a concern or grievance with regard to the environmental, social, health and safety performance of the Project please refer to HELPE RES's contact form, provided above.

CHAPTER 2. Project Description

2.1 Background

2.1.1 What is the project

The 204,23 MW solar park in Western Macedonia, Kozani is located in the area with local name "Bekrevenikos – Mikri Petra" in the Municipal Community of "Liberon", Municipal Unit of Dimitrios Ipsilantis, Municipality of Kozani, Region of Western Macedonia, Greece. The distance of the solar park to the closest settlements is approximately 1,2 km from the settlement of Libera (East) and 1,8 km from the settlement of Sideras (South).The solar park configuration includes: 18 solar parks with at total power of 204,232 MWp / Coverage of a total surface of 4.397.900 m^2, 4,49 Km of inner access roads to individual solar parks, 1 high voltage substation 20/150 KV and 13,3 km of high voltage power transmission lines. It is noted that the environmental permitting of the project has been completed within 2019.

2.1.2 **Why is the project needed?**

The Project is needed to meet the increasing energy demand in Greece. The Greek Renewable Energy Sector ("RES") has experienced substantial growth in recent years as a result of the country's commitment to comply with its national targets for renewables under the Renewables Directive. The shift in national energy policy from over dependence on lignite to renewables is demonstrated by significant RES tariff changes, ongoing public consultations with stakeholders on proposed amendments to the RES support framework and the market entry of international players who benefit from opportunities of both wind and solar projects. The project will have an installed capacity of 204,23 MW and will generate 11.600 GWh of energy annually (according to the project's EIA) and is considered one of the project that will help to the minimization of the socioeconomic impacts of the phase out Lignite period. This is the equivalent of the annual electricity requirements of 16.600 residents in Greece. Other project environmental and social benefits, are the following:

Employment: The Project will create job opportunities especially for the communities in proximity, mainly affected by the project. During construction phase, the project is expected to benefit the local communities, since approximately 250-300 skilled and non-skilled workers will be hired, while more than half of these workers will be hired locally. It is expected that the construction period will begin in the fourth quarter of 2020 and last approximately 18 months. During the operation phase the employment opportunities will be limited. However, those that have gained transferrable skills may be able to find employment elsewhere.

Improvements to the Infrastructure: In parallel to the activities of the project, it is planned to make improvements to infrastructure in the communities in proximity. These improvements will mainly focus on the roads and traffic network.

Contribution to the Local Economy: Where possible local goods and services will be used for the Project. For example, a portion of the equipment and vehicles to be used during the construction activities will be acquired from the region, and this will have a positive impact on the local economy.

2.1.3 **What is the legislative framework of the project?**

The project environmental permitting has finished in accordance to the main legislative documents presented below.

No.	LEGAL DOCUMENT	OBJECTIVE
1	Law 4014/2011 (GG 209/A/21.09.2011)	Environmental permitting of projects and activities, adjustments for illegal constructions by reference to the creation of environmental balance and other provisions of the Ministry of Environment
2	N. 998/1979 (GG 289/A/29.12.1979), as it applies	For the protection of forests and forest areas in the country
3	JMD 49828 (GG 2464/B/3.12.2008)	Adoption of a specific framework for spatial planning and sustainable development for Renewable Energy Sources and its strategic environmental impact assessment
	MD 170225 (GG 135/B/27.1.2014)	Specialisation of the contents of the environmental permitting dossiers for Class A projects and activities of the Minister of Environment, Energy and Climate Change decision with no. 1958/2012 (B 21) as in force pursuant to article 11 of Law 4014/2011 (A 209) and any other relevant details
4	Law 1734/1987 (GG A/189/28-10-1987)	Pastures and regulation of issues related to animal husbandry and other concessions as well as issues concerning forest areas

No.	LEGAL DOCUMENT	OBJECTIVE
5	Law 3208/2003 (GG 303/A/24.12.2003)	Protection of forest ecosystems, customs tariff planning, regulation of rights to forests and forestry in general and other provisions

2.1.4 Public consultations and disclosure and dealing with objections

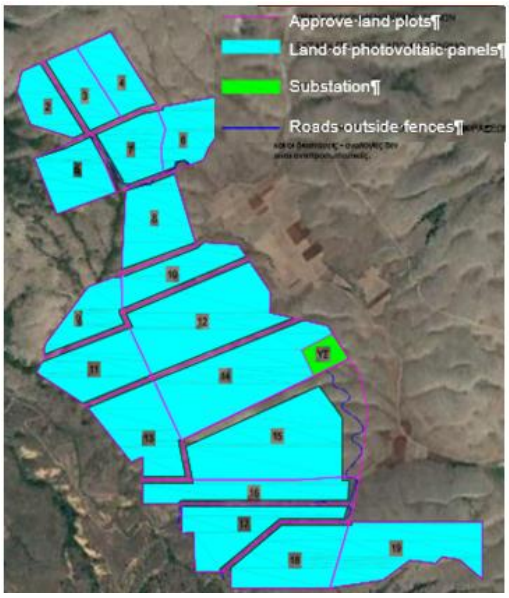
All previous stakeholder engagement activities for the project were carried out within the framework of the environmental permitting procedures for the project, according to the national regulations, as mentioned above. In particular, the main stakeholder engagement activities which have taken place so far since the project's start in 2004 are the following:

1. **Preliminary Stakeholder Information (2013 – 2014):** During this period, the relevant authorities were contacted to give their opinion and their opinions on the EIAs of the project.

2. **Stakeholder Engagement during the review of the Environmental Impact Assessment (2019 – 2020):** During this period, the following authorities presented their opinion on the EIA: the Regional Council of WM, Forest Directorate of WM (Decentralized region of Epirus-W. Macedonia), the forestry of Kozani and the Regional Committee of Spatial Planning and Environment (PECHOP, former NECHOP). Their answers were taken into consideration for the Approval of Environmental Terms in 2020, which is still ongoing.

2.2 Description of the main Project Components

The project is comprised of 18 smaller solar parks that will fall under common management. It requires 4.397.900 m^2 of land for the main and supporting facilities. The land is characterized as "public", with the majority of the land plots to be in a public forest or public grasslands, managed by the Forestry Authorities of the Decentralized Region of Epirus-W. Macedonia, while a small part of land is managed by the Ministry of Agricultural Development and Food.



The areas of the 18 smaller solar parks will be appropriately fenced for security reasons. In total 11 areas will be fenced provided that some smaller solar parks are going to be within the same fence. Between the fenced areas at least four corridors will exist for the free movement between the eastern and western part of the project.

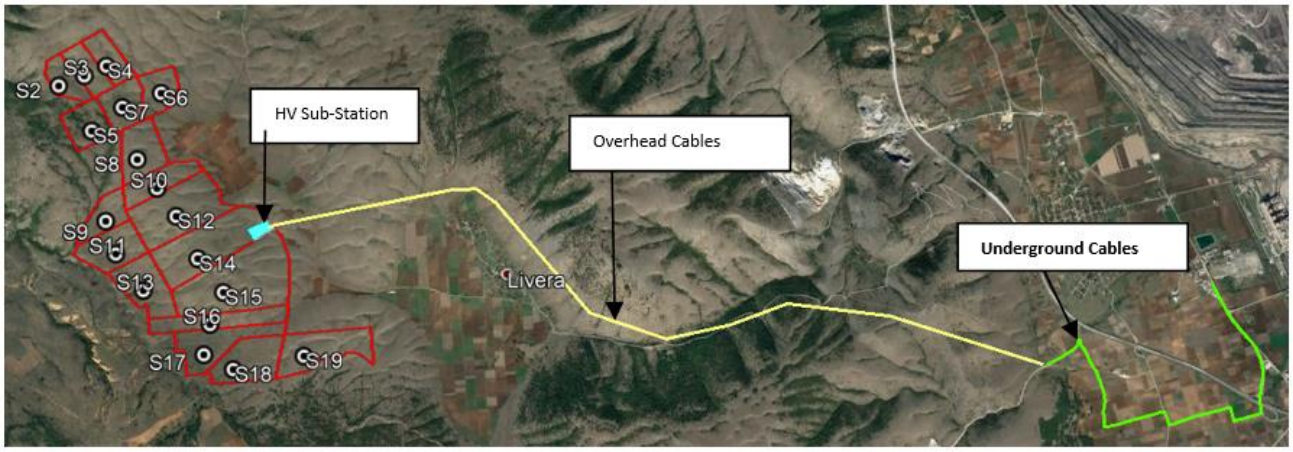
Within the initial project works will be the relevant civil engineering activities. In particular, the site of each solar park will be flattened wherever necessary. The landscaping activities aim to create a flat area around the power station of the solar park to enable movement of vehicles and machinery which will carry and install the equipment and also for future maintenance. The activities planned for the surrounding area are access roads to the solar park, excavation of trenches for electric utilities and monitoring signals, landscaping around the power station, landscaping of the wider plot of the solar park and lightning protection measures application.

According to the preliminary design in total, 559.526 monocrystalline silicon solar panels with 365 Wp capacity are planned to be installed for this project (this may be modified during final design). The solar panels will be installed on stable metallic bases which can support up to 54 solar panels (2 rows of 27 panels in vertical layout). Support stationary systems will have a 25° gradient. The lower side of the panels will be at 75cm above ground, while the upper side will not exceed 2.5m height.

The solar panels will be electrically connected in groups and by rows to produce direct current (DC), which will be directed to the control panel, the inverters and, finally, to the power station and into the electric grid. In total 6 inverters, which will convert direct electric current produced by the solar panels to alternating current, with each one having 1,909 kW capacity.

The substation 150/20 kV will consist of the following operational parts:

- Medium voltage compartment (33KV) which will be close type and all the equipment will be stored inside.
- The medium voltage inverters of 150 kV which will be installed outdoors, in a specially configured area, on concrete bases and metallic scaffolds
- The high voltage compartment (150 kV), which will be installed outdoors ,in a specially configured area, on concrete bases and metallic scaffolds



The high voltage power from the substation will be transmitted to the Kardia ultra high voltage station by cables with a total length is 13.3 km of which roughly 8.5 km is overhead and 4.3 km underground. The overhead transmission line will contain 30 high voltage pylons with its access zones with total area of 92,844.21 m2. The underground transmission line will be installed in a 2 m deep trench placed on thin sand layer. An additional 50 cm sand layer will added above the cables. Reinforced concrete plates will be added above the sand for protection.

2.3 Project schedule

In terms of approvals, currently, the project is fully compliant with the relevant requirements of the national and European regulations. Environmental permitting of the total project has been completed in late 2019. Installation permits for 12 projects (5, 8-13, 15-19) have already been issued, while the rest of the required installation permits will have been issued by the Forest authority within the next months.

The public land acquisition process appears to have started before 2013 with a relatively smooth process since there were no private plots of land located in the area of the solar park. This process is expected to be completed also during the next months.

Currently, the project is in the phase of final design and ready to enter the pre-construction phase. According to the current project work plan, construction activities will start with the earth moving activities within the 4th quarter of 2020 while the total construction period is expected to be around 16 months taking into consideration weather conditions restrictions in the project area.

CHAPTER 3. Identification of the Main Environmental and Social Risks

3.1 Main environmental risks

The main expected impacts from operation of the Kozani Solar park project are mainly related to the change in land uses in the area, which relates to the coverage of extended grasslands with solar panels. Given the cumulative characteristics of the development of RES in the area, it is expected that herders that use the land, will have to relocate their grazing activities.

Visual disturbance from the project is not expected to be of significant magnitude, due to the hilly area. However, the cumulative impact attributed to the development of RES and specifically solar parks and wind farms in the area, is expected to be important and therefore, needs to be managed.

On the other hand, the expected positive effects of the solar park relate to the strategy of phasing-out lignite in the area and the support of the local economy.

Finally, although the project area is located in a distance less than 10 km from the NATURA 2000 area GR3000001 "Ori Voreiou Vourinou and Mellia", which is a Special Protection Area (SPA), protected both for its habitats and avifauna, it is situated within a "bird migration corridor". Thus, bigger numbers of birds are expected to fly above the project area during the migration seasons (spring and autumn). A risk that has been identified and needs to be managed is related to the primary threats of collisions of birds with PV equipment (the so called lake effect) and transmission lines and electrocutions from the substation and distribution lines.

3.2 Main social risks

Approximately 4.397.900 m^2 of land, including extended grasslands, small trees and other type pf vegetation, will be cleared or covered during pre-construction and the construction phase. An

All the above will cause changes in land use in specific parts of the area from pasture land to industrial with a limited impact on local grazing patterns in the around project area. According to the field visits conducted to the area and meetings with local authorities, it was stated by the President of the community of Livera that the area, where the solar park is going to be installed, is mainly used by two herders:

- One locally based shepherd that uses the area for grazing for approximately 800 sheep and goats (mostly sheep).
- One nomadic shepherd (uses the area between spring and summer), who comes from the region of Thessalia. The shepherd owns approximately 2000 sheep.

Even though these type of land uses appear to be "informal" (it appears that there are no clear grazing rights in this particular land), the users of the area will need to relocate and seek for other areas for grazing in the area.

Moreover, it appears, that on the northern area of the proposed solar park, there is the presence of approximately 3 lodges (small, stable-like construction), at the NW part of the solar park (specifically in plots 2, 3 and 5) used by local herders for grazing their livestock. These can be considered as "informal establishments" since they do not carry a specific license from the Region of WM or the Municipality of Kozani. However, local herders use them for the grazing activities of their livestock.

3.3 Cumulative impacts:

From the cumulative impact analysis, it appears that there is an increased investment interest in the area. At the moment, there are approximately 4.159,08 kW of solar parks to be developed (a license has been issued or the projects are currently under evaluation) in the broader area. This is a significant issue that needs to be taken into account by the permitting authorities.

CHAPTER 4. Suggested mitigation measures

A summary of the planned measures to mitigate any potential impacts and risks impacts during the construction phase, which is linked with the main potential impacts of the project are provided below.

Issue	Proposed mitigation measures
ATMOSPHERE AND CLIMATE	• Frequent and periodic maintenance of all the construction machines by specialized personnel • Use, to the extent possible, of inert materials produced from excavations, to avoid transportation of aggregates from distant-off points. • Project planning preparation so that soil materials from excavations are taken within the shortest possible period of time at embankments positions • Implementing procedures for handling of construction materials • Implementing good construction practices Visual control of working conditions and construction
NOISE	• Limitation of vehicle speeds in settlements • Construction equipment must be compliant with Directive 2000/14/EC for noise missions generated from outdoor equipment • Construction works must take place only in the period from 07.00 -19.00h • Regular maintenance of equipment and mechanical parts • Affected local residents will be kept informed, to the best of the project's efforts, on due time of the planned works and the noise levels and the hours of day during which they will occur;
VEGETATION AND HABITATS	• Reuse of the removed top layer of soil for arranging green spaces within the site • Providing grazing corridors/unhindered passages for fauna species and livestock (as described in the approved EIAs) • Conservation of trees and other vegetation as much as possible
BIRDS	• Prior to construction works, HELPE need to engage a professional biologist/ornithologist to conduct an additional baseline biodiversity assessment for the broader project area, with specific focus on the avifauna species. The assessment must include: o Monitoring visits during the migratory periods (March/April and August to October) in the project area and assessment of collision risk o Survey of nesting birds of the surrounding area o Development of a monitoring plan for potential impacts on the biodiversity of the area, focusing on the avifauna, as well as proposal of mitigation measures. • Any vegetation restoration is preferred to be done in way so as not to attract nesting, etc. • If the perimeter of the solar project is fenced, utilize systematic fence marking to reduce avian collisions with fences. • Markings should be at an appropriate height to be visible to birds flying at or above the height of the solar panels. • Lighting should be kept to a minimum to avoid attracting insects and birds and light sensors/switches should be utilised to keep lights off when not required. • Adjust the spacing between solar panels to reduce the cumulative reflective potential of the arrays, which may reduce avian collisions with the panels • Use other visual bird diversion techniques similar to those applied in airports for bird diversion including large scare-eye balloons and flash tape • Monitoring the possible rate of bird collisions in solar panels, cables and/or other structures. If there is high number of impacts, measures need to be

Issue	Proposed mitigation measures
	taken including: o Regular cleansing of the area from animal carcasses to avoid attracting raptors. Predators perch in piles of rocks for surveillance and hunting. It is therefore chosen to remove rock piles from the area to prevent the predators from perching.
GEOLOGICAL AND SOIL (including risk of Soil Erosion)	• For the mitigation of soil erosion, a pluvial water management plan is needed to be in place as part of the ESMS for the Management of rain water discharges and avoidance of erosion phenomena. In the framework of this plan the following needs to be done: • Report on the progress of the works including perimeter drainage and update final technical studies and EIA studies • Revise the revegetation plan with clear responsibility and timelines, as the project develops. • Integrate and provide measures to minimize erosion and sedimentation impacts • A waste management plan, as part of the ESMS should be developed, which is suggested to deal with the following issues: • Spill Control plan
WATER (surface and ground)	• Stream delineation Study for the water stream which is located on the west side of the project • Adequate environmental hygiene, coupled with good construction practices and site management shall be ensured by EHS management to ensure that litters, fuels and solvents do not enter nearby streams and storm water drains.
LAND USE	According to the approved EIAs, at least 4 corridors must be designed and opened of a width of 15 m, for facilitating the passage of livestock though the area of the project • Undertake additional social studies to assess land use, including from herders. Develop a livelihood restoration framework prior to constriction • Based on the findings develop a Resettlement Action Plan (RAP) including a compensation / livelihood restoration plan Displacement of Physical Structures • The Project will investigate possibilities for re-designing in order to not affect structures inside the area. In case this is not feasible, the structure will need to be dismantled and removed. • Affected owners of any properties or agricultural buildings that need to be removed will be compensated at full replacement cost.
LANDSCAPE	Prior to the completion of the construction works, the following measures can be applied: • Construction activities, outside the defined working area, will be limited to the shortest practicable duration. • The use of existing boundary areas and landscape features (roads, fence rows, property lines, forest edges) will be sought in order to minimize visual impacts. • Earth roads providing access to site compounds and works areas will be maintained free of dust and mud as far as reasonably practicable.
CULTURAL HERITAGE	• Conduct necessary field survey with the Ephorate of Antiquities of Kozani in the areas, where it is expected to come across antiquities • Prepare a chance finds procedure in collaboration with local Ephorate of Antiquities of Kozani • Contract with licensed archaeologist for daily monitoring. • Close cooperation with Ephorate of Antiquities of Kozani
EMPLOYMENT	HELPE will develop the following plans and training programs: • A corporate Human Resources Policy will be in place. • Develop and implement an Emergency Preparedness Plan and Safety Program according to the best International practices it is suggested for the contractor to • Provide adequate training to workers, equipment, • Take other necessary steps to maintain proper safety and security conditions • Local Workforce Recruitment Plan in order to maximise the involvement of workers from project affected areas. • Development, approval and implementation of a grievance mechanism in

Issue	Proposed mitigation measures
	the framework of the SEP Health and Safety: • Proposed mitigation measures for influx of workers include: o A 'Worker code of conduct' and population influx studies are required o A guideline should be prepared by the developers association about norms and traditions that workers need to follow o Contractors need to be informed about norms of the local community; o Contractors should coordinate with the community based committee in order to identify, avoid, or mitigate any violations
COMMUNITY INFRASTRUCTURE	• Develop a grievance mechanism in the framework of the SEP • Obligation of contractor to pay for any claims for damage to material assets • Obligation of contractor to repair any damaged roads after • completion of construction • Any temporary impacts on private property to be discussed in advance with affected people prior to the start of construction and compensated
HEALTH AND SAFETY	• Appoint a competent EHS Officer (with the relevant skills and qualifications • Hiring only qualified and experienced workers • Provision of OHS training by the contractor • Mandatory use of PPE • Regular medical checks for workers • Compliance with the Labour Law and EU Directives 89/654 / EEC , 89/656 / EEC , 89/686 / EEC and 2009/104 / EC • Ensuring the use of safe machines (e.g. and safe operation of machines • Training of operators of industrial vehicles • Mobile equipment with limited visibility must be equipped with audible alarms • Contractor to develop, as part of the CESMP: an OHS Plan (covering OHS measures defined in the ESIA for the construction phase), and a Traffic Management Plan • Monitor all Contractors' compliance.

Moreover, HELPE RES is expected to develop and implement all measures specified within the relevant Project Documentation, including inter alia:

- Environmental and Social Monitoring and Management Plan
  - CESMP (Construction Environmental and Social Management Plan)
  - OESMP (Operation Environmental and Social Management Plan)
- Stakeholder Engagement Plan (SEP)
- Resettlement Action Plan(RAP)
- Project contractually binding documents, including the Employer Requirements
- Environmental and Social Impact Assessment/Statements and related Decisions from the Competent Authority

In order for the above to be implemented with safety and respect to the environment and the local communities' population, it is recommended to appoint:

- A competent EHS Officer (with the relevant skills and qualifications

- A competent Social / Community Liaison Officer with the relevant skills and qualifications.

A detailed **Resettlement Action Plan** is suggested to be developed upon the completion of the Detailed Design of construction and the finalized timeline of activities due to the expected impacts to local and nomadic herders of the area, as well as the resettlement of their lodges (stables), located in the limits of the solar park.

Finally the implementation of a **Stakeholder Engagement Plan** will start before the Project Commencement Date (start of construction).

CHAPTER 5. Proposals for resettlement and restoring livelihood

5.1 Introduction

The project is expected to cause physical and economic resettlement to a limited number of people due to:

- The extended area of coverage (4.397.900 m^2 or 437,90 hectares).
- Change in in specific part of the area land use from pasture land to industrial with a limited impact on local grazing patterns in the around project area.
- Need to resettle informal lodges (small stable-like structures) outside the area of the solar park.

Physical resettlement refers to the physical displacement of people by a project while economic resettlement refers to a loss of income or livelihood through an interruption or elimination of a person's access to their employment or to productive assets such as land. In order to avoid, minimise and mitigate potential adverse impacts associated with resettlement, HELPE RES will assign and conduct a Resettlement Action Plan (RAP) in line with the international guidelines and the EBRD PR 5, which sets out specific requirements for resettlement. At this stage the RAP which is more than a framework is still to be regarded as preliminary. This RAP will be developed into a full RAP, including supporting documents and plans, prior to construction and prior to resettlement actions.

5.2 HELPE's RAP strategy

The RAP will assess the land use regime in the area (formal and informal) and identify all potential users. This will allow for the strategy to be developed based on:

- Income restoration based on present value of income for land use and resettlement needs.
- Continuous consultation with Project Affected Persons (PAPs).
- An active stakeholder engagement strategy.

5.3 Organisational responsibilities

A social team is suggested to be formed in order to manage the resettlement issues as well as compensation issues. The team is expected to be formed by the Community Liaison Officer and at least two members including an agronomist with knowledge on compensation issues and the economics and a social expert. HELPE management will be responsible for the operation of this team

The Social Team's members will be authorized on behalf of the company to carry out the activities necessary for fulfilling compensation commitments, i.e. to prepare, sign and submit the proposals for resettlement, to participate in the discussions with the land users and to sign the minutes and the agreements concluded with the representatives. Field surveys for data collection and appropriate estimations are expected to be carried out by the social team, who in turn will be collecting all necessary material for preparing the compensation proposal (photos and other data). The assistance of other, special scientist might be requested. For example civil engineers might be needed in order to assist with cost estimation and other, permit and/or licence issues.

The proposals for resettlement will be submitted to the Social team's coordinator and authorized department for approval. After approval, negotiations with the beneficiary of compensation will begin in order to identify the optimum solution, in the framework of the suggested solution prepared by the team and its coordinator and approved by HELPE management. The discussion is concluded when the relevant parties reach agreement on the compensation proposal. The agreement is binding and the procedure for resettlement or compensation will be considered as completed. The agreement shall be signed by the CLO and the beneficiary. After that, the payment procedure should initiate.

If an agreement has not been reached, a discussion on alternative solutions should be considered in order to work on the best possible solution. Any arbitration or disputes in relation to resettlement or compensation are determined in the courts, understanding that the will cause a delay in the process.

5.4 CUT-OFF DATE

Persons found to occupy the Project area after the cut-off date are not eligible to Project compensation or other resettlement benefits. Similarly, fixed assets (such as built structures or crops) established after the cut-off date will not be compensated. In practice, the Cut-Off Date is usually the date of completion of the census of people and inventory of assets in the Project-Affected Area, unless there are local legal provisions to another arrangement (which is often the case where expropriation is used for land acquisition).

For the needs of this project, this date is defined as "**six months from the commencement of the construction works**".

CHAPTER 6. Grievance mechanism

6.1 Introduction to the mechanism

A grievance can be a complaint, concern, question, suggestion or other comment about the project and how it is implemented. Receiving and processing grievances is a valuable tool in order to know any concerns and to meet them, thus preventing problems and conflicts. The grievance mechanism is dedicated to receiving, recording, investigating requests, complaints, and questions about the project and submitting answers to them. It is designed to enable any interested stakeholder to submit their grievances about the project. A grievance may take the form of specific complaint about impacts, damages or harm caused by the project. Similarly, a grievance may refer to concerns about access to the stakeholder engagement process or about how comments have been addressed. Grievances can also be related to project activities, or perceived incidents or impacts.

6.2 Grievances Submission

A Public Grievance Form should be used for submitting grievances. It should be available in hard copies in local administration (local communities, municipalities and the regional offices) as well as in an electronic version on the project's website. However, other written letters, emails, text messages and phone calls can also be used for submitting grievances, as described below. Stakeholders will be able to submit a grievance in relation to the project, at any time and at no cost, by using one or several of the following ways:

- Through the electronic grievance form on the project's website.
- Submitting a written or verbal grievance during a public meeting.
- Handing or mailing a written grievance to the Local Team or the Community Liaison Officer.
- Calling the Community Liaison Officer.