

# **Environmental and Social Review Summary (ESRS)**

## **X-Elio - Xoxocotla PV Solar Plant**

**Language of the original document: English**

### **1. General Information and Overview of scope of IIC E&S Review**

The X-Elio (the Client) – Xoxocotla Solar Photovoltaic (PV) Plant (the Project) is located in the Municipality of Ayala, Morelos State, Mexico. The Project, with a total capacity of 81.40 megawatt peak (MWp) includes also a transmission line (TL), that totalize 2.87km that will evacuate the energy produced in the plant to the Mexican Federal Electricity Commission (Comisión Federal de Electricidad, “CFE”) national grid system and thereafter through a distribution network via a “lifting substation.” This site has a 25-year life expectancy for energy production.

The Xoxocotla Project site with a total extension of approximately 255 hectares (ha) is anticipating a 12-month timeline for preparations of the site and a 3-year timeline for site construction. The Client has not yet engaged an Engineering, Procurement, and Construction (EPC) contractor for construction works.

The Client has submitted on May 19th, 2017 an Environmental Impact Assessment of the project (Manifestación impacto ambiental, MIA) for licensing to the Secretaria de Medio Ambiente y Recursos Naturales (SEMARNAT) – Morelos and a Social Impact Assessment of the project (Evaluación de impacto Social, EIS) to the Secretaría de Energía (SENER). The Client is expecting to receive the license resolution from SEMARNAT and a resolution from SENER. Per the MIA, it states that forest vegetation covers approximately 24.5 hectares of the project site and that a Technical Justification Study (Estudio técnico justificativo - ETJ) study will be conducted. However, there is no evidence of this study in the current documentation.

Project’s main impacts and risks are related to: i) community relationship (e.g. jobs expectations); ii) contractor E&S management; iii) worker and community health and safety (including increased vehicular traffic during construction); and iv) biodiversity. These impacts and risk are considered to be largely reversible and readily addressed through well-known mitigation measures detailed in the corresponding the environmental programs that conform the Basic Environmental Plan. Moreover, the Project’s areas of influence do not intersect any protected nor cultural heritage areas; no resettlement will be necessary, and no indigenous communities will be affected. Therefore, the Project has been classified as a Category B project according to the IIC’s Environmental and Social Sustainability Policy.

The Performance Standards (PS) triggered by the Project are: i) PS1: Assessment and Management of Environmental and Social Risks and Impacts; ii) PS2: Labor and Working Conditions; iii) PS3: Resource Efficiency and Pollution Prevention; iv) PS4: Community Health, Safety, and Security; and iv) PS6: Biodiversity Conservation and Sustainable Management of Living Natural Resources.

Environmental and Social Due Diligence (ESDD) process included a field appraisal mission conducted ON July 28, 2017. The field mission was composed by: i) Independent Environmental and Social Consultant (IESC) team; ii) Social, Environment and Governance (SEG) officer; and iii) the Project’s senior

management. Project sites visited included the location of the substation, transmission line path, access roads, and accessible perimeter areas. IESC also had the opportunity to meet the project sites' owners and the Municipal (Ayala) Director for Urban Development and Territorial Zoning as well as ejido representatives.

## **2. Environmental and Social Context**

The Xoxocotla Project site location is approximately 15 Km from Cuautla and is within the municipality of Ayala, Morelos . The project site will be located between Jose Maria Morelos Avenue and Yautepec-Jojutla Road on ejido land. An ejido is a land tenure figure particular to Mexico, similar to a cooperative, where various ejidatarios have collective rights to land tracts and make decisions about the property as a group. Within each ejido there are individually-owned parcels as well as "common use" areas. There were 51 individual contracts drawn with the 42 ejidatarios on whose parcels the Project would be developed. The transmission lines will span less than 3km and will be built on common use ejido land.

Approximately 87.6 percent of the Xoxocotla project site is currently occupied by fields of agricultural maize and sorghum, with smaller patches of secondary shrub and lowland vegetation occupying approximately 12.4 percent of the project site. The localities in close proximity to the project site consist mainly of ranches within the municipality of Ayala, approximately 6 Km from the project site. The largest municipality within close proximity to the project site is Cuautla. Presently, there are no industrial, touristic points of interest, mines, or forestry zones in the immediate surrounding area of the project site. In addition, the site is far from any federal or state protected lands.

The project site will be located near federal highway No. 160 Cd. Mexico-Morelos and the Galeana-Cuautla municipal road which will provide easy access between the project site location and the nearby urban centers and communities. Based on the site visit and all pertinent documentation shared by the Project, as well as a review conducted by the IESC, there will not be any involuntary resettlement impacts based on land acquisition. In addition, there are no stakeholders or inhabitants/users (informal or formal) that depend on the Project lands for subsistence or as an exclusive source of economic sustainability.

## **3. Environmental Risks and Impacts and Proposed Mitigation and Compensation Measures**

### **3.1 Assessment and management of environmental and social risks and impacts**

At the corporate level, the Client has an Environmental and Social Management System (ESMS) in accordance with standards ISO 14001:2004, ISO 9001:2008 and OHSAS 18001:2007; and is committed to environmental conservation. Specific reference is also made to the fulfillment of obligations derived from the country's regulations, environmental impact studies and operational/activity licenses. The Project extends these commitments to its value chain, including environmental criteria in its contracts and the selection of contractors.

The Client is devoted to prepare, implement and certify its operations in Mexico with ISO 14001:2004, ISO 9001:2008 and OHSAS 18001:2007 standards; however, it still has not implemented, an ESMS at the project level.

Key Project-specific documents were reviewed included the following: a quality, environmental and health and safety in the workplace policy; emergency and response plans and a conceptual contingency plan; MIA; environmental management plan; manual of good environmental practices on site; health and

safety management manual; and a set of environmental management programs. Project's MIA was developed to comply with Host Country Environmental and Social (E&S) Legal requirements. At the time of the assessment E&S Management Plans (ESMPs) were either partially developed or developed at the conceptual level and, therefore, are partially in line with Applicable Standards.

The Client has a basic organizational structure for its operations in Mexico. However, considering its planning stage, the Project had not yet established an organizational structure with defined roles, responsibilities, and authority to implement the ESMS. Nevertheless, according to the Project certifications and Client's corporate organizational structure it is likely that they have the knowledge, skills, and experience and will be able to appoint the adequate resources and generate an organizational structure capable of managing any residual risks and impacts.

The Project has a basic Emergency Response Plan which includes actions to manage and control spillage of hazardous products or wastes, fire, explosions and floods, but that needs to be updated to fully comply with this PS 1. It also has a conceptual Contingency Plan that has to be focused on a PV project.

At the time of the site visit, the Project had identified stakeholders and prioritized their level of engagement. According to local (National) requirements consultation activities carried out so far are deemed adequate. However, PS1 require a more robust stakeholder mapping exercise and consultation to be conducted along the communities most likely to be affected by the Project. The level of intensity of their potential stake or a full consideration of the Project's impacts on their activities have not yet been clearly discussed and assessed.

So far, no detail of the steps taken to disclose Project activities to local communities were available, though corporate and regulatory level (i.e. municipality) disclosures have all been conducted adequately for all remaining stakeholders. Similarly, the social commitments made to local communities and other stakeholders have not been clearly listed or communicated among stakeholders.

### **3.2 Labor and working conditions**

The Client's Health, Safety and Environment (HSE) Department establishes guidelines, plans and programs to be developed at the corporate level. For each country where it does business, the Client has a Health and Safety Supervisor. This person is responsible for implementing the plans and programs that have been established, and for overseeing and monitoring the obligations derived from the Project's Integrated Management System, the applicable legal requirements, and for the Project's personnel and subcontractors.

The EHS program requires that all workers receive training in risk prevention in accordance with their category and functions. This requirement also applies to subcontractors who, before they begin construction operations at the facilities, must have regulatory training to guarantee quality standards and minimize the risk of accidents.

Contract to be used to engage all workers have specific chapters that describe the employee's rights, working hours, wages, overtime, compensation, and applicable health benefits. The Client has policies that reiterate nondiscriminatory and equal opportunity practices, especially as it pertains to women. Even though the EPC contractor has a corporate internal grievance mechanism, it is not yet part of the Project's ESMS.

The Project uses a powerful document management software, cloud storage and accounting programs integration platform named *UBYQUO* that creates a common working area for contractors, HS supervisors, and construction sites/generation facilities, to exchange documents in a unified environment in a simple, swift, and effective manner.

A “Manual de Gestion de Seguridad y Salud” (Health and Safety manual) has been developed for the Project. This document includes a good framework for HS management as well as conceptual references to evaluation of risk, incident investigation and operational controls. The manual makes special mention of “especially sensitive workers” referring to underage workers and the necessity to comply with local applicable legislation related to child work.

According to the Client’s corporate guidelines, the same safety requirements expected from its employees are also expected from subcontractors.

Based on the information reviewed, there is no evidence at the project level of a procedure for contractors and provider’s evaluation, regarding the EHS aspects.

### **3.3 Resource efficiency and pollution prevention**

The Client has developed the “Manual of Good Environmental Practices on Site.” This Manual discusses preferred management techniques or work patterns, with the objective to raise worker and management awareness, promote a change in attitude and/or behavior to improve environmental performance, and thereby decrease impacts to the environment. As part of the MIA preparation, considerations were given to background ambient conditions, the presence of local communities, the expected Project demand for water and the availability of waste disposal facilities.

At corporate level, measurements of energy consumption, emissions, waste, and discharges for construction and operation activities to analyze their efficiency, are required in order to establish periodic improvement towards minimizing the project’s environmental impact. However, at Project level, a clear Policy or programs for efficient resources use was not evident.

As part of the MIA, Environmental Management Plans in line with host country requirements were prepared and the made commitments with the environmental authorities to implement measures to avoid, minimize, and control the release of pollutants to air, water, and soil were made. The EMP contains basic good practices and actions to manage non-hazardous and hazardous waste, and address consumption, use and storage of chemical products, disposal, noise, atmospheric emissions, dust emissions, and effects on nature and landscape. However, a specific Project-level ESMP including all impact mitigation measures has not been developed.

At corporate level estimations of CO<sub>2</sub> emissions of all operations are mainly related to indirect emissions generated at the electricity plants, consumption at the facilities, offices, and travel by employees to their places of work. Also estimations of ozone-depleting substances and of dust and particles are required. Despite the latter, the Project has not yet provided an estimate of CO<sub>2</sub> emissions for its different phases. With regards to emissions of dust and particles, controls are only established for the construction phase, when tracks are watered to mitigate dust emissions.

### **3.4 Community health, safety and security**

At the time of the evaluation, not all possible risks on community health and safety during the Project life cycle had been considered, nor had preventive and control measures been established accordingly. Risks associated with construction activities did not include those related to transport safety along roads and access corridors, impacts to water quality and quantity, inadvertent development of new vector, and potential for transmission of communicable diseases. In addition, no assessment of potential health associated impacts in nearby localities due to the rapid influx of labor during the Project construction phase.

There at least two ejidatarios whose access route to their parcels will need to change because the access road to the Project will be fenced in. Once the Project's perimeter fence is installed, a different, existing though longer access road will be conditioned for daily access. This change should be consulted and agreed to with the affected ejidatarios in order to prevent undue burden and mitigate the possible economic ramifications of the project's location and access route modification.

The Client will retain the services of a security firm in order to protect their assets. Security personnel will not be armed and will be trained on best practices and proportional use of force. In Mexico, security companies usually establish procedures and provide a record of investigation for every employee including criminal records.

### **3.5 Biodiversity conservation and sustainable management of living natural resources**

As stated before, the Project will be located mostly in modified habitats. Despite the latter, there are some important biodiversity values in both of the proposed Project sites that were assessed at the time of the MIA preparation.

The project site will have a total area of approximately 310 ha, 82% of which will be occupied by solar panels over an area of 247 ha. Approximately 87.6% (271 ha) of the Xoxocotla project site is currently composed of agricultural fields of maize and sorghum, with smaller patches of secondary shrub and lowland vegetation occupying approximately 12.4% (38 ha) of the project site. The project is not located in any nationally protected or internationally recognized areas of conservation importance, Important Bird Area (IBA) or biological corridor. It is located within the important hydrological region: Región Hidrológica prioritaria Río Amacuzac-Laguna de Zempoala.

The project is located within Environmental Management Units (UGA) 189 and 195 of the Regional Ecology Program of the state of Morelos. UGA 189 has a mixed policy of utilization-restoration and UGA 195 requires protection of biodiversity values. The project is compatible with these requirements. Vegetation field surveys were conducted at 9 sites within the project area and 14 points within the SAP (regional area around the project area), focusing mostly within the natural habitat. Fifty-nine plant species belonging to 22 families were documented, none of which are globally threatened, protected under NOM-059-SEMARNAT-2010, or endemic to the area.

The faunal inventory carried out in the Project Area (AP) and the surrounding area (SAP) documented 55 species of terrestrial vertebrates, of which birds was the most diverse with 43 species, followed by mammals with 8 and reptiles with 4 species. One species of iguana, *Ctenosaura pectinate*, is listed as Threatened on NOM-059-SEMARNAT-2010 and is endemic to Mexico. The MIA states that this species is also listed by the global IUCN Redlist of Threatened Species as Critically Endangered (CR) but that is not correct. It has not been evaluated or listed by IUCN. One species of bird, the white-tailed hawk,

*Geranoaetus albicaudatus*, is listed as Protected under the national NOM-059-SEMARNAT-2010 but is not globally threatened (IUCN LC).

Many of the species documented are tolerant to anthropogenic disturbance and are considered common, and were present in both Project Area and broader SAP. The SAP contained a greater number of species associated to a greater vegetation cover such as the coati (*Nasua narica*) and the white back skunk (*Conepatus leuconotus*). Impacts on flora and fauna are predicted to be minor. Two hundred and seventy four hectares of vegetation will be removed but most will be agricultural lands. Vertebrates, especially lizards and small animals will lose some habitat and may lose connectivity to other forested patches.

Mitigation actions include to regenerate the soil and vegetation cover and as much as possible, flora and fauna conservation areas will be left in the area, in areas that are not occupied by solar panels. Natural repopulation of vegetation will be allowed with native flora species that do not reach a height that compromises the functioning of the solar panels. Actions for fauna include typical capture, relocation, and training for employees regarding flora, fauna, as well as a Wildlife Rescue Program. The project will implement an Environmental Monitoring Program to evaluate the status of selected indicators (positive or negative).

Analysis of potential impacts of solar panels on migratory birds and other fauna (e.g., the lake effect) was not included on the MIA nor was the assessment of impacts of fences and transmission lines.

No Biodiversity Management Plan (BMP) was provided despite the fact that the Project's area of influence intersects some natural habitats.

Project impacts on ecosystem services were not specifically discussed in the MIA. However, no major impacts are expected in relation with ecosystem services, since the Xoxocotla site is mostly a modified habitat with little ecosystem service use of the natural habitat. Transmission lines will remain free of vegetation on the right-of-way (ROW), but the growth of native species outside this ROW will be allowed.

#### **4. Local Access to Project Documentation**

The Project has made available all documentation pertaining to the project to official agencies associated with environmental licensing: Secretaría de Energía / Ministry of Energy (SENER), Secretaría de Medio Ambiente y Recursos Naturales / Ministry for the Environment and Natural Resources (SEMARNAT), Comisión Federal de Electricidad / Federal Commission of Electricity (CFE), Centro Nacional de Control de Energía / National Center For Energy Control (CENACE), Comisión Reguladora de Energía / Energy Regulatory Commission (CRE), Secretaría de Comunicaciones y Transportes / Ministry of Communications and Transport (SCT), Comisión Nacional del Agua / National Water Commission (CONAGUA), Instituto Nacional de Antropología e Historia / National Institute Of Anthropology And History (INAH), Secretaria del Trabajo y Previsión Social / Ministry of Labor and Social Welfare (STPS). However, it is not making information available to the general public and the population affected by the project. The Sustainability Policy and information about the Project's Environmental, Social and Corporate Governance – ESG can be accessed via the website: <http://www.x-elio.com/en/sustainability>.

#### **5. Environmental and Social Action Plan (ESAP)**

The Environmental and Social Action Plan (ESAP) is the following:

**Environmental and Social Action Plan (ESAP)**  
**X-Elio - Xoxocotla PV Solar Plant**

ID	ACTION	DELIVERABLE	DEADLINE
<b>PS 1. Assessment and Management of Environmental and Social Risks and Impacts</b>			
1.1	1. Develop and implement a Project-specific Environmental and Social Management System (ESMS) that incorporates all the requirements contained in the Environmental Permit, the Applicable Standards and Policies, and a comprehensive identification of risk and impacts for the Influence area, that has: i) Objectives, indicators, budget, responsibilities & authorities, internal staffing & outsourcing, training and reporting; ii) Policies defining the environmental, health and safety, labor and social objectives and principles for the Project; and iii) Monitoring procedures to guarantee continuous improvement.	1 ESMS with management plans and programs developed, updated and evidence of implementation (handbook and procedures).	1 Prior to closing and thereafter in the Environmental and Social Compliance Report (ESCR)
	2. Obtain the Environment License and the approval of the EIS. Also provide clarification and/or evidence regarding the necessity of a forest characterization through an ETJ in in order to request the change of land use.	2 Environmental Licence, EIS approval ETJ study, if applicable	2 Prior to construction
	3. Develop a Stakeholder Engagement Plan aligned with the stakeholder mapping exercise.	3 Stakeholder Engagement Plan	3 Prior to closing
	4. Develop a Community (external) grievance mechanism.	4 Community (external) grievance mechanism.	4 Prior to closing
1.2	Compile a Project-specific Environmental and Social Management Plan (ESMP) using the Project Environmental Management Plan, the Environmental Management Program of the MIA, and IFC EHS Guidelines, integrating stakeholder mapping findings as reference, considering the risk and impacts identification.	1 ESMP	1 Prior to closing
1.3	Establish and implement an organizational structure, with specific personnel with clear lines of responsibility and authority to implement the ESMS for the projects. Recruit and hire or assign an EHS professional who can oversee and manage EHS and social issues during construction and operations.	1 Organizational structure in place and roles and responsibilities defined.	1 Prior to closing
		2 Evidence that the needed people have been assigned or recruited for each key position of the ESMS.	2 Prior to Closing
1.4	Prepare a specific Emergency and Contingency Plan that includes: i) organizational structure; ii) activation plan; iii) response procedures; iv) training and drills; v) description of potential emergencies; vi) method for reporting / communicating the emergency; vii) responsibilities; viii) incident investigation and follow-up procedures; ix) contact information for emergency and support services; xi) a map of the work place that shows evacuation routes and assembly locations; xii) locations of emergency equipment; xiii) first aid station; xiv) rescue plan evaluation; and xv) periodical revision of the plan.	1 Updated Emergency response and Contingency Plan for the Project	1 Prior to closing and thereafter in the ESCR
1.5	Establish a measuring and monitoring system that includes: i) key risks and impacts of the project on employees, communities and the natural environment; ii) compliance with laws and regulations; and iii) progress in implementation of the management programs. The Project should establish, track and measure key indicators.	1 Environmental and Social Monitoring program	1 Prior to closing and thereafter in the ESCR
<b>PS 2. Labor and Working Conditions</b>			
2.1	1. Prepare Occupational Health and Safety (OHS) Programs for the Project, the EPC and the subcontractors that includes specific HS procedures for each of the significant risks identified.	1 Occupational Health and Safety (OHS) Programs	1 Prior to closing
	2. Develop an adopt an internal grievance mechanism, to be implemented by Project, the EPC and subcontractors;	2 Internal grievance mechanism	2 Prior to closing
	3. Prepare OHS risk identification and management measures to be incorporated in the Project Management Plans as well as OHS requirements, incorporated as part of EPC contractual clauses and contractor requirements	3 Updated Project Management Plans	3 Prior to closing

	4. Prepare a training program in OHS for workers and subcontractors.	4	EHS Training programs and schedules	4	Prior to closing
2.2	Extend a safe and healthy work environment. Include in the EPC's and subcontractors contracts provisions and obligations for the workers to meet the OHS requirements of the Project.	1	Copy of the contract models	1	Prior to closing
2.3	Develop a protocol to identify and hire suppliers according to their potential adverse environmental and social risks along the supply chain.	2	Protocol to identify and hire consultants	2	Prior the execution of the agreement (closing).
<b>PS 3. Resource Efficiency and Pollution Prevention</b>					
3.1	After assessing the baseline, elaborate and adopt a Project-specific efficiency resource use strategy that contains objectives and goals for conserving raw materials, water, and energy consumption; and procedures to reduce or eliminate the non-hazardous and hazardous materials in the Project	1	Efficiency resource use strategy	1	During project life cycle and thereafter in the ESCR.
3.2	Prepare a waste management program that includes domestic, industrial and hazardous refuse, including specific measures for solar panel disposition.	1	Waste Management Plan.	1	Prior to closing and thereafter in the ESCR.
<b>PS 4. Community Health, Safety and Security</b>					
4.1	Conduct a comprehensive identification and assessment of all possible risk and impacts on community health and safety during the Project life-cycle associated with all project activities and establish preventive and control measures within a community health and safety plan including: i) Hazardous Materials Management, ii) Exposure to Disease; and iii) inclusion in activities related to Emergency Preparedness and Response.	1	Community Health and Safety Plan.	1	Prior to closing.
4.2	Prepare an integral Security Management Plan, including risks and impacts identification considering political, economic, legal, military, and social aspects.	1	Security Management Plan	1	Prior to closing.
4.3	Agreement with the affected ejidatarios of access route modification.	1	Agreement	1	Prior to construction
<b>PS 6. Biodiversity Conservation and Sustainable Management of Living Natural Resources</b>					
6.1	Perform impact assessments for: potential impacts of solar panels on migratory birds and other fauna (e.g., the lake effect) and impacts of fences and transmission lines on biodiversity.	1	Impact assessment matrix.	1	Developed within 6 months after the closing
6.2	Prepare and adopt a Biodiversity Management Plan (BMP) to combine and detail all biodiversity mitigation actions for key species with an aim to achieve No Net Loss of Biodiversity for those values.	1	Biodiversity Management Plan (BMP)..	1	BMP Developed in 6 months after the closing. BMP Implemented for life of project according to BMP actions timelines.
		2	Evidence of the implementation of the BMP.	1	In the ESCR
6.3	Prepare and implement a Biodiversity Monitoring and Evaluation Plan (BMEP) to assess the survival of target species in the relocation and refuge areas and to demonstrate No Net Loss of Biodiversity for key species.	1	Biodiversity Monitoring and Evaluation Plan (BMEP) developed.	1	BMEP Developed within 6 months after the closing.
		2	Evidence of the implementation of the BMEP.	2	BMEP implemented for the life of the project. In the ESCR