

Environmental and Social Review Summary (ESRS) New Juazeiro Bifacial PV Power Project – Brazil

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1. General Information of the Project and Overview of Scope of IDB Invest's Review

The New Juazeiro Bifacial Solar Power Project (“the Project”) consists in the design, construction, commissioning and operation of four (4) photovoltaic (PV) plants with a combined capacity of 187 MWp: Juazeiro V, VI VII and VIII¹. The Project will sell its energy on the Brazilian Energy Trade Free Market. Atlas Juazeiro Comercializadora de Energia Ltda. And its four whole owned subsidiaries (“the Companies”) will undertake the construction of this greenfield which will last approximately 12 months and is planned to start in June 2020. The following agreements will be executed for the implementation of the Project: i) engineering, procurement and construction (“EPC”) contracts for the construction of the Photovoltaic Plants and the Interconnection Agreement, and ii) Module Supply agreements. No contractor firm has been appointed to date.

The Project will be located in the city of Juazeiro, Bahia State, Brazil. The planned location is adjacent to an existing and operating project called “Juazeiro²”, owned by the same sponsor, but not financed by IDB Invest. It will be connected to the JUAZEIRO II – CHESF substation through an existing 34,5 / 230 kilovolt (“kV”) transmission line of about 6.5 kilometer (“km”) long. During peak construction, the Project will retain around 680 workers. During operation that number will reduce to 32 workers.

The Environmental and Social Due Diligence (ESDD) process undertook the review of relevant environmental, health, safety and social information, including: i) the Environmental Licenses³ issued by the Instituto do Meio Ambiente e Recursos Hídricos (INEMA) of the State of Bahia; ii) an Environmental Impact Assessment⁴ (EIA); iii) a Social report; and iv) the Companies’ Environmental Management System, among other relevant documents.

The ESDD included a site visit which took place from February 3rd to 5th, 2020 and included meetings with Project’s representatives; workers of the “Juazeiro” project (currently in operation); Companies employees and stakeholders; the chief of the Environmental Protection Department of Juazeiro Municipality and local communities’ representatives. In addition to IDB Invest’s Environmental and Social Officer, technicians from DFREIRE Consultoria e

¹ Central Solar Fotovoltaica Juazeiro V -56,7 MW, Central Solar Fotovoltaica Juazeiro VI -63,0 MW, Central Solar Fotovoltaica Juazeiro VII -18,9 MW e Central Solar Fotovoltaica Juazeiro VIII 15,2 MW.

² Central Solar Fotovoltaica Juazeiro I, II, III and IV.

³ Licenças de Instalação (LI): LI 20.000, LI 20.001, LI 20.002 and LI 20.003 all dated of January 2020. See documents disclosed on this website.

⁴ Estudo Ambiental para Atividades de Médio Impacto – EMI, Complexo Solar Fotovoltaico Juazeiro, BIOCONSULTORIA Gestão e Licenciamento Ambiental, 2019. See document disclosed on this website.

Planejamento, an independent environmental and social consulting firm, participated in the site visit.

2. Environmental and Social Categorization and Rationale

The Project has been classified as a Category B operation under IDB Invest’s Environmental and Social Sustainability Policy, given that its environmental and social risks and impacts are confined to the Project facilities, are generally reversible, and are capable of being mitigated with easily applied management measures during its construction and subsequent operation. Most important environmental and social risks include: i) possible impacts on the local community due to an increase of vehicular traffic during construction and influx of external workers; ii) risk to the workers’ health and safety, mainly during implementation; iii) risk to loss of cultural heritage⁵ that can be affected by the construction works; iv) impact to water resource; and v) impact to suppression of *caatinga*⁶ biome.

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; v) PS6: Biodiversity Conservation and Sustainable Management of Living Natural Resources; and vi) PS8: Cultural Heritage.

Indigenous people and traditional communities have not been identified in the immediate vicinity of the Project. No involuntary economic and physical displacement will occur. In addition, its area of influence does not overlap with any nationally designated or internationally recognized protected areas.

3. Environmental and Social Context

The Project site, which occupies an area of 527,86hectares (“Ha”), is in the rural area of Juazeiro Municipality, 12 km away from the center of Juazeiro city. The average annual temperature in the region is 26.6 °C, with a low incidence of rainfall, which directly favors the incidence of solar radiation.

The Project area is a typical *caatinga* forest, formed by a small-size tree stratum. However, anthropized areas predominate, representing more than 70% of the landscape.

As per Brazilian Institute of Geography and Statistics⁷, the Juazeiro city population was of 216,707 inhabitants in 2019, with an urbanization rate equivalent to 81.2%. Trade and services activities are the main source of income to the municipality, but the Project area is located close to small rural communities, such as the “Comunidade Serra Azul” and “Projeto Serrote da Batateira.” There are farms with few agricultural activities and some goat and cattle breeding,

⁵ A cultural heritage site was identified on the Project area by the Instituto do Patrimônio Histórico e Artístico Nacional (IPHAN).

⁶ The Caatinga is a heterogeneous biome consisting of a mosaic of shrubs and areas of seasonally dry forest (Leal et al., 2005, Santos et al., 2011), occurring mainly under semi-arid conditions.

⁷ Instituto Brasileiro de Geografia e Estatística (IBGE)

mostly occupied only by weekends. Water scarcity is the common situation in this semi-arid area.

4. Environmental Risks and Impacts and Proposed Mitigation and Compensation Measures

4.1 Assessment and Management of Environmental and Social (E&S) Risks and Impacts

a. E&S Assessment and Management System

The Companies have developed an Environmental, Health and Safety Management System (“ESMS”)⁸ and a corresponding Manual which provides guidance on how to integrate E&S requirements during the lifecycle of all Companies’ projects. However, the Companies will develop and implement an ESMS specific to the solar PV Project construction and operational phases, according with the PS1 and the legal requirements.

b. Policy

The Companies have an environmental policy that has been fully communicated to its employees, is in line with PS1 and contains the Companies’ commitments to: i) Attend and monitor all applicable environmental legislation and standards; ii) ensure that all employees receive information and training relevant to their activities; iii) optimize the use of energy, natural resources and materials; iv) prevent pollution; v) periodically assessment of the ESMS to ensure continuous improvement; and vi) promote dialogue with service providers, suppliers and the community.

c. Identification of Risks and Impacts

The identification and assessment of the direct and indirect environmental and social impacts and risks resulting from the Project’s installation and operation were performed in the EIA. The study highlights as the most important impacts those related to the suppression of vegetation and interference in natural habitats, and those associated to the surrounding communities and cultural heritage, among others. These impacts and risks will be managed and monitored through management and monitoring plans by the ESMS.

The Project is fully compliant with the Brazilian legal environmental requirements. To date, the it has received the following authorizations: i) a Preliminary License (PL), which establishes the feasibility of the project, and ii) four (4) Installation Licenses (ILs), which allows the beginning of the works. The Project will obtain the Operational License (OL), which shall be issued after completion of the implementation works, subject that the Companies meets the IL’s specific requirements.

The ESDD found that a third party had requested the Mining Nacional Agency (MNA) its authorization⁹ to perform mining works (prospecting activities for quartz) in a polygonal inside the Project area. As a response, the Project demanded the stoppage of this request¹⁰

⁸ EHS Management System - RFQ-2019-02-06, February 2019 and the “Atlas Environmental and Social Management System Manual”, February 2020.

⁹ Process ANM SEI 871631/2018 License to perform research works for mining of quartz. (Autorização de Pesquisa de Quartz)z)

¹⁰ Process ANM SEI 48062.973805/2019-4 (Pedido de Bloqueio de Área)

at least where the proposed prospecting activities intersect the Project's area. It is foreseen that the MNA will accept the Project's petition (based on the MNA Code and on Federal Legal Instruction – Parecer PROGE 500/2.008) but may ask it to compensate the value of the preliminary exploratory works already performed (basically exploration drilling activities). By the closing of this report, the MNA had not officially responded to the Project's request.

d. Management Programs

The Companies' environmental and social management programs and plans include the following: i) Deforestation Plan; ii) Flora Rescue and Monitoring Plan; iii) Fauna Rescue and Monitoring Plan; iv) Natural Resources Conservation and Landscaping Program; v) Solid Waste Management Program; vi) Waste Management Program; vi) Silting and Erosion Control Plan; vii) Signaling and Traffic Control Plan; viii) Noise Control and Monitoring Program; ix) Atmospheric Emission and Particulates Monitoring Plan; x) Social Communication and Environmental Education Plan; xi) Training, Capacitation and Engagement Work Force; xii) Risk Management Program; xiii) Emergency Preparedness and Response Plan; and xiv) Archeological Monitoring Program.

e. Organizational Capacity and Competence

The Companies have designated two E&S professionals to oversee the Project's Environmental, Social, Health and Safety (ESHS) aspects, who report directly to the Senior Local Management and to the corporate ESHS Manager. Additional ESHS human resources will be allocated if needed. ESHS training activities during the Project's construction and operational phases will take place according to the specific plan of the ESMS (*ATL 0015/2019 – Training and Engagement Workforce*). The Companies will periodically inform about the training activities.

The Companies will incorporate to the existing organizational ESHS structure, personnel from the EPC contractor to complement the final Project's ESHS system for both construction and operation phases.

f. Emergency Preparedness and Response

The Companies developed a Risk Management Plan and an Emergency Preparedness Response Plan, both containing the guidelines to manage emergency situations during construction phase of the Project.

The Risk Management Plan identifies the handling of chemical products as one of the most important risks and defines how to mitigate or eliminate their potential risks to workers, surrounding communities and installations by: i) defining the appropriate locations for their storage and handling; ii) verifying the existence of hazardous chemicals; iii) establishing the degree of workers' exposure to such chemicals; iv) conducting periodic audits to verify the conditions of storage and use of chemicals; and v) performing risk analysis to all processes involving the use of chemicals and hazardous substances.

The Emergency Preparedness Response Plan aims at establishing lines of coordinated actions to be followed by the Project's brigades when an emergency occurs. Its specific purposes are: i) to guide and train people and teams responsible for responding to

emergencies; ii) to define the first response actions; iii) to define the human and material resources available; iv) to establish technical and administrative procedures covering the most probable type of accidents that may eventually occur; v) to act in an organized and effective way in emergency situations to neutralize the effects or minimize their consequences; vi) to identify, control and stop emergency situations as soon as possible; and vi) to avoid or minimize the negative impacts of accidents to the communities, the environment, the equipment and installations, and any third parties. Drills will be developed each 6 months during construction.

To fully align with PS1, a site-specific emergency procedure will be developed for the Project's operational phase based on the corporate level ESHS Management System program ¹¹ and taking in to account the methodology described within its procedures, including the necessary drills. The Emergency Plan and Contingency Plan for operational phase shall include at least: i) the identification of potential accident situations associated with natural or non-natural events and with harmful consequences to workers, and general public health; ii) emergency planning and procedures; iii) communication protocols; iv) first-aid procedures; v) the use protective equipment, signaling and training for emergency situations; vi) emergency resources; vii) emergency medical response; viii) worker information on emergency situations; and ix) information to public and authorities.

Also, as required per Brazilian law, the Companies will present the Fire Department Inspection Certificate: "*Auto de Vistoria do Corpo de Bombeiros*" (AVCB) prior the start-up of operations. The fire prevention and protection system to be installed will comply with US National Fire Protection Association (NFPA) standards.

g. Monitoring and Review

Mandatory environmental monitoring programs have been developed and will be implemented, in accordance with the Environmental License's requirements. The progress and effectiveness of such programs will be documented through Monthly Reports. For instance, half-yearly reports will be issued and sent to INEMA, describing the actions carried out during the period related to the implementation of the Environmental Education Program (EEP) and the Social Communication Program (SCP). A Consolidated Final Report will be prepared by the end of the construction phase.

In order to comply with PS1, the Companies will establish procedures to monitor and measure the effectiveness of the Environmental Social and Health and Safety Management System (ESHMS) during the operation phase, as well as the compliance with any legal and contractual obligations and other regulatory requirements. The Companies will also determine Key Performance Indicators (KPIs) to evaluate the effectiveness of the system and take corrective actions when needed.

h. Stakeholder Engagement

¹¹ "Environment, Health & Safety, Security and Loss Prevention (Fire and Natural Catastrophe) Roadmap Standards"

Since the Companies are already operating on site through the existing Solar Photovoltaic Complex Juazeiro I, II, III and IV, it has in place a community relationship established with most of the population affected by the New Juazeiro Solar Complex. In this sense, the Companies have developed an Environmental Education and Social Communication Program to create communication channels with both internal and external stakeholders and establish a good community relationship, through a direct dialogue between the parties involved. This program aims at developing several actions during of the construction phase, including: i) the development of a social baseline; ii) the undertaking of informative sessions with the communities to present the project status and legal compliance; iii) the definition of adequate communication channels with the communities; iv) the development and broadcasting of external communicational material; and v) the organization of ESHS workshops of topics relevant to communities.

To align this program with PS1, the Companies will develop a Stakeholder Engagement Plan (SEP) specific for the Project, that will include: i) a review of all potentially affected direct, indirect and vulnerable stakeholders; ii) the mapping of such stakeholders; iii) a consultation process with them, and iii) an Engagement and Communication Procedure with Stakeholders, with which the Companies will establish the appropriate lines of communication with each group, and provide the foundation for participatory planning, implementation, and monitoring.

i. External Communication and Grievance Mechanisms

During the implementation of the existing projects (Juazeiro I, II, III & IV), the Companies carried out communication activities with the communities to clarify their doubts and handle their complaints through suggestion boxes, a 0800 number (not available at this time), e-mailing and communication through social networks (i.e. WhatsApp). The enhancement these channels and the implementation of others may be necessary for the Project as the site where it will be located is in a rural area with limited to access internet and cellular network connection. Therefore, keeping active the 0800 line will be important, to allow not only members of local communities but any stakeholder to reach the Companies.

In addition, the Companies have developed a corporate External Grievance Mechanism Procedure to allow local communities to present their grievances and complaints. Such mechanism: i) Establishes a procedure to contact the Companies (anonymously or openly) to raise questions, express concerns or submit a complaint; ii) has appointed a person within the Companies as the responsible for receiving, registering and processing all complaints; iii) establishes procedures to record, analyze, categorize, investigate and determine resolution or repair alternatives; and iv) establishes the way to communicate decisions made and actions taken to solve complains.

To fully meet PS1 requirements, the Companies will improve and adapt its existing external grievance mechanism and communication activities, by reactivating the 0800 line and installing signals in strategic points of the site and surrounding areas to inform the people where and how the grievances can be placed.

4.2 Labor and Working Conditions

According to Brazilian labor legislation, workers must undergo technical and ESHS training sessions as a precondition for their hiring. Also, collective bargaining agreements between employees and employer can be agreed beyond the minimum required by law to determine the job level, the minimum wage and hiring benefits. Workers are also entitled to form or freely join Unions¹².

To fully meet PS2 requirements the Companies will establish policies and procedures to manage and monitor the workforce of subcontractors and ensure that Brazilian and international labor and working conditions are met. Consultation mechanisms will also be implemented for these workers.

a. Working Conditions and Management of Worker Relationships

Hiring of local labor is expected and will be prioritized, in order to minimize the mobilization of workers from other locations to the Project. Therefore, the Project will not install temporary construction camps and workers will be lodged in existing accommodations available in nearby Juazeiro or Petrolina cities. Thus, as preparation for the Project's construction phase, the Companies will contact the Municipal Departments of these cities to explore their potential labor supply of vis à vis the Project's needs.

At a corporate level, the Companies have developed a Code of Conduct for workers, which includes the principle of non-discrimination due to race, color, gender, sexual orientation, cultural difference, language, religion, national origin, marital status, political opinion, age, disability or veteran status in any personnel practice, including recruitment, hiring, training, promotion conditions and discipline. The Human Resources (HR) and Compliance areas of the Companies are responsible to address and investigate any complaints or grievances related with the violation to such code.

To be fully aligned with PS2, the Companies will develop a Working Conditions and Worker Relationship Plan for the Project, which should include at least: i) general provisions; ii) obligations and rights; iii) contracting policy; iv) working conditions; v) occupational health and safety; vi) local hiring policies; vii) internal grievance mechanism that include contractors and sub-contractors; viii) training activities; and ix) demobilization activities (to be adopted by all contractors and subcontractors for their workers).

The Companies will also develop a Local Hiring Policy that sets a minimum local hiring target and guarantee good conditions, including the definition of suitable locations for workers accommodation and housing. This policy, which will describe relevant information to manage expectations from local communities such as available positions, types of jobs, required qualifications and skills, and job duration; will be included in the EPC Contract.

A Retrenchment Plan will also be required in the EPC Contract in order to ensure measures for worker demobilization, especially after expected peak of the construction works.

¹² Sindicato dos Trabalhadores nas Indústrias da Construção de Estradas, Pavimentação, Obras de Terraplanagem e Montagem Industrial do Estado da Bahia - SINTEPAV-BA

The Companies will carry out informative sessions with workers (direct and indirect employees) and educational workshops to explain the Grievance Mechanism. Complaints boxes will be installed on site during construction site (both for direct and indirect employees) and a complaints form will be available for download from the Companies' website.

b. Protecting the Workforce

Contracts signed between the Companies, its subcontractors, and employees must comply with local and international labor legislation that regulates, among other aspects, the duration of the workday, schedules, overtime, paid rest days, minimum remuneration, family allowance, legal bonuses, and the minimum aspects of occupational health and safety at work.¹³ No evidence of child labor or forced labor was detected during the ESDD process.

c. Occupational Health and Safety

As per the Brazilian Legislation and ILO requirements¹⁴, the Companies have developed an Environmental Risk Prevention Program and an Occupational Health Medical Control Program, among other health and safety programs. A Safety Engineering and Occupational Health Program¹⁵ will be developed according to the risk exposure level and the total number of employees of the Project. For the operational phase, the Companies will produce and adopt a Project-specific occupational health and safety plan that will identify and evaluate the most important risks and hazards to workers during that phase.

As a complement, the Companies will develop specific procedures to oversee and monitor occupational health and safety during construction phase, including subcontractors' workers. Special measures will be considered to protect workers from solar and dust exposure such as ensuring the use personnel protection equipment and requiring constant hydration during the execution of civil works as well as during the operation of the plant. The EPC contractor will establish an Internal Committee for Accident Prevention¹⁶ where employees can report expose risk or inappropriate or unsafe work conditions.

d. Workers Engaged by Third Parties

The Companies' ESMS Manual imposes the same safety requirements on its employees as it does on its subcontractors. Thus, during construction works, the Companies will ensure that the EPC meets the EHS standards, such as: i) good conditions and location for workers accommodation and housing; ii) educational activities related to drug prevention and sexually diseases transmitted diseases; and iii) workers demobilization measures.

¹³ Brazil is a signatory of International Labor Organization conventions and international treaties related to workers' rights, including Convention No. 29 on forced labor, Convention 98 on worker's organizations, Convention 103 on maternity protection, Convention No. 105 on the abolition of forced labor, Convention No. 138 on minimum age and Convention No. 182 on the worst forms of child labor.

¹⁴ Norma Regulamentadora (NR) of the Ministry of Labor, Federal Decree No. 3214/78

¹⁵ Serviço Especializado em Segurança e Medicina do Trabalho (SESMT)

¹⁶ According to Regulatory Standard 5 of Brazilian Ministry of Labor.

e. Supply Chain

The Companies' ESMS Manual requires to monitor the primary supply chain¹⁷ on an ongoing basis in order to identify any significant changes and if new risks are identified, take appropriate steps for mitigation.

4.3 Resource Efficiency and Pollution Prevention

a. Resource Efficiency

Although the Project will not be a significant source of GHG Emissions, it will keep an inventory of direct and indirect emissions (associated to the transportation of goods and products and the facilities for construction of panels and spare parts).

Water consumption is critical due to scarcity of the resource in the Project area. During the construction phase, approximately 930 m³/month will be trucked in for road irrigation (dust control) and 34,58 m³/m for human consumption. During operation, water for human consumption is estimated in approximately 17,55 m³/month of plain water and 0,5 m³/m of mineral water. Both types of water will be supplied by trucks.

The Companies will develop measures to improve water management and minimize its consumption.

b. Pollution Prevention

During the implementation phase, solid waste will be generated from the activities related to civil works and other common human activities (domestic waste). Therefore, as part of the ESMS the Project has developed specific procedures¹⁸ to manage non-hazardous and hazardous waste resulting from civil and installation works, that follows Brazilian Technical Standards (NBR), and has guidelines for waste: i) segregation, ii) reduction; iii) recycling and iv) composting.

The Project will provide chemical toilets whose maintenance will be carried out by a specialized and duly licensed company.

During the Project's operation phase, the generation of waste will be related only to domestic waste and to that produced by the maintenance of the PV plant, such as: i) non-recyclable waste; ii) metal; iii) cardboards; iv) plastic; v) organic waste; vi) reused oil and greases; vii) contaminated wastes; and viii) unserviceable PV panels. However, to fully comply with PS3, the Project will revise the existing waste management plan for the operation phase considering the life cycle and the disposal procedures of solar PV panels.

4.4 Community Health, Safety and Security

a. Community Health and Safety

¹⁷ Supply chain is composed by producers of photovoltaic panels and spare parts; metallic structures and concrete productors, among others.

¹⁸ ATL - 0014/2019 – Solid Waste Management Program (Plano de Gerenciamento de Resíduos Sólidos – PGRS) and Civil Construction Waste Management Program (Programa de Gerenciamento de Resíduos da Construção Civil – PGRSCC);

Impacts associated to construction activities, such as: i) heavy transportation along roads and access routes, ii) reduction to water quality and quantity; iii) potential transmission of communicable diseases (i.e. respiratory and sexually transmitted infections); iv) potential drug and alcohol consumption increase; and v) gender violence resulting from the influx of external labor; can pose negative impacts from the Project to surrounding communities health.

During the installation phase, a greater volume of trucks, buses and automobiles will be generated. Since access roads to the Project and neighboring the communities are not paved, it is highly likely that during heavy rainfalls mud and puddles are created, causing unsafe conditions for traffic. Although this is a preexisting situation, the increase of the flow of trucks and the weight of the loads can aggravate it.

During the field visit to the Baixa do Umbuzeiro community, most of the people complained of the increase of dust they experienced during the installation of the existing PV solar plant¹⁹ that is adjacent to the Project since it not only produced domestic inconvenience (appearance of dirt or dust on clothes and homes), but also deteriorated the air quality and generated respiratory problems on the population.

Traffic may also increase the probability of accidents due to poor roads' conditions and signaling. To mitigate these impacts, the Project developed the Traffic Signaling and Control Program, which includes the following provisions: i) signaling the existence of emergency works or situations; ii) speed regulations for light and heavy vehicles; iii) reorganization of vehicle flows next to the construction site, to avoid conflicting movements and accidents and minimize congestion; iv) dissemination of correct, clear and standardized information to road users (workers and surrounding communities); and v) control of vehicle traffic schedules, in order to mitigate discomfort, especially at night.

The Companies will ensure that EPC contractor will develop a Project-specific traffic management plan, which will identify the most important potential risks associated with traffic increase during construction. Also, the Companies will develop procedures to monitor and oversee directly the EPC contractor's routes and days of load movement. For operational phase, the Companies will develop a Project-specific traffic management plan, which will identify potential risks associated with traffic increase during this phase.

The Project developed a Risk Management Program (RMP) and an Emergency Preparedness and Response Plan (EPRP). The main purpose of the RMP is to outline the guidelines for carrying out the management of chemical products in order to mitigate or eliminate potential risks for workers, surrounding communities and structures of the project. The main purpose of the EPRP is to establish lines of coordinated actions to be followed by the Project's action group when an emergency occurs.

b. Security Personnel

The Companies informed that security services in place don't use armed personnel to perform the surveillance. However, the Project will prepare and implement a specific

¹⁹ Juazeiro I, II, III and IV

security forces management plan using as reference the IFC's Good Practice Handbook Use of Security Forces: Assessing and Managing Risks and Impacts.

4.5 Biodiversity Conservation and Sustainable Management of Living Natural Resources

a. General

The project area is characterized by being a typical caatinga forest (30% of the total area) predominantly dense shrubs with emerging trees, combined with converted agricultural land (70% of the total area). The flora baseline of the EIA shows that in the remaining caatinga area the following species was most frequently observed: i) the Shaving Brush Tree (*Pseudobombax simplicifolium*); ii) the mandioca-brava (*Cnidoscolus quercifolius*); iii) the "catingueira rasteira" (*Poincianella microphylla*); iv) the myrrh or "umburana de cambão" (*Commiphora leptophloeos*); v) the nettlespurge or "pinhão" (*Jatropha mutabilis*); vi) the "mata pasto" (*Senna martiana*); vii) the powder puff plant or "carqueja" (*Calliandra depauperate*); viii) the red jurema (*Mimosa tenuiflora*); ix) the black jurema (*Mimosa ophthalmocentra*); and x) the angico preto (*Anadenanthera colubrina var. cebil*). However, only the angico preto is classified as vulnerable or threatened with extinction by International Union for Conservation of Nature ("IUCN") Red List of Threatened Species and by the Convention on International Trade in Endangered Species of Wild Fauna and Flora ("CITES").

The following species of local fauna, classified as vulnerable or threatened with extinction by the IUCN Red List of Threatened Species and by the CITES, were identified: i) the jaguarundi or "gato-mourisco" (*Puma yagouaroundi*); ii) the brocket deer or "veado-catingueiro" (*Mazama gouazoubira*); iii) the American ostrich or "ema" (*Rhea americana*); iv) the Blue-winged macaw or "maracanã-verdadeira" (*Primolius maracana*); v) the White-banded Tanager or "cigarra-do campo" (*Neothraupis fasciata*); and vi) the white-browed guan or "jucucaca" (*Penelope jacucaca*).

b. Protection and Conservation of Biodiversity

The Companies developed two programs aimed at protecting and restoring local flora: (i) Flora Deforestation and Rescue Plan²⁰; and (ii) Natural Resources and Landscape Conservation Program, aimed at managing the Legal Natural Reserve (LNR) and Permanent Preservation Areas (APP).²¹

Additionally, to protect and monitor local fauna, the Companies have also two programs: (i) Fauna Monitoring Program; and (ii) Displacement and Fauna Rescue Program, which defines the rescue actions, screening and rehabilitation procedures for captured animals, as well as their subsequent reintroduction in areas suitable for release and destination of biological material to an accredited institution.

²⁰ Which contains guidelines for carrying out deforestation and clearing of vegetation in the area to be intervened; includes procedures to use the wood material and minimize impacts on flora; and has measures to undertake the rescue of specimens.

²¹ PPA or APP (as per Portuguese acronym) it's a mandatory buffer of native vegetation (usually along rivers or any other water bodies) that must remain preserved of human activities.

c. Modified, Natural and Critical Habitat

There are no Environmental Conservation Units or areas under an environmental protection regime, and no damping zones for Conservation Units have been identified in the Project site.

The Project will not intervene any critical habitat. The planting areas that aims at compensating the suppression of the caatinga biome respect the limits of the APPs along the watercourses.

4.6 Cultural Heritage

Even though the “*Sítio Carranca*”²² archeological site called is within the Project area, the works will not touch it. Notwithstanding, as per request of the National Historical and Artistic Heritage Institute (IPHAN)²³, the Project developed an Archaeological Heritage Management Program to protect such site. The program contains actions for: i) the recovery of materials, such a chance find occur; ii) monitoring of areas with potential archaeological fragments; and iii) the promotion and protection of the identified places for the cultural expressions of the Afro Brazilian religions since part of the Project area is used for sporadically religious rituals.

According to the Brazilian legislation, the Project must include actions to safeguard the memory of the communities impacted by the construction of the new Complex, especially regarding the local religious manifestations. Thus, the Companies will perform the following activities to be fully compliant with PS8: i) implement the culture heritage management and rescue program, approved by IPHAN; ii) develop a baseline study to help define measures to protect the Afro Brazilian religions manifestations; and iii) execute an Stakeholder Engagement Program, whose objectives will be to perform educational activities through oral interviews, exchange of knowledge with communities to define the best procedure to allow religious rituals of the African matrix religions in the area. These actions will be performed by a professional specialized in afro-Brazilian history and culture together with representatives of the afro Brazilian communities.

5. Local Access of Project Documentation

General information about the Companies and the existing Juazeiro project can be accessed via website. (see <https://www.atlasrenewableenergy.com/en/projects/juazeiro-solar-plant-bahia-brazil/>).

6. Environmental and Social Action Plan

The table below summarizes the content of the Environmental and Social Action Plan (ESAP):

²² “Sítio Carranca” is related to a “sertanejo” occupation (a typical countryside community in this region) at the beginning of XX century.

²³ Technical Opinion No. 13/2019 - IPHAN-BA/COTEC IPHAN-BA/IPHAN.

New Juazeiro Solar, Brazil
Environmental and Social Action Plan (ESAP)

No.	Action	Product / Deliverable	Anticipated Completion Date
PS1: Assessment and Management of Environmental and Social Risks and Impacts			
1.1.	Develop a specific Environmental and Social Management System (ESMS) applicable to Project, including the requirements contained in the EIA and the Installation Licenses (ILs). The system shall consider construction and operational phases.	<ol style="list-style-type: none"> ESMS (handbook and procedures) including management plans and programs developed for <u>construction phase</u>. ESMS (handbook and procedures) including management plans and programs developed for <u>operational phase</u>. 	<ol style="list-style-type: none"> 30 days prior to start construction phase and thereafter, in the Environmental and Social Compliance Report (ESCR). 30 days prior to start operational phase and thereafter in the ESCR.
1.2	Obtain the blockage of mining rights for the Project area from the Mining National Agency (MNA) and compensate the third party, if applicable.	<ol style="list-style-type: none"> Document of blockage of mining rights. Proof of compensation to the third party, if needed. 	<ol style="list-style-type: none"> Prior to start operational phase. Prior to start operational phase.
1.3	Establish and implement the ESHS organizational structure for the construction phase of the Project including: i) specific personnel with clear lines of responsibility and authority to implement the ESHS system; and ii) specific personnel to deal with health and safety issues, as determined in Brazilian Regulations.	The Project's Organizational structure.	30 days prior to start construction phase.
1.4	Submit the ESHS EPC Contractor's organizational charter.	The EPC's Organizational structure.	15 days prior to start construction phase.
1.5	Plan and implement the training activities for ESHS personnel's competencies and experiences, to comply with national laws and applicable PS, for both construction and operational phases.	ESHS training matrix, including an overview of the skills that are required for the team.	30 days prior to start operational phase
1.6	Prepare a specific Emergency Plan and Contingency Plan for operational phase, including at least: (i) identification of potential accident situations associated with natural or non-natural events and with harmful consequences to workers, and general public health; (ii) emergency planning and procedures; (iii) communication; (iv) first-aid procedures and equipment; (v) protective equipment, signaling and training for emergency situations; (vi) emergency resources; (vii) emergency medical response; (viii) worker information on emergency situations; (ix) information to public and authorities; and (x) simulations provisions.	Emergency Response and Contingency Plan for the operational phase.	30 days prior to start operational phase.
1.7	Present the Fire Department Inspection Certificate "Auto de Vistoria do Corpo de Bombeiros – AVCB. The fire prevention and protection system to be installed also needs to comply with international standards (NFPA norms).	Fire Department Inspection Certificate (AVCB).	30 days prior to start operational phase.
1.8	Present evidence of implementation of E&S monitoring programs and define Key Performance Indicators (KIPs) in order to evaluate the effectiveness of the programs for the construction and operational phases.	E&S monitoring reports and KPIs for the construction and operational phases.	With each ESCR.

No.	Action	Product / Deliverable	Anticipated Completion Date
1.9	Develop and implement a Stakeholder Engagement Plan (SEP), that includes: i) identification and mapping of all potentially affected direct, indirect and vulnerable stakeholders; ii) protocols for public consultation; and iii) procedures for Stakeholder Engagement and Communication to establish the appropriate lines of communication with each group and provide the foundation for participatory planning, implementation, and monitoring.	<ol style="list-style-type: none"> 1. Stakeholder Engagement Plan (SEP). 2. Reports of SEP implementation 	<ol style="list-style-type: none"> 1. 30 days prior to start construction phase. 2. With each ESCR.
1.10	Provide documented evidence of public consultation and information disclosure.	Evidence of public consultation and Project information disclosure.	15 days prior to start construction phase
1.11	Improve external grievance mechanism and communication activities, including 0800 channel and installing signaling in strategic points of the site and surrounding area.	<ol style="list-style-type: none"> 1. Updated External Communication and Grievance Mechanism. 2. Activation of the 0800-phone line and signaling installation. 	<ol style="list-style-type: none"> 1. 30 days prior to start construction phase and thereafter in the ESCR. 2. 15 days prior to start construction phase.
PS2: Labor and Working Conditions			
2.1	Develop and adopt (including contractors and subcontractors) a project-specific employment plan including at least: i) general provisions; ii) general duties and rights; iii) external and local hiring policies; iv) working conditions; v) occupational health and safety; vi) internal grievance mechanism including contractors and sub-contractors; vii) workers accommodation and housing; and ix) demobilization activities.	<ol style="list-style-type: none"> 1. Project-specific employment plan 2. Copy of the section of the contracts where contractor and subcontractors are bond to adopt the employment plan 	<ol style="list-style-type: none"> 1. 30 days prior to the start of the construction phase. 2. 30 days prior to the start of the construction phase
2.2	Develop procedures to oversee and monitor occupational health and safety for construction & operation phases that includes workers and third parties as well as the following aspects: i) measures to reduce occupational risks; ii) procedures required by Brazilian legislation; iii) inspection of personal and collective protection equipment; iv) inspections of firefighting equipment; v) procedures to prevent, monitor and investigate accidents; vi) monitor training activities; vii) performance indicators; and viii) audit and inspection program.	<ol style="list-style-type: none"> 1. Occupational Health and Safety Management Plan for construction phase. 2. Occupational Health and Safety Management Plan for operational phase. 	<ol style="list-style-type: none"> 1. 30 days prior to start construction phase. 2. 30 days prior to start operational phase and thereafter in the ESCR.
2.3	Include provisions in the EPC and O&M contracts to ensure they meet with E&S standards.	<ol style="list-style-type: none"> 1. Copy of the sections of the EPC contract where E&S standards are described. 2. Copy of the sections of the O&M contract where E&S standards are described. 	<ol style="list-style-type: none"> 1. 30 days prior to start construction phase. 2. 30 days prior to start operational phase.
PS3: Resource Efficiency and Pollution Prevention			
3.1	Develop a resource efficiency program specific for the Project, for the construction and operation phases including: i) water consumption management data and ii) key performance indicators during operation phase.	<ol style="list-style-type: none"> 1. Project resource efficiency program and evidences of implementation for construction phase. 2. Project resource efficiency program and evidences of implementation for operation phase. 	<ol style="list-style-type: none"> 1. 30 days prior the construction phase and thereafter in the ESCR. 2. 30 days prior the operation phase and thereafter in the ESCR.

No.	Action	Product / Deliverable	Anticipated Completion Date
3.2	Develop and adopt a pollution prevention and waste management programs for the Project construction phase that includes: i) hazardous materials handling and ii) wastewater management.	1. Pollution prevention program and waste management program for construction phase.	1. 30 days prior the construction phase and thereafter in the ESCR.
3.3	Update and adopt the existing pollution prevention and waste management procedure for the operation phase including provisions for the disposal of solar PV panels.	2. Pollution prevention program and waste management program for operation phase.	2. 30 days prior the operation phase and thereafter in the ESCR.
3.4	Develop and implement a Project specific procedure to estimate GHG emissions by the Project.	Project specific procedure to estimate GHG emissions and implementation.	60 days after signing the loan agreement and thereafter in the ESCR.
PS4: Community Health, Safety and Security			
4.1	Develop and adopt a Project specific traffic management plan, which identifies potential risks associated with traffic increase during construction and procedures to monitor and oversee directly EPC routes and days of load movement.	1. Project specific traffic management plan. 2. Evidence of the plan's implementation.	1. 30 days prior to the start of the construction phase. 2. Periodically in the ESCR.
4.2	Develop a Project specific traffic management plan which identifies potential risks associated with traffic increase during operation phase.	1. Project specific traffic management plan for operation phase. 2. Evidence of plan's implementation.	1. 30 days prior to the start of the operation phase 2. Periodically in the ESCR
4.3	Develop and implement a project-specific Community health, safety and security plan for construction phase including a comprehensive site-specific identification and assessment and establish preventive and control measures.	1. Project specific Community health, safety and security plan. 2. Evidence of its implementation	1. 30 days prior to the start of the construction phase 2. Periodically in the ESCR.
4.4	Prepare and implement a Project specific security forces management plan using as reference the IFC's Good Practice Handbook Use of Security Forces: Assessing and Managing Risks and Impacts.	1. Project specific security forces management plan and evidences. 2. Evidence of plan's implementation.	1. 60 days after signing the Loan Agreement. 2. Periodically in the ESCR.
PS6: Biodiversity Conservation and Sustainable Management of Living Natural Resources			
6.1	Develop and adopt a biodiversity management plan including mitigation measures and monitoring activities during construction and operational phase, specially to flora and fauna classified as vulnerable or threatened with extinction or that can be impacted directly or indirectly by the Project.	1. Biodiversity management plan. 2. Evidence of its implementation	1. 30 days prior to start construction phase. 2. Periodically in the ESCR.
PS8: Cultural Heritage			
8.1	Develop and implement the culture heritage management and rescue program, approved by IPHAN.	1. Culture heritage management and rescue program. 2. Evidence of the program's implementation.	1. 30 days prior to start construction phase 2. Periodically in the ESCR.
8.2	Develop a baseline study to help define measures to protect the Afro Brazilian religions manifestations.	Afro Brazilian religions manifestations study	Prior to the first disbursement.
8.3	Develop a procedure to allow religious rituals of the African matrix religions in the area. The procedure will be developed by a professional specialized in afro-Brazilian history and culture jointly with representatives of the afro Brazilian communities	Procedure to allow the religious rituals on the project site area	Prior to the first disbursement and thereafter in the ESCR.