



Monitoring report form for CDM programme of activities
(version 01.0)

Complete this form in accordance with the Attachment "Instructions for filling out the monitoring report form for CDM programme of activities" at the end of this form.

MONITORING REPORT

Title of the programme of activities (PoA)	PV Project Development in Chile	
UNFCCC reference number of the PoA	9251	
Version number(s) of the PoA-DD(s) applicable to this monitoring report	06	
Coordinating/managing entity (CME)	C-Quest Capital LLC	
Version number of this monitoring report	01	
Completion date of this monitoring report	22/12/2016	
Monitoring period number and dates covered by this monitoring report	First Monitoring Period 20/09/2013 to 31/10/2016	
Monitoring report number for this monitoring period	01	
Host Party(ies)	Host Party(ies) of the PoA	Is this a host Party to a specific-case CPA covered in this monitoring report?(yes/no)
	Chile	Yes
Sectoral scope(s)	Sectoral Scope 1: Energy industries (renewable - / non-renewable sources)	
Selected methodology(ies)	ACM0002: "Consolidated baseline methodology for grid-connected electricity generation from renewable sources", Version 12.3.0	
Selected standardized baseline(s)	N/A	
Total amount of GHG emission reductions or net GHG removals by sinks for all specific-case CPAs in the PoA covered in this monitoring report	GHG emission reductions or net GHG removals by sinks reported up to 31 December 2012	GHG emission reductions or net GHG removals by sinks reported from 1 January 2013 onwards
	0 t CO ₂ e	245,275 t CO ₂ e

PART I - Programme of activities

SECTION A. Description of PoA

A.1. Brief description of the PoA

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The PoA aims to provide vital clean energy resource to Chile via the implementation of grid-connected photovoltaic projects, particularly in the territories covered by the northern and central grids, which also known as SING¹ and SIC². The PoA also aims to balance the skyrocketing needs of the mining industry (and the country as a whole) on power demands by bringing solar electricity to Chile. Another goal of this PoA is to promote the technology transfer of solar technologies to Chile.

A.1.1. Generic CPA(s)

Title, identification/reference number and/or version number of the generic CPA(s) of the PoA	Sectoral scope(s)	Applied methodology(ies) or combination of methodologies and/or standardized baseline(s)
Generic CPA included under POA-DD version 6	Sectoral Scope 1: Energy industries (renewable - / non-renewable sources)	ACM0002: "Consolidated baseline methodology for grid-connected electricity generation from renewable sources", Version 12.3.0

A.1.2. Specific-case CPA(s) covered in this monitoring report

Reference number of the specific-case CPA included in the PoA as of the end of this monitoring period	Title, identification/reference number and version number of the generic CPA to which the specific-case CPA applies	Crediting period dates of the specific-case CPA	Is this specific-case CPA covered in this monitoring report? (yes/no)
9251-0001	Generic CPA included under POA-DD version 6	20/09/2013 – 19/09/2023	No
9251-0002	Generic CPA included under POA-DD version 6	01/09/2015 – 31/08/2022	Yes

A.2. Contact information of the coordinating/managing entity (CME) and/or responsible persons(s)/entity(ies)

>>

Isabel Alegre

C-Quest Capital LLC

cqc-operations@cquestcapital.com

The person/entity mentioned above is the CME in Appendix 1.

¹ Sistema Interconectado del Norte Grande (SING), the northern grid.

² Sistema Interconectado Central (SIC), the central grid.

Ang Kong Nian
C-Quest Capital Malaysia Limited
cqc-operations@cquestcapital.com

The person/entity mentioned above is responsible for completing the CDM-PoA-MR-FORM and it is not the CME in Appendix 1.

SECTION B. Implementation of PoA

B.1. Implementation of the management system of the PoA

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a) Definition of roles and responsibilities of personnel involved in the process of inclusion of CPAs, including a review of their competencies;

C-Quest Capital LLC as a CME to the PoA has managed the relevant activities prior and post registration of the PoA. The competency check on the new proposed CPA was conducted by CME to ensure that the CPA meets all requirements and eligibility criteria before inclusion in the PoA. The competency check was conducted by experienced staffs with CDM projects.

b) Records of arrangements for training and capacity development for personnel

As the manufacturer of solar modules, First Solar (CPA implementer for CPA 9251-0002) provided internal training to the plant operators on the aspects of operation and maintenance of the plant. External training on technical matters with vendors and local safety association was also provided to the plant operators.

Training is planned, prepared and delivered to ensure that operators are competent for the critical activities they are assigned to. The plant operators carrying out critical activities are regularly reviewed by First Solar to ensure that they remain competent.

c) Procedures for technical review of inclusion of CPAs

Prior to the inclusion of CPA, a technical review was conducted by CME to ensure that

i) the CPA meets each eligibility criteria of the PoA;

ii) the proposed data collection procedures by the CPA is in line with the methodology and PoA eligibility criteria;

iii) monitoring procedures proposed by the CPA conform with the monitoring plan in the PoA.

Once the CPA meets all the eligibility criteria of the PoA, the letter of approval for CPA inclusion will be issued by CME and the CPA-DD will be submitted to DoE for validation purposes and formal inclusion into the PoA.

d) A procedure to avoid double counting (e.g. to avoid the case of including a new CPA that has already been registered either as a CDM project activity or as a CPA of another PoA).

The quality control and quality assurance procedures is always in place to avoid the double counting cases. Prior to CPA inclusion, CME reviewed all other solar PV projects in Chile to ensure that the new proposed CPA is not a part of any other registered PoA or CDM project activity. This information can be obtained from the project registry of UNFCCC website. In general, the PV plants can be easily recognised with GPS coordinates which will prevent incidences of double counting. In addition, CME has a database system which maintains data relating to each CPA such as CPA implementer details and GPS coordinates of the plant.

These data are then compared against the record of projects under the CDM in validation and registration stage to further avoid double counting.

CME also cross-checked the new proposed CPA against the project registry of Gold Standard and other relevant voluntary carbon schemes to ensure that the new CPA is not included in any other voluntary carbon scheme.

In accordance to the procedures for prevention of double counting, First Solar (CPA implementer for CPA 9251-0002) has signed agreement with CME indicating that it is agreeing to participate in the PoA and that it is not a part of any other PoA.

e) Records and documentation control process for each CPA under the SSC-PoA

In accordance with the procedures defined in the management system, CME has maintained a database system consists of the following details for each CPA.

1. Name of the CPA implementer as well as contractual relationships (owner, operator, investor and counterparty to any power purchase agreement). The CME will also record any changes in this structure throughout the crediting period.
2. GPS coordinates and precise location (town, province, etc.).
3. Technical specifications, such as capacity, number of panels and manufacturer of panels, location of connection to grid.
4. Key dates for each facility, including financial closure, groundbreaking, construction and commissioning.
5. Copies of licenses, permits, environmental impact assessments and any other regulatory documentation.
6. Records of start dates for the crediting period as well as monitoring/verification reports and records of issuance of CERs.
7. All records of MWh output from each plant.

f) Measures for continuous improvements of the PoA management system

CME will continue to review and improve the overall PoA management system. CME is generally satisfied with the procedures defined under the PoA management system and the current database system is well maintained.

B.2. Implementation of single sampling plan(s)

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Each CPA is monitored individually. Therefore, a single sampling plan is not relevant for the CPAs.

SECTION C. Post-registration changes to the PoA (including the generic CPA(s))

C.1. Corrections

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The correction and revised PoA-DD was approved via PRC-9251-001 on 05/08/2015.

C.2. Inclusion of a monitoring plan to the registered PoA-DD (including its generic CPA-DD(s)), if a monitoring plan was not included at the time of registration

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Not applicable.

C.3. Permanent changes to the monitoring plan as described in the registered PoA-DD, applied methodology, or applied standardized baseline

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Not applicable.

C.4. Changes to the programme design of the registered PoA-DD (including corresponding changes to project design of the generic CPA-DD(s)) and updates to the eligibility criteria for inclusion of specific-case CPAs in the PoA

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Not applicable.

C.5. Types of changes specific to afforestation and reforestation activities

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Not applicable.

PART II - Specific-case component project activity(ies)**SECTION D. Description of specific-case CPA(s)**

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D.1. Brief description of implemented specific-case CPA(s)

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- (a) Purpose of the specific-case CPA(s) and the measures taken for GHG emission reductions or net GHG removals by sinks;

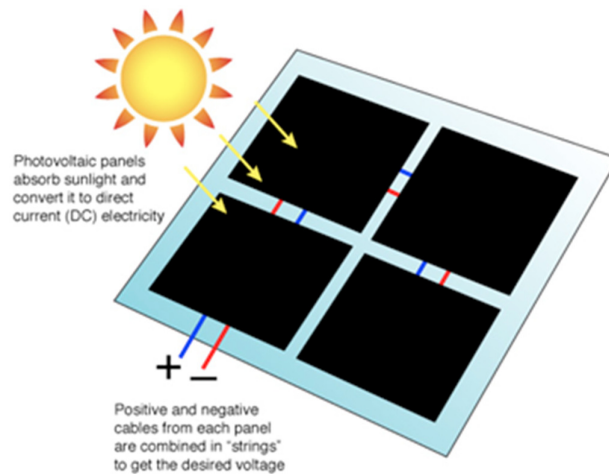
The purpose of CPA 9251-0002 is the generation of renewable power in Chile through the construction and operation of a 141.04 megawatt alternating current (MWac) of grid-connected solar photovoltaic (PV) power generation facility named Parque Solar Fotovoltáico Luz del Norte SpA. All the power produced by the plant will be sold to the spot market. The project will be connected to the SIC (central grid) through an extension of the existent substation Carrera Pinto at 220 KV.

The project results in a reduction of anthropogenic emissions of greenhouse gas by displacing an equivalent volume of electricity that would otherwise be generated by the fuel-fired power plants tied to the national grid.

- (b) Description of the technology employed and installed equipment and/or infrastructure, including information requested by the eligibility criteria;

The technology employed by CPA 9251-0002 is the cadmium telluride (CdTe) thin-film solar modules, which are designed and manufactured by First Solar. The thin film modules absorb sunlight and convert the sunlight into direct current (DC) through a photovoltaic process. The solar

panels are warranted for 25 years with an average performance degradation of less than 1% per year³ The modules can be supported on a tracker system. For the Luz del Norte Solar project, the modules will be mounted on a single-axis, horizontal tracker in order to improve the plant performance.



Source: University of Michigan

In addition to solar modules and their structures, additional electrical components are required to complete a solar power plant. These components are known as the Balance of System or BOS. BOS components include cabling, inverters, switches, protection devices, transformers, and communication infrastructure.

Horizontal Single Axis Tracker: PV modules mounted on horizontal single-axis trackers are arranged in north-south oriented rows and drive motors rotate the solar panels from east to west to follow the sun (on a single axis) throughout the day. The highest point for a horizontal tracker is achieved during the morning and evening hours when the trackers are tilted at their maximum angle, and is a maximum of 3.35 meters off the ground surface depending on the grade where the posts are installed. When the solar modules are roughly parallel to the ground, the overall height of the tracker unit will be a maximum of 2.74 meters off the ground surface depending on the grade where the posts are installed.

Horizontal Single Axis Tracking System



The vertical support legs for the trackers consist of foundations that may include:

- (1) Concrete piers or
- (2) Driven posts (wide flange I-beam)

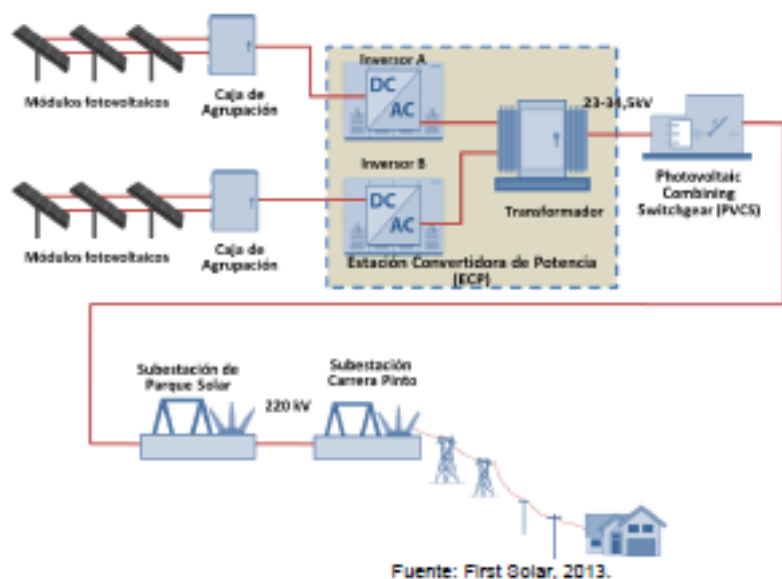
³ First Solar Energy Prediction Model

The preferred mounting configuration utilizes directly embedded driven posts and concrete piers will only be utilized if subsurface conditions do not support driven posts. Based on geotechnical studies completed to date, concrete piers are not expected to be required except in isolated cases where subsurface rock may exist but has not been detected. Each tracker unit is approximately 19 meters long and powered by a low voltage 0.5 horsepower (approximately) electric drive motor. The motors and actuator are mounted to one of the driven posts and do not require separate foundations for mounting. Hydraulic drive systems will not be used. The motors are only operated for a few seconds every 5 to 10 minutes during daylight conditions to move the panels in approximately 1-degree increments. The sound from the tracker motors is less than 70 decibels, A-weighted at 0.9 meter.

Within each tracker array, a 5.6-meter-tall weather station is centrally mounted to monitor wind speed and communicate with the tracker units. This allows for the trackers to rotate to a flat position during high wind activity. The weather station tower is made up of a steel lattice and is located at the center of each tracker array. The lattice structure of the tower helps to reduce the visual impact. Each tower requires a small concrete foundation .9 m x .9 m that extends approximately 1.2m into the ground (depending on soil conditions).

Each array has a power conversion station (EPC) that has one or two inverters that will convert the DC power to AC power. The station also has an elevation transformer that elevates the tension of AC to 23 kV or 34.5 kV. The EPC is then connected to the Photovoltaic combining Switchgear (PVCS) connected to the plant substation and finally to the extension of Carrera Pinto Substation at 220 KV⁴.

The figure below is an illustration of the basic electric generation path:



- (c) Relevant dates for the specific-case CPA(s) (e.g. construction, commissioning, continued operation periods, etc.);

CPA 9251-0002

Event	Date
Start date of CPA	22/08/2014 ⁵

⁴ http://seia.sea.gob.cl/expediente/ficha/fichaPrincipal.php?modo=ficha&id_expediente=8351500

⁵ As per CPA-DD, this is the date of financial closure.

CPA inclusion date	17/08/2015
Start date of construction	25/08/2014
Turn over date ⁶ of Block 1 (36.08 MW)	19/10/2015
Turn over date of Block 2 (37.72 MW)	18/12/2015
Turn over date of Block 3 (36.08 MW)	09/11/2015
Turn over date of Block 4 (31.16 MW)	11/12/2015
Testing and commissioning phase ⁷	27/07/2015 to 24/02/2016
Commercial operation date	24/02/2016
First monitoring period	01/09/2015 – 31/10/2016

- (d) Total GHG emission reductions or net GHG removals by sinks achieved in this monitoring period for the specific-case CPA(s), including information on how double counting is avoided.

CPA	Emission reductions (t CO ₂ e)
9251-0002	245,275

D.2. Geographical references or other means of identification of the location of the specific-case CPA(s)

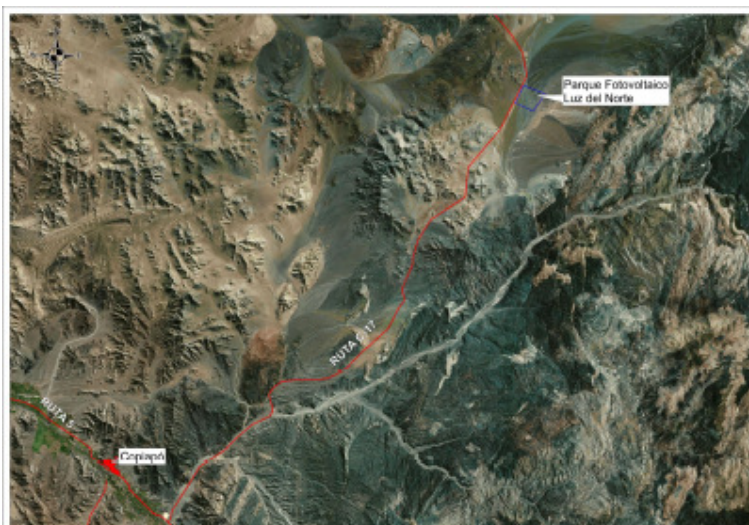
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The project encompasses 456 hectares of greenfield site in Atacama Desert, North of Chile and is located approximately 60 kilometres northeast of the city of Copiapó.



⁶ The date when the plant owner (Luz del Norte) received each block from the EPC Contractor (First Solar Electrico).

⁷ The testing and commissioning phase was conducted from the date of the interconnection to the grid (27/07/2015) until the grid administrator/dispatcher (CDEC SIC) granted the “commercial operation” to the plant (24/02/2016). The electricity produced by the plant was sold to the spot market from the first injection of plant to the grid.



The solar plant has three project components (solar plant, transmission line and Plant Substation). The coordinates of each component are detailed in the following table⁸:

Project Component	Datum WGS 84 huso 19 S		
	Vertex	Coordinate East (m)	Coordinate North (m)
Solar plant	A	410808.0000	7011661.0000
	B	413070.7468	7010766.1507
	C	411774.6340	7009008.0970
	D	409970.6120	7009844.4070
Transmission line	VS	410855.6000	7011608.2500
	V1	410932.3800	7011864.0700
	V2	411009.1700	7012119.8900
	V3	410895.8900	7012316.2200
	V4	410846.8700	7012599.3200
	V5	410797.8500	7012882.4300
	V6	410748.8300	7013165.5300
	V7	410658.0500	7013196.9100
Plant substation	VR	410483.0900	7013107.1300
	H	410833.2000	7011617.0700
	I	410882.6400	7011594.3700
	J	410838.8800	7011499.0300
	K	410789.4400	7011521.7300

Additionally the project contemplates an extension of the exiting substation Carrera Pinto, which will be the interconnection point to the SIC grid.

The coordinates of the Carrera Pinto Substation and its extension are the following⁹:

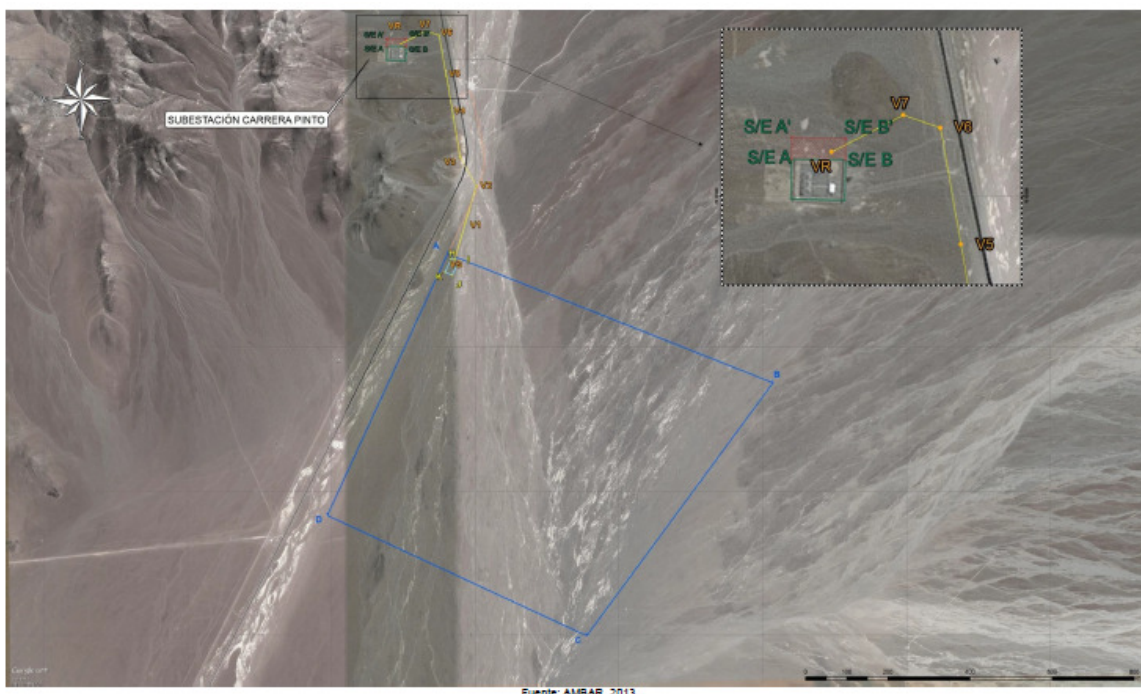
Coordinate of Carrera Pinto	Datum WGS 84 huso 19 S	
	North (m)	East (m)

⁸ http://seia.sea.gob.cl/expediente/ficha/fichaPrincipal.php?modo=ficha&id_expediente=8351500

⁹ http://seia.sea.gob.cl/expediente/ficha/fichaPrincipal.php?modo=ficha&id_expediente=8351500

Substation		
S/E Central Point	7013041.3100	410459.8200
Coordinate extension of Carrera Pinto Substation	Datum WGS 84 huso 19 S	
	North (m)	East (m)
S/E Central Point	7013051.2400	410365.9900

The following figure describes the project's components and location:



Fuente: AMBAR, 2013.

SECTION E. Post-registration changes to specific-case CPA(s)

E.1. Temporary deviations from registered monitoring plan, applied methodology or applied standardized baseline

>>

Not applicable.

E.2. Corrections

>>

Not applicable.

E.3. Changes to the start date of the crediting period of the specific-case CPA(s)

>>

Not applicable.

E.4. Inclusion of a monitoring plan into the specific-case CPA(s) that was not included at registration

>>

Not applicable.

E.5. Permanent changes to the monitoring plan as described in the registered specific-case CPA-DD(s), applied methodology or standardized baseline

>>

Not applicable.

E.6. Changes to project design of the specific-case CPA(s)

>>

Not applicable.

E.7. Types of changes specific to afforestation and reforestation specific-case CPA(s)

>>

Not applicable.

SECTION F. Description of the monitoring system of specific-case CPA(s)

>>

Below is the description of monitoring system for CPA 9251-0002.

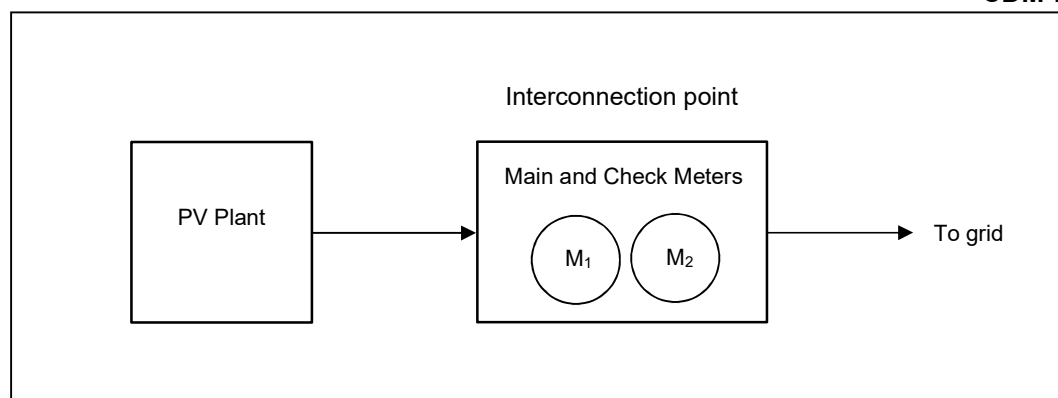
Data collection procedures and metering

Electricity generation data is the main input variable for the calculation of emission reductions and it is monitored via metering approach. First Solar is responsible to meter in the dual meter system. All data collected as part of monitoring will be archived electronically and kept at least for 2 years after the end of the last crediting period. All measurements should be conducted with calibrated measurement equipment according to relevant industry standards.

There is only one line and the dual meter is two-way hourly meter, so each meter reading is a net reading of power exported from or imported to the power station. The main meter of the power plant will be located at the interconnection point, where the electricity is injected to the grid.

The Operational Manager will report to the Project Manager and coordinate with SIC on a monthly basis, and the figures confirmed by both as accurate will be used for reporting emission reductions. The monthly net power supply to the grid will hence be the sum of all monthly meter readings. The Main Meter and the Check Meter system are installed, owned, and maintained by First Solar, is designed such that the overall measurement system error shall be no greater than 0.2%.

The line diagram below shows the metering point for the project.



Organizational structure, roles and responsibilities

A Project Manager is appointed to be responsible for the overall monitoring system and reporting of all relevant issues which occurred in the monitoring activities. An Operational Manager is assigned to assist the Project Manager for the monitoring of monthly electricity generation and liaise with the electricity purchaser to correct any discrepancies of measurement according to the requirements and direction of the Power Purchase Agreement (PPA).

The Operational Manager will report to the Project Manager and coordinate with SIC on a monthly basis, and the figures confirmed by both as accurate will be used for reporting emission reductions.

Emergency procedures for the monitoring system

In case of meter failure, there will be crosschecks with CDEC SIC and a protocol for fast replacement in compliance with the Chilean norm. In order to avoid malfunction of meters and all the equipment of the plant will be maintained and calibrated (if necessary) according to manufacturer's recommendations and schedules.

SECTION G. Data and parameters

G.1. Data and parameters fixed ex ante, at registration, inclusion or renewal of crediting period

The data and parameters described at below are under CPA 9251-0002 as this is the only CPA covered in this monitoring report.

Data/parameter	$EG_{m,y}$
Unit	MWh
Description	Net electricity generated and delivered to the grid by all power sources serving the system, not including low-cost/must-run power plants/units, in year y (MWh)
Source of data	CDEC SIC Operacion Real Anual ¹⁰
Value(s) applied	$EG_{m,2011} = 25,199,644$ MWh $EG_{m,2012} = 28,374,858$ MWh $EG_{m,2013} = 30,838,632$ MWh
Choice of data or measurement methods and procedures	Data provided by SIC grid operator.

¹⁰ <http://www.cdec-sic.cl/informes-y-documentos/fichas/operacion-real/>

Purpose of data	Calculation of baseline emissions
Additional comments	-

Data/parameter	$EG_{k,y}$
Unit	MWh
Description	Net electricity generated and delivered to the grid by low-cost/must-run power plants/units, in year y (MWh)
Source of data	CDEC SIC Operacion Real Anual ¹¹
Value(s) applied	$EG_{k,2011} = 20,940,545$ MWh $EG_{k,2012} = 20,493,132$ MWh $EG_{k,2013} = 20,067,779$ MWh
Choice of data or measurement methods and procedures	Data provided by SIC grid operator.
Purpose of data	Calculation of baseline emissions
Additional comments	

Data/parameter	$FC_{i,m,y}$, $FC_{i,y}$
Unit	Mass or volume unit
Description	Amount of fossil fuel type i consumed by power plant/unit m (or in the project electricity system in case of $FC_{i,y}$) in three years prior to project
Source of data	CNE ¹²
Value(s) applied	See A24
Choice of data or measurement methods and procedures	Tool to calculate the emission factor for an electricity system.
Purpose of data	Calculation of baseline emissions
Additional comments	

Data/parameter	$NCV_{i,y}$														
Unit	TJ/Gg														
Description	Net calorific value (energy content) of fossil fuel type i in three years prior to project														
Source of data	(c) use of regional or national defaults available in: National Energy Balances 2012 ¹³														
Value(s) applied	<table border="1"> <thead> <tr> <th>Fuel</th><th>NCV (TJ/Gg)</th></tr> </thead> <tbody> <tr> <td>Coal</td><td>27.82</td></tr> <tr> <td>Diesel</td><td>43.33</td></tr> <tr> <td>Fuel Oil 6</td><td>41.74</td></tr> <tr> <td>Natural Gas</td><td>37.13</td></tr> <tr> <td>LNG</td><td>37.13</td></tr> <tr> <td>Petcoke</td><td>27.82</td></tr> </tbody> </table>	Fuel	NCV (TJ/Gg)	Coal	27.82	Diesel	43.33	Fuel Oil 6	41.74	Natural Gas	37.13	LNG	37.13	Petcoke	27.82
Fuel	NCV (TJ/Gg)														
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¹¹ <http://www.cdec-sic.cl/informes-y-documentos/fichas/operacion-real/>

¹² <http://www.cne.cl/estadisticas/energia/electricidad>

¹³ http://antiguo.minenergia.cl/minwww/opencms/14_portal_informacion/06_Estadisticas/Balances_Energ.html

	<table border="1"> <tr> <td>Butano</td><td>48.10</td></tr> <tr> <td>Propano</td><td>48.10</td></tr> <tr> <td>IFO-180</td><td>41.74</td></tr> <tr> <td>LPG</td><td>48.10</td></tr> </table>	Butano	48.10	Propano	48.10	IFO-180	41.74	LPG	48.10
Butano	48.10								
Propano	48.10								
IFO-180	41.74								
LPG	48.10								
Choice of data or measurement methods and procedures	<p>Values from the fuel supplier of the power plants are not available for the project participant. "National Energy Balance 2012¹⁴" is the most recent version available (at the time of submission) of the national energy balances published by the ministry of energy. The values in the balance are originally expressed in Kcal/Kg and represent so they have been adjusted to TJ/Gg considering a conversion factor of 0.004184.</p> <p>Additionally the data delivered by the National Energy Balance 2012 consist in GCV and a conversion factor has to be used to obtain the NCV.</p> <table border="1"> <tr> <th>Fuel type</th><th>Conversion Factor GCV to NCV</th></tr> <tr> <td>Solid</td><td>0.95</td></tr> <tr> <td>Liquid fuels</td><td>0.95</td></tr> <tr> <td>Gas fuels</td><td>0.90</td></tr> </table> <p>Source: IPCC, 2006. V.2 Workbook Chapter 1 Energy page 1.16</p>	Fuel type	Conversion Factor GCV to NCV	Solid	0.95	Liquid fuels	0.95	Gas fuels	0.90
Fuel type	Conversion Factor GCV to NCV								
Solid	0.95								
Liquid fuels	0.95								
Gas fuels	0.90								
Purpose of data	Calculation of baseline emissions								
Additional comments									

Data/parameter	$EF_{CO_2,i,y}$																						
Unit	tCO ₂ /TJ																						
Description	CO ₂ emission factor of fossil fuel type <i>i</i> three years prior to project.																						
Source of data	(d) IPCC default values at the lower limit of the uncertainty at a 95% confidence interval as provided in table 1.4 of Chapter1 of Vol. 2 (Energy) of the 2006 IPCC Guidelines on National GHG Inventories.																						
Value(s) applied	<table border="1"> <tr> <th>Fuel</th><th>CO₂ (TCO₂/TJ)</th></tr> <tr> <td>Coal</td><td>87.30</td></tr> <tr> <td>Diesel</td><td>72.60</td></tr> <tr> <td>Fuel Oil 6</td><td>75.50</td></tr> <tr> <td>Natural Gas</td><td>54.30</td></tr> <tr> <td>LNG</td><td>54.30</td></tr> <tr> <td>Petcoke</td><td>82.90</td></tr> <tr> <td>Butano</td><td>61.60</td></tr> <tr> <td>Propano</td><td>61.60</td></tr> <tr> <td>IFO-180</td><td>75.50</td></tr> <tr> <td>LPG</td><td>61.60</td></tr> </table>	Fuel	CO ₂ (TCO ₂ /TJ)	Coal	87.30	Diesel	72.60	Fuel Oil 6	75.50	Natural Gas	54.30	LNG	54.30	Petcoke	82.90	Butano	61.60	Propano	61.60	IFO-180	75.50	LPG	61.60
Fuel	CO ₂ (TCO ₂ /TJ)																						
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Butano	61.60																						
Propano	61.60																						
IFO-180	75.50																						
LPG	61.60																						
Choice of data or measurement methods and procedures	Default will be used.																						
Purpose of data	Calculation of baseline emissions																						

Additional comments	
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Data/parameter	λ_y
Unit	-
Description	Factor expressing the percentage of time when low-cost/must-run power units are on the margin in year y
Source of data	CDEC SIC ¹⁵
Value(s) applied	See A25
Choice of data or measurement methods and procedures	Tool to calculate the emission factor for an electricity system.
Purpose of data	Calculation of baseline emissions
Additional comments	Required for the SIC

Data/parameter	CM, BM, OM		
Unit	-		
Description	Combined margin, build margin & operating margin emission factor		
Source of data	Calculation using previous data		
Value(s) applied		Calculation	
	EF _{CM} (tCO ₂ /MWh)	0.824	
	EF _{BM} (tCO ₂ /MWh)	0.662	
	EF _{OM} (tCO ₂ /MWh)	0.878	
Choice of data or measurement methods and procedures			
Purpose of data	Calculation of baseline emissions		
Additional comments			

G.2. Data and parameters monitored

The data and parameter described at below is under CPA 9251-0002 as this is the only CPA covered in this monitoring report.

Data/parameter	EG_{facility,y}
Unit	MWh
Description	Quantity of net electricity generation supplied by the solar project plant to the grid in year y
Measured/calculated/default	Measured
Source of data	Network Operations Center from the recordings of the meter at the interconnection point
Value(s) of monitored parameter	297,873.40 (before adjustment due to delay in meter calibration) 297,664.75 (after adjustment)

¹⁵ <http://www.cdec-sic.cl/informes-y-documentos/fichas/operacion-real/>

Monitoring equipment	<p>Continuous measurement from electricity meters and at least monthly recording. The calibration frequency of the meter is at least once a year.</p> <table border="1"> <thead> <tr> <th>Meter</th><th>Brand/Model</th><th>Serial Number</th><th>Accuracy class</th><th>Calibrated on</th><th>Valid till</th></tr> </thead> <tbody> <tr> <td rowspan="3">Main meter, M₁</td><td rowspan="3">Schneider Electric/ ION8650</td><td rowspan="3">MW-1412A790-01</td><td rowspan="3">0.2s</td><td>05/12/2014</td><td>04/12/2015</td></tr> <tr> <td>16/04/2015</td><td>15/04/2016</td></tr> <tr> <td>29/09/2016*</td><td>28/09/2017</td></tr> <tr> <td rowspan="3">Check meter, M₂</td><td rowspan="3">Schneider Electric/ ION8650</td><td rowspan="3">MW-1412A044-01</td><td rowspan="3">0.2s</td><td>03/12/2014</td><td>02/12/2015</td></tr> <tr> <td>16/04/2015</td><td>15/04/2016</td></tr> <tr> <td>29/09/2016*</td><td>28/09/2017</td></tr> </tbody> </table> <p>*Delay in calibration of both meters was observed for the period between 16/04/2016 to 28/09/2016. The subsequent calibration was scheduled on 29/09/2016 confirmed that the percentage of error found was within the maximum permissible error (0.2%) of the meter. Thus the meter was working well within the permissible limits.</p> <p>As the conservative approach in emission reductions calculation, the electricity export for period 16/04/2016 to 28/09/2016 (end date of monitoring period) has been reduced by the maximum error of 0.2% while the electricity import also has been increased by the same percentage of error.</p>	Meter	Brand/Model	Serial Number	Accuracy class	Calibrated on	Valid till	Main meter, M ₁	Schneider Electric/ ION8650	MW-1412A790-01	0.2s	05/12/2014	04/12/2015	16/04/2015	15/04/2016	29/09/2016*	28/09/2017	Check meter, M ₂	Schneider Electric/ ION8650	MW-1412A044-01	0.2s	03/12/2014	02/12/2015	16/04/2015	15/04/2016	29/09/2016*	28/09/2017
Meter	Brand/Model	Serial Number	Accuracy class	Calibrated on	Valid till																						
Main meter, M ₁	Schneider Electric/ ION8650	MW-1412A790-01	0.2s	05/12/2014	04/12/2015																						
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Check meter, M ₂	Schneider Electric/ ION8650	MW-1412A044-01	0.2s	03/12/2014	02/12/2015																						
				16/04/2015	15/04/2016																						
				29/09/2016*	28/09/2017																						
Measuring/reading/recording frequency	Continuously																										
Calculation method (if applicable)	-																										
QA/QC procedures	<ul style="list-style-type: none"> • Cross check measurement results with records for sold electricity. • In case of meter failure there will be crosschecks with CDEC SIC and a protocol for fast replacement in compliance with the Chilean norm. 																										
Purpose of data	Calculation of baseline emissions																										
Additional comments	Data will be recorded monthly. All data will be archived electronically and kept for at least two years after the end of the last crediting period.																										

G.3. Implementation of specific-case CPA level sampling plan

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Not applicable.

SECTION H. Calculation of GHG emission reductions or net GHG removals by sinks

H.1. Calculation of baseline emissions or baseline net GHG removals by sinks

>>

Emission reductions are calculated as follows:

$$ER_y = BE_y - PE_y$$

Where:

ER_y = Emission reductions in year y (t CO₂e)
 BE_y = Baseline emissions in year y (t CO₂e)
 PE_y = Project emissions in year y (t CO₂e)

Baseline emissions are calculated as follows:

$$BE_y = EG_{PJ,y} \cdot EF_{grid,CM,y}$$

Where:

BE_y = Baseline emissions in year y (t CO₂/yr)
 $EG_{PJ,y}$ = Quantity of net electricity generation that is produced and fed into the grid as a result of the implementation of the CDM project activity in year y (MWh/yr)
 $EF_{grid,CM,y}$ = Combined margin CO₂ emission factor for grid connected power generation in year y calculated using the latest version of the "Tool to calculate the emission factor for an electricity system" (t CO₂/MWh)

Calculation of $EG_{PJ,y}$

If the project activity is the installation of a new grid-connected renewable power plant/unit at a site where no renewable power plant was operated prior to the implementation of the project activity, then:

$$EG_{PJ,y} = EG_{facility,y}$$

Where:

$EG_{PJ,y}$ = Quantity of net electricity generation that is produced and fed into the grid as a result of the implementation of the CDM project activity in year y (MWh/yr)
 $EG_{facility,y}$ = Quantity of net electricity generation supplied by the project plant/unit to the grid in year y (MWh/yr)

Therefore, the baseline emissions are calculated as below:

$$\begin{aligned}
 BE_y &= 297,664.75 \text{ MWh} \times 0.824 \text{ t CO}_2/\text{MWh} \\
 &= \mathbf{245,275 \text{ t CO}_2 \text{ (round down)}}
 \end{aligned}$$

H.2. Calculation of project emissions or actual net GHG removals by sinks

>>

Project emissions are calculated as follows:

$$PE_y = PE_{FF,y} + PE_{GP,y} + PE_{HP,y}$$

Where:

PE_y = Project emissions in year y (tCO₂e/yr)
 $PE_{FF,y}$ = Project emissions from fossil fuel consumption in year y (tCO₂/yr)
 $PE_{GP,y}$ = Project emissions from the operation of geothermal power plants due to the release of non-condensable gases in year y (tCO₂e/yr)
 $PE_{HP,y}$ = Project emissions from water reservoirs of hydro power plants in year y (tCO₂e/yr)

There will be no fossil fuel consumption in all PV projects under this PoA. The hydropower and geothermal plants are not considered under this PoA, thus these project emissions do not have to be considered.

$$PE_y = 0$$

H.3. Calculation of leakage

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As per the methodology, leakage emissions may arise due to activities such as power plant construction and upstream emissions from fossil fuel use (e.g. extraction, processing, transport) but are negligible. Thus, no leakage emissions are considered.

$$L_y = 0$$

H.4. Summary of calculation of GHG emission reductions or net GHG removals by sinks

Specific-case CPA reference number	Baseline emissions or baseline net GHG removals by sinks (tCO ₂ e)	Project emissions or actual net GHG removals by sinks (tCO ₂ e)	Leakage (tCO ₂ e)	GHG emission reductions or net GHG removals by sinks (tCO ₂ e) achieved in the monitoring period		
				Up to 31/12/2012	From 01/01/2013	Total amount
9251-0002	245,275	0	0	0	245,275	245,275
Total	245,275	0	0	0	245,275	245,275

H.5. Comparison of GHG emission reductions or net GHG removals by sinks with estimates in the included CPA-DD(s)

Specific-case CPA reference number	Value estimated in ex ante calculation in the included CPA-DD(s)	Actual values achieved by the specific-case CPA(s) during this monitoring period
9251-0002	375,757 tCO ₂ e	245,275 tCO ₂ e
Total	375,757 tCO₂e	245,275 tCO₂e

Ex ante estimate of emission reductions for CPA 9251-0002

As per CPA-DD, ex ante emission reductions from

- a) September 2015 to August 2016 = 321,951 tCO₂ and
- b) September 2016 to August 2017 = 321,951 tCO₂.

Period monitored : 01/09/215 – 31/10/2016

01/09/2016 to 31/10/2016 = 61 days

ERs = 321,951 x 61/365

= 53,806 tCO₂

Ex ante emission reductions for monitoring period 01/09/215 – 31/10/2016

ERs = 321,951 + 53,806

= **375,757 tCO₂**

H.6. Remarks on difference from the estimated value in the included CPA-DD(s)

>>

The emission reductions achieved in the monitoring period is less than the value estimated in ex ante calculation. This is due to the lower capacity factor achieved.

Appendix 1. Contact information of coordinating/managing entity and/or responsible persons/entities

Coordinating/managing entity and/or responsible person/entity	<input checked="" type="checkbox"/> Coordinating/managing entity <input type="checkbox"/> Person/entity responsible for completing the CDM-MR-FORM
Organization name	C-Quest Capital LLC
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State/Region	D.C.
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Fax	
E-mail	cqc-operations@cquestcapital.com
Website	www.cquestcapital.com
Contact person	Isabel Alegre
Title	Managing Director
Salutation	Ms.
Last name	Alegre
Middle name	
First name	Isabel
Department	
Mobile	
Direct fax	
Direct tel.	
Personal e-mail	

Coordinating/managing entity and/or responsible person/entity	<input type="checkbox"/> Coordinating/managing entity <input checked="" type="checkbox"/> Person/entity responsible for completing the CDM-MR-FORM
Organization name	C-Quest Capital Malaysia Limited
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Website	www.cquestcapital.com
Contact person	Ang Kong Nian
Title	
Salutation	
Last name	Ang
Middle name	Nian
First name	Kong
Department	
Mobile	
Direct fax	
Direct tel.	
Personal e-mail	

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