INTER-AMERICAN DEVELOPMENT BANK

CHILE

ARICA I SOLAR PHOTOVOLTAIC POWER PROJECT (CH-L1079)

Category B Project

Environmental and Social Management Report (ESMR)

SEPTEMBER 2014

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I. INTRODUCTION

A. Summary Table

1.1

Country:	Chile	
Sector:	Renewable Energy	
Name:	Arica I Solar Photovoltaic Power Project	
Borrower:	Arica Solar Generación 1 Limitada	
Sponsors:	Sky Solar Group	
Project Cost:	Approximately US$102.9 million	
	IDB A-Loan:	Up to US$25.7million
	China Fund Loan:	Up to US$12.9 million
	Other Debt:	Approximately US$33.4 million
Environmental Category:	B	
Project Team:	Elizabeth Robberechts, Project Team Leader (SCF/INF); Rafael Matas (SCF/INF); Jan Weiss (SCF/SYN); Ulrike Aulestia Haarsager (SCF/PMU) and José Luis de la Bastida (VPS/ESG); Supervisor: Jean-Marc Aboussouan (Chief, SCF/INF)	

II. PROJECT DESCRIPTION

A. Project Components

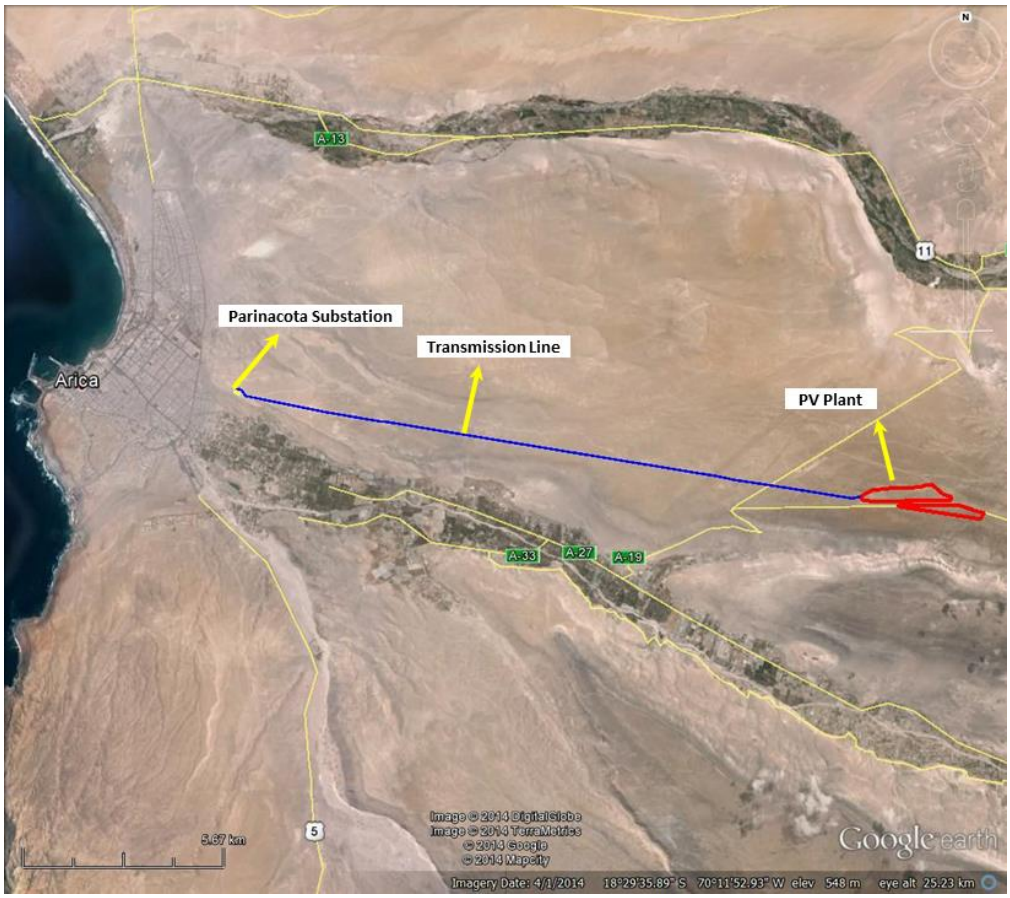
2.1 The Project consists of the construction, operation and maintenance of a 44.46 MW photovoltaic (PV) power plant and its associated facilities, which include the construction of an 18 kilometers (km), 66 kV transmission line (Línea de Alta Tensión 66 kV Pampa Dos Cruces) that will connect to the Parinacota Substation. The Parinacota substation is owned by Empresa de Transmisión Eléctrica (TRANSEMEL). The PV plant is located approximately 26 km east of the city of Arica and 5 km east of the village of San Miguel; and the transmission line is located approximately 4 km east of the city of Arica (Parinacota Substation) and runs within approximately 3 km north of the village of San Miguel at is closest point. The Project is located in the Community of Arica, Province of Arica in the XV Región de Arica y Parinacota, Chile (See Figure 1). The Project will occupy a total area of 176.2 hectares (ha), which includes 54 ha to be occupied by the transmission line, (see Figure 2). The estimated operational life of both the PV plant and transmission line is 35 years.

2.2 The Project encompasses the installation or construction of the following components: i) erection of 148,200 solar photovoltaic panels with a combined capacity of 44.46 MW; ii) construction of a substation in the PV plant site iii) several smaller underground electrical

cables within the Project area; iv) improvement and maintenance of 40 meters (m) access road (10 m wide) exiting the highway Ruta A-19 and within the solar facilities; v) construction of a two-meter high perimeter fence; vi) construction of support buildings, including offices and a temporary worker camp; and vii) construction of an 18 km transmission line with a variable right of way between 14 m and 16 m width to avoid overlapping existing right of ways, 66 kV, erection of approximately 101 electrical towers, to connect the solar facilities to the transmission line of the local operator company.

Figure 1 - General Project Location

Figure 2 - Project Area Map



2.3 Several small buildings and other infrastructure will also be constructed in order to support activities during the construction process and throughout operations. These facilities include prefabricated or modular units to house the invertors, parking areas, showers and lockers for workers, on-site offices, equipment storage area, waste storage area, and hazardous waste storage areas. A large area will be dedicated to materials storage, such as solar panels, electrical cabling, and excavated soils. More precise information regarding various project components for the Project are detailed in Table 1 below, along with other project specific information.

Table 1: Project Component Information

Project Aspect	
Capacity	44,46 MW (148,200 panels)
Energy Generation (annual)	100 GWh
Total Area (Disturbed Area)	176.2 ha (to confirm)
66 kV Transmission Line	Construction of a 18 km transmission line to connect the Parinacota substation
Access Roads	Needs some overhaul of 40 meters access road

Project Aspect	
	from *Ruta* A-19 to the Project site.
Hazardous waste storage	Containers
Water Consumption (PV Solar Facilities)	Construction: Maximum 294 m^3/month – potable water
	Operation: Maximum 39 m^3/month – potable water Maximum 176 m^3/month
Water Consumption (Transmission Line)	Construction: Maximum 105 m^3/month – potable water
	Operation: Maximum 0 m^3/month – potable water Maximum 0 m^3/month
Wastes (PV Solar Facilities)	
Domestic wastes	Construction – 2.94 ton/month
	Operation – 0.39 ton/month
Non-hazardous wastes	Construction – 22.02 ton/month and 846 meters of wire/month
	Operation – no generation
Hazardous wastes	Construction – 0.159 ton/month
	Operation – 0.159 ton/month
Wastes (Transmission Line)	
Domestic wastes	Construction – 1.05 ton/month
	Operation – no generation
Non-hazardous wastes	Construction – 28.43 ton/month
	Operation – no generation
Hazardous wastes	Construction – no generation
	Operation – no generation
Air Emissions (CO_2 reduction) – Estimated	90,043 ton CO_2/year
Number of Workers for the PV Solar Facilities	Construction – 140 people/month (peak)
	Operations – 7 average
Number of Workers for the Transmission Line	Construction – 50 people (peak)
	Operations – 0 (only occasionally 2 people)

B. Environmental and Social Setting

2.4 The Project area, which encompasses 177 ha, including 55 ha to be occupied by the transmission line, lies approximately 26 km east of the city of Arica – Community of Arica, Arica Province, Arica y Parinacota Region –. The site of the solar plant is approximately 1,000 m above mean sea level (AMSL) and is located 40 m far from highway *Ruta A-19.* There is an access road from *Ruta A-19* to the Project site (40 m); this road will need some overhaul to permit constant traffic, mainly during the operation phase. The site is located in an almost flat area in the Atacama Desert Region, which will need to be leveled partly. The route of the transmission line will occupy 14 m of right of

way in one segment and 16 m in two segments and will follow the route of existing transmissions lines. The terrain elevation of the transmission line starts at 1,000 m AMSL in the area of PV plant and ends at 300 m AMSL at the connection point in the Parinacota substation.

2.5 The Project area can be described as a natural desert habitat. Nonetheless, the site has already been impacted by previous human activities related to construction of transmission lines, primarily. Due to very little annual precipitation, the Project area does not support much life plant. No sensitive or protected plant species were identified in the Project area. Also due to the lack of rainfall and vegetation, no animal species surviving in the Project site have been identified. The site visit conducted during the Environmental and Social Due Diligence confirmed the lack of vegetation and wildlife on the site Project's and the surrounding area.

2.6 No protected areas or priority zones for conservation were identified within the Project area. The closest protected area to the Project site is the Bien Nacional Protegido (Protected Area) Lote1 y Lote2 - Alto Poconchile, which is managed by the Ministerio de Bienes Nacionales and is located approximately 1.3 km northern of the PV plant on the *Ruta A-143* between the 11.505 km and 15.543 km, Alto de Poconchile area. This protected area encompasses 1,197.09 hectares, and was created on July-23-2010 by the Ministerio de Bienes Nacionales to preserve, mainly, sensitive flora and fauna species such as the *Eulidia Yarrelli* –Picaflor de arica-, *Liolaemus poconchilensis* –Dragón de Poconchile and the *Tillandsia Marconae* –Clavel del Aire-. During the site visit was confirmed that the Project will not cause any impact on this protected area; additionally, the Project will implement a Reptile Rescue and Relocation Program, in case that any reptile specie found within the Project site during the construction and operational stages is relocated to the protected area.

2.7 During the site visit, it was confirmed the presence of one archeological monument on the PV plant site. This find is a small two-group stone alignment (3 meters long x 1.20 meters wide) with no associated archeological/cultural artifacts. According to the archeological base line, this alignment might have been a temporary shelter structure, and its chronological age has not been determined. Specifically, the *Consejo de Monumentos Nacionales* (CMN) has required isolating and protecting this area (restricted area) to prevent any damage on the structure, and no construction works will be performed on it.

2.8 In the case of the transmission line site, twenty seven (27) archeological finds have been recorded from which twenty five (25) finds are isolated groups of stones (60%) with a group diameter between 0.5 meters and 5 meters, small fragments of ceramic (16%) and few evidences of small stone tools (24%); one (1) find is a cattle drover path; and one (1) find belongs to an approximate 450 square meter-quarry of lithic material. Regarding the chronological age of these finds, 25% of them are Pre-Hispanic, 18% are historic (period after the Pre-Hispanic period) and 56% have not been determined.

2.9 In order to prevent any damage or disturbance on these finds located on both the PV plan and transmission line sites, the CMN has requested to implement a Management and Contingency Plan of Archeological Monuments, which will be managed by an archeologist during the construction and decommissioning stages. The company will

have to send monthly reports to the CMN to supervise preservation of these archeological elements and sites. Additionally, the company has to submit for approval an Archeological Evidence Management Plan to the CMN before starting the construction the transmission line. This plan will include specific and adequate measures to manage known and unexpected finds.

2.9 Based on the current information and due diligence, both the PV plant and transmission line archeological finds do not constitute critical sites under Directive B.9 – Natural Habitats and Cultural Sites.

Social Setting

2.8 The PV plant and the transmission line are located near the city of Arica and the village of San Miguel town. Arica is a city with a population of approximately 189,644 people (census 2012) and is the capital of both the Arica Province and the Arica and Parinacota Region. The main economic activities in this area are those related to the agriculture, fishing and tourism. Both the PV plant and the transmission line are located approximately 26 km and 4 km (closest point) east respectively of this city. San Miguel is a small village (832 people), approximately 4 km south of the closest transmission line point and 5 km west of the PV plant. The community in this village survives on agricultural activities as their main source of income. According to the information provided by the *Corporación Nacional de Desarrollo Indígena* (CONADI) and site visit during the due diligence, no indigenous communities live, use or depend upon the land that will be occupied by the Project. The land on which the PV plan is going to be built belongs to the Government of Chile. SkySolar has obtained a concession from the government to build the Project on this public land. However, it should be noted that this concession is for a fixed 30-year period only. In addition, SkySolar has been granted a right of way to construct the transmission line on government property.

C. Project Schedule and Workforce

2.9 Based on information provided in the Declaración de Impacto Ambiental (DIA) and during the due diligence mission, construction on the Project is scheduled to begin by the end of 2014 with an anticipated eighteen weeks construction period for the transmission line, and an anticipated nine months construction period for the PV plant. Operations are scheduled to commence by the end of the third quarter of 2015. The PV Plant is expected to have approximately 140 workers during the peak of the construction and approximately seven employees will be required during operations to fulfill any maintenance operations required on equipment. In the case of the transmission line, it is expected to have 50 employees during the peak of the construction and occasionally two employees during the operation phase.

D. Alternatives Analysis

2.10 The project did not include a formal report detailing the analysis of alternatives as part of the DIA, nor does the Government of Chile require one. Sky Solar did conduct its own internal procedure to identify several alternatives site locations and a selection process ensued to identify the optimal location. The criteria employed by Sky Solar for the

definition of the sites was to first locate the geographical area of the country which presented optimal conditions for the generation of solar energy (high solar radiation). The company identified possible sites within the Atacama Desert region, which they evaluated against factors such as environmental quality of the land, ownership of the land, proximity to existing a substation, accessibility, distance from human settlements, and alternative uses of land.

2.11 The site selected appear to be ideal as it is: i) Government-owned land with no people living on the land or otherwise utilizing the land; ii) no protected areas are overlapped by the Project site; the closest critical natural habitat, Lote1 y Lote2 - Alto Poconchile, is located approximately 1.3 km northern of the PV plant site; iii) existing roads and bypasses allow easy access without disrupting the lives of community; and iv) the land is not well suited to sustain other uses.

III. COMPLIANCE STATUS AND PROJECT STANDARDS

A. Appraisal Process and Local Requirements

3.1 Law No. 19.300 Ministerio Secretaria General de la Presidencia sobre Bases Generales del Medio Ambiente (9 March 1994), Articles 5-11 (excerpt 7) allow projects determined to have minimal environmental and social impacts to be exempt from preparing an Environmental Impact Assessment (EIA) for the project. These projects must prepare and obtain a Declaración de Impacto Ambiental (DIA). The DIA for the Planta Solar Fotovoltaica Arica I was submitted to the República de Chile - Comisión de Evaluación (CoE) – XV Región de Arica y Parinacota on 05 December 2011; the project was approved and the Resolución de Calificación Ambiental (RCA) was issued by the CoE on 15 March 2012. The DIA for the Planta Solar Fotovoltaica Arica II, 15 MW was submitted to the CoE, XV Región de Arica y Parinacota, on 01 October 2012; the project was approved and the RCA was issued by the CoE on 28 January 2013. The DIA for the Planta Solar Fotovoltaica Arica I, 8 MW Ampliación was submitted to the CoE, XV Región de Arica y Parinacota on 23 May 2013; the project was approved and the RCA was issued by the CoE on 23 August 2013. Finally, the DIA for the Línea de Alta Tensión 66 kV Pampa Dos Cruces was submitted to the CoE, XV Región de Arica y Parinacota on 27 November 2012; the Project was approved and the RCA was issued by the CoE on 18 April 2013.

3.2 In conjunction with the DIA, the Project was also subject to conducting archeological survey within the Project area. The archeological surveys reveal one find on the PV plant site and twenty seven finds on the transmission line track, which were mentioned, previously on this document. Thus, the Project will be required to implement a Management and Contingency Plan of Archeological Monuments, a Chance Find Procedure and contract an archeologist to be present during initial earthworks to ensure the implementation of adequate measures to manage the archeological aspect.

3.3 The Project has concluded the negotiations with the Government of Chile in order to obtain the "Concession Decree" of the land –Project Site-. (*Decreto de Cocesión de Uso Onerosa Directa*). This decree was issued by the *Ministerio de Bienes Nacionales*: on November-12-2012. In the case of the transmission line, the Ministerio de Bienes

Nacionales submitted the authorization for the use of right of way and construction of the transmission line (Autorización para la Constitución de Servidumbre para la Construcción, Instalación y Funcionamiento de la Línea de Transmisión Eléctirica del Proyecto) on March-28-2013

3.4 **Public Consultations.** The Project started with an ongoing informative consultation process on October, 2012. The main objective of this consultation process has been to disseminate information about the Project to obtain feedback from the community and address any community's environmental and social concern related to the implementation of the Project through meetings with indigenous communities organizations - *Programa Orígenes BID- Corporación Nacional de Desarrollo Indígena (CONADI)*; local authorities and organizations such as the Municipality of Arica, Ministry of Education, and *Parinacota*, *Asociación de Empresarios en Arica*, and *Asociación de Industriales en Arica*; disclosure of the Project on local and national media such as newspapers and radio; informative meetings explaining about environmental and social aspects of the Project in public events such as the Feria Exposolar de Arica sponsored by Skysolar in 2012 and 2013; and meetings with the Agencia Regional de Desarrollo Productivo de Arica and Parinacota to develop training programs for young professionals to be implemented during the construction and operational phases of the Project, as well as a big announcement panel at the site of the project installed approximately from October 2012 describing all the essential information of the project to the neighborhood. During the consultation process, the community supported the implementation of the Project since they see this project as an opportunity to improve the environment quality of Arica. No concerns nor complains regarding environmental and social aspects were expressed or reported by the community, during the consultation process.

B. IDB Safeguard Policies

3.4 The Project triggers the following directives of IDB's OP-703 Environmental and Safeguards Policy: B.1 Bank Policies; B.2, Country Laws and Regulations; B.3, Screening and Classification; B.5, Environmental Assessment; B.6, Consultation; B.7, Supervision and Compliance; B.9, Natural Habitats and Cultural Sites; B.10, Hazardous Materials; B.11, Pollution Prevention; and B.15, Co-Financing Operations. The OP-102, Disclosure of Information Policy also applies for this Project as well as the Gender Equality in Development Policy, OP-761. Based on available documentation and observations during the due diligence mission, the OP-710 on Involuntary Resettlement is not triggered for this Project as no resettlement or economic displacement will occur as a result of the Project. The OP-704 Natural and Unexpected Disasters Policy is triggered - with a Low Risk classification - as the Project occurs in an active earthquake area. OP-765 Indigenous Peoples Policy is not triggered as the Project does not affect indigenous communities.

3.5 Table 1, below, summarizes the Project's compliance status with applicable IDB's policies.

Table 1: Compliance with IDB Policies and Directives

Policy / Directive	Applicable Aspect	Compliance Rationale
B.1 Bank Policies	Compliance with applicable IDB policies	The Project is currently in compliance with all applicable IDB policies and directives. The implementation of the ESMP will ensure the Project remains in compliance once construction commences.
B.2 Country Laws and Regulations	Compliance with country laws and regulations	The Project is in compliance with all applicable Chilean laws and regulations. Public Land concession agreements and other permits are already obtained.
B.3 Screening and Classification	Application of appropriate classification	The Project has been screened using the Bank's toolkit and has been classified as a Category B operation.
B.4 Other Risk Factors	N/A	N/A
B.5 Environmental Assessment Requirements	Application of adequate assessment process	In accordance with both Chilean regulations and Bank policies for Category B projects, an Environmental Assessment – *Declaratoria de Impacto Ambiental* (DIA) – was prepared for the Project. The ESMP, in form and substance acceptable to the IDB, will be available prior to first disbursement.
B.6 Consultations	Application of adequate consultation processes	The Project started with an ongoing informative consultation process on October, 2012. The main objective of this consultation process has been disseminate the Project in the community to obtain feedback from the community and address any community's environmental and social concern related to the implementation of the Project
B.7 Supervision and Compliance	Monitoring of borrower's compliance with all Bank's environmental and social safeguard requirements	The Project's ESMP will contain provisions for self-monitoring and supervision, as well as supervision of contractors, in order to maintain a high level of compliance. Additionally, Government entities, as well as the IDB Environmental Safeguards Unit, may conduct their own supervision of the Project. The Project will submit semi-annual compliance reports during construction and annual compliance reports during operation.
B.8 Transboundary	N/A	The Project does not impact neighboring

Policy / Directive	Applicable Aspect	Compliance Rationale
Impacts		countries.
B.9 Natural Habitats and Cultural Sites	Conversion of natural habitat, and archeological sites	The Project site, in the desert of northern Chile, is considered natural habitat. This habitat type is abundant in the area and the site does not contain any protected areas and no sensitive species of flora or fauna under IUCN Red List of Threatened Species have been identified or observed on the site. The project does not present a significant conversion of natural habitat. Some archeological monuments and evidences, one on the PV solar site and twenty seven on the transmission line site, have been found. However, these finds do not constitute critical sites.
B.10 Hazardous Materials	N/A	The project's ESMP will provide a strict waste management program. Due to the nature of the operation, few hazardous materials are stored on-site during construction (minimal amounts of fuel, oil, and lubricants) and no hazardous materials will be stored at the facility during operations. A licensed contractor will be contracted to handle the waste management, both general waste and hazardous wastes.
B.11 Pollution Prevention and Abatement	Pollution control and CO2 emissions	The project's ESMP provides a strict waste management program including a robust recycling program. A certified contractor will be hired to remove wastes from the project site on a regular basis. The project will avoid the country's CO_2 emissions by approximately 90,043 tonnes of CO_2-eq/year (estimated).
B.12 Project Under Construction	N/A	N/A
B.13 Noninvestment and Flexible Lending Instruments	N/A	N/A
B.14 Multiple Phase and Repeat Loans	N/A	N/A
B.15 Co-financing	N/A	To be confirmed

Policy / Directive	Applicable Aspect	Compliance Rationale
Operations		
B.16 In-country Systems	N/A	N/A
B.17 Procurement	N/A	N/A
OP-710 involuntary Resettlement	N/A	No involuntary resettlement or economic displacement will occur as a result of the Project.
OP-765 Indigenous Peoples	N/A	No indigenous communities or peoples will be adversely affected by the Project.
OP-704 Disaster Risk Management	Low Risk	The Project is located in an active earthquake zone; however, the site is located on a desert plain well away from rock fall from the mountains. Minimal, small-scale infrastructure will not be susceptible to significant damage or destruction. The Project ESMP will also contain Emergency and Evacuation Plans.
OP-761 Gender Equality in Development	Avoiding gender discrimination within the Project or as a result of the Project. Providing opportunities for women.	Women will be incorporated into the labor force when feasible; no gender discrimination will occur due the Project. The Project is currently attempting to identify social programs to benefit women.
OP-102 Access to Information	Project information disclosure	IDB will make all relevant Project documentation available on its website.

C. Project Requirements and Standards

3.6 Sky Solar does not have an accredited corporate Environmental Management System (EMS) such as ISO 14001 standards for Environmental Management, or OHSAS 18001 Occupational Health and Safety Management standards; however, Sky Solar will implement an EMS that follows local and international standards such as ISO 14001 and OHSAS 18001 to manage the construction and operational phases of the Project with support of the company SK Ecología S.A. Currently, this company has been supporting Sky Solar to develop de DIAs of the Project as well as obtain the environmental licenses and other environmental permits needed for the Project. . Additionally, as a short-term goal, Sky Solar will work on obtaining the ISO 14001 Certification for its operations in Chile. Meanwhile, Sky Solar will prepare documentation for the Bank describing how the Project will implement the Environmental Management System, including staff to be allocated to the Project and their specific responsibilities.

3.7 The Project is in the process of preparing a project-specific Environmental and Social Management Plan (ESMP). The ESMP will outline Sky Solar´s environmental and social responsibilities including waste management, traffic management, health, safety and labor, monitoring and auditing. The ESMP will also address specific project location related issues such as potential earthquakes, flooding and inundation areas and detail measures required (if any) to mitigate any potential issues. The final ESMP will be available in form and substance acceptable to the IDB prior to first disbursement.

3.8 Sky Solar will develop a Corporate Social Responsibility Program which will contain their Social Support Program and a Community Relations Plan. The company is currently working on identifying projects that would be part of the Social Support Program. The Community Relations Plan will contain a Grievance Mechanism.

3.9 Currently the Project complies or is expected to comply with the Bank's safeguard policies as verified during the due diligence mission and documentation review. Supervision missions conducted during the construction and operations phases will ensure continued compliance with Bank policies.

IV. KEY ENVIRONMENTAL AND SOCIAL IMPACTS AND RISKS

A. Summary of Key Impacts and Risks

4.1 The due diligence mission conducted on February 2014 identified the main impacts and risks as: conversion of natural habitat, air emissions related to dust and particulate matter, waste management, potential influx of foreign workers due to the lack of available local workforce, and traffic issues due to a large increase in vehicular traffic during construction.

B. Environmental Impacts and Risks

4.2 The primary impact of concern identified in the environmental documentation was the conversion of natural habitat and dust emission during construction activities. The site visit and ESG's Decision Support System (DSS) revealed that approximately 177 ha of natural desert habitat would be impacted. As over six million ha of this habitat exist in the area, the Project area does not constitute a significant degradation to the overall habitat. The Project area does not contain any sensitive or protected areas or flora or fauna. The closest protected area, Lote1 y Lote2 - Alto Poconchile, is located approximately 1.3 km of the Project site.

4.3 In order to reduce the impact on water resources, Sky Solar will not use water for cleaning the solar array. Instead of use of water for the cleaning activities, Sky Solar will use modern technologies based on dry cleaning using synthetic bristle brushes.

C. Social Impacts and Risks

4.4 The due diligence mission to the Project site did not identify any significant social impacts to the nearby population. This is mainly the result of factors such as (i) the low-impact nature of technology associated with solar plants (ii) the fact that the sites are

distant from major human settlements; and (iii) the entire Project site is owned by the Government of Chile and no economic activity occurs on the land.

4.5 Land acquisition for the Project was another topic that ended up being an issue of no concern. The solar plant will be constructed on government land that is unclaimed and unused by the local population of any other third parties.

D. Cumulative Impacts

4.6 A formal cumulative impacts analysis was not conducted for the Project, nor is any such analysis required by the Government of Chile. The Projects will be constructed in a rural environment, isolated from any settlements or other infrastructure. No other projects are currently known to be coming to the area in the immediate future; however, the surrounding environment could support more solar facilities.

4.7 The success of the Project could attract more growth in the area particularly in the solar energy sector. This potential growth would possibly result in net positive social impacts on the surrounding communities by providing employment to local workers and contracting local services as well as providing beneficial social programs to local schools and community based programs and other social programs such as donation of recyclable goods to the community.

E. Positive Impacts

4.8 The Projects will likely result in net positive benefits for the nearby communities as well as the country, in general. The Project, during construction phase of the PV plant and the transmission line, will provide direct employment to approximately 190 workers. A preference for workers from local communities will be provided.

4.9 The Project will provide a renewable source of energy to meet growing energy demand and reduce the dominance of thermal energy in the *Sistema Interconectado Norte Grande* (SING). Additionally, and will also contribute to the achievement of one of the objectives of the IDB Country Strategy for Chile for the period 2011-2014, which includes the goal of increasing generation capacity from low carbon sources by 500 MW by 2014.

4.10 The Project will work with the community and local officials to identify potential social programs on which the Project can support. Preference will be given to social programs which benefit vulnerable groups in the area such as women and young professionals.

V. MANAGEMENT AND MONITORING OF ENVIRONMENTAL, SOCIAL, HEALTH AND SAFETY AND LABOR IMPACTS AND RISKS

A. Description of Management Systems and Plans

5.1 The solar plant will operate under an ESMP, which will be developed according to the requirements established by the Chilean legislation, Sky Solar experience in other similar solar energy projects worldwide, and in the line with the Bank's policies. The ESMP will include regular monitoring of the facilities and quarterly reports will be prepared during construction concerning noise, air emissions, traffic issues, waste management, health

safety and labor performance, as well as other issues. Detailed logs will be maintained to document worker trainings, worker health certificates, work site incidents and accidents, waste registers, and vehicle maintenance. A quarterly report will be provided to the Bank during construction and annual reports will be provided during operations.

5.2 The most relevant social activities that have been implemented and will have to be implemented by Sky Solar to develop a good relationship with the local communities include:

a) Public Consultations. In addition to the ongoing informative consultation process that started in 2012, the Project will conduct additional public consultation meetings with community members and local authorities before the construction activities to identify potential social programs.

b) Grievance Mechanism. The Project is implementing a Grievance Mechanism to allow stakeholders an opportunity to voice their opinions, concerns, complains, or comments outside of the public consultation meetings. These comments will be recorded in a database, as well as the Project's responses to these comments in order to monitor the resolution of any grievances. Issues will be tracked to determine how the Project respond to complaints and works with the complainant to resolve outstanding issues.

c) Community Relations Plan. The goal of this Plan will be to establish community participation mechanisms and build positive relationships with interested groups to avoid or minimize potential social conflict situations during project execution. This plan will provide both a general framework and specific procedural guidance for a continuous dialogue between the local population and representatives of the company.

d) Potential Social Programs. Sky Solar has started consulting with local authorities and community groups to identify potential social programs. Among some of the potential projects are one focused on promoting conservation actions to support the preservation of the Tillandsia Marconae –Clavel del Aire, which is a sensitive flora specie found in the protected area Lote1 y Lote2 located 1.3 km northern of the PV plant site, such actions would include touristic activities with participation of local stakeholders, dissemination and awareness campaign to preserve this specie, and other actions to be identified in the future); a training and knowledge transfer program for professionals and students; construction of a show-room to explain the benefits of solar energy and this technology works; and identification and development of specific programs, together with the Woman's National Service – *Servicio Nacional de la Mujer* (SERNAM)–, to find job opportunities for women and strengthen the gender inclusion in this kind of industry.

B. Monitoring and Supervision

5.3 This Project includes different levels of supervision. The most relevant ones include (i) internal project supervision, within the corporate structure of Sky Solar and defined within the ESMP; (ii) Bank supervision, carried out regularly by the project team with the

support of specialized consultants as needed; and (iii) inspections from the Superintendent for the Environment, and entity of the Chilean Government responsible for enforcement of compliance with environmental laws and regulations. The Bank will conduct a supervision mission following construction activity or near the end of the construction phase unless monitoring reports indicate a need to conduct an earlier supervision mission.

C. Indicators

5.4 In the case of environmental indicators, the project will be assessed in terms of compliance with the IDB Safeguard Policies and compliance with local regulations. The annual report provided by the Borrower will provide detailed information including calculated reduction of CO_2 emissions. Based on current energy production in Chile, the Arica I Project is expected to avoid emissions of approximate 90,043 tonnes CO_2-eq/year.

5.5 In the case of the social support programs, potential projects or programs will be identified through continued consultation with local authorities and community groups. Following project identification, a chronogram of activities will be developed which will include a list of components, specific activities for each component, and expected results. Results of the social programs will be reported in the semi-annual environmental and social monitoring reports.

VI. REQUIREMENTS TO BE INCLUDED IN THE LEGAL AGREEMENTS

6.1 Based on the ESDD conclusions, the conditions described below are required to be fulfilled for the Project prior to loan approval/financial close and throughout the life of the loan, in form and substance satisfactory to IDB:

Throughout the Life of the Loan

6.2 The IDB will require within its Loan Agreement that the Project and each Project party (Sponsor/Borrower/Company) and other Project/Environmental parties, including construction companies and operators, and any contractors and sub-contractors will, at all times during the life of the Loan Agreement, comply with the following requirements:

1. All applicable environmental, social, health and safety, and labor regulatory requirements of Chile.
2. All requirements associated with any environmental, social, health and safety, and labor related permits, authorizations, or licenses that apply to the Project, the Borrower or any party responsible for executing the Project or its mitigation measures.
3. All environmental, social, health and safety, and labor requirements of the Project contracts and any subsequent modifications.
4. All aspects and components of all of the Project's environmental, health and safety, social and labor documents.
5. All relevant IDB policies such as the Environment and Safeguards Compliance Policy (OP-703), the Disaster Risk Management Policy (OP-704) and the Disclosure of

Information Policy (OP-102), the Involuntary Resettlement policy (OP-710), the Operational Policy on Indigenous Peoples (OP-765) and the Gender and Equity in Development Policy (OP-270) and their respective guidelines.

6. Comply with all the requirements indicated in the Environmental and Social Action Plan (ESAP).

Prior to First Disbursement

6.3 The Project will develop and implement a specific ESMP including the design of the proposed environmental measures to avoid, minimize, mitigate or compensate the key direct and indirect impacts and risks associated with construction of the project; and a monitoring and supervision framework. All project contractors will also be required to comply with the actions described in the ESMP.

6.4 The Project will appoint an Environmental and Social Specialist (new hire or designate existing employee) for the duration of the construction period to prevent and manage potential impacts and supervise and monitor mitigation measures. Sky Solar shall present to the Bank an updated organizational chart illustrating roles and responsibilities throughout the project cycle.

6.5 The Project will continue to conduct community engagement activities with local authorities and community groups to identify and implement potential social programs. The Project will look specifically to support social programs directed at benefitting women, childreen and other vulnerable groups.

Prior to Each Disbursement

6.8 The Sponsor/Borrower/Company shall certify compliance with all environmental social, health and safety and labor requirements in the loan agreement, including any Corrective Action Plans if applicable.

Prior to Operations

6.13 The Project will develop and implement a project specific ESMP for Operations to assess, mitigate the negative impacts associated with the Project during the operations phase. The ESMP will include a defined monitoring and supervision regime. All project contractors will also be required to comply with the actions described in the ESMP.

6.14 The IDB or an E&S consultant appointed by the IDB shall certify compliance with all E&S requirements of the loan agreement including any Corrective Action Plans if applicable.

ANNEX

PHOTO LOG – Arica I Photovoltaic Solar Plant

Figure 1: Project area- view to south

Figure 2: Project area- view to north

Figure 3: Project area- view to west

Figure 4: Project area- view to east