Consolidated EIA Process Summary

Cielos de Tarapacá Project

Region of Tarapacá, Chile

January 2019

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1. INTRODUCTION

The following consolidated summary is based on the information generated in the Environmental Impact Assessment (EIA) of the photovoltaic solar Cielos de Tarapacá Project (CdT or the Project), including the public and formal process of impact assessment evaluation carried out in Chile. This process was conducted in accordance with the existing regulatory system that defines the type of works and/or activities, as well as, the specific locations and significant impacts generated by future projects that are required to submit an environmental permit application.

The impact assessment regulation requires that the application describe the baseline for 15 environmental components with bibliographic research, specification of expected species or findings in the area and, protected population, species, and land, as well as, field inspection of water, air and noise quality, considering the different seasons when relevant. The baseline includes all vegetation and wild life, terrestrial, marine, riverine, and birds, as well as, cultural heritage. The community must be described through the following specific five dimensions: geographic, demographic, anthropologic, socioeconomic and basic social wellbeing (social services and infrastructure), and in the case of protected populations, there is a special emphasis on their organization, belonging, cultural patrimony, values, symbols, ceremonies, use and value of the land and its resources.

The Project conducted a stakeholder engagement process at a national, regional and local level. This process was initiated at an early stage and was based on providing early, transparent and free information to stakeholders with regard to the Project's activities and plans. The stakeholder engagement plan implemented was designed to maintain fluent communication and relationships with the distinct stakeholders over the life of the Project. Once the stakeholders had been identified, meetings were coordinated with the most relevant parties to inform them about the Project and listen to their comments, questions and concerns. As part of the EIA approval process, the Project also conducted the required formal meaningful "community participation" process which included numerous community meetings and presentations to inform the communities about the Project and address their observations and concerns

In Chile, EIAs are submitted to the Environmental Evaluation Service (*Servicio de Evaluación Ambiental* or SEA), the authority, which coordinates evaluation of the study for technical verification of the application of correct methodologies and the appropriateness and completeness of the proposed measures with respect to the impacts, identified. If the information is considered insufficient to make a proper impact evaluation and provide certainty that the measures incorporated are appropriate, the SEA can reject the application before initiating a more detailed evaluation.

The SEA coordinates the participation from the various Public Service Agencies, which are required to review and approve environmental permit applications. The Public Service Agencies involved in the evaluation and approval of the CdT Project EIA include: the National Agency for Indigenous Development, National Forestry Agency, National Water Agency, National Transportation Agency, Regional Government of Tarapacá, Municipality of Pozo Almonte, National Agricultural Agency, National Electricity & Fuels Agency, Ministry of Agriculture, Ministry of Public Property, Ministry of Energy, Ministry of Health, Ministry of Transportation and Telecommunications, Ministry of Housing and Urban Development, Ministry of Environment, National Geology and Mining Agency, National Tourism Agency, and National Monuments Authority.

The preparation of the permit application for the Project required approximately one year, including field work, modeling, analysis, community engagement, engineering and design, and document preparation. The EIA was submitted to the SEA on January 7, 2015. The evaluation period was also equivalent to approximately one year, including the public participation process and two requests for clarification or ICSARAs[1] issued by the SEA, which was responded to by the Project with the submission of complementary information or Adenda[2]. The consolidated evaluation report or ICE[3] was issued on January 20, 2016 and the RCA[4] or environmental permit was unanimously approved by all of the Public Service Agencies on January 27, 2016. The validity of the RCA is indefinite, as long as construction of CdT is initiated within 5 years of the approval date.

It should be noted that the similar photovoltaic (PV) solar projects have been previously evaluated in Chile, in the context of the Environment Impact Assessment System.

This document presents a consolidated summary of the EIA process for the Cielos de Tarapacá Project, including the evaluation process and approval conditions. All the documentation for the environmental permitting process, including the original EIA, ICSARAs, Adendas, the public participation process, ICE, RCA, and notices and letters from the SEA and other Public Service Agencies, among others can be found on the SEA's website at: http://seia.sea.gob.cl/expediente/expedientesEvaluacion.php?modo=ficha&id_expediente=2130127816.

[1] ICSARA: Consolidated Report of Request for Clarification, Revision and/or Extension of the EIA issued by the SEA
[2] Adenda: Complementary EIA Addendum submitted by the Project in response to ICSARA
[3] ICE: Consolidated Evaluation Report issued by the SEA
[4] RCA: Resolution of Environmental Qualification issued by the SEA

2. EIA REQUIREMENT FOR THE PROJECT

In Chile there is a legally established system to determine whether a project is required to apply for an environmental permit under the Environmental Impact Assessment System (SEIA) which depends on the activities, works and location of the project. It considers the type and dimensions of the activities, works, inputs and outputs. In addition, there is a second filter to determine the type of instrument that must be presented to authorities depending on project impacts. If the Project could result in significant adverse effects on specific components, it is required to submit an Environmental Impact Assessment (EIA), if not, the Project may present an Environmental Impact Declaration. The Assessment is more demanding and requires obligatory implementation of a public participation process with the local communities.

It was determined that the CdT Project was required to enter the SEIA, as established by Law N°19.300, Article 8 and 10 letters b) high voltage electrical transmission lines and their substations, c) Power generating plants greater than 3 MW and p), as well as by S.D. N° 40/2012 of the Ministry of the Environment, Article 3 letters b), c) and p) Execution of works, programs or activities in or near national reserves.

3. PROJECT DESCRIPTION

3.1. General Overview

The Project consists of the construction and operation of a 600 MWac Photovoltaic plant or park named "**Cielos de Tarapacá**" (CdT or the Project), which is to be located 75 km southeast of the city of Iquique, in the Pozo Almonte District, province of Tamarugal, Tarapacá Region. CdT's PV plant and its Transmission System will connect to the existing Lagunas Substation in the northern part of the National Interconnected System (SEN based on the acronym in Spanish). Both the PV park and the transmission system are located in the districts of Iquique and Pozo Almonte, all in the Tarapacá Region. The following GPS coordinates indicate the location of the Cielos de Tarapacá Project: Datum WGS 84 - HUSO 19 (Este 440.496; Norte 7.705.525).[5]

[5] A kmz file map for the Project can be downloaded on the SEA website by going to the following link http://seia.sea.gob.cl/documentos/documento.php?idDocumento=2130672469 and selecting item "**Anexo-1 Archivos digitales (CAD y kmz)**". Please note that downloading may take a few minutes due to file size.

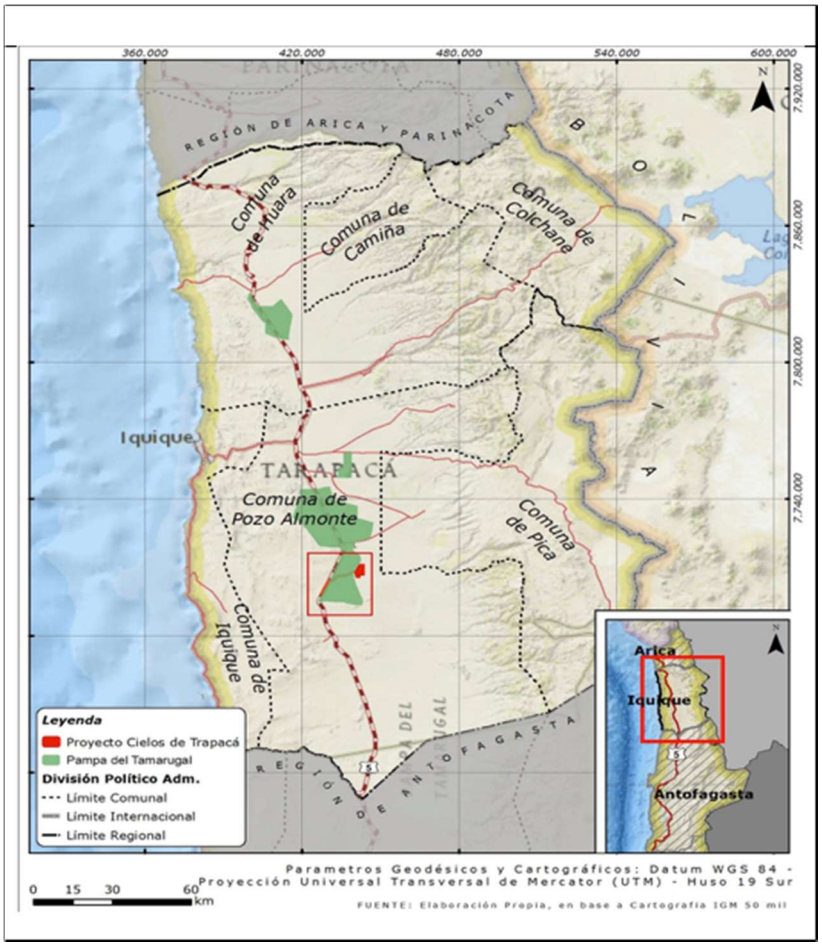
It should be noted that the Project will be located in the desert in northern Chile[6] where currently, despite being among the most privileged places on earth for the development of solar energy, more than 87% of the electricity generated comes from thermoelectric sources. In fact, this area possesses some of the best solar irradiation levels in the world (average capacity factors in excess of ~35%), and is also relatively flat and sparsely populated. According a 2014 report by the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH and the Chilean Ministry of Energy, the PV solar potential in this area exceeds 1.4 million MW of installed capacity. The existing installed solar capacity of around 633 MW in this area represents less than 0.1% of the total potential.

Additionally, the Project will help Chile achieve its climate change mitigation commitments. In particular, it is estimated that the Project's production of 100% renewable energy will mitigate global greenhouse gas emissions, avoiding on average approximately 1 million tons of CO2 per year, with 35 million tons of CO2e avoided over the 35-year evaluation period.

The following figure shows the geographic location of Project in the Tarapacá Region.

[6] The Project is located in Chile's Ex-Greater Northern Electric Grid, which includes the regions of Arica/Parinacota, Tarapacá and Antofagasta.

Figure 3.1. Location of the PV plant in the Tarapacá Region



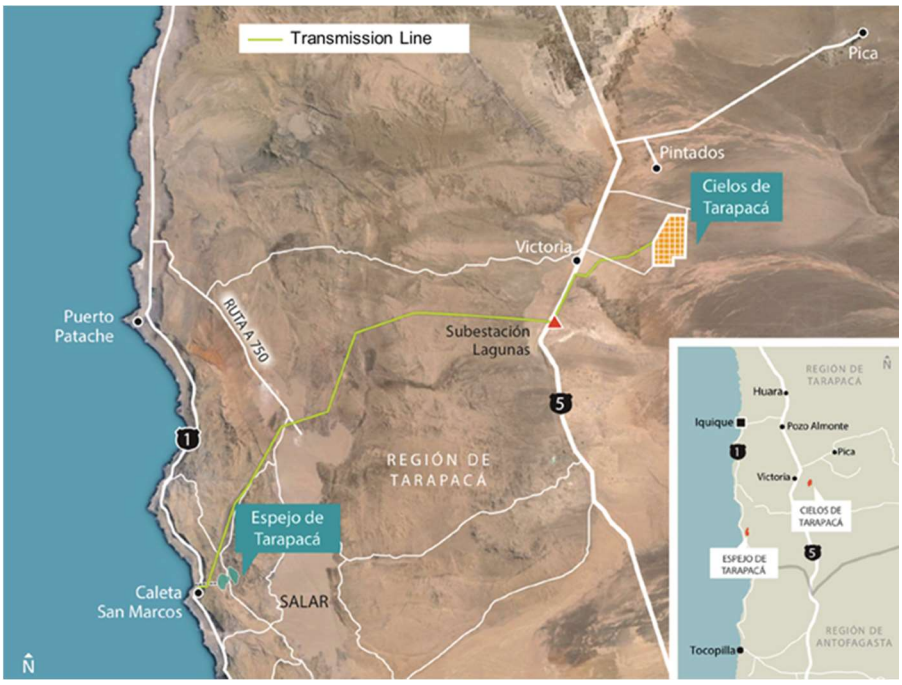
It should be noted that the CdT Project is planned to be integrated together with the Espejo de Tarapacá hydro pumped storage project (the EdT Project), which was submitted to the Environmental Impact Assessment System (SEIA) on August 18, 2014 through presentation of an EIA. In its EIA, the EdT Project declared that, depending on market conditions, a future stage could involve the addition of a PV solar plant and that in the event that such PV plant was added, an EIA would be conducted and submitted in order address potential environmental impacts and appropriate mitigation measures.

In terms of reference, the EdT Project is a power generation project consisting of a reversible hydro pumped storage power station located in the coastal sector of Caleta San Marcos, about 100 kilometers south of the city of Iquique, and its transmission line will also connect to the existing Lagunas Substation. The general operating principle of the plant involves pumping seawater during the day, using solar energy, storing it in a reservoir at higher elevation, and then, during the night, generating hydroelectricity by returning the water to the sea. In this way, production is achieved, which combines solar energy during the day with hydraulic energy during the night, ensuring 24 hours a day, 7 day a week (24/7) constant production that can be used to satisfy the power demands of

third parties. In order to achieve the above, three reversible Francis type turbines will be installed within a powerhouse cavern, which, operating with solar energy in pumping mode, will pump seawater up to a natural reservoir concavity located on a nearby upper plateau, and during the night, operating in turbine mode, will use the water accumulated in the upper plateau reservoir to generate energy and then return it to the sea.

The figure below shows the geographic location of the CdT and EdT Projects in the Tarapacá Region.

Figure 3.2. Espejo de Tarapacá and Cielos de Tarapacá Project Locations



3.2. Description of the Components and Physical Works of the Project

As mentioned above the CdT PV plant will be located 75 km southeast of the city of Iquique, District of Pozo Almonte, El Tamarugal Province, Tarapacá Region. The PV plant is comprised of a solar park with installed capacity of up to 600 MW-AC PV, which will be constructed in three phases. The solar plant equipment will consist of solar panels, inverters, underground and aerial cables, in addition to meteorological stations, a control room, O&M office and warehouse. The PV plant will utilize a single-axis tracking system in order to maximize energy output by tilting the panels to follow the sun throughout the day from east to west. The PV park installations also include a 220 kV step-up substations and 18 km transmission line from the site to the Lagunas substation.

Figure 2.3 below shows the location of the PV plant site and associated transmission line and Figures 2.4 and 2.5 provide information regarding the general project and site layout.

Figure 3.3. PV Plant Location and Transmission Line

Figure 3.4. General Layout

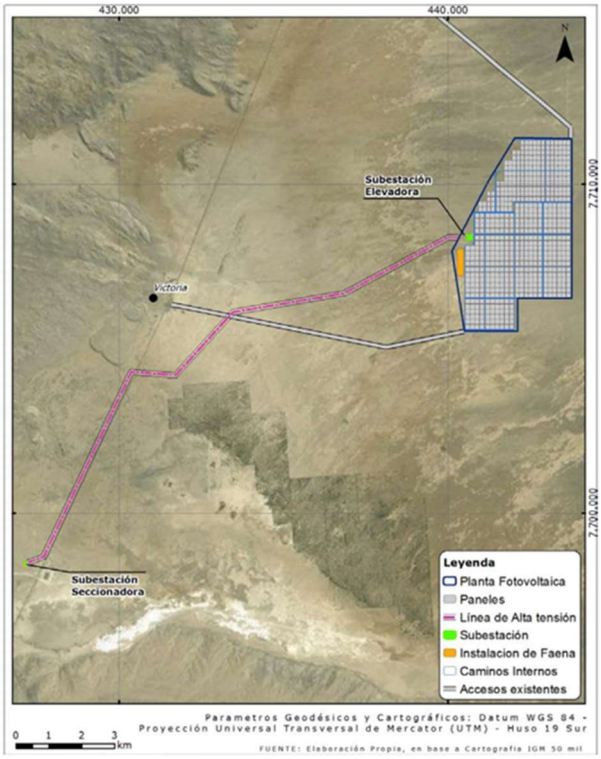
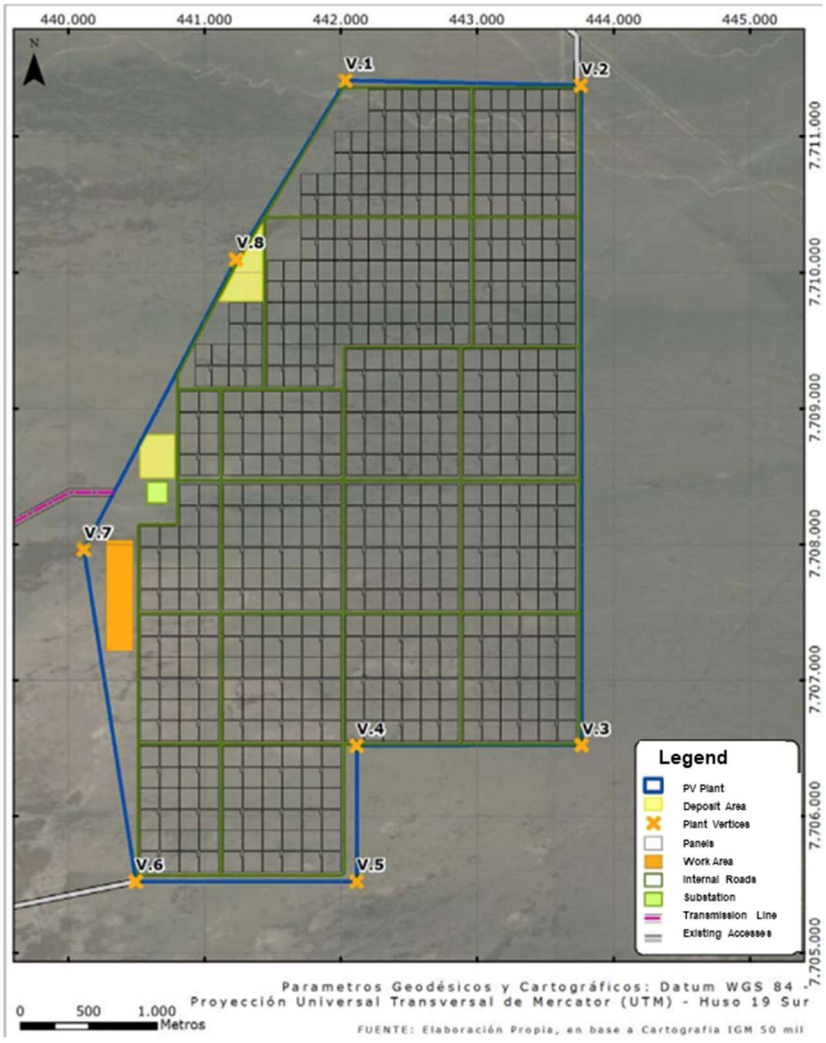


Figure 3.5. General Layout



The PV plant or park consists of a series of modules connected to each other, which transform the energy of the sun into electrical energy. The electrical current provided by the photovoltaic modules is transformed into alternating current by an inverter, and then from a transformer the voltage is raised to be coupled to the conventional grid.

The permanent parts and physical works of the Project, which make up a photovoltaic park and its associated facilities, correspond to the following:

a. **Photovoltaic Modules (or solar panels)**: The photovoltaic module is made up of photovoltaic cells arranged side by side, connected in series/parallel, by means of electrical circuits connected to the positive and negative poles of the cells. The Project considers the use of photovoltaic modules, which will be of thin film photovoltaic technology, without prejudice to the fact that Crystalline Silicon modules could be used whose efficiency will not be less than that of its thin layer replacement.
b. **Photovoltaic module table**: The photovoltaic modules are mounted on folding metal support structures. Approximately 20 photovoltaic modules can be mounted on each

of these support structures. This structure together with the modules is called a "table".

c. **Follow-up system**: The tables, in turn, are mechanically fixed on a horizontal axis, which is supported by four vertical metal posts. This structure is called a "tracker".
d. **Inverters**: Equipment designed to transform the energy produced by the photovoltaic panel from direct current to alternate current. The inverter has a capacitor bank that corrects the power factor through a remote monitoring system that allows analyzing the different variables from a single controller.
e. **Transmission system (wiring)**: Direct current wiring. The wiring shall be buried. Alternate current wiring. The wiring inside the park will be buried in underground trenches.
f. **Booster Substation**: The Booster Substation allows boosting and controlling the voltage of the current that will be conducted through a 220 kV line to the Isolating Substation.
g. **Overhead Transmission Line**: From the Project's booster substation to the isolating substation, the energy will be conducted through an overhead line, through the 18 km distance that separates one from the other.
h. **Control facilities**: A monitoring and data processing system will be installed to allow remote reading of current stored operating data.

3.3. Description of the Construction Phase

Main activities

During the construction phase, all the works for the implementation of the Project will be carried out, including the temporary and permanent facilities.

The construction phase will last approximately 4.5 years during which the photovoltaic park will be built in 3 phases of 200 MW each (600 MW in total).

The construction of the first 200 MW implies a larger amount of works and/or activities, since it includes the installation of camps, jobsites (including storage warehouses for materials, waste, lunch room, administrative offices, etc.), assembly of structures, installation of panels, underground wiring, construction of substations and high voltage overhead lines. The next two phases, of 200 MW each, include a lesser number of works and/or activities, requiring basically the assembly of structures and installation of panels and underground wiring. At the end of the construction of the third phase of the PV park, the jobsite and camp disassembly activities will be carried out, so as to leave the site in that sector in conditions similar to the situation without a project.

The construction phase will be developed in 3 phases; the works and/or activities per phase are detailed below:

Phase 1 (200 MW)

- Site preparation and access roads
- Installation of jobsite and camp
- Implementation of the network of connecting roads
- Installation of the perimeter fence of the Photovoltaic Park
- Implementation of areas for material unloading and storage
- Structural and electrical installation (panels and assembly of structures)
- Transmission line construction
- Substation construction
- Construction of control room and operations
- Connection tests

Phase 2 (+200 MW)

- Preparation of the site and access roads
- Implementation of the network of connecting roads
- Structural and electrical installation
- Connection and Start-up

Phase 3 (+200 MW)

- Preparation of the site and access roads
- Implementation of the network of connecting roads
- Structural and electrical installation
- Connection and Start-up
- Closure of the construction phase

Main supplies

Water

The water to be used for human consumption will be determined according to that indicated in the S.D. Nº 594/1999 of the Ministry of Health. Supply of 100 l/inhab/day for in hygiene and drinking water consumption will be considered. The water for human consumption will be provided through drinking water tanks or purified water dispensers, which will be provided by a local company duly certified, complying with all physicochemical, radioactive and bacteriological requirements established in the effective regulations, which are defined in the Standard of NCh 409/1 Of.05 on drinking water requirements.

Based on the personnel required for construction (considering 100 l/inhab/day), the requirement for drinking water for consumption, showers, washbasins and toilets on site will be 60,000 l/day in the peak period, for each of the phases of construction (phases 1, 2 and 3), which implies that storage capacity of 60 m^3 is required.

Electrical energy

For the construction phase the generator sets to be used are the following:

- One generator of 100 KW for camp.
- Two generators of 20 KW for jobsites installation.
- Ten generators of 5 KW for the work fronts.

Fuels

It should be noted that there would be a fuel storage warehouse in the jobsite where seven stationary, surface, horizontal and ASTM A- 36 steel tanks will be stored, which will be certified by the Superintendence of Electricity and Fuel (SEC). Six (6) tanks will have a capacity of 3 m^3 and one (1) tank a capacity of 20 m^3.

Main emissions, effluents and wastes

The main emissions generated during this phase correspond to those of particulate matter, and are related to the earthworks associated with the construction and improvement of access to the Project area. Additionally, there will be emissions of gases, product of the combustion process of fuel of the machinery and generators to be used during this phase. They will be of a temporary nature, i.e., they will be generated only during the period of the works. During this phase the Project will comply with current noise regulations (Supreme Decree No. 38/2011) in nearby receivers.

Waste waters will be generated as a result of the use of toilets, showers, and sinks for a maximum of 600 people, which, considering a provision of 100 l/person/day, will generate an effluent of 60,000 liters/day, which will be taken to a water treatment plant. The treated water will be used for wetting and for the preparation of the Bischofite mixture used to stabilize the roads during this phase.

It is estimated that a maximum of 18 tons/month of domestic solid waste will be generated in each phase of construction. This calculation comes from an approximate maximum value of domestic waste generation of 1 kg/worker/day, considering a maximum of 600 workers/day. These wastes will be stored in plastic containers with lids that will remain closed to avoid the proliferation of sanitary vectors and/or odors.

Waste will also be generated from the process of construction, assembly and unpacking of equipment, mainly wood waste, cardboard, plastics and metals. Containers will be provided on the different work fronts for the primary classification of wastes, which will then be classified according to their nature and disposed of temporarily in an industrial waste-stockpiling yard in the jobsite installation sector.

The hazardous waste generated will originate from the various supplies used in construction and maintenance of machinery in the Project area. They will be kept

temporarily in properly labeled containers with lids. Regulation S.D. No. 148/03 will be complied with at all times in terms of transitory disposal, transport and final disposal.

3.4. Description of the Operation Phase

Main activities

A maximum of 20 people will work during the operation phase of the Project. The entire operation of the PV Park will be commanded from the control room, from which the operation of the panels, trackers and substations will be controlled and monitored.

Photovoltaic modules do not require major mechanical maintenance. It will be required to clean the modules periodically to get rid of dust, which reduces their efficiency, to do so, cleaning will be done using water without any additives or detergents.

Substations, their equipment, and other facilities will receive regular inspections and periodic maintenance, as well as roads and fences.

Main supplies

Water

The operational phase of the Project will require the supply of drinking water for the consumption of operators and for the operation of sanitary facilities. It is estimated average demand of 100 liters of water per person a day which will comply with the parameters of NCh N° 409 of 2005.

Dispensing machines equipped with bottles of 20 liters, a service that will be provided by a company that with the relevant permits will provide drinking water for consumption.

For the process of washing the panels (cleaning of the modules), it has been considered that this process will be carried out four times a year, for which a requirement of 7,920 m^3 of water low in minerals for annual maintenance is considered, in the case that implementation of dry cleaning is not feasible. The water will be purchased from suppliers who have authorization to carry out this activity.

Electrical energy

The required electrical energy will be self-supplied during the day. At night, it will be supplied from the substation. A generator (10MVA) will be installed in the elevator substation and be used to energize transformers and the high voltage line after start-up. It is estimated that it will be used for 1 month.

Fuels

The Project does not consider fuel requirements in the PV Park during the operation phase.

Main emissions, effluents and wastes

It is expected that during the operation of the Project, the emissions resulting from the combustion of vehicles and suspended particles will not be significant, since no constant emissions will be generated, only in the case of transport of maintenance personnel. It should be noted that the Project area is not located in a zone saturated by any type of contaminant.

The operation of the Project will include permanent sanitary facilities for the use of personnel. These facilities will consist of a toilet, washbasin and shower and they will be located in the operation and maintenance building. A modular aerobic digestion treatment plant will be used to treat wastewaters.

The only liquid waste that can be generated during the operation phase can come from the cleaning of the modules, which will be carried out two to four times a year with demineralized water without detergents. If soil and dust conditions allow, dry cleaning will be performed to reduce the need for water during module cleaning.

Solid wastes that can be assimilated to domestic wastes will be generated by the presence of people dedicated to the operation and maintenance activities required by the PV Park and by some project activities. A maximum generation of up to 1 kg/day/person is estimated.

The solid industrial waste generated during this phase of the Project will be originated by the replacement of parts and cables, among others, in very low quantities. These wastes will be disposed of temporarily at a specially designated site and then disposed of in authorized landfills or recycled, depending on the nature of the waste.

The same system established for the construction phase will be used for the stockpiling and management of solid wastes.

It is estimated that as a result of the maintenance and cleaning activities of the Project facilities, approximately 10 tons/year of hazardous wastes will be generated. The same system established for the construction phase will be used for the stockpiling, identification, and management of hazardous solid wastes.

3.5. Description of the Closure Phase and Recycling of the Solar Modules

Main activities

The main activities include:

a) De-energization of the Photovoltaic Park
b) Disassembly of the Photovoltaic Park
c) Disassembly of additional facilities
d) Cleaning of the site

The process of de-energizing the facilities is carried out by disabling the passage of energy to the entire circuit between modules and the interconnection substation. Switching off all the circuit breakers in the facilities carries out this disabling. In addition to the above, it is required to disconnect the modules of the interface closest to each of them. The disconnection will be carried out according to the SEN process and standard.

Final disposal and subsequent recycling of the solar modules will be implemented. The company that manufactures the modules will carry out this activity, as a result they will be returned to the supplier.

When operations cease, all equipment and facilities used in the operation of the Project, such as containers, drinking water system, etc., will be disassembled and removed from the site for transfer, if appropriate, or final disposal at a site authorized for that purpose. Subsequently, an analysis of the occupied zone will be carried out to establish whether, due to the activities carried out, there are areas that require special cleaning.

Recycling of Panels

It is important to note that in January 2016, when the Project was granted the environmental permit or RCA; Chile did not have a law in place which dictated the recycling process. Currently, Chilean Law 20,920, which was published in June 2016, extends the producer's responsibility (in Spanish: Ley de *Responsabilidad Extendida del Productor*) and requires implementation of a recycling process by all producers, sellers and those who make professional use of any of the products specified in Law 20,920. Photovoltaic panels are one of the products required to be recycled by this law and they are categorized as electrical or electronic products. As a result, any company that makes use of such products is required to implement a recycling process once its useful life has terminated.

As mentioned in the previous section above, CdT had already voluntarily considered implementation of a recycling process for its panels at the time of closure of operations. Additionally, with the enactment of Law 20,920, the Project must explicitly follow the processes established by the Chilean regulations.

4. AREA OF INFLUENCE AND BASELINE DESCRIPTION

The area of influence is defined below and a brief description is provided about the baseline of the components that could potentially be impacted by the Project

4.1. Air Quality

According to the records of the air quality monitoring stations Nueva Victoria, Victoria and Pozo Almonte, the daily average of the monitoring campaigns from 2003 to 2012 would be approximately 28.3 µg/m3N, which would not exceed the limit value established as a primary air quality standard of 150 µg/m3N for compound MP10.

In relation to MP2.5 particulate matter, although no monitoring data are recorded close to the Project, MP10 particulate matter can be distinguished in a coarse fraction and a fine fraction, where the latter considers particles of size less than or equal to 2.5 microns called MP2.5 (N°59/1998), so this compound would be represented by the records of the monitoring campaigns for MP10.

Given that the area close to the Project site does not record the implementation of major projects between 2013 and 2014 that could cause significant alterations to the baseline presented, it is possible to infer that the baseline would not present significant changes, so the representativeness of the data obtained in the monitoring campaigns from 2003 to 2012 should represent air quality conditions in the Project area.

4.2. Electromagnetic Fields

In the project area, the only existing transmission lines are located close to the Route 5 Highway and Lagunas Substation, which comply with current regulations.

4.3. Geology and Geomorphology

Geology

The geological units present in the Project area consist of Miocene-Quaternary (MQs), Upper Miocene-Pliocene (MP1c) and Pleistocene-Holocene (Qa), which correspond to successive sequences of a sedimentary and depository nature caused by the accumulation of materials in the sector, mainly generating strata and sand fills that make up extensive plains. The origin of the detected materials corresponds, in a general way, to deposits produced by the dragging of matter either by fluvial or lacustrine cause.

According to the analyzed antecedents it is possible to conclude that the geological conditions of the study area present adequate conditions for the implementation of the Project.

Geomorphology

The Project area is located on a regional scale in the Pampa del Tamarugal area, while on a local scale the geoforms on which it is based correspond to sedimentation glacis and the Bellavista salt flats.

In general terms, it should be noted that the terrain is homogeneous from a structural point of view since most of the Project area is made up of low gradient slopes with low erosion patterns.

Following the above, it should be noted that according to the information gathered, the study area presents morphological characteristics favorable for the installation of the photovoltaic park, as well as for the high voltage line and electrical substations, being the structural conditions adequate for such purposes.

4.4. Hydrology

In the area under analysis, the dominant basins are of the Andean and pre-Andean type, with an endorheic character. In turn, the characteristic of these watercourses is that their regimes are sporadic and intermittent caused by rainfall in summer months due to the influence of the altiplanic winter generating the recharge of rivers and enabling the formation of surface runoffs.

The main basin corresponds to the Pampa del Tamarugal, whose sub-basin and sub-sub-basin have the same name. The closest ravines are the Tarapacá Ravine, more than 2 km south of the Project area, and Los Tambos Ravine, more than 5 km north of it.

4.5. Noise

The main sources of noise detected at the time of the measurements correspond to vehicular traffic on Route 5 and noise produced by wind interaction.

In function of the values obtained in the Baseline, the maximum levels vary between 55 and 64 [dB(A)] for daytime and between 47 and 50 [dB(A)] for night-time.

4.6. Edaphology

The soil resource existing in the Project area is characterized in general as a soil that has limited changes in parental material due to low climatic intensity and remaining dry for long periods of years with very low vegetation cover.

In addition, alluvial-colluvial deposits cover the surface, product of processes of deflation and wind corrosion, forming a stony pavement, constituted mainly by angular lithic fragments.

On the other hand, it has fairly homogeneous soil characteristics, with a very narrow range of variation in its physical and morphological properties. The evolution or edaphological development is incipient and even non-existent, being qualified as a succession of sediment layers, classified as a class VIII soil of use capacity, which indicates that the soil has no agricultural, cattle or forest value, and its use is limited only to wild life, recreation or protection of hydrographic basins.

It is important to note that one of the conclusions that environmental authority made in its final report is: The soil resource is very scarce, since this area is located in the so-called Absolute Desert, where conditions of extreme aridity, with absence of rain, dryness and marked thermal amplitude, make the presence of fauna and vegetation difficult. Therefore, the edaphological evolution or development is incipient and, in some sectors it is even non-existent, qualifying as a succession of layers of sediments. This soil has no evolution of horizons or content of organic matter, is thick texture, high salt content and excessive drainage. It presents successive strata, observed in the following order from the surface: chusca (or moon dust), sediments, cemented crust and sediments up to 100 cm. The surface is covered by stony pavement, consisting of angular lithic fragments, which can cover up to 80% of the surface. These soils correspond to class VIII, which indicates that they are soils without agricultural, livestock or forestry value.

The photo in the figure below shows the desert land on which the solar park will be built at the location of one of the installed meteorology stations for the Project.

Figure 4.1 Solar Park Site at Installed Meteorology Station

4.7. Natural Hazards

Local analysis indicates that there is no risk of mass movement due to the existence of moderate to low slopes, coupled with mainly flat morphological conditions and almost no rainfall, indicating the low probability of occurrence of such phenomena.

With respect to the volcanic activity, both the location distance of the Project and the inactivity recorded in the sector are considered a low probability of volcanic risk, while for seismic activity, whose cause is due to plate tectonics, the probability of occurrence is greater, however the distance in relation to the coastline may reduce the associated risk.

Given the above, it can be inferred that the natural risks in the study area may show a low probability of occurrence appearing as an area suitable for the location of works.

4.8. Flora and Vegetation

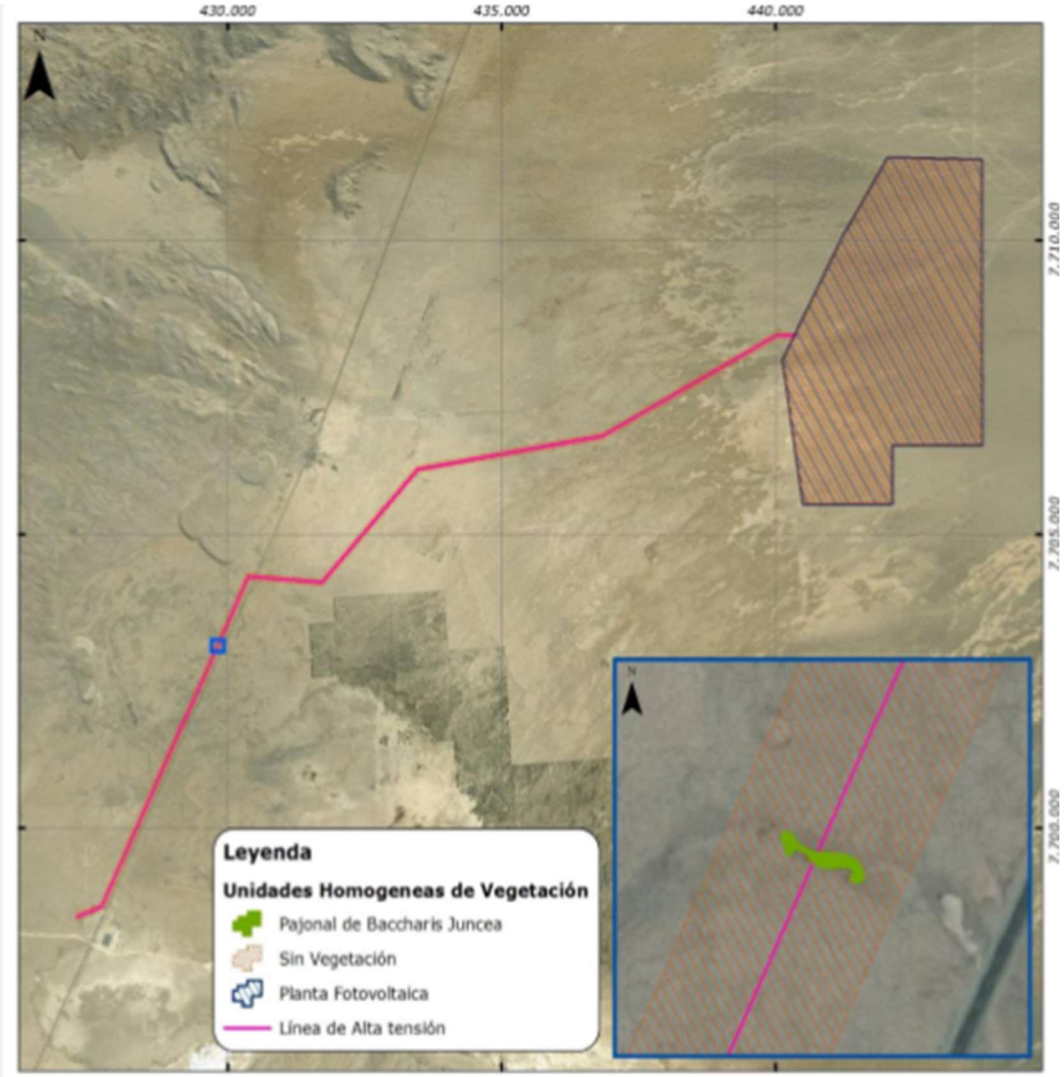
In the Project area, two vegetation units were recognized, which correspond to: Pajonal de *Baccharis juncea* and ***No vegetation***, the latter being the unit that covers almost the entire area of influence of the Project with 99.998%.

Only one species (*Baccharis juncea*) of vascular flora native to Chile was identified during the trips made in the area of influence of the Project.

The conservation status of the recorded species was analyzed in accordance with the species listings of the species classification processes according to Supreme Decrees (S.D. No. 151 of 2007; S.D. No. 50 of 2008; S.D. No. 51 of 2008, S.D. No. 23 of 2009, from MINSEGPRES; and S.D. No. 33, S.D. No. 41, S.D. No. 42 of 2011, S.D. No. 19 of 2012, S.D. No. 13 of 2013, and S.D. N°52 of 2014 of the Ministry of the Environment (MMA) and in accordance with the Red Book of Terrestrial Flora of Chile (Benoit, 1989), does not identify any conservation category for the species in question. This species is not listed in the IUNC Red List of Threatened Species.

It should be considered that the intervention of the Pajonal de Baccahris juncea is not subject to any of the regulations established by any environmental regulations in force, such as the Native Forest Law (Law 20.283). The following figure shows the vegetation units.

Figure 4.2 Vegetation Units



4.9. Fauna

The results found in the baseline study are consistent with what is described in the literature, since the Project area corresponds to an absolute desert area with little presence of fauna. As for the origin and endemism of the species, three species are native to Chile, however, none of these species is endemic to Chile. In terms of conservation status, out of the four species registered in the study area, only one species has a national conservation category of low concern and is a Fox species (Lycalopex sp.) which was identified through footprints. This Lycalopex could be griseus or cupleus, both listed Low Concern in the IUCN. The other mammal species identified was Rattus sp. through skeletal rests, and could be norvergicus or rattus, both introduced not endemic. In the area of influence of the Project, four species of terrestrial vertebrates were recorded, corresponding to two species of birds and two species of mammals, with Low or no conservation concern.

With respect to abundance, low species abundances were recorded in the Project area. In this sense, the most abundant taxonomic class was birds, of which 9 individuals corresponding to two species of birds and Cathartes aura (Red-necked Dormilona and Red-headed Jote) were recorded in only one sampling station (E30), without endangered classification at local level, and Low Concern on the IUCN list.

4.10. Climate and Meteorology

The study area is located in the climatic subtype Normal Desert Climate, with temperatures ranging from 11°C to 18°C, with a considerable daily thermal amplitude and whose precipitation levels do not exceed 0.0 mm in several months of the year, being an annual average of 1.3 mm. This added to the scarce influence of water masses coming from the coast together with the inexistence of orographic precipitations establish the condition of aridity in the zone. On the other hand the relative humidity undergoes important variations during the day and the night fluctuating between 10% and 30% being able to reach 90% during the dawn. Regarding the winds, as well as the relative humidity, these undergo strong changes between the summer and winter months, being 4.2 m/s in summer and descending noticeably to 3 m/s in winter period.

According to the above, the climatic antecedents of the area indicate that both the local climate and the meteorological conditions provide a favorable situation for the development of the Project, by combining in the place characteristics of favorable temperatures, humidity and precipitation.

4.11. Human Environment

As there are no human settlements in the footprint area of the Project, the area of influence o was defined according to the possible affectations in its cultural and identity roots that the human groups close to the Project could have. These human groups correspond to the towns of Victoria and Colonia de Pintados, which are located approximately 8.5 km and 9 km, respectively, from the Project.

In this way, both towns were characterized, taking into consideration the five dimensions established in the Regulation of the SEIA as minimum contents of an EIA.

Regarding the Geographical Dimension, the town of Colonia de Pintados, which is located 9 km from the Project, is composed of four subsectors, which are Tierra de Jehová, Juventud del Desierto, Nuevo Amanecer and Santa Cruz de Pintados. The one with the highest population density is the Tierra de Jehová sub-sector, which is also the service center of the four sub-sectors. It has an elementary school, stores, the main church and entertainment, such as the swimming pool and children's playground, among others. In addition, it has a transportation system that passes three times a week and providing transport to Pozo Almonte and Pica. In addition, it has access to water and electricity, but no sewage.

Victoria, which is located 8.5 km from the Project, is a small town adjacent to Route 5, located on the southern boundary of the district of Pozo Almonte, inhabited by people who belonged to the Victoria saltpeter. This locality is oriented to deliver services of food, lodging, and fuel to the workers of companies that operate in the zone, such as SQM, Quebrada Blanca, and other smaller companies.

For more complex procedures and services, people need to go to Pozo Almonte. The town of Victoria does not have water or sewerage, but it does have electricity. In addition, it has no children and its population has been migrating to other towns since 2002. It does not have transport and the only telephone connections are by means of cell phones.

The results of the geographic characterization show that there is no possibility of affectation in Colonia de Pintados or Victoria in relation to its accessibility, connectivity, access to services, or territorial distribution, due to the works or actions of the Project.

Regarding the demographic dimension, the results of the baseline show that no population was found in the areas adjacent to the area of influence. There is also no population using natural resources in the Pampa del Tamarugal area closest to the Project, i.e. Bellavista.

It is not observed that there is an affectation in relation to the demographic dimension of the population due to the works or actions of the Project.

As for the anthropological dimension, in Colonia de Pintados there are some indigenous people that do not maintain traditional activities linked to ethnic groups in a collective manner. There is no use of natural resources, traditional uses, festivities, rituals or sites of cultural significance within the Project area, or that may be affected by its works or actions.

In spite of the fact that for the definition of the area of influence, the elements contained in letter d) of article 7 of the Regulation of the Current Environmental System, D.S. N°40 of the year 2013, were considered, and considering that there could exist a potential effect on the cultural roots due to the existence of cattle driver track, ***the interviews did not reflect a clear interest, as well as there were no claiming actions on them nor were rites, cults, protection actions or others identified***. This conclusion was later confirmed by the authorities. Despite this, the Project employed early community engagement activities with the organizations present in the area in order to provide information about the development activities and proposed future solar project.

Regarding the socioeconomic dimension, it can be observed that the productive vocation of Colonia de Pintados, including its four subsectors, is oriented towards the production of fruit and vegetables for sale to the main localities of the North, and livestock for self-consumption. They also sell water in a community way, and there is an orientation towards the mining boom in the young population due to the fact that it provides better salary and employability perspectives. The employed population is 40% and 20% is looking for work. This is because there is a degree of informality in the work in the area.

In the case of Victoria, its employment composition has not changed since 2002, as it continues to be oriented towards services to nearby mining and construction companies. In this sense, most people have their own businesses, and the people who have been employed are almost all from abroad, and work in a restaurant in the area. It has been observed that there is a possible opportunity related to the development of tourism that can be taken advantage of by this locality.

It has been observed that there is no possibility of affecting the socioeconomic activities of Colonia de Pintados and Victoria due to the works or actions of the Project.

Finally, the analysis of the social welfare dimension showed that both the Colonia de Pintados and Victoria sectors do not have access to health within their locality, for which they must attend, in accordance with municipal dependence, the locality of Pozo Almonte. However, the people of Colonia de Pintados also attend the Pica medical center in case of emergency, due to the fact that it is a shorter distance and therefore a shorter travel time to receive the service.

With regard to education, Tierra de Jehová's sub-sector has a school that has up to eighth grade. Neither Colonia de Pintados nor Victoria have other educational centers. In the case of Colonia de Pintados, the children travel to Pica or Pozo Almonte to continue their

studies, while in the case of Victoria, there were no children who might need educational services.

Colonia de Pintados in its four subsectors has well water, electricity, mobile phone, but no sewage. Victoria must buy water in Colonia de Pintados.

Connectivity and access to all of these assets is through Route 5 or within the locality, such that the works or actions of the Project will not affect them.

4.12. Cultural Heritage

The area where the CdT PV Project will be located corresponds to a semi-flat terrain, associated with limited depressions and small natural mounds, interspersed with faint layers of salt with the abundant chusca (moon dust) of the place. The results of the archaeological prospecting allowed the identification of 85 heritage elements, between pre-Hispanic (n=11) and historical (n=74) evidence, detected in the two macro-sectors of the Project, represented operationally by the PV plant and transmission line, as detailed below.

- PV plant sector

The sector corresponding to the PV plant is located to the east of the Pan-American Highway, and is distinguished as a semi-flat space, with sporadic presence of salt and abundant chusca (See Figures 2.3 and 3.1 above). The results of the archeological prospection in the sector allowed identifying patrimonial elements of pre-Hispanic and historical chronology. The pre-Hispanic contexts correspond mainly to lithic dispersions that constitute isolated sites and findings, among which the following stand out (plates and flakes), andesite and exceptionally silica. These evidences account for initial phases of lithic roughing, reflecting local procurement tasks.

The historical evidence corresponds to eight isolated findings and 54 linear features. The isolated findings are represented by remains of historical rubbish, represented essentially by metal containers adapted for cooking, bottle fragments, and carcasses of domestic animals. These contexts are associated with linear features, where traces of the passage of wagons, paths related to pedestrian traffic, and cattle driver tracks, linked to the transfer of livestock.

- Transmission line sector and electrical substation

The area corresponds to a linear strip that starts from the polygon of the PV plant towards the west, joins the Pan-American Highway and extends parallel to the latter towards the south, to the Lagunas substation. The terrain is semi-flat and irregular, with salt predominating over the chusca.

Pre-Hispanic and historical evidence was recorded in the area. The former correspond to lithic dispersions, with a predominance of andesite debris, represented by flakes, a projectile tip fragment and a possible scraper. In four of these elements, historical evidence is also recorded, thus marking a bi-component condition.

The historical evidence corresponds to five sites, two isolated findings and five linear features. The first corresponds to historical remains coming from productive and domestic activities, probably associated to saltpeter offices. Within the linear features there are traces of wagons, railway lines and telegraphs, which would also be associated with saltpeter activity.

4.13. Landscape

Route 5: Visibility from Route 5 is close and direct to the transmission line, which tends to disappear as it moves away from the route and into the Pampa del Tamarugal. It is worth mentioning that currently there are power lines in the high-voltage line sector of the photovoltaic park that is close to Route 5.

Road to Quebrada Blanca: Visibility from this road is direct and close to the photovoltaic plant and its north access road. As in the previous route, visibility disappears as observers move away from the Project area.

Notwithstanding the foregoing, the landscape presents a low visual quality. This result is mainly explained by the conditions presented by the following elements of the landscape considered in the evaluation:

- The presence of low slopes;
- A moderate chromatic contrast; and
- Absence of singularities.

On the other hand, the factors that mainly affect the high value of visual fragility are fundamentally related to:

- Uneven slopes that facilitate visibility;
- Shape and size of visual basins; and
- Low landscape uniqueness.

The local landscape, where the study area is inserted, is found in a desert landscape matrix, characterized by large areas without obvious use of the territory, this is combined with areas of the territory where human settlements are configured (for example, the oasis of Pica-Matilla), economic activities of mining exploitation (exploitation of caliche), road and electrical infrastructure and sectors of heritage and natural value (old saltpeter offices, natural reserves and archaeological sites).

4.14. Protected Areas

The Project area is spatially related to protected areas, since the photovoltaic plant would be located immediately adjacent to the eastern limit of the Pampa del Tamarugal National Reserve. At the same time, the high voltage line crosses the Reserve in a sector where the soil corresponds to salt flats. Meanwhile, the nearest locally designated biodiversity priority site is located 52 km away and corresponds to the "Punta Patache" coastal site.

It is important to note that the place where the transmission line crosses and the south access road, despite being part of the Tamarugal National Reserve, is a complete desert area which has the same conditions as the land of the solar park. In addition, as part of the EIA process, the Project received comments from the environmental authority requesting modifications in the transmission line route within the reserve to limit potential impacts, which the Project agreed to and modified in the amended EIA, which was later approved.

4.15. Tourism

The Project area is located within the Priority Tourist Area (ATP) "Salitreras y Oasis de Tarapacá", which does not include an official protection area, but it does correspond to an area of homogeneous characteristics, inasmuch as it is considered as a zone within the Pampa del Tamarugal that housed human settlements dedicated to mining, specifically nitrate extraction, generating a previous urban industrial complex in this zone of the country. The district territory of Pozo Almonte presents tourist attractions related mainly to the natural and scenic resources (Salt Flats), historical (Painted Geoglyphs) and patrimonial (Saltpeter Offices). There are currently 16 tourist attractions, two of which are close to the Project area; the Oasis Colonia Agrícola Pintados and the Bellavista Salt Flats located more than 2.2 km north of the Project.

In relation to the Project area, none of the regional tourist circuits (SERNATUR 2013) crosses the study area, the closest being Los Salares circuit, more than 25 km north of the Photovoltaic Park.

In relation to Zones of Touristic Interest or ZOITs, the closest to the Project area is "Pica Salar de Huasco", which is located approximately 18 km northeast of the Project.

5. ENVIRONMENTAL IMPACT ASSESSMENT

The environmental impact assessment considered the identification of the activities that could generate impacts, and the following environmental components that could be affected:

- Air quality
- Climate and Meteorology
- Geology and geomorphology
- Hydrography
- Edaphology
- Natural Risks
- Electromagnetic fields
- Noise
- Flora and vegetation
- Fauna
- Human Environment
- Cultural heritage
- Landscape scenic resources
- Protected areas and priority sites
- Tourist attractions

Based on the evidence collected, the results of the ***EIA indicate that the Project would generate "significant" impacts" solely associated with the component archaeological heritage.***

The following table summarizes the significant environmental impact of the Project identified exclusively in the construction phase.

Table 4.1. Significant Impacts

Social Environmental Factor	Project Stage	Impact	Description
Archaeo-logical Heritage	Construction	Affectation and / or loss of the elements that define each archaeological site	According to the areas studied and the characteristics of the Project, during the construction stage, the tasks associated with the removal of the surface and preparation of the soil, where the sites and archaeological finds are located, could result in a significant archaeological impact. Consequently, the expected results on archaeological sites and findings during the construction phase are as follows: • Affectation and / or loss of the elements that define each archaeological site, due to the effects of direct soil removal activities, directly affecting the archaeological remains as a result of excavations and passage of machinery, people and vehicles. • Affectation and / or loss of the elements that define each isolated archaeological finding, due to the effects of the activities of direct soil removal, affecting the archaeological remains of the surface as a result of tasks associated with excavations and passage of machinery, people and vehicles.

It is important to note that according to the Consolidated Environmental Impact Report (ICE in Spanish), issued by the environmental authority, it is declared that CdT project has no significant impact on human settlements, natural resources -including soil, water and air-, protected areas, priority sites for conservation, protected wetlands, nor will it affect the environmental value of the territory. As CdT explained in its EIA, the environmental authority declared in the ICE report that the only significant impact of this Project will be during the construction phase in those sites identified with historical and archaeological value.

Mitigation, compensation and compensation measures have been specified and agreed upon as part of the EIA process and are explained in Section 7 of this document.

6. POTENTIAL RISKS TO THE HEALTH OF THE POPULATION REFERRED TO IN ARTICLE 11(A) OF LAW 19.300.

The reason for submission of an EIA in the SEIA by the Project was explained above. The Project did not submit to the SEIA based on the provisions of Article 11(a) of Law No. 19,300 in relation to Article 5 of the SEIA Regulations, since it does not generate or present effects, characteristics or circumstances that imply risks for the health of the population.

7. MITIGATION MEASURES PLAN AND MONITORING OF ENVIRONMENTAL VARIABLES

7.1. Environmental Impact Mitigation Measures

The measures proposed to mitigate significant adverse impacts resulting from the development of the Project on Cultural and Archaeological Heritage components are presented below.

Table 7.1. General Environmental Regulations Applicable to the Project

Measure	Monitoring and Follow-up
Comprehensive record of the elements for their conservation in the historical context	• Register in detail the external characteristics of each patrimonial element, through an ad hoc registration form that allows to document the location, architectural features and materiality of the same. • Make a photographic record of each element.
Collection of superficial sites and historical isolated findings. Generation of historical restriction area.	• Collect each element according to registration protocols and archaeological conservation. • Encircle and install protection signs for the SH04 / transmission line site.
Collection of superficial sites and isolated archaeological findings	• Collect each element according to registration protocols and archaeological conservation. • Carry out specialized analyses to complete the historical information associated with the Project area.

7.2. Voluntary Measures

The Project includes two voluntary measures which were proposed in the EIA presented in the SEIA.

The first one aims at a systematic record of findings of avifauna species, living and affected, or dead in the Project during operation in the area of the transmission line of the Project where anti-collision bird markers and aeronautical buoys will be installed. A specialist will conduct a bi-monthly inspection of the Project area to detect affected individuals. At the end of each inspection, in case of finding an affected individual in the defined area, a registration form will be filled out.

The second voluntary measure is related to a community request received during *the Public Participation Process* and is related to the preparation of a historical study of the locality of Victoria by a social science professional which would focus on the interest of the community.

8. CONTINGENCY AND EMERGENCY PLAN

The Contingency and Emergency Prevention Plan is presented in a specific chapter of the EIA, which identifies potential natural and anthropogenic risks and describes the prevention and management system to be implemented. The contingency and emergency prevention plan identifies as potential natural hazards landslides and earthquakes. The plan also identifies the potential anthropogenic risks of: spillage of fuel, lubricant or dangerous substances on land, fire in the work area, traffic accidents, use of equipment and heavy machinery, and dismantling of equipment. For each of these situations, the operational and/or management measures that will be applied for handling of the situation are defined, avoiding the generation of impacts on the environment, people and equipment and facilities.

In addition, the EIA establishes that a special protocol will be followed in case of any incidents with wildlife in the new tamarugo tree plantation sector of RN Pampa del Tamarugal.

The emergency plan establishes the responsibilities, actions and procedures, in addition to the registration and communications systems that will be implemented in case of an emergency in the plant.

9. PLAN FOR COMPLIANCE WITH APPLICABLE ENVIRONMENTAL LEGISLATION

The applicable environmental regulations and their means of compliance are presented below.

Table 9.1. General Environmental Regulations Applicable to the Project

Regulations	Means of compliance
Supreme Decree Nº 1.150 Political Constitution of the Republic of Chile	The constitutional guarantee is respected through compliance with current environmental legislation that requires the entry of the Project into the SEIA, and recognition of the institutional formalities created for this purpose. In this sense, when the Project is submitted to the SEIA, the obligations indicated are fulfilled, because the State, in the use of its powers and through its administrative bodies, with competence in the matter, will evaluate the Project environmentally, ensuring that the right to live in an environment free of pollution is not affected.
Law Nº 19.300 Law of General Bases of the Environment	The Project complies with the provisions of Law No. 19,300, by registering with the Environmental Assessment System (SEIA) through this EIA. In turn, the purpose of entering the SEIA is to evaluate its impact prior to its implementation, as provided in Article 8. As for the compliance indicator, the latter will be the RCA, and CdT will proceed to what is established in the same, allowing the State to inspect it and thus ensure that the right to live in an environment free of pollution is not affected.
Supreme Decree No. 40/12 MMA, Regulation of the Environmental Impact Assessment System	The Project is within the typologies that require mandatory entry to the SEIA. In addition, it generates effects whose forecast and evaluation, in accordance with articles 6 to 10 of the Regulation, require the submittal of an Environmental Impact Study. The EIA presented by CdT deals with these effects, through the measures described in article 97 and subsequent. All of the above, with the purpose of submitting the Project to the environmental assessment and qualification in the SEIA, aiming at obtaining a favorable Environmental Qualification Resolution or RCA.
Resolution No. 1518/13 SMA, establishes the consolidated, coordinated and systematized text of Resolution No. 574 of 2012. Requires information to the owners of projects that have a favorable RCA; instructing the form and mode of presentation.	If a favorable RCA is obtained, it shall be uploaded to the platform http://snifa.sma.gob.cl/SistemaRCA within 15 working days from the date of notification. The compliance indicator, understood as a means of verification, is made up of the register provided as proof by the platform set up for such purposes by the Superintendence of the Environment.
Resolution No. 844/12 SMA, issues and instructs general rules on submission of conditions, commitments and measures established in environmental qualification resolutions	

Table 9.2. Specific Environmental Regulations Applicable to the Project

Regulations	Means of compliance
Air	
S.D. Nº 144/61 MINSAL, establishes standards to avoid fumes or atmospheric pollutants of any nature. S.D. Nº 47/92 MINVU, general ordinance of urbanism and constructions	The Project has incorporated emission control measures into its design, which allows it to adequately mitigate the impacts resulting from the construction and operation of the Project. Particulate matter released during the construction phase is mitigated through road wetting and speed control. During the Operation Phase of the Project, emissions into the atmosphere will correspond to gases resulting from the circulation of vehicles. To mitigate this effect, vehicle travel speeds will be restricted and they will be required to keep technical revisions up to date.
S.D. Nº 20/13 MMA, Establishes Primary Quality Standard for Breathable Particulate Material MP-10, especially the values that define emergency situations.	The Project has incorporated emission control measures into its design, which allows for adequate control of the impacts resulting from the construction and operation of the Project. Consideration is given to the wetting of roads throughout construction and speed control.
S.D. Nº 12/11 MMA, Primary Environmental Quality Standard for Fine Breathable Particulate Material MP 2,5	The Project has incorporated emission control measures into its design, which allows for adequate control of the impacts resulting from the construction and operation of the Project. Consideration is given to the wetting of roads throughout construction and speed control.
S.D. Nº 4/94 MTT, Establishes contaminant emission standards applicable to motor vehicles and establishes procedures for their control.	The emission standards shall be complied with and all motor vehicles involved in the Project shall be required to comply with these standards during all phases of the Project, which shall be verified by means of an up-to-date technical inspection and gas certificate.
S.D. Nº 75/87 MTT Establishes conditions for the transport of loads that indicate S.D. Nº 1/97 MTT Text from transit law S.D. Nº 211/91 MTT Norm for lightweight vehicles	
S.D. Nº54/94 MTT, Emission standard for medium motor vehicles that indicate	
S.D. Nº55/94 MTT, Emission standard for heavy motor vehicles that indicate	
S.D. Nº138/05 MINSAL, Establishes an obligation to report emissions that indicate S.D. Nº1/13 MMA, Regulation to report emissions	The Project will declare these emissions annually, through the RETC System of the Ministry of the Environment, web portal to enter the different sectorial systems of declaration in force. The compliance indicator, understood as a means of verification, is made up of the declaration register associated with the portal mentioned above.
Liquid Wastes	
S. D. Nº594/99 MINSAL, Regulation on basic sanitary and environmental conditions in workplaces.	By means of contractual clauses, the supplier of the chemical toilets will be responsible for carrying out all the necessary steps to guarantee the sanitary cleaning of the area where they were located. With respect to the WWTP, this EIA provides the background for the granting of PAS 138, which describes the technical and environmental characteristics of wastewater management

Regulations	Means of compliance
	and plant operation. Once the favorable RCA is obtained, the permit will be processed by the Health SEREMI.
Drinking water and waste waters	
NCh N°409/1 Of 2005 INN Chilean Drinking Water Standard	Since drinking water is purchased from third parties, it will be purchased from companies that have a valid authorization resolution, whose registry will be available to the inspection authority. The drinking water produced in a desalination plant will have the quality indicated.
S.D. Nº236/26 Min. of Hygiene, Assistance, Prevision and Work, General Regulations of Particular Sewers, Septic Tanks, Filtering Chambers, Contact Chambers, Absorbent Chambers and Household Latrines.	The treatment system and other works required for the management and disposal of waste waters shall comply with each of the requirements stipulated in this decree, there being a record of the parameters set by the same. For such purposes, the technical and formal contents of PAS 138 are presented in the Sectorial Environmental Permits Chapter.
D.F.L N°1/89 MINSAL, Establishes matters that require express sanitary authorization.	This EIA provides the technical and formal background information for the granting of PAS 138, where the technical-environmental characteristics are described regarding wastewater management and plant operation. Once the favorable RCA is obtained, the sectorial processing of the permit will proceed before Health SEREMI.
S.D. N° 735/69 MINSAL, Regulation of water services intended for human consumption	The supply of drinking water shall be sufficient, easily accessible and available at any time to its workers. The system of treatment and distribution of drinking water will ensure, at all events, the potability of the water for consumption. The drinking water treatment and distribution system will have the applicable sectorial permits, especially that of article 71 letter a) and of the final paragraph, both of the Health Code, in relation to D.F.L Nº 1/89 of the Ministry of Health (which require express sanitary authorization).
S.D. N°4/09 SEGPRES, Regulations for the Management of Sludge from Waste Water Treatment Plants	The WWTP will have an engineering project approved by the corresponding health authority, as required by Article 9 of the Regulation. The sludge generated in the WWTP will be periodically removed by a third party with express sanitary authorization for this purpose. By means of contractual clauses, the Project shall require the contractor to comply with these Regulations. In addition, there shall be a register evidencing the removal of the sludge and its frequency, which shall be available to the inspection authority.
Solid Wastes	
D.F.L N° 725/67 Health Code	Non-hazardous industrial wastes will only be stored in a salvage yard, which corresponds to a specially conditioned area in the Project facilities. The waste will be periodically removed by a third party with express sanitary authorization for this purpose. In addition, there shall be a register evidencing the removal of the waste and its frequency, which shall be available to the inspection authority.
S.D. Nº 594/99 MINSAL, Regulation on basic sanitary and environmental conditions in workplaces.	
S.D. Nº148/03 MINSAL, Health Regulations on the Management of Hazardous Wastes	Hazardous wastes will be generated during construction and operation of the Project. It will be stored in warehouses located in the waste management areas of the Project.

Regulations	Means of compliance
	These warehouses shall comply with the design measures and requirements contained in Title IV (Articles 29 et seq.) of the Regulations in question. They shall have signage in accordance with Chilean Standard NCh 2.190 Of 93.
Hazardous Substances	
S.D Nº78/09 MINSAL, Regulation on the Storage of Hazardous Substances	The warehouses will have a dividing wall when the type of substances requires it. These warehouses shall comply with the design required by the Regulations and they shall have signage in accordance with Chilean Standard NCh 2.190 Of 93.
Noise	
S.D. Nº 38/11 MMA, Establishes standard for the emission of noises generated by sources that indicates, prepared from the revision of Decree Nº 146, of 1997, of the Ministry of Secretariat General of the Presidency.	The standard is met in evaluated receivers.
Fuels and Equipment	
S.D. Nº 160/09 MINECON, Safety regulations for facilities and operations of production and refining, transport, storage, distribution and supply of liquid fuels.	The tank shall comply with the design, construction and operation requirements of Title IV of this Regulation. In addition, the Project shall proceed with registration and certification in accordance with the technical requirements established by the Superintendency of Electricity and Fuel in Ex. Res. No. 1146-2008 or the one that replaces it. Finally, in the event of any accident, the Superintendency and the environmental authority shall be informed in accordance with the rules and procedures of articles 32 and following of this Regulatory body.
Roads and Transport	
D.F.L Nº850/98 MOP, Establishes the consolidated, coordinated and systematized text of Law No. 15,840 of 1964, Organic Law of the Ministry of Public Works, and D.F.L No. 206 of 1960, Law on Roads.	To control the weight of the load, a record will be kept of the guides for dispatching the load to be transported, indicating the trip made, date and time, and the associated truck, indicating its plate number. In the event that overweight and/or oversized equipment needs to be transported, the Project shall request the corresponding authorizations from the Regional Direction of Roads. If third party transportation is required, such authorization shall be required by the Project. In cases where crossing or access to public roads is required, the Project shall request authorization from the Directorate of Roads, in accordance with the provisions of Articles 42 and 40 respectively.
S.D. Nº158/80 MOP, Establishes Axle Weight Limits and Total Gross Weight Limits	The Project, through its contractors, will comply with the maximum dimensions for the circulation of vehicles on public roads, as well as with the maximum weight of vehicles that

Regulations	Means of compliance
	can circulate on public roads. The corresponding permits will be requested when a load exceeding the maximum weight limits established in the applicable regulations is required to be transported.
S.D. Nº75/87 MTT, Establishes Conditions for the Transport of Cargoes that indicates	Contractor companies will be required to transport materials that prevent their dispersion into the air and to this end they should consider fully and effectively covering materials with appropriate sized tarpaulins, or other system so as to achieve this objective.
Resolution Nº 1/95 MTT, Establishes maximum dimensions to vehicles that indicates	The trucks to be used in the Project will conform to the maximum dimensions established in this regulation. The corresponding permits will be requested when it is required to transport a load that exceeds the maximum weight limits established in the applicable regulations.
National Monuments	
Law Nº 17.288 Legislation on National Monuments	Register in detail the external characteristics of each patrimonial element, through an ad hoc registration form that allows to document the location, architectural features and materiality of the same. Collect isolated element according to registration protocols and archaeological conservation. To notify National Monuments Commission (*Consejo de Monumentos Nacionales*) in case of relevant archaeological and paleontological findings according to the regulation.
Decree Nº 484/90 MINEDUC, Archaeological excavation and prospecting rules	
Protection of Terrestrial Fauna	
Ex. Decree Nº 133/05 MINAGRI Regulation for wood boxes	Mandatory wood treatment certificate

Table 9.3. Sectoral Environmental Permits (PAS) Applicable to the Project

PAS	Description	Request
PAS 132	Permit to carry out archaeological, anthropological and paleontological excavations.	The Project requires this sectorial environmental permit since works will be carried out in areas where there are archeological findings.
		The Project requires this sectorial environmental permit since works will be carried out in areas where there are paleontological findings.
PAS 138	Permit for the construction, repair, modification and extension of any public or private work intended for the evacuation, treatment or final disposal of drains, wastewater of any nature.	The Project will generate wastewater that will be managed through an authorized system.

PAS	Description	Request
PAS 140	Permit for the construction, repair, modification and extension of any rubbish and waste treatment plant of any kind or for the installation of any place intended for the accumulation, selection, industrialization, trade or final disposal of rubbish and wastes of any kind.	The Project includes the temporary storage of non-hazardous household and industrial wastes.
PAS 142	Permit for any site intended for the storage of hazardous wastes	The Project includes the temporary storage of hazardous wastes.
PAS 160	Permit to subdivide and develop rural land or for constructions outside urban limits.	The Project considers the construction of works located outside urban limits.

10. RELATIONSHIP BETWEEN THE PROJECT AND REGIONAL AND DISTRICT DEVELOPMENT POLICIES AND PLANS

At the regional level, the PV Cielos de Tarapacá Project is part of a combined investment project[7] which consists of the generation of baseload 24/7 electricity through the use of Non-Conventional Renewable Energies (NCRE). The energy generated by the Project will be supplied to the SEN.

Based on the analysis of the local development policies and plans, it can be concluded that the Project is aligned with the local vision and contributes to the development of energy generation through non-conventional renewable sources in a sustainable way as is established by the Tarapacá Regional Development Strategy, Regional Plan for Urban Development, Regional Government Plan, and PLADECO of Pozo Almonte. By replacing conventional generation (or avoiding the building of new thermal facilities), the Project contributes to the conservation of the biodiversity of the region.

11. COMMUNITY ENGAGEMENT

The Project initiated informal contact with the communities next to the Project area, namely Colonia de Pintados and Victoria, in the site area in April 2014, approximately nine months prior to submission of the EIA for the PV plant. Initial meetings were held in August 2014 and as detailed in Table 11.1 below, in a series of meetings were held in November 2014 to inform the community about the proposed Project and discuss potential impacts and concerns. Both communities are approximately 8 km from the Project site. The

[7] CdT is being developed together with the hydro pumped storage Espejo de Tarapacá Project (which also submitted an EIA to the SEIA). The two projects will commercially integrate solar generation with pumped storage hydro generation in order to provide renewable 24/7 energy supply.

agricultural village, Colonia de Pintados, is located approximately 8 km north-west of the site and Victoria, a small settlement, is approximately 8 km south-west of the site.

Table 11.1. Community Meetings Prior to Initiation of EIA Process

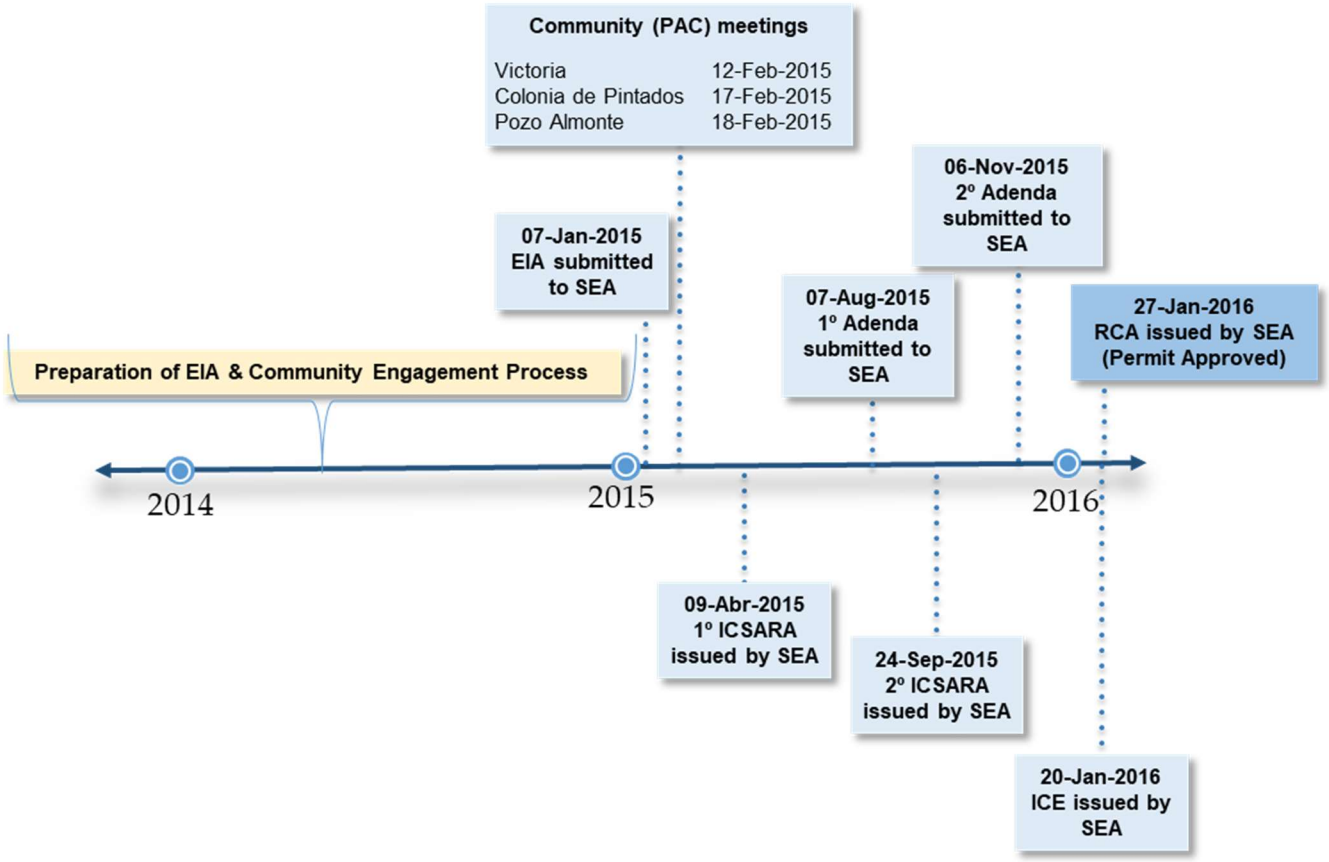
Date	Place/Attendance	Topics Discussed
04-Nov-2014	Colonia de Pintados – 6 people	General presentation and disclosure of the Project and invitation to set up a dialogue between the community and the Project owner
04-Nov-2014	Victoria – Owners of local restaurants	General presentation and disclosure of the Project and invitation to set up a dialogue between the community and the Project owner
05-Nov-2014	Colonia de Pintados – 1 person	General presentation and disclosure of the Project and invitation to set up a dialogue between the community and the Project owner
05-Nov-2014	Colonia de Pintados – 2 people	General presentation and disclosure of the Project and invitation to set up a dialogue between the community and the Project owner
12-Nov-2014	Colonia de Pintados – 2 people	General presentation and disclosure of the Project and invitation to set up a dialogue between the community and the Project owner
13-Nov-2014	Colonia de Pintados – 2 people	Detailed presentation and disclosure of the solar project and exploration of social and economic opportunities
20-Nov-2014	Colonia de Pintados – 4 people	Detailed presentation and disclosure of the solar project and exploration of social and economic opportunities
20-Nov-2014	Victoria – 10 people approx.	Detailed presentation and disclosure of the solar project and exploration of social and economic opportunities

The meetings above were held in addition to the community participation meetings held later as part of the EIA process (as explained in Section 14). Despite the distance between the site and the communities, the Project will also explore ways to support local development in these communities, which are particularly interested in taking advantage of potential economic opportunities during the construction period.

12. TIMELINE

The following figure shows the milestones of the EIA process.

Figure 12: EIA Process Timeline



Terms & Acronyms:	
EIA	Environmental Impact Study
SEA	Environmental Authority (*Servicio de Evaluacion Ambiental* or SEA)
PAC	Community Participation
ICSARA	Consolidated Report of Request for Clarification, Revision and/or Extension of the EIA issued by the SEA
Adenda	Complementary EIA Addendum submitted by the Project in response to ICSARA
ICE	Consolidated Evaluation Report prepared by SEA
RCA	Resolution of Environmental Qualification (Permit Approval)

13. MAIN ISSUES

During the EIA process two requests for clarification or ICSARAs were issued by the SEA which were each responded to by CdT with the submission of complementary information or Adenda. The main topics that the authorities asked to clarify, complement or confirm in each ICSARA by each specific Public Service Agency are summarized in the table below.

As a result of the ICSARAs, minor modifications to the initial project were made, although most of the comments pointed to prevention and mitigation measures. As detailed in the table below, the comments of the authorities pointed mainly to:

- Measures of precaution, monitoring and mitigation regarding the possible findings of heritage and cultural value that may be found during the construction process.
- Improvements in the transmission line, such as anti-collision bird deflectors and aeronautical diverters in the area where collisions are deemed more probable, in order to reduce the risk of collision and the risk of birds flying in the area. At the same time, modification of towers 34 and 35, in order to avoid an area in the Tamarugal National Reserve where the National Forestry Agency plans to plant Tamarugal trees in the future.
- Implementation and construction of an internal road that separates the solar park with the Tamarugal National Reserve.
- Improvement of access roads and precautionary measures only allowing for the circulation of lightweight vehicles.
- Preparation of voluntarily historic report for the town of Victoria.

Table 13.1. ICSARA Observations by Public Service Agency

Public Service Agency	Observations ICSARA 1	Observations ICSARA 2
SEA (Servicio de Evaluación Ambiental in Spanish, in English Environmental Assessment Authority), CONAF (National Forestry Authority), Energy's SEREMI, SERNATUR (National Tourism Service) Issues related to: layout of the transmission line, routes and general aspects of the Project location.	- Related to the requirement to carry out an EIA: Since the Project will require building a transmission line and the improvement of 10 km of road in the Pampa del Tamarugal National Reserve, the Project must present all the technical information that allow verification that the works or actions will not generate important effects on Flora and Fauna. Additionally, the preventive measures to be considered must be indicated. - On access routes (north and south) to the solar park, it is requested to clarify which are the improvement works that will be implemented on existing roads. The above is due to the proximity that exists with the Tamarugal National Reserve Project required to clarify the measures to be considered to avoid the increase of emissions due to the passage of heavy vehicles and construction of the transmission line. - CdT should consider moving the transmission line given that the initial location of tension towers 34 and 35 would be in an area destined to reforest with the Prosopis Tamarugo species in the future. CdT is required to move those units of the transmission line. - CdT should consider a circulation route between a sector of the Tamarugal National Reserve and the solar park, which are adjacent. The above with the intention of protecting said protected area. - The Project should clarify the protection activities that will be implemented on the transmission line to prevent birds from perching on the towers. - The activities to be considered are also requested to prevent birds from colliding with the principal cable of the transmission line, given that the main accidents of birds with the transmission lines are due to electrocution and collision with cables.	- More details are requested related to the layout changes of the transmission line—in particular for the proposed modification of towers 34 and 35. - Considering the measures that the Project will implement to avoid electrocution and collision in the transmission line, it is requested to characterize the protections to further minimize the risks. - The Project clarified that on the southern access road -which passes through the Tamarugal National Reserve will allow transit of only lightweight vehicles. It is requested to specify the monthly frequency number for each stage of the Project. - It is requested to clarify the security measures that will be implemented in the accesses, in order to respect the speed restrictions and traffic signs to avoid the transit of larger vehicles. - A wildlife monitoring plan associated with the transmission line is requested as a precautionary measure, indicating deadlines, methodology, indicators and delivery of reports to the environmental authority.
CMN (National Monument's Council) and National Assets SEREMI. Issues related to: Cultural and archeological heritage of the area	- In case of finding an archaeological or paleontological finding, the Project is required to proceed in accordance of the provisions of Law No. 17,288 of National Monuments, on excavations and / or archaeological, anthropological, paleontological surveys, immediately informing the National Monuments Council in writing to determine the applicable process. . - It should be clarified if the findings found during the studies of Human Settlement, are associated with the customs of the population. If related, it should be noted the protection and conservation measures to be implemented. - With respect to mitigation, compensation and compensation measures related to cultural heritage, the proposed measures are accepted with the following specifications: 1. Register in detail the characteristics of each patrimonial element. 2. Carry out topographic survey of each element that includes a record of 1 km outside the indicated area. 3. Make photographic and video record of each element. 4. Make a historical review or documentation that allows each element to be contextualized. - The Project must carry out a permanent archaeological record, by a qualified professional, in all the activities that consider the removal of the surface. The information must be sent regularly to National Monuments Council and to the Superintendence of the Environment - The Project should carry out archaeological induction to the Project's workers, particularly on archaeological components that could be found in the area during the construction phase. A professional in archeology must conduct these training sessions.	- It is requested that the Project develop the voluntary commitments proposed related to the cultural heritage of the contemporary history of the locality of Victoria.

14. PUBLIC PARTICIPATION PROCESS

Chilean SEIA regulations require implementation of a mandatory public participation process as part of all EIA processes. This process is organized by the SEA and anyone from the public can present questions or observations, at the SEA's office, on the SEA's web page or during the scheduled public meetings. At the public meetings, the project company makes a descriptive presentation of the Project and its environmental consultant presents the EIA. In February 2015, prior to the public participation meetings, the Project provided the SEA with 100 copies of the executive summary of the EIA for distribution to the community. In addition, the EIA and all related information is publicly available on the SEA website from the date on which it is originally submitted to the SEA.[8]

The questions from the public related to the Project and the environmental components detailed in the regulation are received by the SEA and the Project has to answer each question in a formal document which is registered in the EIA process. The answers are publicly available at the SEA's office and published on its website. Participation in this process enables any person to present an administrative appeal requesting consideration of its specific issues and questions in the final approval conditions for the environmental permit.

As detailed in the figure in Section 12, three formal public participation meetings were held during the EIA process: Pozo Almonte/11 attendees, Colonia Pintados/7 attendees and Victoria/7 attendees. The Project formally responded to all questions and observations received during the process and submitted this information to the SEA. This information is documented in the approved RCA for the Project.

15. FINAL CONDITIONS IN THE ENVIRONMENTAL PERMIT

The RCA or environment permit which was unanimously granted on January 27, 2016 summarizes the Project description, the EIA studies presented, applicable regulations, potential impacts, the contingency and emergency plan, applicable agency permits and finally, the conditions and mitigation measures which must be followed for implementation of the Project.

[8] http://seia.sea.gob.cl/expediente/expedientesEvaluacion.php?modo=ficha&id_expediente=2130127816

15.1. Final Environmental Impacts

The RCA concluded that construction of the Project will result in one significant impact related to intervention in archeological material during the construction period.

15.2. Final Mitigation Measures, Monitoring and Voluntary Measures

The RCA establishes the conditions to mitigate the identified significant impact which are summarized in the following table:

Table 15.1. Mitigation Measures

Impacts	Measures
Registry of archeological material	Prior to start of construction, team of archeologists and surveyors will perform survey of area registering conditions and elements with photos and videos
Recollection of archeological material	Archeological findings will be recollected and analyzed, identifying location coordinates and protecting the area from intervention with signs. Recollection of findings will be implemented by specialists and the material will be delivered to the regional museum, in accordance with the decision of the Council of National Monuments, CMN.
Archeological induction talks for workers	Training in the care of cultural heritage through induction and educational talks on the archaeological findings present in the Project area and their due protection, to all those who enter the work areas for the first time.

The RCA establishes the following survey and monitoring plans during the construction phase that must be implemented and reported to the authorities:

Table 15.2. Monitoring Plan for Environmental Impacts during Construction

Environmental Impact	Preventive Measure	Frequency & Duration	Reporting Requirement
Cultural Heritage	Detailed registry/survey of cultural and historical sites and findings	Preparation of report to be submitted to National Monuments Council	Approval of report submitted to National Monuments Council
Archeological Intervention	Recollection and transfer of all archeological findings to local museum; protection of site area with signs	Every time archeological findings are located	Every time archeological findings are located
Archeological Intervention	Permanent archeological monitoring and training induction for workers	Qualified archeological specialist will perform quarterly inspection of	Quarterly monitoring reports to be prepared.

		intervention in surface areas	

The RCA also incorporates the voluntary measures that were proposed by the Project, making compliance with these measures obligatory.

Table 15.4. Voluntary EIA Commitments Proposed by the Project

Environmental Issue	Commitment	Implementation Method	Reporting Requirement
Impact on Birds	Systematic registration of bird findings in the Project area, including live, dead and affected specimens, in order to analyze results of installation of anti-collision mechanisms on transmission line and ensure veterinary treatment of any affected specimens	Specialist will survey the Project area two times per month during the 1st year of operation	Quarterly reports to be prepared
Cultural Heritage	If interest by community is confirmed[9], social science professional will prepare historic report on the locality of Victoria	Preparation of one-time historic report	Report to be delivered to community

[9] It should be noted that in accordance with the voluntary commitment, given less than 8 people in the community expressed interest in the historic report after the terms of reference for the report were provided, the report was not prepared