**COMPONENT PROJECT ACTIVITY DESIGN DOCUMENT FORM (F-CDM-CPA-DD)**
**Version 02.0**

# COMPONENT PROJECT ACTIVITIES DESIGN DOCUMENT (CPA-DD)

## SECTION A. General description of CPA

### A.1. Title of the proposed or registered PoA

"Run of River Hydro Power Plants in Chile"

### A.2. Title of the CPA

"[Project Name] Run of River Hydro Power Plant, Chile"
Version [version number of the specific CPA]
Date: [date on which the specific CPA-DD was completed]

(Based on Generic CPA-DD version [number])

*(Generic CPA-DD document history:*
*Version 01: 10/01/2012 (submitted for validation)*
*Version 02: 11/06/2012*
*Version 03: 26/10/2012*
*Version 04: 23/11/2012*
*Version 05: 29/07/2013*
*Version 06: 12/02/2014)*

### A.3. Description of the CPA

[Project Name] project consists in the construction and operation of a [installed capacity, MW] Run of River Hydro Power Plant to be connected to the Chilean Central Interconnected System (*Sistema Interconectado Central*, SIC), and it is expected to generate [number] MWh/year (average annual generation). [Project Name] is developed by [CPA Implementer] and will be located in [Region Name] Region, [distance from the nearest majors city]. The project will utilise water from [water source/sources]; water will be [returned into the natural river bed/discharge to an existing irrigation channel/other].

### A.4. Entity/individual responsible for CPA

The CPA implementer is [entity name]

### A.5. Technical description of the CPA

The main works and equipments are *(include following structure if appropriate. Include additional structures if relevant)*:

- [Diversion structures (weirs/other) and water intake. Indicate if a reservoir will be created]
- [Adduction structures: channels/pipes/siphons/tunnels. Specify]
- [Forebay tank]

- [Penstock]
- [Power House]
- [Discharge channel]
- [Step-up substation]
- [Power line. Indicate longitude and voltage]
- [Turbines: indicate number and type]
- [Generators: indicate number and type]

The main electromechanic equipment (turbine and generator) [indicate if they will be new equipment or they have been previously used in other activities. In the second case indicate the age of the equipment].

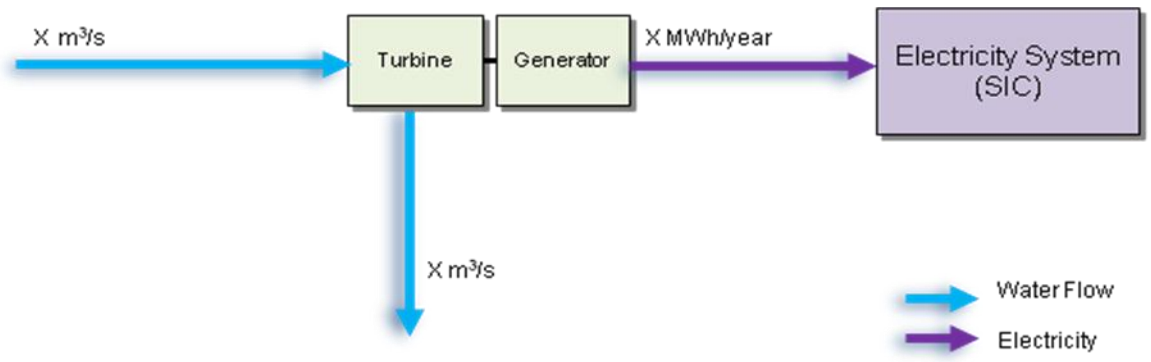
Before the project activity there is no electricity generation at the project site (the project is a greenfield project). The baseline scenario is the continuation of the current situation.

The installed capacity of the project activity will be [number] MW. It will generate [number] MWh/year, with [number] % load factor.

*(If necessary for understanding, include footnotes, paragraphs or figures with information/clarification applicable to the specific project circumstances.)*

The following figure shows a mass and energy flow of the project: *(insert a diagram equivalent to the following figure)*

**Figure [number]: Mass and energy flow**




**A.6. Party(ies)**

| Name of Party involved (host) indicates a host Party | Private and/or public entity(ies) CPA implementer(s) (as applicable) | Indicate if the Party involved wishes to be considered as CPA implementer (Yes/No) |
|---|---|---|
| Chile (host) | [name] | NO |

### A.7. Geographic reference or other means of identification

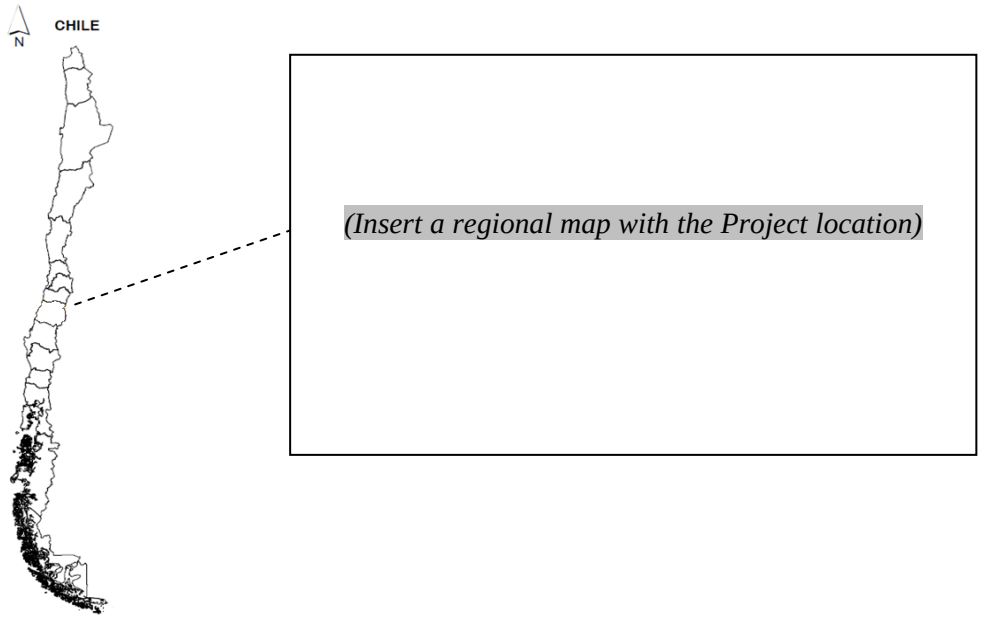
Country: Chile

Region: [Region]

Province: [Province]

Commune: [Commune]

**Figure [n]: Project location**




The specific coordinates of the power house are: [coordinate] N, [coordinate] E, [Datum].

### A.8. Duration of the CPA
### A.8.1. Start date of the CPA

[dd/mm/yyyy] ( *(specify what "real action" that represent the starting date of the CPA)* )

### A.8.2. Expected operational lifetime of the CPA

[CPA lifetime]

### A.9. Choice of the crediting period and related information

Renewable crediting period

### A.9.1. Start date of the crediting period

[dd/mm/yyyy] or after inclusion date, whichever occurs later.

### A.9.2. Length of the crediting period

*(indicate the length of the first crediting period and the number of renewal periods)*

### A.10. Estimated amount of GHG emission reductions

| Emission reductions during the crediting period | |
|---|---|
| **Years** | **Annual GHG emission reductions (in tonnes of $CO_2e$) for each year** |
| Year 1 | [number] |
| Year 2 | [number] |
| Year 3 | [number] |
| Year 4 | [number] |
| Year 5 | [number] |
| Year 6 | [number] |
| Year 7 | [number] |
| **Total number of crediting years** | [number] |
| **Annual average GHG emission reductions over the crediting period** | [number] |
| **Total estimated reductions (tonnes of $CO_2e$)** | [number] |

### A.11. Public funding of the CPA

The project does not receive public funding.

### A.12. Confirmation for CPA

The present CPA is not registered as an individual CDM project and is not part of another PoA.

## SECTION B. Environmental analysis

### B.1. Analysis of the environmental impacts

*(deleted the option not applicable)*

*(option 1)*
The project did not need to assess its environmental impacts by going through the SEIA (Environmental Impact Assessment System) because it does not meet the conditions stated in law 19,300 S.D. No 95, as described in Section E (Part I) of the PoA-DD.

*(option 2)*
In compliance with Chilean regulations the project officially assessed its environmental impacts by going through the SEIA (Environmental Impact Assessment System) because it meets the conditions stated in law 19,300 S.D. No 95, as described in Section E (Part I) of the PoA-DD. The assessment was made through [an Environmental Impact Statement ("Declaración de Impacto Ambiental", DIA)] or [an Environmental Impact Assessment ("Estudio de Impacto Ambiental", EIA)].

**B.2. Environmental impact assessment**

*(deleted the option not applicable)*

*(option 1)*
An environmental impact assessment is not required for the CPA

*(option 2)*
As required by Chilean regulations the environmental impacts of the project activity were assessed through [an Environmental Impact Assessment (EIA) / an Environmental Impcat Statement ("Declaración de Impacto Ambiental, DIA) ], which was presented to the Environmental Authority on [date]. The document is available at the official Environmental Authority`s website: [link].

The [EIA / DIA] was assessed by [number] governmental offices related with environmental matters, as requested by the Environmental Authority [link]. After the evaluation of the project and the official answers and clarifications given by the project developer, the project was environmentally approved on [date] through the "Resolución de Calificación Ambiental" (Environmental License), RCA Nº [number] ( [link] ). It is concluded that [indicate the conclusions in the Environmental License ("Resolución de Calificación Ambiental", RCA) regarding the environmental impact assessment and mitigation measures required by law].

**SECTION C. Local stakeholder comments**
**C.1. Solicitation of comments from local stakeholders**

*(deleted the option not applicable)*

*(option 1)*
As the environmental impacts of the projects were formally assessed through an Environmental Impact Assessment (EIA) in the Environmental Impact Assessment System (SEIA) a stakeholder consultation process was coordinated by the Environmental Authority in compliance with articles 26 to 30 of Law N° 19,300 and articles 49 to 53 of S.D. No 95 as described in Section D of the PoA-DD.

As defined by the authority the consultation considered [specify the mechanisms (such as meetings), indicating number, dates, places, actors involved]. Also a summary of the project was published in the Official Gazette on [date], and in a [local/national] newspaper on [date]

*(additional actions can be added if considered necessary. Include additional information if appropriate)*

*(option 2)*
As the [project did not require to go through the Environmental Impact Assessment System (SEIA)] or [environmental impacts of the projects were formally assessed through an Environmental Impact Statement ("Declaración de Impacto Ambiental", DIA) in the Environmental Impact Assessment System (SEIA)] an official stakeholder consultation process coordinated by the Environmental Authority was not required.

[description of the stakeholder consultation process, indicating how the comments were invited and compiled]

**C.2. Summary of comments received**

*(complete)*

**C.3. Report on consideration of comments received**

*(complete)*

**SECTION D. Eligibility of CPA and estimation of emissions reductions**
**D.1. Title and reference of the approved baseline and monitoring methodology(ies) selected:**

ACM0002 "Grid-connected electricity generation from renewable sources" (Version 14.0.0)

**D.2. Application of methodology(ies)**

[Project Name] project meets the applicability conditions of the methodology ACM0002 Version 14.0.0:

*The methodology is applicable to grid-connected renewable power generation project activities that: (a) install a new power plant at a site where no renewable power plant was operated prior to the implementation of the project activity (greenfield plant); (b) involve a capacity addition; (c) involve a retrofit of (an) existing plant(s); or (d) involve a replacement of (an) existing plant(s).*

The project is a greenfield plant.

1. *The project activity is the installation, capacity addition, retrofit or replacement of a power plant/unit of one of the following types: hydro power plant/unit (either with a run-of-river reservoir or an accumulation reservoir), wind power plant/unit, geothermal power plant/unit, solar power plant/unit, wave power plant/unit or tidal power plant/unit.*

   The project is a hydropower plant.

2. *In the case of capacity additions, retrofits or replacements (except for wind, solar, wave or tidal power capacity addition projects which use Option 2: on page 11 to calculate the parameter EGPJ,y): the existing plant started commercial operation prior to the start of a minimum historical reference period of five years, used for the calculation of baseline emissions and defined in the baseline emission section, and no capacity expansion or retrofit of the plant has been undertaken between the start of this minimum historical reference period and the implementation of the project activity.*

   Not applicable because the project is a greenfield power plants.

3. *In case of hydro power plants, one of the following conditions must apply:*
   - *The project activity is implemented in an existing single or multiple reservoirs, with no change in the volume of any of reservoirs; or*
   - *The project activity is implemented in an existing single or multiple reservoirs, where the volume of any of reservoirs is increased and the power density of each of the reservoir, as per definitions given in the Project Emissions section, is greater than 4 W/m$^2$; or*

- *The project activity results in new single or multiple reservoirs and the power density of each reservoir, as per definitions given in the Project Emissions section, is greater than 4 W/m$^2$.*

[Explanation]

4. *In case of hydro power plants using multiple reservoirs where the power density of any of the reservoirs is lower than 4 W/m2 all the following conditions must apply:*
   - *The power density calculated for the entire project activity using equation 5 is greater than 4W/m$^2$;*
   - *Multiple reservoirs and hydro power plants located at the same river and where are designed together to function as an integrated project1 that collectively constitute the generation capacity of the combined power plant;*
   - *Water flow between multiple reservoirs is not used by any other hydropower unit which is not a part of the project activity;*
   - *Total installed capacity of the power units, which are driven using water from the reservoirs with power density lower than 4 W/m2, is lower than 15MW;*
   - *Total installed capacity of the power units, which are driven using water from reservoirs with power density lower than 4 W/m$^2$, is less than 10% of the total installed capacity of the project activity from multiple reservoirs.*

   Not applicable ( [the project does not involve reservoir] *(or)* [the power density of the single reservoir is greater than 4 W/m$^2$] *(or)* [the power density is greater than 4 W/m$^2$ for each run of river reservoirs] )

5. *The methodology is not applicable to project activities that involve switching from fossil fuels to renewable energy sources at the site of the project activity, since in this case the baseline may be the continued use of fossil fuels at the site;*

   The project does not involve fuel switching (it is a greenfield power plants).

6. *The methodology is not applicable to Biomass fired power plants*

   The project is a run of river power plant.

7. *The methodology is not applicable to hydro power plant that result in new single reservoir or in the increase in existing single reservoir where the power density of the power plant is less than 4 W/m$^2$*

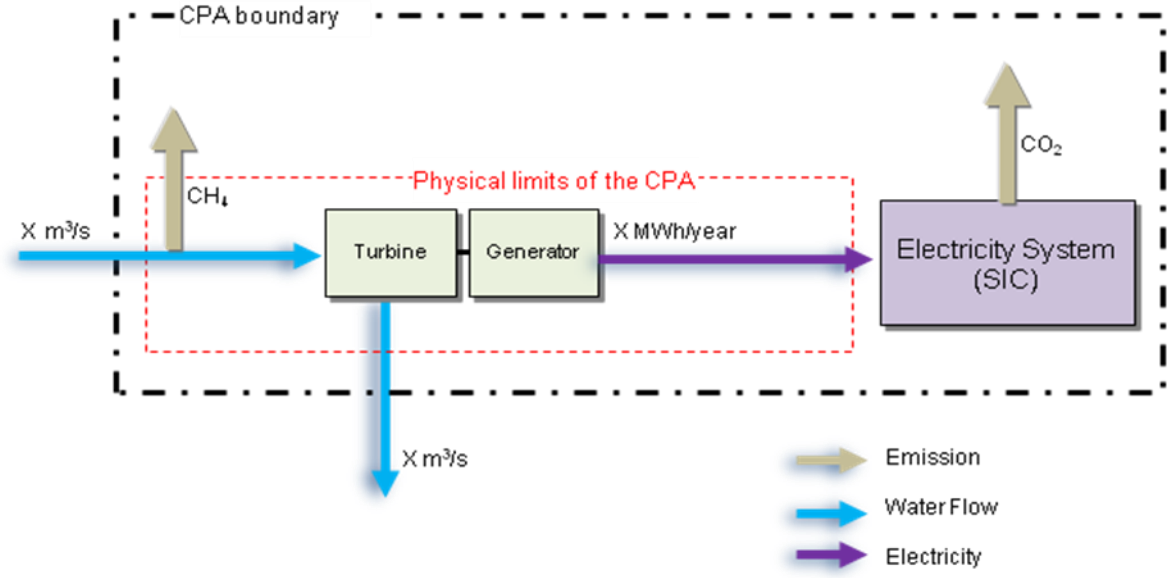
   [The power density is greater than *4 W/m$^2$*] *(or)* [the project does not involve reservoirs]

**D.3. Sources and GHGs**

| Source | | GHGs | Included? | Justification/Explanation |
|---|---|---|---|---|
| Baseline scenario | $CO_2$ emissions from electricity generation in fossil fuel fired power plants that are displaced due to the project activity | $CO_2$ | Yes | Main emission source |
| | | $CH_4$ | No | Minor emission source |
| | | $N_2O$ | No | Minor emission source |
| | | --- | --- | --- |
| Project scenario | For geothermal power plants, fugitive emissions of $CH_4$ and $CO_2$ from non-condensable gases contained in geothermal steam | $CO_2$ | Not applicable | |
| | | $CH_4$ | | |
| | | $N_2O$ | | |
| | | --- | | |
| | $CO_2$ emissions from combustion of fossil fuels for electricity generation in solar thermal power plants and geothermal power plants | $CO_2$ | Not applicable | |
| | | $CH_4$ | | |
| | | $N_2O$ | | |
| | | --- | | |
| | For hydro power plants, emissions of $CH_4$ from the reservoir | $CO_2$ | No | Minor emission source |
| | | $CH_4$ | Yes | Main emission source |
| | | $N_2O$ | No | Minor emission source |
| | | --- | --- | |

The following figure shows a flow diagram physically delineating the CPA: *(insert a diagram equivalent to the following figure)*

**Figure [number]: Physical limits of the CPA**



**D.4. Description of the baseline scenario**

As the project activities is the installation of a new grid-connected renewable power plant, according to ACM0002 version 14.0.0 the baseline scenario is:

*"Electricity delivered to the grid by the project activity would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources, as reflected in the combined margin (CM) calculations described in the "Tool to calculate the emission factor for an electricity system".*

**D.5. Demonstration of eligibility for a CPA**

Compliance with the eligibility criteria:

[CPA title] complies with all eligibility criteria stated in section A.4.2 of the PoA-DD. This CPA also complies with all the applicability conditions of the applied methodology ACM0002 Version 14.0.0, as described in Section E.2 of the PoA-DD.

1. *Be a greenfield hydro-power plan of one of the following types:*
    a. *Run of river power plant without reservoir*
    b. *Run of river power plant with single or multiple reservoir*
    c. *Power plant associated to an existing dam.*

    [Explanation]

2. *Not involve switching from fossil fuels to renewable energy sources at the site of the project activity.*

    [Explanation]

3. *In the case of greenfield run of river power plants the project must: i) not have a storage reservoir; or ii) daily limited pondage.*

    [Explanation]

4. *In the case of greenfield power plants associated to existing dams the project is eligible if despite the existence of a dam the power plant is operated as a run of river power plant because the project developer is not able of regulate the flows for electricity generation. This can be confirmed by the compliance of the following: (i) the main purpose of the reservoir is other than electricity generation (for example constructed to provide water to farmers for irrigating purposes), (ii) the volume of the existing reservoir is not changed as a consequence of the project activity, and (iii) the regulation of water flow is not defined only by the power plant requirements.*

    [Explanation]

5. *Have a power density greater than 4 W/$m^2$, if the power plant results in the creation of a new run of river reservoir (pondage). If multiple run of river reservoirs (pondage) are created, power density should be greater than 4 W/$m^2$ for each of them.*

    [Explanation]

6. *In the case of power plants using multiple reservoirs where the power density of any of the reservoirs is lower than 4 W/m$^2$: multiple reservoirs and hydro power plants located at the same river and where are designed together to function as an integrated project that collectively constitute the generation capacity of the combined power plant. This requirement can be demonstrated, for example: (i) by the fact that water flow from upstream power units spilling directly to the downstream reservoir; or (ii) through the analysis of the water balance.*

   [Explanation]

7. *In the case of power plants using multiple reservoirs where the power density of any of the reservoirs is lower than 4 W/m$^2$: Water flow between multiple reservoirs is not used by any other hydropower unit which is not a part of the project activity.*

   [Explanation]

8. *In the case of power plants using multiple reservoirs where the power density of any of the reservoirs is lower than 4 W/m$^2$: Total installed capacity of the power units, which are driven using water from the reservoirs with power density lower than 4 W/m$^2$, is lower than 15 MW.*

   [Explanation]

9. *In the case of power plants using multiple reservoirs where the power density of any of the reservoirs is lower than 4 W/m$^2$: Total installed capacity of the power units, which are driven using water from reservoirs with power density lower than 4 W/m$^2$, is less than 10% of the total installed capacity of the project activity from multiple reservoirs.*

   [Explanation]

10. *Be located inside the Geographical Boundary of the PoA, as defined in section A.4.1.2 (Región de Antofagasta, Región de Atacama, Región de Coquimbo, Región de Valparaíso, Región Metropolitana, Región del Libertador General Bernardo O'Higgins, Región del Maule, Región del Bio Bio, Región de la Araucanía, Región de Los Ríos, Región de Los Lagos).*

    [Explanation]

11. *In order to avoid double counting the CPA can not: (i) have been registered as a CDM project activity, or (ii) be included as a CPA under the present PoA or another registered PoA. This must be confirmed as described in section A.4.4.1.*

    [Explanation]

12. *Confirm with a writing statement that the CPA will not:*
    *a. Be registered as a CDM project activity*
    *b. Be included as a CPA under another PoA.*

    A written statement is provided by [CPA implementer name]

13. *Be connected to the Central Interconnected System (SIC)*

    The project will be connected to the Central Interconnected System.

14. *Have a project starting date after 22/01/2012 (date on which the PoA-DD was uploaded for Global Stakeholder Consultation). The "staring date" of the Project Activity means the earliest date at which either the implementation or construction or real action of a Project Activity begins. The starting date of the project will be the earliest among:*
    - *Legally binding contract between the Project Entity and a third party with a commitment by the Project Entity to expenditures[1] related to the implementation or construction of the Project Activity; or*
    - *Purchase order(s) for the electromechanical equipment; or*
    - *Any other significant purchase order, contract or payment evidence related to the construction of the Project Activity;*

    *If none of these real actions have occurred at the time of the CPA inclusion, the project developer must provide a writing statement confirming it.*

    The project starting date *(select one of the options)*

    *(option 1)*

    is [date stated in section A.4.2.1.], which corresponds to [real action which defines the starting date].

    *(option 2)*

    is expected to be [date stated in section A.4.2.1.], which is the expected date for [real action projected to occur before]. A written statement will be provided by [CPA implementer name] confirming that no real actions have occurred at the date.

15. *Demonstrate the compliance with the additionallity requirements stated on section E.5 of the present PoA-DD.*

    The project comply the additionallity requirements stated in section E.5 of the PoA-DD, as demonstrated in section B.3 of the CPA-DD.

16. *Have conducted a stakeholder consultation process as described in section D of the PoA-DD.*

    The project conducted a stakeholder consultation process as described in section D of the PoA-DD, as shown in section D of the CPA-DD.

17. *Have an installed capacity lower than 20 MW.*

    [explanation]

18. *Have conducted an Environmental Impact Statement ("Declaración de Impacto Ambiental", DIA) or through an Environmental Impact Assessment ("Estudio de Impacto Ambiental", EIA), based on the requirement of the Law 19,300 (see section C.3 of the PoA-DD).*

[1] Expenditures related to minor pre-project expenses, e.g. the contracting of services /payment of fees for feasibility studies or preliminary surveys, are not applicable in the context of this Eligibility Criterion as they do not necessarily indicate the commencement of implementation of the Project Activity

[explanation]

19. *The CPA implementer must provide a statement confirming that funding from Annex I parties, if any, do not result in a diversion of official development assistance.*

[explanation]

Additionality criteria:

As stated in the PoA-DD the additionality will be demonstrated using the "Tool for the demonstration and assessment of additionality".

**Step 0: Demonstration whether the proposed project activity is the first-of-its-kind**

Not applied (the proposed project activity is not the first-of-its-kind).

**Step 1: Identification of Alternatives to the Project Activity Consistent with Current Laws and Regulations**

***Sub-step 1a: Define alternatives to the project activity:***

The alternatives to the project activity are:

a) The proposed project activity undertaken without being registered as a CDM project activity;

b) The continuation of the current situation (no project activity: the electricity is generated by the power plants connected to the grid).

c) The construction and operation of other type of renewable energy power plant, such as solar or wind power plants.

d) The construction and operation of a new fossil fuel power plant, such as diesel, natural gas or coal fired power plants.

**Outcome of Step 1a:**

a) The proposed project activity undertaken without being registered as a CDM project activity;

b) The continuation of the current situation (no project activity: the electricity is generated by the power plants connected to the grid).

c) The construction and operation of other type of renewable energy power plant, such as solar or wind power plants.

d) The construction and operation of a new fossil fuel power plant, such as diesel, natural gas or coal fired power plants.

***Sub-step 1b: Consistency with mandatory laws and regulations:***

All alternatives identified in Sub-step 1a are in compliance with Chilean laws and regulations:

a) There is no legal obligation to present the proposed project activity to the CDM.
b) There is no legal obligation for the project participant in order to build or invest in any kind of power plant to supply electricity.
c) In Chile any private entity can construct and operate a renewable power plant if it complies with the environmental and technical regulations.
d) In Chile any private entity can construct and operate a fossil fuel power plant if it complies with the environmental and technical regulations.

**Outcome of Step 1b:**
The alternatives that are in compliance with Chilean laws and regulations are:

a) The proposed project activity undertaken without being registered as a CDM project activity;

b) The continuation of the current situation (no project activity: the electricity is generated by the power plants connected to the grid).

c) The construction and operation of other type of renewable energy power plant, such as solar or wind power plants.

d) The construction and operation of a new fossil fuel power plant, such as diesel, natural gas or coal fired power plants.

**Step 2: Investment Analysis**

**Sub-step 2a: Determine appropriate analysis method:**

The analysis method to be used is a benchmark analysis (Option III). This is suited because the baseline does not require investment, and the choice of the developer is to invest or not to invest:

**Sub-step 2b: Option III. Apply benchmark analysis**

The financial indicator for this analysis will be the project Internal Rate of Return (IRR), which is an indicator commonly used to determine investment decisions. A suitable benchmark value for power generation projects is 10% (before taxes), which is used to determine node prices, transmission line and distribution investment according to DFL 4/2006, Ley General de Servicios Eléctricos (Electricity Services General Law), Article 165, letter (d).

**Sub-step 2c: Calculation and comparison of financial indicators**

The table below presents the main parameters used in the IRR calculation of the project.

**Table[n]: Parameters for IRR calculation**

| Parameters | Unit | Value |
|---|---|---|
| Electricity generation | MWh/year | [number] |
| Total investment | MMUS$ | [number] |

| | | |
|---|---|---|
| Energy price | US$/MWh | [number] |
| Firm power price | US$/MW (per month) | [number] |
| Firm power | MW | [number] |
| Transmission cost | US$/year | [number] |
| O&M | US$/year | [number] |
| Payment for water use | % of sales | [number] |
| VAT | % | [number] |
| Operational Life | Years | 20 |
| Residual Value | % | [number] |

*(Delete or add additional parameters if they better reflect the characteristics and circumstances of the project)*

The results of the benchmark analysis are as follows:

IRR: [*number*]%
Benchmark: 10%

[*Conclusion*]

As a result of the benchmark analysis it is demonstrated that the project is not financially attractive (the project IRR is lower than the benchmark).

**Sub-step 2d: Sensitivity analysis**

The variables included in this analysis are all variables that constitute more than 20% of total costs or revenues, including the initial investment:
*(Add or delete variable, as appropriate)*

- Energy generation (incomes from energy sales are the [number] % of the revenues)
- Energy price (incomes from energy sales are the [number] % of the revenues)
- Investment ([number] % of the costs)
- O&M ([number] % of the costs)

The results of the sensitivity analysis are as follows:

**Table[n]: Sensitivity Analysis**

| | -10% | 0% | 10% |
|---|---|---|---|
| Investment | [number] | [number] | [number] |
| O&M | [number] | [number] | [number] |
| Energy generation | [number] | [number] | [number] |
| Energy price | [number] | [number] | [number] |

*(If for one parameter the +10% / -10% variation range does not reflect the project characteristics and circumstances, indicate and justify a suitable range)*

[Conclusion]

**Step 4: Common practice analysis**

**Sub-step 4a: The proposed CDM project activity(ies) applies measure(s) that are listed in the definitions section above.**

**Step 1:** Calculate applicable output range as +/-50% of the total design capacity or output of the proposed project activity.

Since the project is of [number] MW, the +/-50% condition will result in a range of [number] MW to [number] MW.

**Step 2:** identify similar projects (both CDM and non-CDM) which fulfil all of the following conditions:

(a) *The power plant is located in the applicable geographical area*.

(b) *The projects apply the same measure as the proposed project activity.*

(c) *The projects use the same energy source/fuel and feedstock as the proposed project activity, if a technology switch measure is implemented by the proposed project activity*.

(d) *The plants in which the projects are implemented produce goods or services with comparable quality, properties and applications areas (e.g. clinker) as the proposed project plant*.

(e) *The capacity or output of the projects is within the applicable capacity or output range calculated in Step 1*

(f) *The projects started commercial operation before the project design document (CDM-PDD) is published for global stakeholder consultation or before the start date of proposed project activity, whichever is earlier for the proposed project activity*.

Based on the definitions of the PoA-DD the projects similar to the proposed CPA, which comply with the previous conditions, are:

Hydropower plants connected to the SIC within the [number] to [number] MW range stated in Step 1, which started commercial operation before [date] ( [starting date of the CPA] or [date of CPA submission for its inclusion in the PoA] ) *(select earliest date among both alternatives)*.

**Table[n]: SIC-connected hydropower plants in Chile ([number] to [number] MW, until [date])**

| Power Plant | Capacity (MW) | Start operation | Energy source |
|---|---|---|---|
| [name] | [number] | [Year] | [type] |
| [name] | [number] | [Year] | [type] |
| [name] | [number] | [Year] | [type] |

Source: (indicate source)

**Step 3**: within the projects identified in Step 2, identify those that are neither registered CDM project activities, project activities submitted for registration, nor project activities undergoing validation. Note their number $N_{all}$.

**Table[n]: CDM status of the projects identifies in Step 2**

| Power Plant | CDM |
|---|---|
| [name] | [number] |
| [name] | [number] |
| [name] | [number] |

Based on this:

$N_{all}$ = [number]

**Step 4:** Within plants identified in Step 3, identify those that apply technologies that are different to the technology applied in the proposed project activity. Note their number $N_{diff}$.

Based on the definitions of the PoA, "different technology" corresponds to:

- Energy source: any energy source other than hydro.
- Legal regulations: power plants constructed before 1982, when the Decree with Law Force No 1: Electricity Services General Law was enacted, which privatized the electric sector, changing the conditions for the investment in energy projects.

**Table[n]: Projects with similar technology**

| Power Plant | Similar energy source | Start operation | Different regulation? | Different technology? |
|---|---|---|---|---|
| [name] | Yes | [Year] | [type] | [yes/no] |
| [name] | Yes | [Year] | [type] | [yes/no] |
| [name] | Yes | [Year] | [type] | [yes/no] |

Based on this:

$N_{diff.}$ = [number]

**Step 5:** Calculate factor $F=1-N_{diff}/N_{all}$ representing the share similar projects (penetration rate of the measure/technology) using a measure/technology similar to the measure/technology used in the proposed project activity that deliver the same output or capacity as the proposed project activity.

$F= 1-N_{diff}/N_{all}$ = 1- ([number]/ [number]) = [number]

And

$N_{all} - N_{diff}$ = [number]

*(indicate one or both of the alternatives)* As [the factor F is lower than 0.2] and [$N_{all} - N_{diff}$ is lower than 3] then the project is not the common practice.

**D.6. Estimation of emission reductions**
**D.6.1. Explanation of methodological choices**

**Project emissions ($PE_y$)**

As stated in the eligibility criteria Nº1 of the PoA the project activity is a hydro power plant, so the only potential project emission source to be account for is $CH_4$ emission from reservoirs.

*(delete the option not applicable)*

*(option 1)*
As the project activity does not result in a new reservoir PEy = 0, then the project emission equations and the corresponding monitored parameters will not be applied.

*(option 2)*
The project activity is a power plant associated to an existing reservoir. As demonstrated for eligibility criteria Nº4 the project activity does not result in the increase of existing reservoirs. Based on this, PEy = 0; project emission equations and the corresponding monitored parameters will not be applied.

*(option 3)*
As the project activity results in new reservoir[(s)] $PE_y$ calculations will depends on the Power Density, calculated a per equation [3] of the PoA-DD.

*(delete the option not applicable)*

*(option 2.1)*
As power density of the [single *OR* multiple reservoirs] is greater than 10 $W/m^2$ project emissions are calculated as per equation [2] of the PoA-DD.

$PE_{HP,y}$ = 0

*(option 2.2)*

As the power density is greater than 4 W/$m^2$ and less than or equal to 10 W/$m^2$ project emissions are calculated as per equation 1 of the PoA-DD.

**Baseline Emissions (BEy)**

**Calculation of $EG_{PJ, y}$**

As the CPA is a new grid-connected power plants, Equation [5] of the PoA-DD will be used for the Calculation of $EG_{PJ, y}$

**Calculation of the emission factor**
As defined in Section B.6.1. of the PoA-DD (Part 2) for the emission factor calculation the electricity system is the Central Interconnected System (SIC), only grid-connected power plants will be considered, and OM emission factor method is Simple Adjusted on *ex post* base. As the data required to calculate the emission factor for year *y* is usually only available later than six months after the end of year *y*, the emission factor of the previous year *y-1* will be used.

The Operating Margin will be calculated using equation 6 of the PoA-DD. The Build Margin will be calculated using equation 10 of the PoA-DD. The Combined Margin Emission Factor will be calculated using equation 11 of the PoA-DD.

**Leakage Emissions (Ly)**

As stated in the PoA-DD no leakage emissions are considered.

**Emission Reduction ($ER_Y$)**

Emission Reductions will be calculated using equation 12 of the PoA-DD.

**D.6.2. Data and parameters that are to be reported ex-ante**

*(the following tables are not to be apply for projects that not result in new reservoirs)*

| **Data / Parameter** | $EF_{Res}$ |
|---|---|
| **Unit** | $kgCO_2e/MWh$ |
| **Description** | Default emission factor for emissions from reservoirs |
| **Source of data** | Decision by EB23 |
| **Value(s) applied** | 90 $kgCO_2e/MWh$ |
| **Choice of data or Measurement methods and procedures** | Default value |
| **Purpose of data** | Calculation of project emissions |
| **Additional comment** | *(Only for CPA that result in new single or multiple reservoirs)* |

| | |
|---|---|
| **Data / Parameter** | $Cap_{BL}$ |
| **Unit** | W |
| **Description** | Installed capacity of the hydro power plant before the implementation of the project activity |
| **Source of data** | CPA Project site |
| **Value(s) applied** | To be specified by each CPA at the moment of inclusion in the PoA |
| **Choice of data or Measurement methods and procedures** | To be specified by each CPA at the moment of inclusion in the PoA |
| **Purpose of data** | Calculation of project emissions |
| **Additional comment** | *(Only for CPA that result in new single or multiple reservoirs)* |

| | |
|---|---|
| **Data / Parameter** | $A_{BL}$ |
| **Unit** | $m^2$ |
| **Description** | Area of the single or multiple reservoirs measured in the surface of the water, before the implementation of the project activity, when the reservoir is full. ($m^2$). For new reservoirs, this value is zero. |
| **Source of data** | CPA project site |
| **Value(s) applied** | To be specified by each CPA at the moment of inclusion in the PoA |
| **Choice of data or Measurement methods and procedures** | To be specified by each CPA at the moment of inclusion in the PoA |
| **Purpose of data** | Calculation of project emissions |
| **Additional comment** | *(Only for CPA that result in new single or multiple reservoirs)* |

**D.6.3. Ex-ante calculation of emission reductions**

**Project emissions ($PE_y$)**

*(delete the option not applicable)*

*(option 1)*
As the project activity does not result in a new reservoir or in the increase of existing reservoirs:

**$PE_y = 0$**

*(option 2)*
As the project activity results in new reservoir[(s)] $PE_y$ calculations will depends on the Power Density, calculated a per equation [3] of the PoA-DD:

*(if the project includes multiple reservoirs repeat the calculation for the entire project activity and for each reservoir)*

$Cap_{PJ}$ = [number] W
$A_{PJ}$ = [number] $m^2$
$Cap_{BL}$ = [number] W
$A_{BL}$ = [number] $m^2$

$$\text{Power Density} = \frac{\text{[number] W}}{\text{[number] } m^2}$$

**Power Density = [number] $W/m^2$**

*(delete the option not applicable)*

*(option 2.1)*
As power density of the [single *OR* multiple reservoirs] is greater than 10 $W/m^2$ project emissions are calculated as per equation [2] of the PoA-DD:

$PE_{HP,y}$ = 0

*(option 2.2)*
As the power density is greater than 4 $W/m^2$ and less than or equal to 10 $W/m^2$ project emissions are calculated as per equation 1 of the PoA-DD:

$EF_{Res}$ = 90 $kgCO_2e/MWh$
$TEG_y$ = [number] MWh

$$PE_{HP,y} = \frac{90\ kgCO_2e/MWh \times \text{[number] MWh}}{1000}$$

**$PE_{HP,y}$ = [number] $tCO_2e$**

**Baseline Emissions (BEy)**

**a) Calculation of the emission factor**

As defined in Section E.6.2. of the PoA-DD for the emission factor calculation the electricity system is the Central Interconnected System (SIC), only grid-connected power plants will be considered, and OM emission factor method is Simple Adjusted.

**Operating Margin [ (year) ].** As per equation 6 of the PoA-DD and as further detailed in Appendix 4:

$$\sum_m EG_{m,y} \times EF_{EL,m,y} = \text{[number] } tCO_2$$

$$\sum_k EG_{k,y} \times EF_{EL,k,y} = \text{[number] } tCO_2$$

$\sum_{m} EG_{m,y}$ = [number] MWh

$\sum_{k} EG_{k,y}$ = [number] MWh

$\lambda_{y}$ = [number]

$(1-\lambda_{y})$ = [number]

Then:

$$EF_{grid,OM\text{-}adj,[year]} = [number] \text{ x } \frac{[number]\ tCO_2}{[number]\ MWh} + [number] \text{ x } \frac{[number]\ tCO_2}{[number]\ MWh}$$

**$EF_{grid,OM\text{-}adj,[year]}$ = [number] $tCO_2$/MWh**

**Build Margin.** Based on equation 10 and procedures stated in the PoA-DD, and as detailed in Annex 3:

$\sum_{m} EG_{m,y} \times EF_{EL,m,y}$ = [number] $tCO_2$

$\sum_{m} EG_{m,y}$ = [number] MWh

Then:

$$EF_{grid,BM,[year]} = \frac{[number]\ tCO_2}{[number]\ MWh}$$

**$EF_{grid,BM,[year]}$ = [number] $tCO_2$/MWh**

**Combined margin emission factor.** As per equation 11 of the PoA-DD:

$EF_{grid,CM,[year]}$ = $EF_{grid,OM\text{-}adj,[year]}$ $tCO_2$/MWh x 0.5 + $EF_{grid,BM,[year]}$ $tCO_2$/MWh x 0.5

$EF_{grid,CM,[year]}$ = [number] $tCO_2$/MWh x 0.5 + [number] $tCO_2$/MWh x 0.5

**$EF_{grid,CM,[year]}$ = [number] $tCO_2$/MWh**

**b) Net electricity generation ($EG_{PJ,y}$= $EG_{facility,y}$)**

The expected average net electricity generation is [number]MWh/yr.

As per equation 5 of the PoA-DD:

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

$BE_y$ = [number]MWh/yr x [number] $tCO_2$/MWh

**$BE_y$ = [number] $tCO_2$/yr**

**Leakage Emissions (Ly)**

As stated in the PoA-DD no leakage emissions are considered.

**Emission Reduction ($ER_Y$)**

As per equation 12 of the PoA-DD:

$ER_y = BE_y - PE_y$

$ER_y$ = [number] $tCO_2$/yr - [number] $tCO_2$/yr

**$ER_y$ = [number] $tCO_2$/yr**

**D.6.4. Summary of the ex-ante estimates of emission reductions**

| Year | Baseline emissions (t $CO_2$e) | Project emissions (t $CO_2$e) | Leakage (t $CO_2$e) | Emission reductions (t $CO_2$e) |
|---|---|---|---|---|
| [year 1] | [number] | [number] | 0 | [number] |
| [year 2] | [number] | [number] | 0 | [number] |
| [year 3] | [number] | [number] | 0 | [number] |
| [year 4] | [number] | [number] | 0 | [number] |
| [year 5] | [number] | [number] | 0 | [number] |
| [year 6] | [number] | [number] | 0 | [number] |
| [year 7] | [number] | [number] | 0 | [number] |

| | | | | |
|---|---|---|---|---|
| **Total** | [number] | [number] | 0 | [number] |
| **Total number of crediting years** | [number] | | | |
| **Annual average over the crediting period** | [number] | [number] | 0 | [number] |

**D.7. Application of the monitoring methodology and description of the monitoring plan**
**D.7.1. Data and parameters to be monitored**

| | |
|---|---|
| **Data / Parameter** | $EG_{facility,y}$ |
| **Unit** | MWh/yr |
| **Description** | Quantity of net electricity generation supplied by the project plant/unit to the grid in year *y*. |
| **Source of data** | Electricity meter(s) |
| **Value(s) applied** | [number] |
| **Measurement methods and procedures** | The following parameters shall be measured:<br>(i) The quantity of electricity supplied by the project plant/unit to the grid; and<br>(ii) The quantity of electricity delivered to the project plant/unit from the grid<br>The electricity will be measured by continuous bidirectional meters.<br>The electricity meters will be ANSI class 2, in compliance with Chilean applicable regulation 'Norma Tecnica de Seguridad y Calidad de Servicio, Comisión Nacional de Energía'. |
| **Monitoring frequency** | Data will be continuously measured and will be electronically recorded every 15 minutes and aggregated on a monthly basis. |
| **QA/QC procedures** | Measurement results will be cross checked with records for sold electricity. Meters will be calibrated according with the Chilean applicable regulation. |
| **Purpose of data** | Calculation of baseline emissions |
| **Additional comment** | Data will be kept for at least 2 years after the end of the crediting period of the CPA or the last issuance of CERs for the CPA, whatever occurs later. |

| | |
|---|---|
| **Data / Parameter** | $FC_{i,m,y}$ |
| **Unit** | Tonnes/$m^3$ |
| **Description** | Amount of fuel type *i* consumed by power unit *m* in year *y* |
| **Source of data** | Public records: CDEC-SIC yearbook (CDEC-SIC is the Economic Load Dispatch Center for the Interconnected Central System) |
| **Value(s) applied** | Data used is presented in Appendix 4 and in the spreadsheet for Grid Emission Factor calculation. |
| **Measurement methods and procedures** | - |
| **Monitoring frequency** | Annually |
| **QA/QC procedures** | - |
| **Purpose of data** | Calculation of baseline emissions |
| **Additional comment** | Data will be kept for at least 2 years after the end of the crediting period of the CPA or the last issuance of CERs for the CPA, whatever occurs later. |

| | |
|---|---|
| **Data / Parameter** | $NCV_{i,y}$ |
| **Unit** | GJ/mass or volume unit |
| **Description** | Net calorific value (energy content) of fuel type *i* in year *y*. |
| **Source of data** | Last version of National Energy Balance available at the moment of presentation of the CPA for inclusion in the PoA |
| **Value(s) applied** | [fuel] = [number]<br>[fuel] = [number]<br>[fuel] = [number]<br>[fuel] = [number] |
| **Measurement methods and procedures** | NCV will be sourced from National Energy Balance. If data unit is not [GJ/mass or volume unit] appropriate unit conversion factors should be used. If for a specific fuel no information is included in National Energy Balance, NCV will be sourced from IPCC default values (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).<br>(modified if required) |
| **Monitoring frequency** | Annually |
| **QA/QC procedures** | - |
| **Purpose of data** | Calculation of baseline emissions |
| **Additional comment** | - |

| | |
|---|---|
| **Data / Parameter** | $EF_{CO2,i,y}$ and $EF_{CO2,m,i,y}$ |
| **Unit** | $tCO_2/GJ$ |
| **Description** | $CO_2$ emission factor of fuel type *i* in year *y* |
| **Source of data** | 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** | [fuel] = [number]<br>[fuel] = [number]<br>[fuel] = [number]<br>[fuel] = [number] |
| **Measurement methods and procedures** | - |
| **Monitoring frequency** | Annually |
| **QA/QC procedures** | - |
| **Purpose of data** | Calculation of baseline emissions |
| **Additional comment** | For biofuels the value applied to the $CO_2$ emission factor will be zero. |

| | |
|---|---|
| **Data / Parameter** | $EG_{m,y}$ and $EG_{k,y}$ |
| **Unit** | MWh |
| **Description** | Net electricity generated by power plant/unit *m* or *k* in year *y* |
| **Source of data** | CDEC-SIC statistics (CDEC-SIC is the Economic Load Dispatch Center for the Interconnected Central System). |
| **Value(s) applied** | Data used is presented in Appendix 4 and in the spreadsheet for Grid Emission Factor calculation. |
| **Measurement methods and procedures** | - |
| **Monitoring frequency** | Annually |
| **QA/QC procedures** | - |
| **Purpose of data** | Calculation of baseline emissions |
| **Additional comment** | - |

| | |
|---|---|
| **Data / Parameter** | $\eta_{m,y}$ |
| **Unit** | - |
| **Description** | Average net energy conversion efficiency of power unit *m* in year *y* |
| **Source of data** | Default values provided in Annex 1 of the "Tool to calculate the emission factor for an electricity system" at the moment of presentation of the CPA for inclusion in the PoA |
| **Value(s) applied** | [type of power plant] [number]%<br>[type of power plant] [number]%<br>[type of power plant] [number]%<br>[type of power plant] [number]% |
| **Measurement methods and procedures** | - |
| **Monitoring frequency** | n/a |
| **QA/QC procedures** | - |
| **Purpose of data** | Calculation of baseline emissions |
| **Additional comment** | - |

| | |
|---|---|
| **Data / Parameter** | $A_{PJ}$ |
| **Unit** | $m^2$ |
| **Description** | Area of the single or multiple reservoirs measured in the surface of the water, after the implementation of the project activity, when the reservoir is full |
| **Source of data** | Project site |
| **Value(s) applied** | [number] |
| **Measurement methods and procedures** | Measured from topographical surveys, maps, satellite pictures, or others means appropriate considering the nature of the CPA. |
| **Monitoring frequency** | Yearly |
| **QA/QC procedures** | - |
| **Purpose of data** | Calculation of project emissions |
| **Additional comment** | *(Only required for CPA that result in new reservoirs)* |

| | |
|---|---|
| **Data / Parameter** | $TEG_y$ |
| **Unit** | MWh |
| **Description** | Total electricity produced by the project activity, including the electricity supplied to the grid and the electricity supplied to internal loads, in year *y* |
| **Source of data** | Project site |
| **Value(s) applied** | [number] |
| **Measurement methods and procedures** | Total electricity produced by the project activity will be measured using an electricity meter (ANSI Class 2) located at the low voltage side of the transformer. |
| **Monitoring frequency** | Data will be continuously measured and will be electronically recorded every 15 minutes and aggregated on a monthly basis. |
| **QA/QC procedures** | Values will be checked against the net electricity ($EG_{facility,y}$) adjusted considering the efficiency of the transformer |
| **Purpose of data** | Calculation of project emissions |
| **Additional comment** | *(Only required for CPA that result in new reservoirs when power density is lower than 10 W/m$^2$.*<br>Data will be kept for at least 2 years after the end of the crediting period of the CPA or the last issuance of CERs for the CPA, whatever occurs later. |

| | |
|---|---|
| **Data / Parameter** | $Cap_{PJ}$ |
| **Unit** | W |
| **Description** | Installed capacity of the hydro power plant after the implementation of the project activity |
| **Source of data** | Project site |
| **Value(s) applied** | [number] |
| **Measurement methods and procedures** | Manufacture's nameplate |
| **Monitoring frequency** | Yearly |
| **QA/QC procedures** | - |
| **Purpose of data** | Calculation of project emissions |
| **Additional comment** | *(Only required for CPA that result in new reservoirs)* |

### D.7.2. Description of the monitoring plan

**1. Management Structure and Responsibilities**

The CPA implementer will be responsible for the monitoring and reporting of all parameters acquired at the project site: net electricity generation [*include the parameters if applicable*: $A_{PJ,}$ $Cap_{PJ}$ and $TEG_y$]. Before the start of the first crediting period the CPA implementer will design a CDM project manager, who will report the monitored data in a monthly basis to the CME. The CDM project manager will be responsible to check the operation of the measuring and monitoring equipments, including the existence of appropriate calibration certificates and maintenance, in compliance with the PoA requirements.

**Data Collection**
The electricity supplied by the project activity to the grid and the total electricity produced by the project activity (if applicable) will be measured at the project site using calibrated electricity meters.

The CDM project manager will crosscheck the results with records for sold electricity, in the case of electricity supplied by the project activity to the grid; in the case of total electricity produced by the project activity, the record for sold electricity will be adjusted considering the transformer's efficiency.

Data will be monitored continuously, will be electronically recorded every 15 minutes and consolidated in a monthly basis using a Data Acquisition System.

The CPA implementer will kept data for at least 2 years after the end of the crediting period of the CPA or the last issuance of CERs for the CPA, whatever occurs later.

**Accuracy and calibration**
Electricity meters will ANSI class 2 and will be calibrated at appropriate intervals according to manufacturer specifications or Chilean regulations. At the beginning of the first crediting period CDM project manager will provide the CME with a calibration schedule; any modification will be reported and justified. CDM project manager will provide the CME copies of the calibration certificates.

**Data Report**
CDM project manager will provide the CME with monthly consolidated data. If total electricity produced by the project activity needs to be monitored copies then the CDM project manager will provide the CME copies of the records for sold electricity and evidence of the transformer's efficiency.

If any discrepancies in the data were found during monitoring the CDM project manager it will inform the CME indicating the possible source of the variation and any measure adopted to correct it.

The CME will keep data for at least 2 years after the end of the crediting period of the CPA or the last issuance of CERs for the CPA, whatever occurs later.

**2. Data Quality Control**

CME will check the electricity measurements with records for sold electricity provided by the CDM project manager.

**3. Training and Monitoring Personnel**

All people that participate in the monitoring process will be suitably qualified and trained in the operation and maintenance of the plant. They will also receive a training session on the application of the monitoring plan.

**4. Emission factor calculation**

The combined margin emission factor used in the emission reduction calculation will be annually updated by the CME. The factor will use information published by the local authorities so no direct measurements are involved.

**5. Monitoring Reports and Verification**

Monitoring reports will be prepared and submitted to the DOE for verification by the CME, as described in section A.4.4.2.

## SECTION E. Approval and authorization

[Explanation]

- - - - -

## Appendix 1: Contact information on entity/individual responsible for the CPA

*(complete the table below)*

| | |
|---|---|
| **Organization** | |
| **Street/P.O. Box** | |
| **Building** | |
| **City** | |
| **State/Region** | |
| **Postcode** | |
| **Country** | |
| **Telephone** | |
| **Fax** | |
| **E-mail** | |
| **Website** | |
| **Contact person** | |
| **Title** | |
| **Salutation** | |
| **Last name** | |
| **Middle name** | |
| **First name** | |
| **Department** | |
| **Mobile** | |
| **Direct fax** | |
| **Direct tel.** | |
| **Personal e-mail** | |

## Appendix 2: Affirmation regarding public funding

There is no public funding.

## Appendix 3: Applicability of the selected methodology(ies)

Not applicable.

## Appendix 4: Further background information on ex ante calculation of emission reductions

## DETERMINATION OF GRID EMISSION FACTOR

### Build Margin [year]

The values used for the determination of the annual electricity generation of the project electricity system, excluding power units registered as CDM project activities ($AEG_{total}$, in MWh) are the following:

Generation of power units
registered as CDM project activities

| POWER PLANT | | Generation 2010 (MWh) |
|---|---|---|
| [name] | [CDM ID] | [number] |
| [name] | [CDM ID] | [number] |
| [name] | [CDM ID] | [number] |
| total | | [number] |

Total SIC generation = [number] MWh
CDM projects generation = [number] MWh

Then:

$AEG_{total}$ =[number] MWh

The following table shows the generation of the power plants included in the BM.

**Build Margin Power Units. Accumulated Generation (MWh)**

| | Name | Start operation | $EG_{m,v}$ (MWh) | % accumulated | $EF_{ELm,v}$ ($tCO_2$/MWh) | $EG_{m,v}$ x $EF_{EL\,m,v}$ | |
|---|---|---|---|---|---|---|---|
| SET 5-units | [name] | [year] | [number] | [number] | [number] | [number] | |
| | [name] | [year] | [number] | [number] | [number] | [number] | |
| | [name] | [year] | [number] | [number] | [number] | [number] | |
| | [name] | [year] | [number] | [number] | [number] | [number] | |
| | [name] | [year] | [number] | [number] | [number] | [number] | |
| SET ≥20% | [name] | [year] | [number] | [number] | [number] | [number] | |
| | [name] | [year] | [number] | [number] | [number] | [number] | |
| | [name] | [year] | [number] | [number] | [number] | [number] | |
| | [name] | [year] | [ -- ] | [ -- ] | [ -- ] | [ -- ] | CDM ID |
| | [name] | [year] | [number] | [number] | [number] | [number] | |
| | [name] | [year] | [number] | [number] | [number] | [number] | |
| | | Total | **[number]** | [number] | [number] | **[number]** | |

[Sources: ]

$$\sum_{m} EG_{m,y} \times EF_{EL,m,y} = [number]\ tCO_2$$

$$\sum_{m} EG_{m,y} = [number]\ MWh$$

**Operating Margin [year]**

The Simple Adjusted Method calculations for **[year]** are as follows:

Power plants with option A1:

| Name | $EG_{m.v}$ (MWh) | NG (mm $m^3$) | Diesel (m ton) | Coal (m ton) | $EF_{EL.m.v}$ ($tCO_2$/MWh) | EG x $EF_{EL}$ |
|---|---|---|---|---|---|---|
| [name] | [number] | [number] | [number] | [number] | [number] | [number] |
| [name] | [number] | [number] | [number] | [number] | [number] | [number] |
| [name] | [number] | [number] | [number] | [number] | [number] | [number] |
| **Total** | **[number]** | | | | | **[number]** |

[Sources: ]

Power plants with option A2:

| Name | Start Operation | Type | Fuel | $EG_{m.v}$ (MWh) | $EF_{EL.m.v}$ ($tCO_2$/MWh) | EG x $EF_{EL}$ |
|---|---|---|---|---|---|---|
| [name] | [year] | [type] | [type] | [number] | [number] | [number] |
| [name] | [year] | [type] | [type] | [number] | [number] | [number] |
| [name] | [year] | [type] | [type] | [number] | [number] | [number] |
| [name] | [year] | [type] | [type] | [number] | [number] | [number] |
| | | | **Total** | **[number]** | | **[number]** |

[Sources: ]

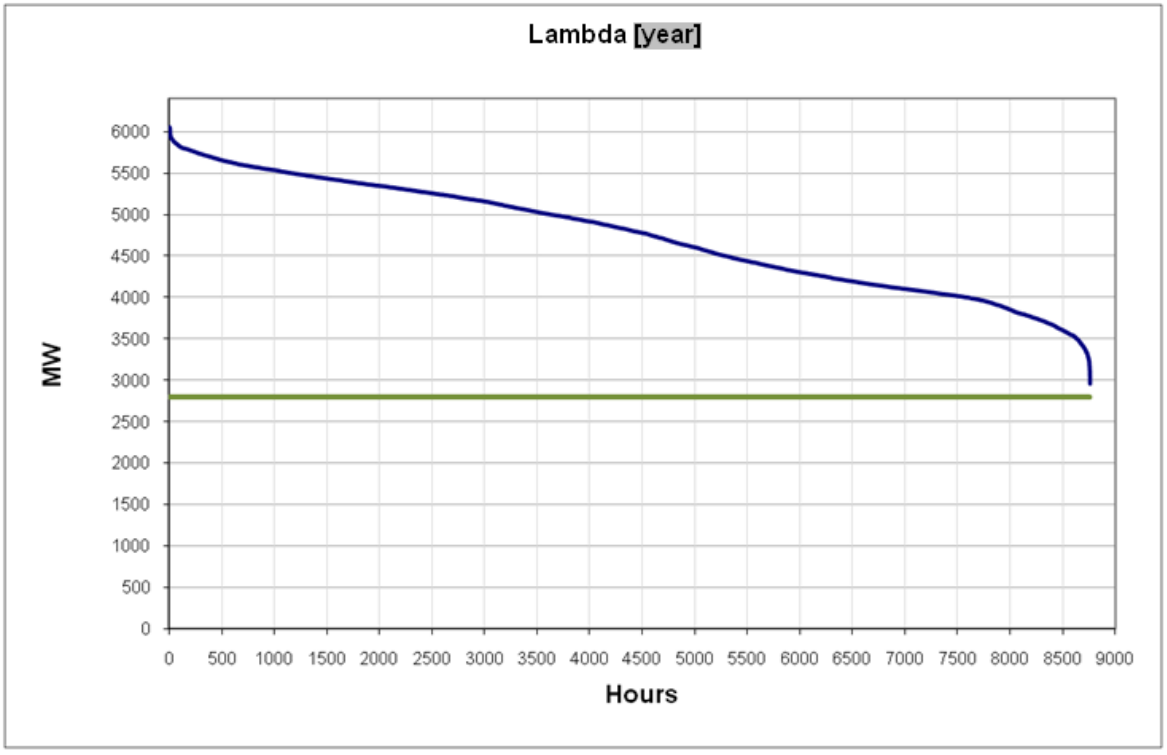
Power plants with option A3:

| Name | Gen (MWh) | $EF_{EL.m,y}$ ($tCO_2$/MWh) | EG x $EF_{EL}$ |
|---|---|---|---|
| [name] | [number] | 0 | 0 |
| [name] | [number] | 0 | 0 |
| Total | [number] | | 0 |

Total:

| | Option A1 | Option A2 | Option A3 | **Total** |
|---|---|---|---|---|
| $\sum_m EG_{m,y} \times EF_{EL,m,y}$ **(** $tCO_2$) | [number] | [number] | 0 | **[number]** |
| $\sum_m EG_{m,y}$ **(**MWh) | [number] | [number] | [number] | **[number]** |

Lambda:




| | |
|---|---|
| **Intersection (MW)** | [number] |
| **Area under the curve** | [number] |
| **Low Cost Generation** | [number] |
| **No Low Cost Generation** | [number] |
| **Number of hours** | [number] |
| **λ =** | [number] |
| **1-λ =** | [number] |

## Appendix 5: Further background information on monitoring plan

*(include additional monitoring information if necessary)*

- - - - -

**History of the document**

| Version | Date | Nature of revision(s) |
|---|---|---|
| 02.0 | EB 66<br>13 March 2012 | Revision required to ensure consistency with the "Guidelines for completing the component project activity design document form" (EB 66, Annex 16). |
| 01 | EB33, Annex42<br>27 July 2007 | Initial adoption. |
| **Decision Class:** Regulatory<br>**Document Type:** Form<br>**Business Function:** Registration | | |