

Lucayas Solar Power Limited – THE BAHAMAS Environmental and Social Review Summary (ESRS)

Original language of the document: English
Revision's cut-off date: September, 2021

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

The proposed operation consists of the financing of the development, construction, operation, and maintenance of an 11 Mega-Watt peak (“MWp”) photovoltaic (“PV”) solar farm in Freeport, Grand Bahama, The Bahamas. Solar PV arrays and interconnection facilities (together an “Installation”) will be developed in two locations within Freeport (the “Project”). The size and locations of the Installations are: (i) a 4.98 MWp solar array in Devon and (ii) a 6.01MWp solar array in Fairfield. The construction period is expected to be no longer than 12 months. Lucayas Solar Power Limited (“LSP” or the “Company”) will contract as the Engineering, Procurement and Construction (“EPC”) for the Project a consortium formed by Ventus Ingenieria SRL and Osprey Construction LTD (together the “EPC Contractor”) and it will be also in charge of its Operations and Maintenance (“O&M”) phase. The Project will be grid-tied, and the off taker will be the Grand Bahama Power Company (“GBPC”).

Due to the travel restrictions imposed by the COVID-19 pandemic, the Environmental and Social Due Diligence (“ESDD”) was done remotely. During this process, IDB Invest held conference calls and exchanged documentation with the Company’s representatives, to assess the current environmental and social performance of the Project, identify potential gaps, and develop an Environmental and Social Action Plan (“ESAP”) to close such gaps. The review assessed the Project’s compliance with applicable environmental and social (“E&S”) national laws, regulations and permits, and IDB Invest’s Environmental and Social Sustainability Policy.

2. Environmental and Social Categorization and Rationale

The Project has been classified as a Category B operation according to IDB Invest’s Environmental and Social Sustainability Policy since it will likely generate, among others, the following impacts: (i) increase in occupational health and safety (“OHS”) risks during construction; (ii) life and fire safety (“L&FS”) risks during the operation of the Project; and (iii) generation of hazardous waste at the end of panels’ life cycles. These impacts are deemed to be of low to moderate intensity and can be reduced or managed by the implementation of mitigation measures.

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, and (iv) PS4: Community Health, Safety, and Security.

3. Environmental and Social Context

The Installations will cover a total 26.7 acres at both sites and involve the construction of ground mounted structures of 10,179 solar PV modules at Devon and 12,267 solar PV modules at Fairfield in the city of Freeport, the capital of Grand Bahama. Freeport sits on the western end of the island. Both Installations will be on undeveloped land at the northeastern outskirts of the city. The Fairfield site is zoned for Light Industry and is south of the Grand Bahama Airport. The Devon site is un-zoned and lies west of the Fortune Hills Golf Course. Both Installation sites are south of the Grand Bahama Highway and are 3.34 miles apart. Neither Installation site is in densely populated areas.

Pine woodland forest will be cleared and graded to construct both Installations, and an ingress and egress will be constructed for the Fairfield Installation site. Neither Installation intersects any important biodiversity area, protected area, or forest reserve. The Project will be the first commercial renewable energy project in The Bahamas and will expand the generating capacity of electricity provided by GBPC, while reducing the city's dependence on petroleum based fuels.

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

4.1 Assessment and Management of Environmental and Social Risks

The Environmental Statement ("ES") prepared for the Project includes: (i) a description of existing E&S conditions, (ii) an overview of potential adverse impacts from construction and positive impacts (post-construction), (iii) the local regulatory E&S framework, (iv) an Environmental and Safety Policy; and (v) an Environmental Management Plan ("EMP"), among others. The EMP is Project specific and includes: (i) an Integrated Management Policy, (ii) the organizational structure and roles and responsibilities, (iii) an identification of environmental aspects and control measures, and (iv) an outline of several E&S management programs, among others. The Company's employees and contractors are required to abide by the policies and procedures outlined in the ES.

According to local regulations,¹ a construction building permit and commercial license from the Grand Bahama Port Authority ("GBPA") are required for the Project. LSP will identify and acquire all outstanding permits and licenses necessary for Project construction and operation.

4.1.a E&S Assessment and Management System

The Project has various E&S elements (policies, programs, and procedures) forming a basic Environmental and Social Management System ("ESMS"). The core of these is the Occupational, Health, Safety ("OHS") Plan for the Project. The Company will further develop its ESMS to ensure its policies and procedures are tailored specifically to this Project.

¹ Regulations for Town Planning and Development, Grand Bahama Port Authority Limited (2014).

4.1.b Policy

The Company's Environmental and Safety Policy provides the environmental and social objectives and principles that guide the Project to achieve environmental and social performance. It includes commitments to comply with applicable local laws² and international regulations.

4.1.c Identification of Risks and Impacts

According to the Project's ES and EMP, potential E&S impacts include: (i) dust emissions from vegetation clearing, (ii) production of solid wastes during construction, (iii) increase in vehicular traffic, (iv) vehicular emissions of combustion gases, (v) generation of hazardous wastes (oils and fuel scraps), (iv) sanitary wastes, (v) noise emissions from machinery, vehicle and equipment use, and (iv) socio-economic benefits to the public, among others. As part of its ESMS, the Company will develop and implement Project-specific risk and impact matrices.

4.1.c.i Climate Change and Natural Hazard Exposure

Grand Bahama lies within the Atlantic hurricane belt and is impacted by severe storms that regularly plague The Bahamas.³ Both Installation sites are highly exposed to hurricane storm surges and winds. The Company has consulted with the GBPA to secure appropriate Installation sites to minimize hurricane impacts.

The Project also has a moderate exposure to drought and precipitation changes (at the end of the century). As the Project will not be water intensive, impacts from the latter hazards are negligible. The Project's exposure to climate transition risks is low as it supports the country's renewable energy industry. Both Installations will be equipped with weather stations to monitor wind strength and other parameters. The Company is considering the construction of storm drains to minimize flooding. As part of its ESMS and in coordination with GBPC, LSP is preparing a Project-specific Hurricane Plan that will include pre and post-hurricane safety measures.

4.1.d Management Programs

In addition to the OHS plan and EMP, there are several policies and processes to prevent and mitigate E&S risks related to the Project. At the corporate level, the EPC Contractor, has produced and adopted the following: (i) a Code of Conduct guide, (ii) a Human Resources and Management and Training process, (iii) a Moral and Sexual Harassment policy, (iv) a No Alcohol, No Tobacco, No Drugs policy, and (v) a Road Safety policy. The EPC Contractor also has an array of E&S templates that will be adapted to the Project and incorporated into LSP's ESMS. These include processes, matrices and reports for managing: (i) legal requirements, (ii) emergency response, (iii) environmental impacts, (iv) labor risks, (v) incidents and work illnesses, (vi) inspections, (vii) equipment management and maintenance, (viii) personal protective equipment ("PPE"), (ix) waste management and (x) training, among others. The Project's EMP includes

² Including the Health and Safety at Work Act (2006) and the Environmental Health Services Act (2001).

³ Since 2015, The Bahamas has been devastated by four large hurricanes, three of which have been classified as category 5 events, according to Assessment of the Effects and Impacts of Hurricane Dorian in The Bahamas, IDB & ECLAC (2020).

monthly environmental audits and monitoring and reporting mechanisms to address incidents and emergencies and perform investigations and corrective measures.

4.1.e Organizational Capacity and Competency

To manage E&S aspects, the Project is supported by a team comprised of an Environmental and Social Supervisor, a Health and Safety Supervisor and other supervisors at the site level. These individuals are overseen by a Site Manager who reports to a dedicated Project Manager (“PM”). A Quality, Safety and Environment (“QSE”) Manager and a person responsible for Human Resources (“HR”) also reports to the PM at the Project level. Key lines of responsibility are currently well defined and designated under the Project and the Company will appoint a Grievance Officer to manage social aspects under the Project.

4.1.f Emergency Preparedness and Response

The EPC Contractor has a drill report template and an emergency response procedure that includes: (i) scope and types of emergencies, (ii) planning personnel, (iii) responsibilities, (iv) brigades and brigade training, (v) technical resources, (vi) training and dissemination, (vii) inspection matrix, (viii) evacuation plan, and (ix) investigation and reporting, among others. With this procedure as a starting point, LSP will develop and implement a Project-specific Emergency Response Procedure (“ERP”) and include it in the ESMS.

4.1.g Stakeholder Engagement

The Fairfield Installation is closest to Freeport and near the intersection of two major thoroughfares – the Grand Bahama Highway and East Mall Drive. Although public consultations are not typical requirements for commercial solar PV Installations in Grand Bahama, LSP will develop a Project-specific Stakeholder Engagement Plan (“SEP”) tailored to the characteristics and interests of potentially affected communities. The SEP will be part of the ESMS and managed by the Company’s Grievance Officer.

4.1.h External Communication and Grievance Mechanisms

LSP will develop an External Grievance Mechanism (“EGM”) to capture and resolve any concerns or grievances from affected communities. The EGM will be part of the ESMS and managed by the Company’s Grievance Officer.

4.2 Labor and Working Conditions

4.2.a Working Conditions and Management of Worker Relationships

The Company estimates a total of 60 people (5% women, primarily in administrative roles) will be employed during the Project’s construction phase. Seven expatriates and 53 Bahamians will likely be employed. Technical specialists will be supplied directly by LSP and the EPC Contractor, while labor will be sourced locally. During the Project’s operational phase, 4 persons (one of whom will be female) are to be employed. The local workers’ association is the Bahamas Trade Union.

The EPC Contractor has several policies that cover employees' rights, including: (i) a Human Resources Management and Training Process, (ii) a Moral and Sexual Harassment Policy, (iii) a Code of Conduct, and (iv) a No Alcohol, No Tobacco and No Drugs Policy. Labor aspects and conditions are also well regulated in The Bahamas⁴. Using this policy framework, the Company will develop an umbrella HR Policy that sets out its approach to managing its employees and will also disseminate it to all Project workers. LSP will also develop an Internal Grievance Mechanism ("IGM") to capture and resolve any concerns or grievances from employees and workers. The IGM and HR Policy will be part of the ESMS.

4.2.b Occupational Health and Safety

The Project's OHS Plan covers both Installation sites and is applicable to contractors and subcontractors. It identifies: (i) the organizational structure, the roles and responsibilities, (ii) general safety rules, (iii) signage and signaling, (iv) occupational risk assessment, (v) induction and training, (vi) safe work analyses, (vii) work permits, (viii) statistics and indicators, (ix) management of PPE, (x) management of illnesses and workplace incidents, (xi) Emergency Plan, and (xii) COVID-19 Prevention, among others. The Company's ES also includes a list of safety equipment (PPE), and other safety measures (use of fire extinguishers and first aid kits) to be used on the Project sites. As annexes to the OHS Plan, the EPC Contractor has several operating procedures, matrices, and forms and to manage OHS risks on the Project. The OHS Plan and safety measures for the Project are in line with Good International Industry Practice ("GIIP").

4.2.c Supply Chain

The Bahamas is signatory to various International Labor Organization ("ILO") conventions,⁵ including prohibition against child labor and forced labor. The Code of Conduct of the EPC Contractor requires compliance with local labor regulations, and specifically prohibits child labor and involuntary/forced labor. To avoid supporting forced labor through its supply chain, the Company will adopt the Solar Energy Industries Association ("SEIA") Solar Equipment Buyers' Guide and Traceability Protocol.

4.3 Resource Efficiency and Pollution Prevention

4.3.a Resource Efficiency

During the Project's construction phase, the electricity will be supplied by small diesel generators (10 kWh/day). At the operations phase, electricity will be self-sourced from the Project. Approximately 1850 gallons of fuel will be used to power machines required for construction and transportation activities.

4.3.a.i Greenhouse Gases

Given the small size of the Project, greenhouse gas ("GHG") emissions during its construction phase are considered to be non-material and will be practically non-existent during its operation. Within the first

⁴ Employment Act (2006), Minimum Wages Act (2006) and Industrial Relations Act (2006).

⁵ Forced Labour Convention, 1930 (No. 29), Abolition of Forced Labour Convention, 1957 (No. 105), Minimum Age Convention, 1973 (No. 138) and Worst Forms of Child Labour Convention, 1999 (No. 182).

year of operation, it is estimated⁶ that CO₂ savings will be 6,352 ton/year at the Devon Installation, and 7,642 ton/year at the Fairfield Installation.

4.3.a.ii Water Consumption

The primary use of water for the Project will be for human consumption (bottled water), followed by sanitation/hygiene requirements.⁷ LSP will coordinate with the GBPA to install a potable water supply and a shallow well and pump system for both Installation sites. The EMP's Water Resource Management Program requires that wells are installed using authorized suppliers and acquire local authorization, to avoid any impacts to affected communities.

4.3.b Pollution Prevention

4.3.b.i Wastes

The Project is not expected to generate significant quantities of waste. Solid wastes will include debris from land clearance and construction (scrap materials), and waste from packaging (e.g. food). Solid waste will be managed through the local municipal service, and debris from land clearing will either be trucked away for mulching or transported to the local Pine Ridge Landfill. Portable toilets will be used at the Installation sites to collect any human wastes generated, and authorized contractors will manage them. The EMP currently includes several waste programs to manage and dispose of solid waste, construction waste, special and hazardous wastes.

4.3.b.ii Hazardous Materials Management

Small amounts of hazardous wastes (e.g. fuels and oil scraps) may be generated from the Installations, including solar panels that will be replaced during the Project's operation. Solar panels contain heavy metals and are considered hazardous wastes when disposed of. The Company is currently scoping mechanisms to recycle solar PV wastes, including appropriate measures for any wastes to be exported.⁸ LSP will update the EMP to include reuse and recycling procedures for hazardous solar PV wastes for the Project.

4.4 Community Health, Safety and Security

4.4.a Community Health and Safety

Increased traffic from Project construction activities at the Fairfield Installation can potentially affect communities in Freeport. The Devon Installation is in an undeveloped subdivision with only track roads. To safeguard motorists, the Company will install traffic caution signage on the Grand Bahama Highway. The EPC Contractor also has a Road Safety Policy (including a sanction system) that sets out guidelines

⁶ Using 0.73 tons/MWh emissions (diesel-fired power plant), as represented in the Pre-Feasibility Study of the Potential Market for Natural Gas as a Fuel for Power Generation in the Caribbean, IDB (2013).

⁷ Approximately 240,000 gallons in total.

⁸ LSP to follow the Basel Convention on the Transboundary Movements of Hazardous Waste and Their Disposal.

for: (i) vehicle inspections, (ii) car tracking, and (iii) road safety (observing speed limits, seatbelt use and no-handset use). With this Policy as a basis, LSP will prepare and apply a Project-specific Traffic Management Program (“TMP”).

4.4.a.i Infrastructure and Equipment Design and Safety

Following Good International Industrial Practices (“GIIP”), the Project’s PV panel arrays will be mounted on steel frame structures that are designed⁹ to withstand wind loads of up to 180 mph, and extreme wind bursts. Solar panels will be made of monocrystalline silicon cells and tempered glass, able to withstand rain and hail. The structural materials have a warranty of 10 years (or greater). Therefore, the integrity of the structures will not pose safety risks to surrounding communities. The panels will also have anti-reflective coating to reduce glare to any overhead aircrafts.

4.4.a.ii Community Exposure to Disease

Due to the worldwide COVID-19 pandemic, the risk of transmission and infection is possible during construction. Mitigation measures will be addressed in the Company’s COVID-19 Prevention procedure of the OHS Plan.

4.4.b Security Personnel

Security at the Installation sites will consist of daily drive-by patrols by unarmed security. If on-site security personnel are hired by LSP, the Company will use the principles of proportionality and good international practice¹⁰ in relation to hiring, rules of conduct, training, equipping, and monitoring of such workers, and by applicable law. LSP will integrate these security hiring practices into the ESMS and apply it to the Project.

4.5 Land Acquisition and Involuntary Resettlement

4.5.a General

The sites to be used for both Installations are currently owned by the GBPA, but will be purchased by LSP for the Project. Since both plots are unoccupied, no involuntary resettlement nor economic displacement will be induced.

4.6 Biodiversity Conservation and Natural Habitats

4.6.a General

Being that Grand Bahama is one of the four Pine Islands in The Bahamas, the following vegetation species can be found within the Project’s sites: the Caribbean or Yellow Pine (*Pinus caribaea var.*

⁹ Using international standards from the American Society of Civil Engineers (ASCE) 7-05: Minimum Design Loads for Buildings and Other Structures.

¹⁰ Including practices consistent with the United Nation’s (UN) Code of Conduct for Law Enforcement Officials.

bahamensis); the Florida Silver Thatch Palm (*Coccothrinax argentata*); the Sabal or Cabbage Palmetto (*Sabal palmetto*), the Wild Guava (*Tetrazygia bicolor*), the “Five-Finger” or “Chicken's Foot” (*Tabebuia bahamensis*), the Snowberry (*Chiococca alba*), the Love Vine (*Cassytha filiformis*) and the Poisonwood (*Metopium toxiferum*). The Caribbean Pine is a protected tree¹¹ in The Bahamas. The Installation sites have been historically cleared for logging purposes since the 1900s¹² and pine forests have since rebounded, due to the existing regulatory framework.¹³ Due to the nature of the Project, no other viable alternatives within the region exist for development on modified habitat. The Installation sites are not on any protected area or forest reserve. To conserve native vegetation, Company is considering support to existing mangrove afforestation work in Grand Bahama.

4.7 Indigenous Peoples

No Indigenous peoples are in the Project area.

4.8 Cultural Heritage

The ESSD did not identify any archaeological remains or vestiges at the Project sites.

5. Local Access of Project Documentation

The documentation relating to the project can be accessed from the following contact:

Mr. Jorge Marquez (Director), Lucayas Solar Power Ltd.

Phone/Mobile: +59899609574

Email: jorge@soldiercrabtraders.com

Address: Luis Alberto de Herrera 1052, Montevideo, Uruguay

¹¹ Conservation and Protection of the Physical Landscape of The Bahamas (Declaration of Protected Trees) Order, 1997.

¹² N. Sealey (2015) Bahamian Pine Forests, a History of Logging from 1905 to 1972.

¹³ Forestry Act (2014).