



Cielos de Tarapacá

Chapter 5

Analysis of Pertinence

EIA Cielos DE TARAPACÁ

November 2014

Chapter 5

Analysis of Pertinence

EIA PHOTOVOLTAIC PARK CIELOS DE TARAPACA

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5.1 Introduction

Under As stated in the article 12 Letter of law n ° 19,300, supplemented by article 18 letter G) of the DS N ° 40/2012 MMA, Environmental impact Assessment System (SEIA) regulation, this Chapter is intended to justify the entry of the project "Skies of Tarapacá Photovoltaic Park", to the SEIA through Of the presentation of an environmental impact study (EIA).

In This sense It should be noted that, in accordance with the provisions of Law No. 19,300 which establishes general environmental Bases, those projects which are listed In article 10 of that LEY, and which present or generate at least one of the effects, characteristics or circumstances indicated in the article 11 of the same law, They must present an environmental impact study (EIA) or, if not, an environmental impact statement (DIA).

The effects, characteristics or circumstances, Referred to in article 11 of Law no 19,300, correspond to:

Letter To *Risk For The Bless you Of The Population Due To The Amount And Quality Of Effluents Emissions Or Waste*

Letter b *Effects Adverse Significant About The Amount And Quality Of The Resources Renewable Natural, Including The Soil Water And Air*

Letter C *Resettlement Of Communities Human Or Alteration Significant Of The Systems of Life And Customs of Human groups;*

Letter D *Location In Or Next To Populations Resources And Areas Protected Sites Priority For The Conservation Wetlands Protected And Glaciers Susceptible Of Be Affected Like this As The Value Environmental Of Territory In What Is Intended Emplacement*

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***Letter and** Alteration Significant In Terms Of Magnitude Or Duration Of Value Landscape Or Tourist Of A Area And*

***Letter F** Alteration Of Monuments Sites With Value Anthropological Archaeological Historical And In General The Belonging To Heritage Cultural.*

The development and characteristics of each one of these effects, characteristics or circumstances, are developed between articles 5° A 10 of DS N ° 40/2012 MMA, hereafter "Regulation of the SEIA".

Whereas, according to the above, The project "Cielos de Tarapacá Photovoltaic Park" should be evaluated within the framework of the SEIA, In merit of the antecedents that are then exposed, The presentation of the project Al SEIA Must be through an EIA.

The foregoing, since the project presents or generates at least one of the effects, characteristics or circumstances described in article 11 of Law No. 19,300, cited above.

In this sense, and for the purposes of the analysis of article 11 of Law No. 19,300, it is made present that the entry into the Environmental impact Assessment System (SEIA) is justified, Since the project corresponds to a plant of power generation greater than 3 MW identified in the literal C) of the article 10 of the Law 19,300, on Bases of the environment and its modification. In the same way and according to the provisions of the Article 3° Literal c) Of SEIA regulation, The type of income of the project By is the following:

C Power generating plants greater than 3 MW

Secondary, according to literal b) of article 10 of law 19,300 and the Article

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3° Literal b) Of SEIA regulation, the project includes the following typology:

b High-voltage electrical transmission lines and their substations.

Finally, considering that the development of the project will require the construction and improvement of access roads and the construction of a high voltage line (LAT)LAs they will have as consequence, to introduce in a sector of the National reserve Pampa del Tamarugal, artificial elements of anthropic origin,, The project includes the typology Described in the literal p) of article 10 of Law No. 19,300 and of the literal p) Article 3 of the SEIA regulation:

P Execution of works, programs or activities in national parks, national reserves, natural monuments, reserves of Virgin areas, sanctuaries of nature, marine parks, marine reserves or in any other areas placed under protection In cases where the relevant legislation allows.

Indicated the reasons for the entry of the project to the SEIA, literals B), c) and P) of article 10 of Law n ° 19,300, below We analyze and describe those effects, characteristics or circumstances, under which the project enters environmental assessment through an EIA, establishing the scope of them, the associated works or activities, Mitigation, repair and/or compensation measures in your case, and finally the measures set out in the follow-up plan

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5.2 Criterion I

In accordance with article 5° Of SEIA regulation, The proprietor shall present an environmental impact study if his project or activity generates or presents a risk to the health of the population due to the quantity and quality of the effluents, emissions or waste generated or produced. In order to assess the risk referred to in the preceding subparagraph, it shall be considered:

***Literal a)** Exceeding the values of the concentrations and periods established in the primary standards of environmental quality and current emissions or the significant increase or decrease, as appropriate, of the concentration above the limits established in These. In the absence of such rules, those in force in the States referred to in article 11 of this Regulation shall be used as reference.*

The project does not affect compliance with existing environmental and emission quality standards. The most relevant emissions will be generated during the construction phase, as reflected in the estimation of particulate matter emissions. In any case, they are minor emissions, corresponding to those generated the transport and loading of material with vehicles and machinery (by transit in unpaved roads), construction of pipelines and roads of Service.

The emissions of particulate matter associated with these activities are characteristic of a constructive task that includes material transfer activities and in minor measure ground movements and the same will be temporary.

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For its part, s(e) Generate gaseous emissions due to internal combustion processes of light-vehicle engines, trucks, generators and machinery used in the Phase.

The result of the emission estimation indicates that the higher emission of pollutants corresponds to NO_x, During the construction phase of the project, product of the performance of Maquinaria and generator Sets.

However it is less emissions, and Holder has considered additional measures to reduce the generation of suspended dust:

- Non-paved roads will be moistened during the construction phase once a day.
- The speed of circulation of trucks will be restricted to 50 km/h.
- The trucks carrying the construction material shall comply with the corresponding provisions of DS No. 75/87 of the Ministry of Transport and Telecommunications, which establishes conditions for the transport of loads, for whose purposes the Building materials shall be properly moistened and covered, in order to control and minimize emissions of particulate matter in the construction phase.
- The vehicles shall have the technical revisions per day. The maintenance of the machinery will be carried out according to the manufacturer's specifications, in authorized mechanical workshops.
- Any vehicle registered in the National Motor Vehicle Registry after September 1, 1994, will carry the seal proving compliance with the maximum limits of its Emissions and those who do not carry it will not be admitted to the work. The technical inspection of works shall be responsible for verifying and requiring the contractor to comply

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with this obligation.

On the other hand, It is anticipated that during the operation phase of the project, Emissions from the combustion of vehicles and suspended particles are not be significant, since it only Point-in-time emissions will be generated, in the event of a monitoring round, Transportation of personnel and maintenance material.

The emission estimation for the different phases of the project is Presents with greater Detail in **Annex 1.4.**, from the Present EIA.

Literal b) Overcoming the noise values established in the current environmental regulations. In the absence of such rules, those in force in the States referred to in article 11 of the Regulation shall be used as reference.

According to the values obtained from baseline and to the limits established in DS No. 38/2011 of the MMA for each inhabited evaluation point, the maximum allowed levels vary between 55 and 64 [DB (a)] for daytime and between 47 and 50 [db (a)] for night period. In the case of selected points for sensitive fauna, the maximum is 85 [DB] in both lost.

At the same time, noise modeling was carried out for the construction, operation and abandonment stages of the project. The results obtained for each scenario were compared with the maximum limits established by the DS 38/11 of the MMA, noting that all the stages will not generate excesses on the thresholds that define the noise regulations applied for settlements Human Both during daytime and Night.

Under all the above mentioned, it was Sets That the project "Cielos de Tarapacá Photovoltaic Park" will not generate a negative acoustic impact on the receivers near the site and layout of the project.

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Literal c) Exposure to pollutants due to the impact of emissions and effluents on renewable natural resources, including soil, water and air, if it is not possible to assess the Risk to the health of the population according to the letters above.

The project will not generate emissions to the atmosphere or liquid effluents that alone or combined can generate risks to the health of the population.

The nearest population is in the localities of Painted cologne, approximately 7.7 km in a straight line to the North of the Photovoltaic Park; And The town of Victory, at a distance of approximately 8.6 km in a straight line Towards the this. Currently there are no routes that unite these locations with the site of the photovoltaic park.

However, with regard to atmospheric emissions, the construction phase will generate emissions product of the transit of vehicles associated with transfer of material and Earth movements. While the amount of dust suspended will not be relevant, Additional measures have been considered to reduce the generation of dust.

For its part, with respect to the phase of operation of the project, it is anticipated that no constant emissions will be generated to the atmosphere because it is a project of "*Clean Energies*", as long as the emissions are restricted only to those emissions product of the circulation of vehicles by the transfer of personnel of maintenance, monitoring and inspection of the project, or to the eventual use of generating equipment.

With regard to the liquid effluents that the project will generate, these correspond to wastewater and industrial liquid waste, which do not have any danger to the health of the population due to its concentration and physical, chemical and biological characteristics.

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In Effect, in The construction phase, the wastewater to be generated will be the product of the use of bathrooms, showers and sinks For a maximum of 600 people, which considering a provision of 100 L/person/day, which will generate an effluent 60,000 liters/day, which will be driven to a water treatment plant, Whose Treated water will be used to The Humidification and for the elaboration of the mixture with Bischofita used in the stabilization of the roads during this phase.

In this sense, In the area of household liquid waste, During the construction phase, proceed as follows:

- A copy of the current contract or purchase order will be kept in the slaughter with the contracted company, which will indicate the points approved for the dumping of wastewater from chemical baths.
- A record of the monitoring and control of these wastes will be kept with the corresponding supporting documentation.

On the other hand, DThe operation phase, The wastewater generated will be the product of the operation and maintenance activities carried out to the photovoltaic park. Permanent health Service facilities for the use of staff shall be counted; These facilities will be composed by bathrooms, sink and shower and will be located in the operation and maintenance building.

For the treatment of wastewater, the same modular treatment plant for aerobic digestion of the construction phase will be used, which will be resized to suit the lowest number of workers present during the operation stage. It is estimated that the maximum effluent for the operation phase will correspond to 2.000 L/Day (a maximum of 20 people with a fee 100 L/person/day).

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The treated effluent will be used to The Humidification And for the elaboration of the mixture with Bischofita used in the stabilization of the roads during this phase

In the construction phase, liquid waste will be generated Industrial From the washing of machinery that is carried out in the yard maintenance of machinery. By means of a collector grille placed on the contour of the concrete floor and connected to a watertight chamber, the residual water will be collected. Once the watertight chamber reaches 80% of its capacity will be emptied by means of the suction of its contents, which will be stored in solid containers that will be transferred to the warehouse of hazardous wastes temporarily for its subsequent handling, transport and Disposition according to the provisions of DS N ° 148/03 MINSAL.

With respect to liquid industrial waste In the operation phase, the only one that could be generated comes from Of 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 permit, dry cleaning will be done to eliminate the need for water use during the cleaning of the modules. If water is used, it will drain to the ground and then evaporate, as it would if it were natural precipitations. It should be noted that cleaning is not considered the use of detergents, so water is not incorporated into any substance. A need of 9,826 m is estimated³ of low-mineral water for annual maintenance.

As previously noted, this liquid residue does not require treatment and will drain onto the modules and subsequently fall on the ground and evaporate.

Literal d) Exposure to contaminants due to the impact of waste management on renewable natural resources including soil, water and air.

With respect to the **Liquid waste**, both in the construction phase and in the

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operating phase, Wastewater will be generated and liquid industrial waste, which will be managed considering compliance with all applicable environmental regulations, in specific the DS N ° 594/1999 minsal and DS N ° 148/2003 minsal, so there will be no impact on renewable natural resources by this concept.

With respect to the **Solid waste** Is Estimates that a Approximate amount to 18 ton/month of domestic solid waste in each phase of the construction stage, with a monthly frequency of retirement. This calculation comes from a maximum approximate value of household waste generation of 1 kg/worker/day, considering a maximum of 600 workers/day. All waste will be removed and transferred by a company authorized by the Regional Health service to be deposited in an authorized place.

For the **Household waste**, a temporary collection zone is considered in the slaughter plant. With respect to the **Non-hazardous industrial solid waste**, the product will be generated Process of construction, assembly and unpacking of equipment, mainly wood remnants, cardboards, plastics and metals.

Containers will be counted on different working fronts for the classification. The primary level of waste and Subsequently, they will be classified according to their nature and arranged on a temporary basis in a warehouse of industrial waste, in the sector of installation of tasks. The withdrawal of this type of waste will be A Time every three months.

On the other hand, EN The Phase of operation will be generated **Solid waste assimilated to domestics** product of the operation and maintenance activities required by the photovoltaic park. A maximum

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generation of up to 1 kg/day/PE is estimated, which translates to 0.60 ton/month, considering 20 Workers simultaneously. The handling of these will be similar to that described for the construction phase.

An enclosure will be built up to which the containers will be taken to be emptied in others of greater volume. Inside the enclosure will be located containers of solid material with lid, whose content will be removed by a company that has sanitary authorization every Three) Days and transferred to a nearby landfill approved by the health authority.

With respect to the **Non-hazardous industrial solid waste** Of the operation phase, these will be caused by spare parts, cables, among others, in very low quantities. These wastes will be temporarily arranged in a specially-enabled site, To then be arranged in dumps authorized or well recycled, depending on the nature of the waste.

Respect of the **Hazardous waste** In construction phase They will have their origin in the different inputs used in the construction and maintenance of the machinery in the project area. Hazardous waste will be kept temporarily in containers with a lid Duly labeled. It will be fulfilled at all times to the DS N ° 148/03 MINSAL As to its transitory disposition, transportation and disposition. A warehouse of hazardous waste will be enabled, which will have the following characteristics:

- It will have a continuous, waterproof and resistant base.
- It will have a perimeter closure of at least 1.80 meters of height that prevents the free access of people and animals.
- It will be roofed and protected from environmental conditions such as humidity, temperature and solar radiation.

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- It will have a retention capacity of runoffs or spills not lower than the volume of the container of greater capacity or to 20% of the total volume of the stored containers.
- It will have signage according to the Nch 2190 Of2003.
- It will also have restricted access and have security measures and fire-fighting equipment. Each winery will have A1) Extinguisher (suitable fire extinguishers will be used for class B fuel elements).

In the operation phase the **Hazardous waste** Produced from the activities of the Maintenance and cleaning of the project's facilities. Its handling will be similar to that of the construction phase.

Conclusion Criterion I: *On the basis of the previous analysis it can be concluded that the project will not generate or present risk to the health of the population due to the quantity and quality of the effluents, emissions or waste that generates or produces.*

5.3 Criterion II

An environmental impact study should be presented if the project or activity generates or presents significant adverse effects on the quantity and quality of renewable natural resources, including soil, water and air (Art. 6th of the SEIA regulation).

In order to assess whether or not the risk referred to in the preceding subparagraph is generated or presented, it shall be considered:

Literal a) *Loss of soil or capTo sustain biodiversity by degradation, erosion, waterproofing, compaction or presence of contaminants.*

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The intervention on the site is developed in a strut form due to the installation of the photovoltaic modules, however it is indicated that the area of the project presents characteristics edaphic quite homogeneous, with a range of variation in its properties Very narrow physical and morphological.

The ground resource is very scarce, because this area is in the so-called absolute desert, where the conditions of extreme aridity, with absence of rainfall, dryness and a marked thermal amplitude, make difficult the presence of fauna and vegetation. Therefore, the evolution or soil development is incipient and, in some sectors it is even non-existent, calificándose as a succession of layers of sediments.

This soil does not present evolution of horizons or content of organic matter, it is of coarse texture, High saline content and excessive drainage. Presents successive The most, observed in the following order from the surface: Chusca, sediments, cemented crust and sediments up to 100 cm. The surface is covered by stony pavement, constituted by angular lithic fragments, which can cover up to 80% of the surface.

Therefore, in consideration of the characteristics of the soil present in the area, which corresponds rather to physical and chemical processes product of the extreme rigorousness of the desert, where the biological processes in the genesis of the soil are almost null, these soils They correspond to class VIII, which indicates that they are soils without agricultural, livestock or forestry value. This is because under a pedological point of view, there would be no proper soils, because of the already described condition of extreme aridity and the presence of high levels of salts and nitrates.

For all the above, no potential is identified Impacts of the project on the soil natural resource.

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Literal b) The surface with plants, algae, funguss wild animals and intervened biota exploited, altered or managed and the impact generated on that surface. For the evaluation of the impact, the biological diversity should be considered, as well as the presence and abundance of wild species in a conservation state or the existence of a plan of recovery, conservation and management of these species, according to the Designated in article 37 of the Law.

With regard to the flora and the terrestrial vegetation it is possible to determine only the presence of a homogeneous unit of vegetation with some species of vascular flora. This unit identified as "*Pajonal de Baccharis Juncea*" It has a very small area (350 m²), and is located in the easement defined for the installation of the electric transmission line, at a distance of 15 m from the nearest tower, so it would not be affected by the construction of this structure. In turn, the project contemplates the construction of an access road, parallel to the girdle of Bonding designed for the transmission line, whose design and construction are Be carried out avoiding the intervention of the identified vegetation unit. In addition, workers will be instructed that this area is restricted, not being able to perform activities in it.

Along with the above, it is important to mention that the development of the project will require the construction and improvement of access roads and the construction of a high voltage line (LAT). Those that will have as consequence, to introduce in a sector of the National reserve Pampa del Tamarugal, artificial elements of anthropic origin. Without prejudice to the foregoing and as indicated, the sectors of the reserve involved correspond to areas without vegetation, where there is no presence of Tamarugos.

In view of the above, It is possible to conclude that the project in any of its phases includes activities that could cause impacts on the flora and terrestrial vegetation component.

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With respect to the terrestrial fauna in the area of the project, three native wild species were recorded and a Micromammal Introduced. On the other hand, the observed abundances were low. Just a species, corresponding to Zorro (*Lycalopex Sp.*), is classified in a conservation category according to the current legislation. This is classified as a species of PMinor reoccupation according to DS N ° 33/2012 MMA, in this way, this species is not currently threatened (DS N ° 29/2011 MMA).

Concerning the works and activities to be carried out in the execution of the project, No effects are expected on the native fauna because in the area, low wealth and abundances were recorded, the species registered are not threatened, and native low-mobility species were not recorded.

By virtue of the results obtained and taking into consideration the characteristics of the project planned to be built and operated, And Conditions amEnvironmental of the area to intervene, It is concluded that the materialization of the project will not generate significant adverse effects on the quantity and quality of renewable natural resources.

Based on the previous analysis It's possible To determine that no effects will be generated on biological diversity and its regeneration capacity.

Literal c) The magnitude and duration of the impactor project or activity on the ground, water or air in relation to the baseline condition.

The intervention on the site is developed in a strut form due to the installation of the photovoltaic modules, however it is indicated that the area of the project presents characteristics edaphic quite homogeneous, with a range of variation in its properties Very narrow physical and morphological. The ground resource is very scarce, because this area is in the so-called *Absolute Desert*, where the conditions of extreme aridity, with no rainfall, dryness and a marked thermal amplitude, make the presence of fauna and vegetation difficult. Therefore, the evolution or soil development

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is incipient and, in some sectors it is even non-existent, calificándose as a succession of layers of sediments.

With regard to the possible impact of the air, and as indicated, The construction stage will increase the suspended particles, due to the earth movements, collection and transport of material, and to the movements of the machinery through the unpaved surface. While the amount of dust suspended will not be relevant, Additional measures have been considered to reduce the generation of dust.

Finally, the waste of the project has an adequate management, which allows to assure the non-affectation of soil and the Guas; indeed; Regarding The liquid waste to be generated, both in The Phases of construction and operation, correspond to wastewater and liquid industrial waste, which will be handled considering compliance with all applicable environmental regulations, in specific to the DS N ° 594/1999 minsal And DS N ° 148/2003 minsal, so there will be no impact on renewable natural resources by this concept.

For the generation of solid waste assimilated to domestic and industrial non-hazardous, in All phases of the project are agitate at all times with the Di-Sposiciones of the DS N ° 594/1999 minsal and will have all the necessary sanitary authorizations.

With respect to the generation of hazardous waste, the provisions of the DS N ° 148/2003 minsal will be respected in all phases of the project and will be counted on all the Authorizations Relevant health

Therefore, the intervention is not considered significant in terms of magnitude and duration, on the soil, water and air, in relation to the condition of baseline.

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Literal d) *Exceeding the values of the concentrations established in the secondary standards of environmental quality in force or the significant increase or decrease, as appropriate, of the concentration above the limits established in this*

On the basis of the antecedents presented in this document, it can be stated that during the construction, operation and abandonment phases of the project, the effluents and the emissions to the atmosphere do not Exceed The values of the concentrations established in the secondary Environmental standards quality in force, nor do they generate a Significant increase or decrease, as appropriate, of the concentration over the limits established in these

Literal e) *The difference between the estimated noise levels with project or activity and the level of background noise representative and characteristic of the environment where native fauna is concentrated associated with habitats of relevance for nesting, breeding or feeding.*

Is They made noise modeling for the construction, operation and abandonment stages of the project. The results obtained for each scenario were compared with the maximum limits established by the DS 38/11 of the MMA and the Environmental Assessment Guide: Wildlife Component G-PR-GA-03 published by the Livestock Agricultural Service (SAG) of the MiniSterio of agriculture in 2012, where Point 5.2, letter (g) Recommended to use as a reference the "Effects Of Noise On Wildlife and Other Animals (EPA) ", noting that all stages will not generate excesses on the thresholds that define the noise regulations applied for sensitive sectors of fauna, during the daytime and nocturnal periods.

Literal f) *The impact generated by the use and/or handling of chemicals, residues, and any other substances that may affect resources Natural Renewable.*

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It is not considered the use of chemicals or other substances that may affect renewable natural resources. According to the low generation of waste, emissions or effluents, which produces the project in its different phases, and considering the environmental conditions of the area where it is located (absolute desert, Almost completely lacking in plant species), it can be established that the project will not affect the environmental quality of existing renewable natural resources.

Literal g) *The impact generated by the volume or flow of resources Water to intervene or to explode, as well as the one generated by the transfer of a basin or Sub To another, including the one generated by Ascent or descent of groundwater and surface water levels. It should be considered:*

G. 1 groundwater bodies containing fossil waters.

G. 2 bodies or water courses in which fluctuations of levels are generated.

G. 3 Vegas and/or Bofedales that may be affected by the rise or fall of water levels.

G. 4 areas or areas of wetlands, estuaries and peat bogs that may be affected by the rise or fall of groundwater or surface water levels.

G. 5 The surface or volume of a glacier susceptible to change.

In no case will water be extracted directly from surface or underground bodies. Consequently the project does not consider in any of its phases the intervention and/or exploitation of water resources or transfer of a basin or Sub Hydrographic to another, in the terms shown in the letter G), nor is it close to these, given the desert characteristics of the project site area, which is specifically located in the formation of the *Inner Desert*, nor will the impact of Vegas or Bofedales, areas or areas of wetlands or on the surface or volume of a glacier.

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Literal h) *The impacts that may lead to the introduction of exotic species to the National territory or in areas, areas or Determined ecosystems.*

The project does not generate alterations to other natural and/or artificial elements of the environment, since it does not introduce to the national territory any species of flora or fauna, neither of genetically modified organisms or by other similar techniques.

Conclusion Criterion II: *On the basis of the above analysis, it can be concluded that the project will not generate or present significant adverse effects on the quantity and quality of renewable natural resources, including soil, water and air.*

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5.4 Criterion III

An environmental impact study should be presented if the project or activity generates resettlement of human communities or significant alteration of the life and customs systems of human groups (article 7 of the SEIA Regulation).

Literal a) *Intervention, use or restriction on the access of natural resources used as an economic sustenance of the group or for any other traditional use, such as medicinal use, Spiritual or cultural.*

The area of influence of the project For the purposes of a human medium component It was defined according to the possible affectations in The Cultural roots and Identity That could have the human groups close to the project. These human groups correspond to the towns of Victoria and Colonia painted.

It is the case to mention that in Colonia de Pintado there is an indigenous population that does not have traditional activities linked to their ethnic groups in a collective way. 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 their works or actions.

As a result of the project, LA locality of painted Cologne Keeps the Access to the main natural resources for their economic sustenance, which are obtained within the same locality, and are administered by groups of peasants both indigenous and non-indigenous. Its form of organization has a formal structure, organized by the neighbors ' meetings and the agricultural and peasant associations, and a Organization Rather informal, it has to do with the church and the descendants of the families who inherited the town.

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Victoria, On the other hand, is a small Town that is adjacent to the RUta 5, located on the edge SYour from Pozo Almonte commune, inhabited by people who belonged to the Victoria nitrate. This locality is aimed at delivering food, housing, and fuel services to workers in companies operating in the area, such as SQM, Quebrada Blanca, and other smaller enterprises.

As for the socioeconomic dimension, it can be observed that the productive vocation of the painted colony, including its four sub-sectors, is oriented towards the production of vegetables and fruits for sale to the main towns of the north, and livestock For self-consumption. They also sell water in a community manner, and there is an orientation towards the growth of mining in the young population because it delivers better wage prospects and employability. The occupied population is 40% and, 20% is looking for work. This is explained because there is a degree of informality in the work in the area. In the subsector of Jehovah's Lands There is also provision of some services, such as warehouses, groceries, accommodation and restaurants.

In the case of Victoria, its composition in terms of employment has not varied since the year 2002, since it is still oriented towards the services to mining and construction companies that are located in the vicinity. In this sense, all people Have ventures Own, 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 may be an opportunity related to the development of tourism that can be used by this locality.

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

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In view of the foregoing, it is possible to conclude that there are no significant impacts on these associated concepts To the works or actions of the project.

Literal b) Obstruction or restriction to free movement, connectivity or significant increase De The displacement times.

The connectivity and access to all the goods and services of the towns of Victoria and Cologne painted is carried out through the RUta 5, so that at no time will they be affected by thes works or actions of the Project, since there are confined to the areas of the project, all distant from the villages.

Literal c) The alteration to the access or to the quality of goods, equipment, services or basic infrastructure.

With regard to the analysis of the social welfare dimension, it was shown that both the cologne sector of painting and Victoria do not have access to health within their locality, for which they must attend, by Municipal dependency, the locality of Pozo Almonte. However, the people of painted Cologne also attend Pica's office in case of urgency, because It is at a lower distance.

In relation to education, the subsector of the Land of Jehovah has a school that has up to eighth basic. Both cologne of painting and Victoria do not have other educational centers. In the case of painted colony, children travel to Pica or Pozo Almonte (about 50 km) to pursue their studies, while in the case of Victoria, there Children who might need educational services were presented.

Painted Colony in its four sub-sectors has well water, electricity, mobile phone, but not sewer. Instead victory must Buy the water in Cologne painted.

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The connectivity and access to all these goods is given through Route 5 or within the locality, so they will not be affected by the works or actions of the project.

With this background, it is possible to conclude that the construction and operation of the project does not alter the access or quality of goods, equipment, services or basic infrastructure of the existing settlements in their area of influence.

Literal d) The difficulty or impediment to the exercise or the manifestation of traditions, culture or community interests, which may affect the feelings of belonging or the social cohesion of the group.

The only issue of importance to be analyzed on this point is associated the anthropological dimension. In Colonia de Pintado there is an indigenous population that does not have traditional activities linked to their ethnic groups in a collective way. 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 their works or actions.

Although it was defined as a possible impact on cultural roots, Due to The existence of traces troop, its effect was ruled out because the interviews carried out in the study of baseline, do not show a manifest interest, as well as there are not actions of vindication to them as they could be rites, cults, actions of protection or others.

Conclusion Criterion III: On the basis of the previous analysis, it can be concluded that the project does not generate resettlement of human communities or significant alteration of the systems of life And Customs of human groups.

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5.5 Criterion IV

An environmental impact study should be carried out if the project or activity, including its associated works or actions, in any of its stages, if it is located in or near populations, resources and protected areas, priority sites for conservation, wetlands protected and glacial, susceptible to be affected, as well as the environmental value of the territory in which it is intended to be located (Art. 8° of the SEIA regulation).

The project or activity is understood to be located in or near the population, resources and protected areas, priority sites for conservation, protected wetlands, glaciers or A territory with value Environment, when they are in the area of influence of the project or activity.

Protected populations of indigenous peoples are understood to be independent of their form of organization.

Protected resources shall be understood to be those placed under official protection by means of an administrative act of competent authority, in order to ensure biological diversity, to protect the preservation of nature or to preserve the heritage Environmental.

Protected areas shall mean any portion of territory, defined geographically and established by an administrative act of competent authority, placed under official protection in order to ensure biological diversity, Protect the preservation of nature or preserve the environmental heritage.

Wetlands protected are those aquatic ecosystems included in the list referred to in the Convention on Wetlands of International importance, especially as habitat of the Aquatic birds, promulgated by Supreme Decree n ° 771, of 1981, of the Ministry of Foreign Affairs.

It shall be understood that a territory has an environmental value when it corresponds to a territory with zero or low human intervention and provides

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services Ecosystem Locales relevant to the population, or whose ecosystems or natural formations present characteristics of oneness, scarcity or representativeness.

In order to evaluate whether the project or activity is susceptible of affecting protected populations, the extent, magnitude or duration of the intervention shall be considered in areas where they inhabit.

In order to evaluate whether the project or activity is susceptible to affect resources and protected areas, priority sites for conservation, protected wetlands, glaciers or territories with environmental value, shall be considered the extension, magnitude or duration of the intervention of its parts, works or actions, as well as the impacts generated by the project or activity, you have. In particular, the protective objects that are intended to be protected.

Protected population

In the area of influence of the project it is possible to identify human groups corresponding to the towns of Victoria and Colonia painted. It is the case to mention that in Colonia de Pintado there is an indigenous population that does not have traditional activities linked to their ethnic groups in a collective way. 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 their works or actions.

Protected areas

The environmental impact identified for the protected areas component It will be verified during the construction phase and is directly related to the introduction Artificial elements and/or Anthropic origin within The National reserve Pampa del Tamarugal "

The effect will manifest during the construction phase where it is evaluated,

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without prejudice to ÉSt, during the operation and closing phases, this impact will not present variations.

The development of the Project will require the construction and improvement of roads Existing, Approximately 10 Km And the construction of a high voltage line (LAT) in part of The National reserve Pampa del Tamarugal. This Have As a result The IntroductionCión In a sector of the reserve, Of Artificial elements of anthropic origin, in this case the roads, The structures (towers) and drivers that make up the LAT.

Without prejudice to the above and as indicated Previously, the sectors of the reserve involved, correspond to areas without vegetation, shallow water or salt, where there is no presence of Tamarugos And the works will be located nearby or in areas already intervened.

Despite the fact that certain works of the project will be carried out in areas belonging to the Pampa del Tamarugal National Reserve, there will not affect in any way the biodiversity present in the reserve.

Priority Conservation sites:

After analysis of baseline results, With respect to projected works and, Considering the activities that contemplate the construction, operation and closing of the project and its relation with the sites priorities for Conservation, No impacts were identified on these areas, to be found – the closest-, to more than 52 and 59 kilometers of the project (Punta Patache and Bahía Chipana, respectively).

Protected Umedas, glaciers or territories with value mbiental:

With regard to the impact on protected wetlands, glaciers or territories with environmental value, it is possible to point out that there will be no

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analyzable impact, since the baseline studies carried out indicate that in the area of influence of the project, there are territories with these characteristics.

Conclusion CRites IV: Based on the above analysis, the area where the project will be located, including its works and actions associated with it, in any of its phases, does not generate impact Significant Some in populations, resources and protected areas, priority sites for conservation, protected wetlands and glaciers, susceptible to be affected, as well as not affect the environmental value of the TerritoRio in which it is intended to locate.

5.6 Criterion V

An environmental impact study should be presented if the project or activity generates or presents significant alterations, in terms of magnitude or duration, of the landscape or tourist value of a zone (Art. 9 of the SEIA Regulation).

Regarding the landscape value:

The project is located in an area with scenic value, understanding by such, as defined by the rules of the SEIA, which An area has landscape value when, being visually perceptible, it possesses natural attributes that give it a quality that makes it unique and representative.

Indeed and area of the project is located within the limits of the commune of Pozo Almonte, in the province of Tamarugal. Geomorphologically, the evaluated area is located in the northern region of the Pampas Desert and Cordilleranas Prealtiplánicas, in the unit Morfoestructural, Pampa del Tamarugal (Börgel, 1983). From the biogeographical point of view (Gajardo, 1994), the area of the project is located, according to potential classification

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of vegetation, in the desert region of the Pacific, in the formations of the desert of Tamarugal and interior desert.

In the landscape baseline studies, once the biophysical attributes of the landscape of the project site area were identified, they were compared with the parameters of Table No. 5 of the "Environmental Assessment Guide, landscape value in the SEIA". , published in the year 2013 by the SEA and it was concluded that the area in which the project will be located has a scenic value for environmental assessment purposes.

It is worth mentioning that the area of the project, specifically the LAT, is within the limits of the Pampa del Tamarugal National Reserve. With respect to the priority sites for biodiversity conservation, the closest to the project is Bahía Chipana, which is located more than 58 km to the southwest. As for the areas of tourist interest (ZOIT), the project area is located more than 15 km approximately to the southwest of the ZOIT Pica – Salar del Huasco.

However, the above mentioned, it is appropriate to analyze the literals of the article in analysis.

Literal a) The duration or magnitude in which visibility is obstructed to a landscape-valued zone.

The ToVisual Ccesibilidad that has EL Area, It is done from the RuTa 5 and road to Quebrada Blanca. Regarding the visibility from Route 5 is close and direct towards the path of the transmission line, which tends to disappear as it moves away from the route and goes into the Pampa del Tamarugal. Regarding visibility from the road to Quebrada Blanca is direct and close, towards the photovoltaic plant and making its way of access, as in the previous case, the visibility disappears as the observers move away from the area of the project.

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The project, although it will cause a visual impact, implies a non-significant alteration of the landscape component, since:

- There is no significant impact on the views towards the tamarugos plantations of the Pampa del Tamarugal National Reserve. Since these biotic attributes, they are almost imperceptible from the section of the route evaluated.
- The visibility from Route 5 is direct, varying from close to distant as the project works approach or move away. From the closest points, there is greater visibility towards LAT and S/E, which are determined as point-in-time localization works, which do not obstruct the landscape in a prolonged way. For the farthest works, the dominance in the landscape decreases, setting with a minimal visual obstruction on the landscape.
- For a length of 21.7 km approximately (13 minutes), the visibility from Route 5 to the works of the project would be direct. However, this is almost imperceptible for the furthest structures (photovoltaic and S/E).
- It should be noted that the visual quality of the landscape in this area is low, therefore the presence of new interventions will not greatly affect the baseline valuation of the current landscape.
- The project, due to its constructive characteristics, will not limit physical or visual access to high-quality landscape areas.

Finally it is determined that, despite the intrusion of new elements in the landscape, these will not change the character or typology of the landscape in evaluation. Because this already presents anthropic elements, which

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gives a character of the territory, destined to the transmission of energy, so there will be no obstruction to the visibility of a landscape-valued area.

Literal b) The duration or magnitude in which attributes of a landscape-valued zone are altered.

The introduction of new elements in the landscape determines a change in the aesthetic attributes of the scene. This generates a decrease in the naturalness of the area, which implies an increase in artificiality, that is to say a transformation of the visual character of the landscape.

These changes can be perceived by potential observers, which would focus specifically on the main routes that give access to the project (Route 5 and Camino a Quebrada Blanca).

Without prejudice to the foregoing, and as noted in the previous literal, the visibility from Route 5 is direct, but from the closest points, there is greater visibility towards LAT and S/E, which are determined as point-in-time localization works, which do not obstruct the landscape in a prolonged way. For the farthest works, the dominance in the landscape decreases, setting a minimal visual obstruction on the landscape.

On the other hand, during a length of 21.7 km approximately (13 minutes), the visibility from Route 5 towards the works of the project would be direct. However, this is almost imperceptible for the furthest structures (photovoltaic and S/E).

Consequently and taking into consideration the antecedents before exposed, the intrinsic characteristics of the evaluated landscape (quality and Indivisibility) and the constructive implications of the structures required by the project, it can be foreseen that the modifications on the local landscape

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imply impacts, but these are presumed will not be significant.

Regarding tourist value:

It is understood that an area has tourist value when, having scenic value, cultural and/or patrimonial, attract flow of visitors or tourists to it.

In order to evaluate whether the project or activity, in any of its phases, generates or presents significant alteration of the tourist value of a zone, the duration or magnitude in which the access is obstructed or alter zones with tourist value will be considered.

As mentioned above, and as for the areas of tourist interest (ZOIT), the project area is located more than 15 km approximately to the southwest of the ZOIT Pica – Salar del Huasco.

On the other hand, In the baseline study was determined That with respect to the projected works, and considering that the activities that contemplate the construction, operation and closing of the project and its relation with the zones of national tourist interest, areas of tourist interest and circuits and tourist attractions, is not Possible to identify any impact associated with this point.

Very much for The Contrary The Singularity Of Project has The Potential Of Be polo Of Attraction For The Tourists What Want Observe The Facilities Of Project.

By Ende No Is Present the Requirements copulating What the Standard Requires for Be before the Generation of Effect in Analysis to Know: (1) Area With Value Landscape, (2) What Attracts Flow Of Visitors Or Tourists Towards She. Also The Project No Obstructs The Free Circulation Or Modifies The Flow Of Tourists.

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Conclusion Criterion V: *According to the above-mentioned antecedents, it can be noted that the project will not obstruct visibility to an area with a landscape value, and shall not generate or present alteration in terms of duration or magnitude, of the scenic or tourist value of the area..*

5.7 Criterion VI

An environmental impact study should be presented if the project or activity generates or presents alteration of monuments, sites with anthropological, archaeological, historical value and, in general, those belonging to the cultural patrimony (Art. 10 of the regulation of SEIA).

Literal a) *The magnitude in which a national monument of those defined by law 17,288 is removed, destroyed, excavated, transferred, damaged, intervened or permanently modified;*

Literal b) *The magnitude in which constructions, places or sites are permanently altered or deteriorated because of their constructive characteristics, for their antiquity, for their scientific value, for their historical context or for their singularity, belong to the cultural patrimony, including indigenous cultural heritage.*

Law No. 17,288, That legislates on monuments born Onales, points out in its article 1° *What They are national monuments and are left under the tuition and protection of the State, the places, ruins, constructions or objects of Historical or artistic character; Burials or cemeteries or other remnants of Aborigines, parts or objects Anthropo-Archaeological, paleontological or of natural formation, that exist under or on the surface of the national territory or in the underwater platform of its jurisdictional waters and whose conservation interests to the history, to the art or to the science; The sanctuaries of nature; The Monuments, Statues, columns,*

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pyramids, fountains, plaques, crowns, registrations and, in general, objects that are destined to remain in a public place, on a commemorative basis.

Considering the scope of application of the newly quoted article, which includes your protective object national Monuments, parts or objects Anthropos–Archaeological and paleontological, as well as places, constructions or objects of historical or artistic character, is that both literals are analyzed together.

From this perspective in the area of site of the project, it is possible to find elements belonging to the Historical heritage.

Historical heritage

The patrimonial elements of historical data recorded in the area of influence of the project *Skies of Tarapacá* They correspond to sites (mainly dispersions of historical materials) and isolated finds (cans, bottles and housings of mules) associated with linear traits (tracks of wagon, footpaths, troop footprints, railroads and telegraphs), located On the inspected surface. It is estimated that the environmental impacts identified for this component will occur during the construction phase of the project. This is due to the fact that during this stage the site of all the physical works of the project will be carried out, Which include, among other activities, the intervention and removal of soil, both superficially and under it.

The consideration of these elements and value of them, gives an account of how the communities of Pica and its surroundings have historically defined and symbolized the space associated with the nitrate activities of the early twentieth century. Productive economic activities linked to the extraction of saltpeter and subsequently to mining, denote a regional identity assumed generation after generation, in which the material vestiges relieved speak of

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a recent past founded in Activities that transcend through generations.

Among the patrimonial elements registered within the AID were identified 10 Isolated historical findings – HA02, HA03, HA04, HA05, HA06, HA07, HA09, HA10, HA01/lat and HA02/lat-, which are placed discreetly in space and are mostly associated with linear traits. These elements correspond to dispersions of historical remains, demarcated landmarks and housings of mules respectively, whose origin is associated to the nitrate activities developed in the area. Within the historical sites registered in the AID, there are 5 sets of historical remains (SH01, SH02, SH03, SH04 and SH05) as well as 4 sites with occupation Bicomponent Pre-Hispanic and historical, i.e. sets of pre-Hispanic historical and lithic materials (SA01/LAT, SA02/lat, SA03/lat and SA05/lat) and 59 linear traits (RL01, RL02, RL03, RL04, RL05, RL06, RL07A, RL07B, RL08, RL09, RL10, RL11, RL12, RL13, RL14, RL15, RL16, RL17, RL18, RL19, RL20, RL21, RL22, RL23, RL24, RL25, RL26, RL27, RL28, RL29, RL29B, RL30, RL31, RL32, RL33, RL34, RL35, RL36, RL37, RL38, RL39, RL40, RL41, RL42, RL43, RL44, RL45, RL46, RL47, RL48, RL49, RL50, RL51, RL52, RL001/lat, RL002/lat, RL003/lat, RL004/lat and RL005/LAT) which correspond to simple trails, tracks of wagon and Troop, two portions of old railway lines (RL001/lat and RL005/lat) and a Point Telegraph (RL004/LAT).

All these elements account for the use of space by human communities that precede the present. In the case of the isolated findings and of the sites, their location and size characteristics, they allow to apply compensation measures through their collection, prior to the beginning of the works associated with the project. Similarly, for linear traits, it is possible to apply compensation measures through its exhaustive registration. The location and size characteristics are considered within the evaluation of the possible impacts that the project could gOn these patrimonial elements.

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In view of the above, A significant impact will be generated, which deserves the income From the project to the SEIA Through an EIA. The impact Will occur In construction phase by the earthmoving For The construction of the works, in the places where the photovoltaic plant will be installed, the roads, easements and LAT.

Because for this component the impact is significant, in Chapter 8 of this EIA, the holder proposes as compensation measure to be developed in the construction phase. The measure corresponds to the "Exhaustive recording of the elements found for their preservation in the historical context". The compliance indicator for this measure shall correspond to the corroboration that the registration was made. A complete report will be given to account for the registration, with annexes that present the tabs of each element and associated plans.

The area in which the exhaustive registration activities will be developed is defined in the following table:

Table 1: Sites, isolated findings and historical linear traits requiring thorough record measurement							
Name	Adscription Cultural	UTM coordinates (Datum WGS 84)			Associated work	Area of Influence	
		Spindle	N (M)	E (M)		AID	Aii
HA02	Historical	19	7,706,496	440,617	Photovoltaic plant	X	
HA03	Historical	19	7,706,401	440,691	Photovoltaic plant	X	
HA04	Historical	19	7,707,966	440,127	Photovoltaic plant	X	

Table 1: Sites, isolated findings and historical linear traits requiring thorough record measurement

Name	Adscription Cultural	UTM coordinates (Datum WGS 84)			Associated work	Area of Influence	
		Spindle	N (M)	E (M)		AID	Aii
HA05	Historical	19	7,706,434	441,626	Photovoltaic plant	X	
HA06	Historical	19	7,708,123	441,217	Photovoltaic plant	X	
HA07	Historical	19	7,710,541	441,631	Photovoltaic plant	X	
HA09	Historical	19	7,707,405	443,315	Photovoltaic plant	X	
HA10	Historical	19	7,707,433	443,387	Photovoltaic plant	X	
RL01	Historical	19	7,711,256	443,717	Photovoltaic plant	X	
RL02	Historical	19	7,711,240	443,567	Photovoltaic plant	X	
RL03	Historical	19	7,708,287	443,579	Photovoltaic plant	X	
RL04	Historical	19	7,710,724	442,905	Photovoltaic plant	X	
RL05	Historical	19	7,701,037	443,245	Photovoltaic plant	X	
RL06	Historical	19	7,701,018	443,375	Photovoltaic plant	X	

Table 1: Sites, isolated findings and historical linear traits requiring thorough record measurement

Name	Adscription Cultural	UTM coordinates (Datum WGS 84)			Associated work	Area of Influence	
		Spindle	N (M)	E (M)		AID	Aii
RL07A	Historical	19	7,707,615	443,520	Photovoltaic plant	X	
RL07B	Historical	19	7,708,264	443,754	Photovoltaic plant	X	
RL08	Historical	19	7,710,125	442,575	Photovoltaic plant	X	
RL09	Historical	19	7,706,618	441,229	Photovoltaic plant	X	
RL10	Historical	19	7,709,291	442,927	Photovoltaic plant	X	
RL11	Historical	19	7,709,226	442,551	Photovoltaic plant	X	
RL12	Historical	19	7,707,330	442,701	Photovoltaic plant	X	
RL13	Historical	19	7,707,783	442,152	Photovoltaic plant	X	
RL14	Historical	19	7,707,843	442,101	Photovoltaic plant	X	
RL15	Historical	19	7,707,235	442,178	Photovoltaic plant	X	
RL16	Historical	19	7,706,635	442,778	Photovoltaic plant	X	

Table 1: Sites, isolated findings and historical linear traits requiring thorough record measurement

Name	Adscription Cultural	UTM coordinates (Datum WGS 84)			Associated work	Area of Influence	
		Spindle	N (M)	E (M)		AID	Aii
RL17	Historical	19	7,711,042	442,228	Photovoltaic plant	X	
RL18	Historical	19	7,709,396	442,176	Photovoltaic plant	X	
RL19	Historical	19	7,706,728	442,994	Photovoltaic plant	X	
RL20	Historical	19	7,707,929	442,728	Photovoltaic plant	X	
RL21	Historical	19	7,710,138	442,127	Photovoltaic plant	X	
RL22	Historical	19	7,708,274	442,078	Photovoltaic plant	X	
RL23	Historical	19	7,708,118	441,682	Photovoltaic plant	X	
RL24	Historical	19	7,708,144	441,615	Photovoltaic plant	X	
RL25	Historical	19	7,708,276	441,632	Photovoltaic plant	X	
RL26	Historical	19	7,708,380	441,639	Photovoltaic plant	X	
RL27	Historical	19	7,708,638	441,603	Photovoltaic plant	X	

Table 1: Sites, isolated findings and historical linear traits requiring thorough record measurement

Name	Adscription Cultural	UTM coordinates (Datum WGS 84)			Associated work	Area of Influence	
		Spindle	N (M)	E (M)		AID	Aii
RL28	Historical	19	7,701,018	441,438	Photovoltaic plant	X	
RL29	Historical	19	7,709,294	441,074	Photovoltaic plant	X	
RL29B	Historical	19	7,706,830	441,376	Photovoltaic plant	X	
RL30	Historical	19	7,706,506	440,966	Photovoltaic plant	X	
RL31	Historical	19	7,706,429	440,678	Photovoltaic plant	X	
RL32	Historical	19	7,706,047	440,824	Photovoltaic plant	X	
RL33	Historical	19	7,708,934	442,096	Photovoltaic plant	X	
RL34	Historical	19	7,707,606	441,527	Photovoltaic plant	X	
RL35	Historical	19	7,707,755	441,576	Photovoltaic plant	X	
RL36	Historical	19	7,707,904	440,991	Photovoltaic plant	X	
RL37	Historical	19	7,706,434	441,626	Photovoltaic plant	X	

Table 1: Sites, isolated findings and historical linear traits requiring thorough record measurement

Name	Adscription Cultural	UTM coordinates (Datum WGS 84)			Associated work	Area of Influence	
		Spindle	N (M)	E (M)		AID	Aii
RL38	Historical	19	7,706,333	441,621	Photovoltaic plant	X	
RL39	Historical	19	7,706,460	441,199	Photovoltaic plant	X	
RL40	Historical	19	7,706,662	440,975	Photovoltaic plant	X	
RL41	Historical	19	7,705,663	440,696	Photovoltaic plant	X	
RL42	Historical	19	7,707,273	440,527	Photovoltaic plant	X	
RL43	Historical	19	7,710,175	441,622	Photovoltaic plant	X	
RL44	Historical	19	7,710,023	441,631	Photovoltaic plant	X	
RL45	Historical	19	7,706,497	440,579	Photovoltaic plant	X	
RL46	Historical	19	7,706,478	440,521	Photovoltaic plant	X	
RL47	Historical	19	7,706,434	440,535	Photovoltaic plant	X	
RL48	Historical	19	7,706,334	440,574	Photovoltaic plant	X	

Table 1: Sites, isolated findings and historical linear traits requiring thorough record measurement

Name	Adscription Cultural	UTM coordinates (Datum WGS 84)			Associated work	Area of Influence	
		Spindle	N (M)	E (M)		AID	Aii
RL49	Historical	19	7,705,894	440,545	Photovoltaic plant	X	
RL50	Historical	19	7,705,868	440,530	Photovoltaic plant	X	
RL51	Historical	19	7,709,262	440,949	Photovoltaic plant	X	
RL52	Historical	19	7,707,772	442,740	Photovoltaic plant	X	
SA01/LAT	Pre-Hispanic history	19	7,703,320	429,921	Lat	X	
SH01/LAT	Historical	19	7,702,969	429,737	Lat	X	
SH02/LAT	Historical	19	7,702,790	429,693	Lat	X	
SA02/LAT	Pre-Hispanic history	19	7,702,655	429,594	Lat	X	
SA03/LAT	Pre-Hispanic history	19	7,702,523	429,547	Lat	X	
SA05/LAT	Pre-Hispanic history	19	7,702,263	429,393	Lat	X	
SH03/LAT	Historical	19	7,702,091	429,325	Lat	X	
SH04/LAT	Historical	19	7,701,740	429,123	Lat	X	

Table 1: Sites, isolated findings and historical linear traits requiring thorough record measurement

Name	Adscription Cultural	UTM coordinates (Datum WGS 84)			Associated work	Area of Influence	
		Spindle	N (M)	E (M)		AID	Aii
SH05/LAT	Historical	19	7,701,597	429,070	Lat	X	
HA01/LAT	Historical	19	7,708,255	439,761	Lat	X	
HA02/LAT	Historical	19	7,706,514	435,868	Lat	X	
RL001/LAT	Historical	19	7,707,747	438,930	Lat	X	
RL002/LAT	Historical	19	7,707,838	439,124	Lat	X	
RL003/LAT	Historical	19	7,707,942	439,160	Lat	X	
RL004/LAT	Historical	19	7,705,984	433,369	Lat	X	
RL005/LAT	Historical	19	7,698,610	427,438	Lat	X	

Source: Own Elaboration.

The follow-up activities proposed for the compensation measure will be developed from the time of implementation of the protection measure to the adoption of the report by the Council of National Monuments. The proposed follow-up consists of:

- To record in detail the external characteristics of each patrimonial element, through a registration form *Ad hoc* That allows to document the site, architectural features and materiality of the same.
- Perform a topographic survey of each element.

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- Make a photographic record and Videographic of each element.
- To make a historical review that allows contextualizing each element within the framework of the nitrate development in the region.

Archaeological heritage

The archaeological sites registered in the area of influence of the Cielos de Tarapacá project correspond to the dispersion of cultural remains (mainly lytic carving events) on the inspected surface-SA01, SA02, SA03, SA04 and SA04/LAT-Highlighting Scraps of carving like sheets and slices of andesite and exceptionally silicas. In the same frame, 4 sites were identified Foam - (SA01/lat, SA02/lat, SA03/lat and SA05/lat)-with evidences of occupation both pre-Hispanic (lithic) and historical. These evidences give an account of initial phases of lithic roughing, reflecting local procurement tasks.

There were also isolated archaeological findings, corresponding to cultural remains such as ceramics, lithics, which are distributed discreetly in space, without being part of cultural deposits or directly associated with other evidence Cultural. It is usually a piece of ceramic or a lithic, or small concentrations of no more than 5 pieces within 20 m² (Situs, 2010), whose origin is not clear because of this condition of "isolated". Despite this condition, it is not dismissed Its patrimonial value as it continues to belong to the category of "archaeological Rest", which in rigour, accounts for human activities of the past and therefore is part of cultural evidence.

The location and size characteristics of the isolated findings and archaeological sites recorded in the project *Skies of Tarapacá*, they allow to apply compensation measures, prior to the beginning of the works associated with the project. The location characteristics and dimensions of these elements are considered within the evaluation of the possible impacts that the project could generate on these patrimonial elements.

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According to these characteristics, it is estimated that the environmental impacts identified for this component will occur during the construction phase of the project. This is due to the fact that during this stage the site of all the physical works of the project will be carried out, which include, among other activities, the intervention and removal of soil, both superficially and under it.

In view of the above, A significant impact will be generated, which merits the project's entry into the SEIA through an EIA. EL Impact is Produce In construction phase by the earthmoving For The construction of the works, in the places where the photovoltaic plant will be installed, the roads, easements and LAT.

Because for this component the impact is significant, in Chapter 8 of this EIA, the holder proposes as compensation measure to be developed in the construction phase, "LA collection of the elements found". The compliance indicator for this measure shall correspond (a) corroboration that the findings and sites were recorded, collected, preserved, packaged and sent to the institution (museum) Designated by the CMN.

The area in which the exhaustive logging activities will be developed is defined in the following table:

Table 2: Sites Archaeological and isolated findings requiring measure of collection.							
Name	Adscription Cultural	UTM coordinates (Datum WGS 84)			Associated work	Area of Influence	
		Spindle	N (M)	E (M)		AID	Aii
SA01	Prehispanic	19	7,709,346	441,132	Photovoltaic plant	X	

Table 2: Sites Archaeological and isolated findings requiring measure of collection.

Name	Adscription Cultural	UTM coordinates (Datum WGS 84)			Associated work	Area of Influence	
		Spindle	N (M)	E (M)		AID	Aii
SA02	Prehispanic	19	7,709,559	441,300	Photovoltaic plant	X	
SA03	Prehispanic	19	7,710,964	442,381	Photovoltaic plant	X	
SA04	Prehispanic	19	7,709,926	442,247	Photovoltaic plant	X	
HA01	Prehispanic	19	7,705,557	440,436	Photovoltaic plant	X	
HA08	Prehispanic	19	7,710,196	442,288	Photovoltaic plant		X
SA01/LAT	Prehispanic Historical	19	7,703,320	429,921	Lat	X	
SA02/LAT	Prehispanic Historical	19	7,702,655	429,594	Lat	X	
SA03/LAT	Prehispanic Historical	19	7,702,523	429,547	Lat	X	
SA04/LAT	Prehispanic	19	7,702,448	429,451	Lat	X	
SA05/LAT	Prehispanic Historical	19	7,702,263	429,393	Lat	X	

Source: Own Elaboration.

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The follow-up activities proposed for the compensation measure, will be developed from the moment of the implementation of the collection measure until the dispatch of the isolated archaeological finds to the institution designated by the Council of Monuments National. The proposed follow-up consists of:

- Register the topographic point of each site and find isolated through an uprising with high-resolution equipment.
- Collect each element according to protocols of Registry and Archaeological conservation.
- To carry out specialized analyses that allow to complete the archaeological information associated to the project area.

Literal c) affecting places or sites where habitual manifestations of the culture or folklore of some kind are carried out Community or human group, derived from the proximity and nature of the parts, works and/or actions of the project or activity, considering especially those referred to the indigenous peoples.

With regard to this point, it credited in the Relative chapter To the impact assessment That the project does not consider intervening places where there are manifestations of the culture or folklore of any people, community or human group.

Conclusion Criterion VI: *The project requires entering the system through an EIA, according to the established By article letter F) 11 of the LeAnd No. 19,300 and article 10 of the SEIA regulation, since it will generate a significant impact on sites identified with value Historical and Archaeological..*

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5.8 FINAL Conclusion

According to the analysis carried out, the project needs to be submitted to the evaluation system of Impact Environmental, to correspond their works or activities to the activities described in the following is Article literals 10 of Law n ° 19,300 which establishes general Bases of the environment:

- *Literal c) Power generating plants greater than 3 MW*
- *Literal b) High-voltage electrical transmission lines and their substations.*
- *Literal p) Execution of works, programs or activities in national parks, national reserves, monuments NatuRales, reserves of virgin Zones, sanctuaries of nature, marine parks, marine reserves or in any other areas placed under official protection, in cases where the respective legislation permits it.*

After determining that the project requires entry to the SEIA, it is possible to conclude that the way of entry must correspond to the elaboration of an environmental impact study, in attention to that its execution generates some of the effects, characteristics Or Circumstances of article 11 (f) of Law no 19,300:

- *Literal f) Alteration of monuments, sites with anthropological, historical value and, in general, those belonging to the cultural heritage.*

In specific, The impact that is generated corresponds to the intervention of sites with value Historical and archaeological during the construction phase of the project, the requirements of the LEY N ° 17,288 that legislates on national monuments.

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In addition, and as mentioned in Chapter 1, this project corresponds to a stage of the hydro-electric pumping plant project with seawater "*Espejo de Tarapacá*" Who was admitted to the environmental impact assessment system through an environmental impact study, so it is appropriate that the skies of Tarapacá project do so through the same instrument.

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