

VALIDATION REPORT

Combined Cycle at Loma de la Lata Thermo Unit Project

SGS Climate Change Programme

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Summary:			
<p>Central Térmica Loma de la Lata S.A. has commissioned SGS to perform the validation of the project: Combined Cycle at Loma de la Lata Thermo Unit Project.</p> <p>Methodology Used: ACM0007</p> <p>Version and Date: Version 06.1.0, dated 20/07/2012</p> <p>The scope of the validation is defined as an independent and objective review of the project design document, the project's baseline study and monitoring plan and other relevant documents. The information in these documents is reviewed against CDM Validation and Verification Manual (version 1.2), Kyoto Protocol requirements and UNFCCC rules.</p> <p>The report is based on the assessment of the project design document undertaken through stakeholder consultations, application of standard auditing techniques including but not limited to document reviews, follow up actions (e.g site visit, telephone or e-mail interviews) and also the review of the applicable approved methodology and underlying formulae and calculations.</p> <p>The report and the annexed validation describes a total of 20 findings which include:</p> <ul style="list-style-type: none"> • 8 Corrective Action Requests (CARs); • 12 Clarification Requests (CLs); • 1 Forward Action Requests (FARs) (originated from CAR 7 & 18); <p>All closed out satisfactorily and therefore the project will be recommended to the CDM Executive Board with a request for registration.</p>			
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Abbreviations

BM	Build margin
CAMMESA	Argentinian grid operator, acronym from the Spanish “Compañía Administradora del Mercado Eléctrico”
CAR	Corrective action request
CER	Certified emission reduction
CL	Clarification request
CLL	Central Térmica Loma de la Lata S.A.
CDM	Clean development mechanism
CM	Combined margin
DNA	Designated national authority
DOE	Designated operational entity
EF	Emission factor
ENARGAS	National Regulatory Entity of the Gas, acronym from the Spanish “Ente Nacional Regulador del Gas”
ENARSA	Energy company owned by the state, acronym from the Spanish “Energía Argentina Sociedad Anónima”
ENRE	Electricity National Regulator, acronym from the Spanish “Ente Nacional Regulador de la Electricidad”
ER	Emission Reduction
FAR	Forward action request
GCV	Gross Calorific Value
GT	Gas turbine
IPCC	Intergovernmental Panel on Climate Change
LLL	Central Térmica Loma de la Lata S.A.
LoA	Letter of approval
MEM	Wholesale electricity market, acronym from the Spanish “Mercado Eléctrico Mayorista”.
MoC	Modalities of communication
MR	Monitoring Report
NCV	Net calorific value
NG	Natural gas
ODA	Official development assistance
OM	Operating Margin
PDD	Project Design Document
PP	Project Proponent
PLF	Power plant Load Factor
SADI	Argentinian Interconnected System, acronym from the Spanish “Sistema Argentino de Interconexión”
SE	Argentinian Secretariat of Energy, acronym from the Spanish “Secretaría de Energía”
SSEE	Electric Energy Sub-Secretariat, acronym from the Spanish “Sub Secretaría de Energía Eléctrica”
ST	Steam turbine
UNFCCC	United Nations Framework Convention on Climate Change

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1. Validation Opinion

SGS United Kingdom Ltd has been contracted by Central Térmica Loma de la Lata S.A. to perform a validation of the project: Combined Cycle at Loma de la Lata Thermo Unit Project in Argentina.

The Validation was performed in accordance with the UNFCCC criteria for the Clean Development Mechanism Validation and Verification Manual (Version 1.2) and host country criteria, as well as criteria given to provide for consistent project operations, monitoring and reporting.

The project consists in the conversion of an open cycle generation power plant that has three gas turbines (3x123.31 MW each) to a combined cycle by the implementation of a steam turbine (175.73 MW). Thus, the project involves existing facilities and equipments. Specifically, it involves the power plant "Central Térmica Loma de la Lata" which as PDD started operations in 1994. The project was presented previously to UNFCCC, but it was rejected on 17/03/2011 because not enough evidence was available to support the barrier analysis presented.

By the implementation of a steam turbine of 175.73 MW to recover the energy contained in the exhaust gases of three gas turbines the project activity will result in reductions of greenhouse gas (GHG) emissions that are real, measurable and give long-term benefits to the mitigation of climate change.

In our opinion, the project meets all relevant UNFCCC, CDM criteria and all relevant host country criteria. The project correctly applies methodology ACM0007 version 06.1.0, dated 20/07/2012. It is demonstrated that the project is not a likely baseline scenario. Emission reductions attributable to the project are hence additional to any that would occur in the absence of the project activity.

The total emission reductions from the project are estimated to be 4,561,270 t of CO₂e over a 7 year crediting period during 01/09/2012 to 31/08/2019, averaging 651,610 t of CO₂e annually. The emission reduction forecast has been checked and it is deemed likely that the stated amount is achieved given the underlying assumptions do not change.

The project will hence be recommended by SGS for registration with the UNFCCC.

Signed on Behalf of the Validation Body by Authorized Signatory



Signature:

Name: Siddharth Yadav

Date: 11/12/2012

2. Introduction

2.1 Objective

Central Térmica Loma de la Lata S.A. has commissioned SGS to perform the validation of the project: "Combined Cycle at Loma de la Lata Thermo Unit Project" with regard to the relevant requirements for Clean Development Mechanism (CDM) project activities. The purpose of a validation is to have an independent third party assess the project design. In particular, the project's baseline, the monitoring plan (MP) and the project's compliance with relevant UNFCCC and host country criteria are validated in order to confirm that the project design as documented is sound and reasonable and meets the stated requirements and identified criteria. Validation is seen as necessary to provide assurance to stakeholders of the quality of the project and its intended generation of certified emission reduction (CER). UNFCCC criteria refer to the Kyoto Protocol criteria and the CDM rules and modalities and related decisions by the COP/MOP and the CDM Executive Board.

2.2 Scope

The scope of the validation is defined as an independent and objective review of the project design document, the project's baseline study and monitoring plan and other relevant documents. The information in these documents is reviewed against Kyoto Protocol requirements, UNFCCC rules and associated interpretations. SGS has employed a risk-based approach in the validation, focusing on the identification of significant risks for project implementation and the generation of CERs.

The validation is not meant to provide any consulting towards the Client. However, stated requests for clarifications and/or corrective actions may provide input for improvement of the project design.

2.3 GHG Project Description

The project consists in the conversion of an open cycle generation power plant that has three gas turbines (3x123.31 MW each) to a combined cycle by the implementation of a steam turbine (175.73 MW). The steam turbine will recover the energy contained in the exhaust gases from the gas turbines to generate electricity that will be injected to the grid. The project does not consider additional gas to be burned in the steam turbine. Thus the electricity generated by the steam turbine will not generate GHG emissions, leading to improve the emission factor of the plant as a whole. Additionally given that the electricity generated will be injected to the grid, it will displace electricity generated by other sources carbon intensive.

The Names and Roles of the Validation Team Members

Assessment Team	Role
Alicia Fernández	Lead Assessor / Local Assessor
David Díaz	Financial Expert
Francisco Solís	Technical Scope Expert

Technical Review	Role
Joe Sun	Technical Reviewer
Yi Liao	Sectoral Expert

3. Methodology

3.1 Review of CDM-PDD and Additional Documentation

The validation is performed primarily as a document review of the publicly available project document version 1 dated 22/12/2011, the subsequent versions (version 2 dated 30/03/2012, version 3 dated 12/05/2012, version 4 dated 22/06/2012) and final one dated 24/07/2012 (version 5). The assessment is performed by trained assessors using a validation protocol attached as Annex 2, table 2.

The site visit was performed on 7, 8, & 9/03/2012 by two members of the assessment team (Lead assessor/ Local assessor and Sectoral Scope Expert). A visit to the project installations was done and the meeting was held in the main offices in Buenos Aires. Information was gathered from the site visit and then reviewed. Additional information was provided by the PP along the validation process. All the information received/verified was used to build the "UK AU4 CDM Validation Checklist" available as Annex 2, similarly the "UK CDM Local Assessment Checklist" available as Annex 1 was used to record the evidence corresponding to each finding.

During the validation process, SGS staff was also involved to confirm other statements in the PDD by reviewing of documents and direct contacts with key stakeholders (including the project developers and local authorities from the host country).

3.2 Use of the Validation Protocol

The validation protocol used for the assessment is designed in accordance with the Validation and Verification Manual, Version 01.2 dated 30 July 2010. It serves the following purposes:

- it organises, details and clarifies the requirements the project is expected to meet; and
- it documents both how a particular requirement has been validated and the result of the validation (reporting).

The validation protocol consists of several tables. The different columns in these tables are described below.

Checklist Question	Ref ID	Means of Verification (MoV)	Comment	Draft and/or Final Conclusion
The various requirements are linked to checklist questions the project should meet.	Lists any references and sources used in the validation process. Full details are provided in the table at the bottom of the checklist.	Explains how conformance with the checklist question is investigated. Examples of means of verification are document review (DR) or interview (I). N/A means not applicable.	The section is used to elaborate and discuss the checklist question and/or the conformance to the question. It is further used to explain the conclusions reached.	This is either acceptable based on evidence provided (Y), or a Corrective Action Request (CAR) due to non-compliance with the checklist question (See below). Clarification Request (CL) is used when the validation team has identified a need for further clarification.

The completed validation protocol for this project is attached as Annex A.1 to this report

3.3 Findings

As an outcome of the validation process, the team can raise different types of findings

A Clarification Request (CL) is raised if information is insufficient or not clear enough to determine whether the applicable CDM requirements have been met

Where a non-conformance arises the Assessor shall raise a **Corrective Action Request (CAR)**. A CAR is issued, where:

- I. The project participants have made mistakes that will influence the ability of the project activity to achieve real, measurable additional emission reductions;
- II. The CDM requirements have not been met;
- III. There is a risk that emission reductions cannot be monitored or calculated.

The validation process may be halted until this information has been made available to the assessors' satisfaction. Failure to address a CL may result in a CAR. Information or clarifications provided as a result of a CL may also lead to a CAR.

A Forward Action Request (FAR) is raised during validation to highlight issues related to project implementation that require review during the first verification of the project activity. FARs shall not relate to the CDM requirements for registration.

Corrective Action Requests and Clarification Requests are raised in the draft validation protocol and detailed in a separate form (Annex A.3). In this form, the Project Developer is given the opportunity to "close" outstanding CARs and respond to CLs and FARs.

3.4 Internal Quality Control

Following the completion of the assessment process and a recommendation by the Assessment team, all documentation will be forwarded to a Technical Reviewer. The task of the Technical Reviewer is to check that all procedures have been followed and all conclusions are justified. The Technical Reviewer will either accept or reject the recommendation made by the assessment team. Findings can be raised at this stage and client must address them within agreed timeline.

4. Validation Findings

4.1 Approval

The DNA letter had not yet been received at the moment of the information assessment, thus **CAR 1 was raised**.

Central Térmica Loma de la Lata S.A. (referred to as CLL or LLL) presented its “Combined Cycle at Loma de la Lata Thermo Unit Project” to the DNA in order to obtain the Letter of Approval (LoA). It is worth to mention that the project was submitted to the DNA previously when it was presented to UNFCCC.

A copy of the LoA issued by the Argentinian DNA (ref 41a) on 19/03/2009 was received by SGS from the PP. The PP also provided a letter issued on 02/08/2012 (ref 41b) by the current DNA, Ms. Maria Eugenia Rallo, where it is stated that the LoA issued by the DNA on 19/03/2009 (ref 41a) is still valid for the proposed project activity, and refers to the PDD version 5 (ref 1e). The authenticity of both letters (original LoA and reconfirmation letter) was validated through an e-mail received from Ms. Maria Eugenia Rallo (ref 196), current Argentinian DNA, as per the information available in the UNFCCC web page (ref 195).

It was verified that the LoA (ref 41a) was issued on 19/03/2009, and complies with the following requirements:

- Confirms that Argentina is a Party to Kyoto Protocol.
- Confirms that the project is developed voluntarily by the project proponent.
- Confirms that the project contributes to sustainable development.
- The letter identifies correctly the project through its name, which is the same as the project name stated in the PDD version 5 section A.1.

CAR 1 was closed.

4.2 Participation Requirements

The project presented by Central Térmica Loma de la Lata S.A. (LLL), an existing company under the Argentinian law, and will be located in Neuquén Province. LLL is the only Project Participant identified in the PDD section A.3., which is consistent with the information provided in PDD annex 1 and the PDD approved by the Argentinian DNA (ref 41a&41b). It was validated that LLL was identified as the PP throughout all the PDD versions. It is worth to mention that LLL is a subsidiary of Pampa Energía S.A.

It was verified that Argentina has ratified the Kyoto Protocol on the 28/09/2001, as a Non Annex I Party country <http://maindb.unfccc.int/public/country.pl?country=AR>. No Annex I Party is involved in the project presented by LLL.

As required by EB 50 annex 48, the project participant (LLL) signed a validation contract with SGS in March 2011.

The project represents a clear contribution to sustainable development through the environmental, social and economical pillars. In terms of environmental aspects, the project will provide additional electricity without the GHG emissions, because no additional gas will be burnt in the steam turbine and only the exhaust gases from gas turbines will be used. In economical and social terms, the project brings additional employment positions that contribute to the area economy.

The PP was requested to provide the MoC. **CAR 3 was raised**. It was validated that the MoC (ref 60) was filled using the template 1.4., even though a newer template is available the use of version 1.4 is deemed correct because the project is being validated under VVM. It was validated that the MoC was filled correctly, and the project name is consistent with the PDD. It was validated against the Power of Attorney dated 15/01/2009 that the contact person is the President of “Central Térmica Loma de la Lata S.A.” and President of the Board of Directors of “Pampa Energía”. **CAR 3 was closed**.

4.3 Project Design Document including Project Description

It is confirmed that the final PDD was prepared in accordance with the 'Guidelines for completing the project design document (CDM-SSC-PDD)' version 7 (as per EB41 Annex 12) and CDM PDD template version 3.

The project title "Combined Cycle at Loma de la Lata Thermo Unit Project" identifies this project correctly under CDM registry. The PDD, sections A1 to A4 provides the basic information related to the "Combined Cycle at Loma de la Lata Thermo Unit Project". The project identifies contribution to sustainable development through the energy generation with less GHG emissions due to the recovery of energy contained in exhaust gases from gas turbines. The project contribution to the Argentinian sustainable developed is ratified in the LoA (ref 41a) issued by the DNA for the project previously.

The project is located in Argentina, Neuquén province. It was validated that the geographical coordinates reported in PDD version 1 (ref 1a) and last PDD (version 5 dated 24/07/2012) (ref 1e) are equivalent, but they are reported in different system (degree-minute-second and decimal degree). The change was done by the PP as part of **CL2**, which was duly raised and **closed**.

The accuracy and completeness of the project description was validated against information reviewed on site, obtained from the Local Authorities, retrieved from public sources and gathered from formal documents related with the project.

The project is classified as large scale project within scope 1, following the methodology ACM0007 version 06.1.0.

Main changes and reason for revision between the final PDD against the first version published for the international stakeholder consultation	
PDD Section no.	Description and reason for changing the information in that section
A.2.	Update of the methodology version.
A.4.4.	Change in the estimation of ER due to calculations correction.
B.2.2.	A missing applicability condition was included.
B.4.	Analysis of baseline scenarios was updated to provide more clarity. Barriers analysis was corrected following EB 50 annex 13. Common practice analysis was updated as per the last version of the "Combined tool to identify the baseline scenario and demonstrate additionality" (version 4).
B.6.1.	ER calculation procedure was updated as per the last version of the methodology.
B.6.2.	Information of ex-ante parameters was completed.
B.6.3. & B.6.4.	Ex-ante ER calculations were corrected.
B.7.1. & B.7.2.	Information of monitoring parameters was completed.
C.2.1.1.	Starting date of the crediting period was updated.
E.1. & E.2.	Information of stakeholder consultation was completed.
Annex 3	Baseline information was completed/corrected.

It is worth mentioning that the project was previously presented to CDM but it was rejected. The assessment and validation have both been conducted against the latest version of the methodology (ACM0007 version 06.1.0) and the latest requirements of the UNFCCC. As per EB 55 (ref 193) the project was rejected for the reasons detailed below; the same were considered during this assessment, please see the individual analysis below:

- *The DOE failed to substantiate the additionality of the project activity and to meet the requirements for validation of the investment barriers in accordance with the requirements of the VVM version 1.1, paragraph 114 (VVM) and .Guidelines for objective demonstration and assessment of barriers., EB 50, Annex 13 (Barrier Guidelines) as it has not sufficiently justified the proposed investment barriers*

The PDD presented previously (after corrections, ref 194) considered three barriers: Investment barriers, lack of prevailing practice and other barriers.

Investment barrier

In the previously presented PDD (ref 194), the Investment barrier was oriented to the fact that the project faced conditions that make it less attractive for investors, thus quantifiable aspects such as the energy prices were included among the arguments.

The PDD version 5 (ref 1e) presented together with this validation report identify the aspects why the investment is prevented. The arguments are in line with the definition of this barrier in the “Combined tool to identify the baseline scenario and demonstrate additionality” (ref 3). In summary, it was validated that the investment barrier as defined in the PDD version 5 (ref 1e) is correct, because it identifies formal aspects that shows the lack of attractiveness of Argentina for investors. The detailed assessment of the barrier is available below in section 4.6.5.

Additionally, the PDD version 5 (ref 1e) includes an “Investment analysis” where all the quantifiable parameters related with the project are included and allow to demonstrate that the project is not financially attractive.

Lack of prevailing practice

This barrier was included in the PDD presented previously (ref 194) and the PDD version 1 (ref 1a) assessed during this validation process. As per DOE assessment this barrier could not be validated as correctly identified; the PP confirmed it was not a barrier itself, and thus it was removed from the PDD. The detailed assessment of the barrier is available below in section 4.6.5.

Other barriers

The PDD presented previously (ref 194) included as other barriers “institutional barriers or limited information, managerial resources, organizational capacity, environmental barriers and other miscellaneous”. This barrier was not included in the new PDD assessed during this validation process (ref 1a to 1e), however, the PP identified an “institutional barrier”, where it is analysed the aspects that linked with the energy sector that prevent new plants. The arguments identified in PDD version 5 (ref 1e) were validated and deemed correct. It was validated that the changes in the electricity sector policies discourage new projects. The detailed assessment of the barrier is available below in section 4.6.5.

- *The VVM states that issues that have a clear direct impact on the financial returns of the project activity cannot be considered barriers and shall be assessed by investment analysis. Paragraph 4 of the Barrier Guidelines states that “While demonstrating barriers related to the lack of access to capital, technologies and skilled labour, the project proponents shall provide information on the nature of the companies and entities involved in the financing and implementation of the project. More specifically: While demonstrating barriers related to the lack of access to capital, information should include nature of company, organization and its ownership and, financial information. Paragraph 7 of the Barrier Guidelines states that “Barriers that can be mitigated by additional financial means can be quantified and represented as costs and should not be identified as a barrier for implementation of project while conducting the barrier analysis, but rather should be considered in the framework of investment analysis”. Furthermore, paragraph 9 of the Barrier Guidelines states that “in case the PPs make the claim for investment barriers, they should demonstrate in the PDD that the financing of the project was assured only due to the benefit of the CDM. Therefore, it should be demonstrated that the loan approval (or other significant financing decision(s)) by the lender takes explicitly the CDM registration into account”.*

The PDD version 5 (ref 1e) includes an “Investment analysis” where all the quantifiable aspects linked with the project are considered.

- *The DOE failed to substantiate how the low electricity tariff is a barrier to the project activity which impacts its financial returns as a financial calculation was not submitted as required by paragraph 7 of the Barrier Guidelines. The DOE also failed to substantiate the unavailability of sources of finance as there is no third party evidence (e.g. from a lender) in support of the claim that the financing of the project was assured only due to the benefit of the CDM as required by paragraph 9 of the Barrier Guidelines.*

The PDD version 5 (ref 1e) includes an “Investment analysis” where the electricity tariff as one of the parameters is considered. Thus the impact of the electricity tariff has been included as a quantifiable parameter.

The final version of the PDD (version 5) is dated July 24th 2012. This final version covers all the changes made to the previous versions of the PDD. The present report mentions the different versions/stages of the PDD where the specific comments or requirements were closed (not necessarily the last version of the PDD). This criterion applies for all the documents indicated throughout the report.

4.4 Applicability of selected methodology to the project activity

The project fully complies with the requisites stated in ACM0007, version 06.1.0, please see the validation of each applicability condition in the following table:

Table 1 “Applicability conditions assessment”

ACM0007 requisites	version 06.1.0	PDD	Compliance Assessment
The methodology applies to project activities that convert one or several grid connected power units at one site from single-cycle to combined-cycle mode		Section B.2. <i>“The proposed project activity consists of the conversion of three grid connected power units at Loma de la Lata site from single-cycle to a combined-cycle mode”</i>	The project complies with the basic condition of conversion from open to combined cycle, but this applicability condition was not included in PDD version 1 (ref 1a), section B.2. CAR 6 was raised. It was validated that PDD version 2 (ref 1b) and following versions includes the missing applicability condition. Similarly based on the project evidence, it was validated that the condition is complied correctly. Item closed
The unit(s) have an operational history of at least one year with no major retrofit, and at least one unit has an operational history of more than three years with no major retrofit. There is no major retrofit in these time periods		Section B.2. <i>“The three natural gas turbines of the single cycle power plant started to operate in 1994. They did not suffer any major retrofit since the operation start date.”</i>	As per the information reported in PDD the plant started operations (as open cycle) in 1994. PP was requested to provide the corresponding commissioning certificate. CL 2 was raised. Based on the notification sent by Cammesa (ref 57, 58 & 59) it was verified that the commissioning of the plant as combined cycle was on 01/11/2011. Item Closed. Thus it was validated that the plant was operating previously in open cycle. During the site visit it was validated that the plants records are available since 1994, specifically gas consumption and electricity generation. Regarding implementation, during the site visit it was validated that the plant had performed the corresponding maintenance, but no retrofit has been implemented.
In the case that a unit has less than three years operational history: all project power unit(s) were designed and commissioned for operation in single cycle mode only.		Section B.2. <i>“The three natural gas turbines were commissioned in 1994 to operate in single cycle mode only.”</i>	As per PDD information the plant is over three operations years. The commissioning date will be assessed. CL 2 was raised. Based on the notification sent by Cammesa (ref 57, 58 & 59) it was verified that the commissioning of the plant as combined cycle was on 01/11/2011. Item Closed. During the site visit it was validated that the plants records are available since 1994, specifically gas consumption and electricity generation. Thus it was validated that the plant has more than three years of operational history.
During the most recent three years prior to the implementation of the project activity and during the crediting period the project power unit(s) use(d) only the following fuel types: (a) Fossil fuels; and/or (b) Blends of fossil fuels and biofuels, where the biofuel is blended to the fossil fuel in a situation that is outside the control of the project		Section B.2. <i>“Since the single cycle started to operate in 1994 it only used fossil fuel (particularly natural gas) and will continue utilizing only fossil fuel during the Project crediting period.”</i>	As per PDD information the fuel used is natural gas. In order to validate the information the PP was requested to provide the permit issued by the authority where is defined the type of fuel used by the plant. CAR 6 was raised. It was validated through the “EIA” submitted by the PP to the authority (ref. 33 - 3. & 4. EIA / 1. EIA-IA) that the project used natural gas during its operation in open cycle. Additionally during the site visit, were reviewed the monthly acts that records the daily consumption of natural gas, the cited acts were available since 1994, being the first act dated 03/06/1994). Therefore it is confirmed that the project complies correctly with the second applicability

participants (such as regulatory requirements to blend biodiesel with diesel or biogas with natural gas).		condition. Item closed
The type(s) of fossil fuels used by the project power unit(s) during the crediting period were also used during the most recent three years prior to the implementation of the project activity, except, where applicable, any auxiliary fuel consumption (e.g. for start-ups) which shall not exceed 3% of the total fuel consumption in the unit(s) (measured on an energy basis)	Section B.2. <i>"The Project power units will utilize natural gas during the crediting period, the same fuel that was also used during the most recent three years prior to the implementation of the Project activity."</i>	As per PDD information the project power units used and will continue using natural gas. Thus, this condition is met. PP is requested to provide information (type of fuel and amount) about the auxiliary fuel used (e.g. For start ups). CAR 6 was raised. It was validated through the "EIA" submitted by the PP to the authority (ref. 33 - 3. & 4. EIA / 1. EIA-IA) that the project used natural gas during its operation in open cycle. Additionally during the site visit, were reviewed the monthly acts that records the daily consumption of natural gas, the cited acts were available since 1994, being the first act dated 03/06/1994). Therefore it is confirmed that the project complies correctly with the second applicability condition. Item closed
The methodology is applicable under the condition that the project activity does not increase the lifetime of the existing gas turbine or engine during the crediting period.	Section B.2. <i>" The existing gas turbines were installed in May 1994. Up to November 1, 2011, gas turbine number three is the one that has operated more time (73,017 hours). According with General Electric (Loma de la Lata single cycle gas turbines provider), an area for attention, although a longer-term concern, is the life of the compressor and turbine rotors. Disassembly and inspection of all rotor components is required when the accumulated rotor starts or hours reach the inspection limit. When no recommendations have been made, rotor inspection should be performed at 5,000 factored starts or 200,000 factored hours. This interval indicates the serviceable life of the rotor and is generally considered to be the teardown inspection and repair/replacement interval for the rotor. According with the historical operation of Loma de la Lata single cycle and the expected operation in combined cycle, the limited factor for the rotor inspection is the factored hours (200,000). According with the above mentioned, the remaining lifetime of the gas turbines rotors would be at least 126,983 operative hours (38 years)....."</i>	As per PDD information the "remaining lifetime" is determined as per option a) of the Tool (ref 6), it is deemed correct. As per PP information the turbine three has operated 73,017 hrs (since it started operations) and correspond to the unit with largest amount of hours, PP is requested to provide evidence of the operation hours and the manufacture's (General Electric) technical information of life time. CAR 6 was raised. As per the information reported in PDD (ref 1b), "...rotor inspection should be performed at 5,000 factored starts or 200,000 factored hours....". It was validated against the "heavy-duty gas turbine operating and maintenance considerations" issued by General Electric (ref 62), that the rotor inspection interval has to be done at least every 5000 starts or 200,000 hrs. The steps followed by the PP to determine the remaining life time (ref 147) were validated. The accumulated operation time was reviewed against the turbines record (ref 61), slightly differences were found, however they do not threaten the applicability condition of the methodology. It was validated that the calculation used the average rate of operation (38.2%) of the turbines during the last five years, which is higher than the average of the last three last years (32.2%), the criteria applied is conservative. It was validated the project does not increase the remaining lifetime of the equipments; actually the project implementation will shorten the maintenance periods. Item closed.

4.5 Project Boundary

The PDD, Section B.3. identifies correctly as per ACM0007 version 06.1.0 (page 3) the project boundaries as *"the spatial extent of the Project boundary includes the Project power units and all power plants connected to the same grid electricity system."*

As per the PDD version 1 (ref 1a) in project scenario the emissions (CH₄ and N₂O) are zero, and CO₂ emissions by the natural gas consumption to operate the gas turbines was accounted. The PDD version 1, section B.3. (ref 1a), table 3 defines the emissions sources included or excluded in the project boundary. The

cited table was reviewed and was found correct against the ACM0007 version 06.1.0. Additionally and in line with the Tool to calculate the grid emission factor and the ACM0007 ver 06.1.0, the PDD identifies as project boundary *"the spatial extent of the Project boundary includes the Project power units and all power plants connected to the same grid electricity system"*.

On the other hand the methodology identifies the following emissions sources:

When determining project emissions, project participants shall include the following emissions sources:

- *CO₂ emissions from on-site consumption of fossil fuels to operate the project power unit(s); and*

As per PDD version 1 (ref 1a) this source is attributable to the project, it is deemed correct.

- *CO₂ emissions from on-site consumption of fossil fuels, to supplement the exhaust heat used to operate the steam turbine.*

As per the PDD version 1 (ref 1a) the plant is not going to burn additional gas in the steam turbine, in order to validate this assumption, the PP was requested to provide the dossier with the details of the projects and the corresponding permits where the plant operation (combined cycle) is defined. **CL→CAR 7 is raised.** It was validated against the EIA presented to the authority (ref. 33 - 3. & 4. EIA /1. EIA-IA) that no authorization to burn additional gas in the steam turbine was requested. The same information was validated against the annex (ref 63) to the main contract signed between Pampa Energía and Isolux (equipments provider), where is stated that the project does not consider any gas system. **Item closed.**

In addition to the CO₂ emissions identified by the methodology, the PP included in the PDD version 5, section B.3., the project emissions due to the diesel consumption for the emergency generator linked to the steam turbine. This fact is consistent with the PDD section B.6.1. The approach is conservative, because the emissions by the diesel consumption of the diesel generator is expected to be less than 1% of the emissions reductions.

When determining baseline emissions, project participants shall include the following emission sources:

- *CO₂ emissions from fossil fuel fired power plants connected to the same electricity system as the project power unit(s); and*

- *CO₂ emissions from operation of the project power unit(s) in single cycle mode.*

As per PDD both sources of emissions are attributable to the project, it is deemed correct.

Regarding leakage, as per the methodology (ref 2), *"Upstream emissions related to fossil fuels consumed by the project power unit(s) and emissions associated with the a change in the amount of exhaust heat recovery due to the project activity are outside the project boundary and included as leakage emissions."* The PDD version 1 (ref 1a) section B.3 does not refer to the leakage emissions. Even the leakage is identified in section B.6.1, the PP is requested to complete the information in section B.3. **CAR 8 is open.** The updated PDD (ref 1b) was reviewed, it was validated that section B.3 includes the analysis regarding the leakage. It was validated as well that as per the EIA presented to the authority (ref 33), the plant did not have a heat recovery system previous to the project implementation. **CAR 8 was closed.**

Finally in order to validate if the project will have other additional emission source the PP was requested to clarify if the plant will have some diesel (or similar) generator for auxiliary consumption. **CAR 7 item 2 was raised.** During the site visit it was verified that there are three diesel generators in the plant, one Detroit generator to support the TGs (ref 66, pics 1-2), one to support the fire system (ref 66, pics 3-4) and one to support the ST (ref 66, pics 5-8). It is important to highlight that the first two emergency generators are installed in the plant before the project implementation; therefore they do not add additional emissions. It was validated that the PP included in section B.7.1 the parameters to calculate the emissions due to the operation of the emergency generator to support the TV. (ref 1b). As per the PDD version 2 (ref 1b), section B.7.1 includes the parameters to calculate the corresponding emissions. **CAR 7 item 2 was closed.**

Therefore, based on the assessed information it was validated that all the GHG sources than contributes more than 1% of the expected emission reductions of the project are duly considered and the boundaries are correctly defined.

4.6 Baseline Selection and Additionality

As required per ACM0007 version 06.1.0., the PP used the “Combined tool to identify the baseline scenario and demonstrate additionality” (last version 04.0.0). The PDD was reviewed and it was validated that the steps defined in the Tool (ref 3b) were correctly followed. The detailed assessment of each step is available below in sections 4.6.3, 4.6.4, 4.6.5. & 4.6.6. Please find below a summary of the four steps defined in the Tool (ref 3b) to define the baseline scenario and additionality demonstration.

STEP 1. Identification of alternative scenarios:

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

The PP identified five alternatives, they were assessed according with the ACM0007 version 06.1.0 (ref 2c) requirements.

1. Proposed project activity undertaken without being registered as a CDM project activity.

This is a correct and valid alternative.

2. Continuation of the current practice (to not implement the project activity).

This is a correct and valid alternative, and it correspond to the supply of the demand of electricity by all the other plants connected to the grid.

3. If applicable, the proposed project activity undertaken without being registered as a CDM project activity undertaken at a later point in time.

This scenario was discarded by the PP considering that there is not and it is not expected to have any legal regulation that obliges conversion from open to combined cycle. During the site visit it was validated that there is no obligation to close open cycles, additionally as per the list of power plants that operates in Argentina (ref 163) currently there are plants that continue operating in open cycle.

4. Investment in a new fossil fuel plant of annual output equivalent to the proposed Project.

As per the PDD version 1 (ref 1a), it is stated that this scenario represents higher demand of gas, which presents limited supply. PP was requested to provide the evidence of the gas availability and its impact over the prices. **CL 11 was open.**

It was verified through the public information available at MEGSA web site that the gas request presented by Loma de la Lata in August 2007 (ref 149) (before the project starting) was denied (ref 151). Similarly, through the same public information, it was validated that since August 2007 44 gas request have been presented to MEGSA, and only 2 of them have been approved.

Based on the reviewed and validated evidence, it can be confirmed that the scenario “Investment in a new fossil fuel plant of annual output equivalent to the proposed Project” was discarded correctly due to the lack of gas availability. **CL 11 was closed.**

5. Commercial renewable power plant of equivalent capacity to the proposed Project.

This is a correct and valid alternative.

As result of the analysis the PP discarded correctly options 3 & 4 as alternative scenarios because they are not feasible options.

Please see the detailed assessment of the alternatives in section 4.6.3.

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

The PDD states that the proposed alternatives comply with the mandatory laws and regulation. It was validated that the proposed alternatives are currently happening in the grid, therefore they complies with the mandatory laws/regulations (<http://energia3.mecon.gov.ar/contenidos/verpagina.php?idpagina=882> & <http://energia3.mecon.gov.ar/contenidos/verpagina.php?idpagina=889>)

STEP 2. Barrier analysis:

Sub-step 2a: Identify barriers that would prevent the implementation of alternative scenarios

The PP identified four barriers in the PDD version 1 (ref 1a) step 2a: Institutional barrier, Investment barriers, Technological barrier and Lack of prevailing practice.

After the assessment, “Technological barrier” and “Lack of prevailing practice” were eliminated from the PDD, because they did not comply with EB 50 annex 13. Thus the latest version of the PDD considers only two barriers: Institutional barrier and Investment barriers.

Sub-step 2b: Eliminate alternative scenarios which are prevented by the identified barriers

The PDD analyses the impact of each barrier over the alternatives identified. As result, the PP concludes that the only alternative that is not prevented by the barriers is “Continuation of the current practice” (alternative 2).

Please see the detailed assessment of the barrier analysis in section 4.6.5.

STEP 3. Investment analysis:

As per the information recorded in the PDD Annex 3, the benchmark analysis was chosen. The selected indicator is the project IRR, which is compared with the benchmark IRR defined as per option b) of the Combined tool (ref 3b, page 12).

According with the detailed assessment included in section 4.6.4., it was validated that the project is not financially attractive; the project IRR is 9.89%, while the benchmark is 13.31%. Additionally it was validated as well that as per the sensitivity analysis carried out the project likely is not going to reach the benchmark under variations (+/- 10%) of the investment, operation and maintenance, generation, electricity price and gas price.

STEP 4. Common practice analysis.

The common practice analysis was done following the “Combined tool to identify the baseline scenario and demonstrate additionality” (ref 3b), where was concluded that $F = 0$ and $N_{all} - N_{diff} = 0$, thus $F < 0.2$ and $N_{all} - N_{diff} < 3$, therefore the project is not common practice. Please see the detailed assessment in section 4.6.6.

4.6.1 Additionality

As it was stated before, the PDD includes the analysis to demonstrate the project additionality according to VVM 1.2 para 94. As it was aforementioned, the project additionality is demonstrated following the “Combined tool to identify the baseline scenario and demonstrate additionality” version 04.0.0. (ref 3b), the PDD analyses the project additionality carrying out all the steps stated in the tool (barrier analysis and investment analysis). The barrier analysis was done following the “Guidelines for objective demonstration and assessment of barriers” (EB50 annex 13) and investment analysis considering the “Guidelines on the assessment of investment analysis (EB62 annex 5).

The PDD identified five alternative scenarios: 1. Proposed project activity undertaken without being registered as a CDM project activity; 2. Continuation of the current practice (to not implement the project activity); 3. If applicable, the proposed project activity undertaken without being registered as a CDM project activity undertaken at a later point in time; 4. Investment in a new fossil fuel plant of annual output equivalent to the proposed Project; and 5. Commercial renewable power plant of equivalent capacity to the proposed Project. As result of the analysis the PP discarded correctly options 3 & 4 as alternative scenarios.

Later according to the Tool (ref 3b), two barriers (Institutional barrier & Investment barrier) were identified and the feasible scenarios (1, 2 & 5) were analysed under each barrier. This analysis led to the conclusion that alternative 2 (Continuation of the current practice) is the only one that is not prevented by the barriers.

As following step, the investment analysis was carried out to compare the financial attractiveness of the alternative scenarios remaining after Step 2 of the Tool (ref 3b). As per the validated information the alternative scenario is “Continuation of current practice”, which does not represent any type of investment.

The PP selected the IRR as indicator, which is compared with a benchmark (WACC), thus a “benchmarking analysis” is carried out.

It was verified that the information used in the investment analysis comes from quotations, grid administrator cost, third party independent consultants of electrical and financial market, and project estimations rely on realistic information. The details of the validation means are available in section 4.7.4 of this report. The benchmark IRR was defined correctly by the PP based on publicly available sources/transparent documents.

According with all the information used by the PP to carry out the economical valuation (see details in 4.7.4.) the project reaches an IRR = 9.89%, below the financial threshold (benchmark) WACC (13.31%). The project IRR never overcomes the financial threshold IRR under the sensitivity analysis. Then it is concluded that the project is unlikely to be financially/economically attractive (details available below in section 4.7.4.).

To complete the additionality tool requirements, the PP demonstrated that the project is not the common practice (details available below in section 4.7.6.).

Finally it is possible to confirm that all the steps defined in the additionality tool were followed rigorously by the PP and the project has demonstrated its additionality following the tool.

4.6.2 Prior Consideration of the Clean Development Mechanism

As per PDD, section C.1.1., the project starting date was 06/09/2007 and corresponds to the date of signature of contract between Pampa Energía S.A. and Isolux – Corsan. The document signed (ref 39) states that *“the agreement is understood to be accepted by Pampa Energía S.A. and therefore will be enforced in the instant that Pampa Energía S.A. hands to Tecna Estudios y Proyectos de Ingeniería S.A, a check in the amount of 3000 (three thousand) pesos of the Argentinian Republic”*. Thus the PP was requested to provide the supporting evidence of the cited payment and revise the project starting date accordingly. **CL 9 was raised**. It was validated that on 06/09/2007 Isolux receives the check number 00000203 for the amount of 3000 (three thousand) Argentinian pesos (ref 39), thus it was confirmed that the contract between the parts entered into force on 06/09/2007. Therefore it has been validated that the project starting date has been defined correctly. **CL 9 was closed**.

The proposed project activity is performing a second validation. As per the information recorded in the UNFCCC web site, the project was published for validation first time on 06/11/2008 (ref 27). As result of that validation process the project (under UN number 3311) was rejected on 17/03/2011 (ref 28). The project started a new validation process and the PDD was published for ISHC on 04/01/2012 (ref 27). Thus in both cases the validation process started after the “starting date of the project”.

The project starting date is 06/09/2007, thus as per VVM 1.2, para 100 the project correspond to an “existing project activity”. Considering that the project starting date is before 02/08/2008, according to EB 62 annex 13, to demonstrate CDM prior consideration, the PP has to demonstrate that *“CDM was seriously considered in the decision to implement the project activity”*.

The PDD section B.5., includes a list of the main actions related with the project and its CDM status. The actions included are assessed in the list below, **CL 10 was raised** to request additional support as it is detailed in the table 2.

Table 2 “Assessment of actions linked to CDM prior consideration”

PDD		SGS Assessment
Date	Action	
Jan – Jun 2006	Pampa Energía S.A. acquired 8.66% of the capital stock of Central Puerto S.A. (“Central Puerto”), an important electricity generation company in Buenos Aires and the then owner of the assets composing Loma de la Lata. At the same time, Pampa Energía S.A. began its analysis regarding the closing of the cycle at Loma de la Lata.	The PP was requested to provide the supporting evidence. Open. It was validated in May 2006 (ref 86) a representative of Pampa Energía started the investigation with a consultant company to close the cycle at Loma de la Lata. Item closed.
May 2006	Pampa Energía S.A. started conversations with Econergy Argentina to evaluate the CDM potential of the Project activity	Ok, it was validated that on 17/05/2006 Econergy sent an e-mail (ref. 12.1) to Marcelo Mindlin (Pampa Energía president) providing information about CDM and company services.
13/Sep/2006	Econergy presented a commercial proposal to be in charge of the validation process of the Project and purchase its CERs and an initial estimation of the amount of CERs to be generated by the Project.	Ok, it was validated that on 13/09/2006 (ref 12.1) an Econergy representative sent via e-mail the commercial proposal to develop a combined cycle power plant as a CDM project.
04/Dec/2006	Central Puerto S.A. agreed to sell the assets comprising Central Térmica Loma de la Lata to Pampa Energía S.A.	Ok, it was validated that on 04/12/2006 Pampa Holding S.A. (currently named Pampa Energía) notified the approval of the acquisition of Central Puerto S.A. (ref 12.1.). It was crosschecked with the information published on “Business of Americas” web site (ref 29), where it was published that Central Puerto accepted to sell the plant “Loma de la Lata” to “Pampa Holding”
12/Mar/2007	EcoSecurities presented a proposal to manage the Project’s validation process and to purchase its CERs. (EcoSecurities started conversations with Pampa Energía S.A. before that date, however there are no formal evidences to sustain that until March)	Ok, it was validated through e-mail correspondence (ref 12.1) that on 12/03/2007 EcoSecurities sent a proposal to develop the conversion of Loma de Lata to combined cycle power plant as a CDM project.
17/May/2007	Closing of the acquisition of the Central Térmica Loma de la Lata by Project Developer	Ok, it was validated that on 17/05/2007 Pampa Holding S.A. (currently named Pampa Energía) notified the acquisition of the Power plant “Loma de la Lata” to Central Puerto S.A. (ref 12.1.).
06/Jul/2007	A Pampa Energía S.A. Board Meeting took place in which it was stated that its subsidiary, the Project developer was in advanced negotiations with carbon consulting companies (MGM and EcoEnergy) to develop the CDM component, essential source of revenue that would turn the Project economically viable	Ok, a copy of the board meeting held on 06/07/2007 was reviewed and it was validated that the board was informed about the negotiations with MGM and Econergy to register the project (Loma de la Lata) as a CDM project. It was validated that at that time the project developer expected to receives incomes from 3,000,000 to 4,000,000US\$ per year, thus this additional incomes would make the investment viable.
11/Jul/2007	EcoSecurities continued negotiating a proposal until November 2007, when the Project developer informed that the proposal had been accepted.	As per the e-mail correspondence (ref. 12.1) between EcoSecurities and Loma de la Lata, it is validated that communication between the cited parts about the project. The PP was requested to provide the contract signed with EcoSecurities. Open. It was validated that on 12/11/2007 a representative of EcoSecurities acknowledge the appointment by the PP of EcoSecurities to develop the CDM project and trade the bonds. Item closed.
06/Sep/2007	Starting date of the Project activity. Date when the contract between the Project developer and the engineering firm that provides the equipments, installation and civil work was signed.	The PP was requested to provide the contract signed between Pampa and Isolux Corsan. Open. It was validated that as per Annex 2 (ref 90) of the contract (ref 39-16-1), the works starting was planned on 03/03/2008. Thus it was validated that no work was carried out before 06/09/2007 (starting date, corresponding to date of the contract signed between the PP and Isolux). Item closed.
08/Sep/2007	Local newspaper published an article about the Project activity and its implementation as CDM Project	Ok, The publication cited (ref 12.1) was validated against the original publication available at http://www1.rionegro.com.ar/diario/2007/09/08/20079r08s06.php
29/Nov/2007	EcoSecurities Project Implementation Team performed a site visit to Pampa Energía S.A. to achieve information and documentation required to start the implementation of the CDM Project	Ok, As per e-mail correspondence (ref 12.1) it was validated that on 28&29/11/2007 a visit by the EcoSecurities’ team was performed to gather the project information.
10/Dec/2007	Project Developer signed the CDM Emission Reduction Purchase Agreement with EcoSecurities relating to the Combined Cycle at Loma de la Lata Thermo Unit Project.	The PP provided as evidence an e-mail informing that the ERPA was signed. The PP was requested to provide a copy of the ERPA signed. Open. It was validated against the signed contract (ref 88), that an ERPA was signed between EcoSecurities and Pampa Energia on 10/12/2007. Item closed.
Jan-	EcoSecurities and the Project Developer worked in the	Ok, No evidence was required, since this correspond to

Oct/2008	elaboration of a CDM Project Design Document.	internal work. The contract between EcoSecurities and Pampa was required and it supports the work performed. Additionally it was validated that as per the PDD presented for validation previously, EcoSecurities appeared in Section B.8.
Sep/ 2008	Start of civil works at Project site.	As per a letter sent by Isolux Corsan on 11/09/2008 (ref 12.1), the civil works were re-initiated on 15/09/2008. The PP is requested to clarify when the works were started by first time. Open. It was validated that as per Annex 2 (ref 90) of the contract (ref 39-16-1), the starting was planned on 03/03/2008. Thus it was validated that no work was carried out before 06/09/2007 (starting dated, corresponding to date of the contract signed between the PP and Isolux). Item closed.
06/Nov/2008	First PDD version was published for global stakeholder consultation (start of validation).	Ok, the data is correct against UNFCCC information (ref 28).
28/Jan/2008	Project submitted for registration.	--
17/Mar/2011	Project rejected by the CDM-EB.	As per UNFCCC records the project was rejected on 17/03/2011 (ref 28), while the PDD version 1 report 27/03/2011. The PP was requested to correct the PDD. Open. PDD version 2 (ref 1b) reports the information correctly. Item closed.
Jan/2012	Project resubmitted to the UNFCCC for global stakeholder process.	As per the actions conducted, it took place in January 2012. The PP is requested to correct the PDD. Open. As per the actions conducted, it was in January 2012. The correction is included in the last version of the PDD (ref 1e). Item closed.

CL 10 was closed.

As per the information validated, it can be ensured that there was awareness of CDM, it is supported by contact established between Pampa and EcoSecurities and Eonergy before the project starting date (ref 12.1). It was validated that the cited consultant companies provided information about the CDM and proposals to get the project registered as CDM. Similarly it was validated that in the board meeting held on 06/07/2007, the board was informed about the negotiations with MGM and Eonergy to register the project (Loma de la Lata) as a CDM project. It was validated that the project developer expected to receive incomes from 3,000,000 to 4,000,000US\$ per year, thus this additional incomes would make the investment viable.

On the other hand, it was validated that continues and real actions were carried out by the PP in order to ensure the CDM status. Thus it was validated that in November 2007 a contract was signed between EcoSecurities and Pampa. Similarly it was validated that the PP received an ERPA offers from EcoSecurities, which was signed in December 2007 (ref. 88). Finally it was validated that the PP conducted actions with a periodicity less than a two years.

Based on the information reviewed and validated, it is confirmed that real and continuous action were taken to ensure the CDM project status.

4.6.3 Identification of alternatives

PP identified the alternative scenarios in the PDD, section B.4 as per the "Combined tool to identify the baseline scenario and demonstrate additionality" (ref 3b), Step 1. Identification of alternative scenarios.

The scenarios identified by the PP in the PDD are the followings:

1. Proposed project activity undertaken without being registered as a CDM project activity.
2. Continuation of the current practice (to not implement the project activity).
3. If applicable, the proposed project activity undertaken without being registered as a CDM project activity undertaken at a later point in time.
4. Investment in a new fossil fuel plant of annual output equivalent to the proposed Project.
5. Commercial renewable power plant of equivalent capacity to the proposed Project.

As per the Tool (ref 3b) alternative scenarios: " (a) are available to the project participants, (b) cannot be implemented in parallel to the proposed project activity, and (c) provide outputs or services with comparable quality, properties and application areas as the proposed CDM project activity".

On the other hand the Tool (ref 3b) states that alternative scenarios (S1 to S6) shall be included, however the ACM0007, version 06.1.0, requires to consider three alternatives:

- *“(a) Proposed project activity undertaken without being registered as a CDM project activity;*
- *(b) Continuation of the current practice (to not implementing the project activity);*
- *(c) If applicable the proposed project activity undertaken without being registered as a CDM project activity, undertaken at a later point of time.”*

The alternatives identified by the PP in the PDD are assessed below according with the ACM0007 version 06.1.0 (ref 2c) requirements, because the Methodology supersedes the Tool. It was validated that the PP complies with the three minimum alternatives required by the Methodology. Regarding the scenarios itself, please see the individual assessment below:

1. Proposed project activity undertaken without being registered as a CDM project activity.

This is a correct and valid alternative.

2. Continuation of the current practice (to not implement the project activity).

This is a correct and valid alternative, and it correspond to the supply of the demand of electricity by all the other plants connected to the grid.

3. If applicable, the proposed project activity undertaken without being registered as a CDM project activity undertaken at a later point in time.

This scenario was discarded by the PP considering that there is not and it is not expected to have any legal regulation that obliges to convert the open to combined cycle. During the site visit it was validated that there is no obligation to close open cycles, additionally as per the list of power plants that operates in Argentina (ref 163) currently there plants that continue operating in open cycle.

4. Investment in a new fossil fuel plant of annual output equivalent to the proposed Project.

As per the PDD version 1 (ref 1a), it is stated that this scenario represents higher demand of gas, which presents limited supply. The PP is requested to provide the evidence of the gas availability and its impact over the prices. **CL 11 was open.** At that time 2,500,000 m³/day were requested. It was verified through the public information available at MEGSA web site that the gas request presented by Loma de la Lata in August 2007 (ref 149) (before the project starting) was denied (ref 151). Similarly, through the same public information, it was validated that since August 2007 44 gas request have been presented to MEGSA, and only 2 of them have been approved.

Based on the reviewed and validated evidence, it can be confirmed that the scenario “Investment in a new fossil fuel plant of annual output equivalent to the proposed Project” was discarded correctly due to the lack of gas availability. **CL 11 was closed.**

5. Commercial renewable power plant of equivalent capacity to the proposed Project.

This is a correct and valid alternative.

As result of the analysis the PP discarded correctly options 3 & 4 as alternative scenarios.

4.6.4 Investment analysis

Additionally to the ‘Barrier Analysis’ included in the PDD, the PDD (ref 1a) uses investment analysis to demonstrate additionality. As per the information recorded in the PDD Annex 3, the benchmark analysis was chosen. The PP performed an investment analysis, which is included in the PDD Annex 3 (ref 1d) and “Loma de la Lata Calculator.xls” (ref 7e), where all formulas are readable and the spreadsheet was elaborated dynamically, making use of referenced cells and formulas.

According with the “Guidelines on the assessment of investment analysis” (ref 26), item 8, the PP selected the option of submitting the excel file (“Loma de la Lata Calculator.xls” (ref 7d)) as confidential and the exact file as a PDF in the file named “Loma de la Lata Calculator.pdf” (ref 7e). Spreadsheet functionality is sound, including easy access and modification of parameters for sensitivity analysis.

The assessment of the investment analysis is divided in three parts, the i) benchmark determination, ii) project IRR calculation and iii) sensitivity analysis.

i) Benchmark determination

To define the benchmark IRR, the PP followed option b of the Tool (ref 3). The selection of the option is considered correct because is one of the options offered by the Tool and there is no restriction linked to it. The benchmark IRR is 13.31% and its determination was validated as described below.

The benchmark was obtained as the weighted average cost of capital (WACC):

$$WACC = \frac{E}{C} \times k_e + \frac{D}{C} \times k_d \times (1 - T) \quad k_e = R_f + \beta \times MP$$

Where:

E = equity

D = financial debt

C = capital (C = E + D)

k_e = cost of equity

k_d = cost of debt

T = income tax

R_f = risk-free rate of interest

MP = market premium

β = sensitivity of the expected excess asset returns to the expected excess market returns

Considering that the financial cash flows include inflation on the calculation of income and costs, it was verified that the components of the WACC benchmark rate were also in the same terms (nominal). In particular, the market premium was obtained from a reliable source, i.e., Damoradan, A. (2005) Applied Corporate Finance: A User's Manual, Wiley; Second Edition. Page 271, which includes inflation on its calculation. Similarly, the risk free rate considers a 10-year bond issued by the Argentinian government (ref 186) with payments in US dollars and in nominal terms. R_d = cost of debt considers the actual payment of interest by peer companies, and it was also in nominal terms. Consequently, the resulting WACC is in nominal terms.

The calculation is available the file named "Loma de la Lata Calculator.xls (ref 7d), tab "Benchmark". The PP used data (commercial lending rates, and the cost of capital) of two companies to obtain the WACC. The PP was requested to provide evidence why the selected companies ("Central Puerto" and "Central Costanera") listed in the Buenos Aires stock exchange market (Merval, Mercado de Valores) should be considered representative of peer companies and or appropriate market values. **CL 13 item 1 was raised.** Moreover, only one month (June 2007) of data was used to estimate the lending rates and other relevant parameters, such as risk free rates and Betas. The PP was requested to consider three months of data at least for estimation of lending rates and risk free rates, and no less than 3 years for beta values. **CL 13 item 2 was raised.**

It was verified that companies selected and reasoning for selection (highly traded companies) is confirmed by references provided (ref 78). Both companies are listed and are public companies with audited financial statements. Evidence provided by the PP plus further research from financial experts corroborates that local interest rates tendency was up, thus the information from 1 month (June 2007) is conservative. For instance, yield to maturity on Argentinian government bonds with similar maturities increased on average 7.63% for the period 2007-2008. Moreover, estimations using the 6 year periods for betas also corroborates that original estimation proposed by the PP was conservative. **CL 13 Items 1 & 2 was closed.**

The PP uses the WACC formula to estimate the benchmark rate and it is based on publicly available data sources, including stock market prices and financial information taken from the Bloomberg terminal, local lending rates and borrowing rates estimated using information available on the financial statements of public companies obtained from the "Comisión Nacional de Valores de Argentina" website, and market premiums obtained from the professor Damodaran financial investment book. All previous sources are considered correct, valid and appropriate, but some information obtained from them was applied incorrectly by the PP. See points below:

- Market premium was obtained from a reliable source, i.e., Damoradan, A. (2005) Applied Corporate Finance: A User's Manual, Wiley; Second Edition. Page 271, and was deemed correct and fair (5.5% annual average) however, the market risk premium, i.e. market premium times the beta of the project, is

incorrectly estimated as the betas from peer companies used to estimate the beta of the project are not used in a correct way. **CL 13 item 3&4 was raised.** Adjusted betas should be used as a proxy for future betas only for companies that are at beginning of their life cycle or at the end of their life cycle as per definition quoted by the PP. Finally the PP corrected the beta's values. **CL 13 item 3&4 was closed.**

- The PP uses the Adjusted Beta information, provided by Bloomberg, which corresponds to a measure of beta that is modified to represent a better estimation of companies that are at a very early stage on their life cycles (with immense growth opportunities) or at are the end of the life cycle (with no growth opportunities or about to die). This Adjusted Beta it is not deemed appropriate given the fact that no proof is given that the selected companies are in either stage of their life cycle. The PP was requested to utilize information taken from Bloomberg that considers only not adjusted betas, or to provide further evidence about the stage of the life cycles of the selected companies that justifies the use of adjusted betas. **CL 13 item 3&4 was raised.** Adjusted betas should be used as a proxy for future betas only for companies that are at beginning of their life cycle or at the end of their life cycle as per definition quoted by the PP. Finally the PP corrected the beta's value (ref 7d). **CL 13 item 3&4 was closed.**
- As per EB 62 Annex 5 guidance 18 the typical debt/equity finance structure observed in the sector of the country should be used. If such information is not readily available, 50% debt and 50% equity financing may be assumed as a default. The PP uses two peer companies, one with 1.48 debt/equity ratio and one with 0.33 debt/equity to estimate the debt/equity finance structure in the sector. As can be seen the dispersion of these two values is too much to consider them representative of the market value, and as such, more information should be provided on why the average between those two is a good estimator of the sector value. The PP was requested to provide more evidence of why these indicators are representative, by providing previous historical figures of such ratios and their expected evolution, and give reason why only two companies are considered representative of the sector. **CL 13 item 5 was raised.** Information and references (ref 78) provided are considered complete and fair, justification for the debt to equity ratio it is acceptable. **CL 13 item 5 was closed.**
- As explained previously, the PP uses betas from two peer companies, which not only have a different debt/equity ratio, but also, that have different cost of debt. A final estimation of the leverage beta of the project should consider an appropriate unleverage-leveraged peer information procedure, using the representative cost of debt and debt/equity ratio. The PP was requested to provide further evidence that their approach provides good estimators for both cost of debt and debt/equity sector values, and to provide details of the releverage procedures. **CL 13 item 6 was raised.** As per item 1, companies can be considered peer companies and representative of the sector, thus information used in the re leveraging procedure is then considered methodologically correct. **CL 13 item 6 was closed.**

Regarding the values itself, please see below table 3 with the assessment of each parameter involved in the WACC calculation:

Table 3 "Assessment of parameters included in the benchmark"

Item	Value final PDD	Source cited in PDD/Excel file	Date of availability	SGS validation	SGS assessment / third party validation
Benchmark - Puerto - Costanera	13.31% (avg) 11.08% 15.54%	Calculated	N/A	The value was correctly calculated as $WACC = \frac{E}{C} \times ke + \frac{D}{C} \times kd \times (1 - T)$ for Puerto and Costanera, and the average between them is the final value to consider. The final value (13.31% was obtained after the beta corrections).	The benchmark IRR was obtained as the average of the IRR obtained from using data for Puerto y Costanera.
D / (E+ D) - Puerto - Costanera	60% 25%	Financial statements	30/07/2007 (ref 11.1 – 1.5.1.3)	Leverage ratios were verified against financial statements of C. Puerto y Costanera. Values agree with was presented by PP.	The ratios were cross checked against third party data provider yahoo finance screener, i.e. mean leverage ratio of peer companies. The information was recorded in files debt equity ratios DDS.xlsx (ref 53) and yahoo screener peer ratios.xlsx (ref 48) and yahoo screener.pptx (ref 47).
ke = cost of equity	16.9% 18.3%	Calculated using	August/2007 (ref7c)	Ke was correctly obtained as $Rf + \beta \times MP$	No crosscheck with an independent source is possible. The values used in the

- Puerto - Costanera		Bloomberg data			calculation were assessed independently.
kd = cost of debt - Puerto - Costanera	7.2% 7.2%	Calculated using Bloomberg data	August/2007 (ref7a)	Kd was correctly obtained as (1- tax rate) * Pre tax cost of debt.	No crosscheck with an independent source is possible. The values used in the calculation were assessed independently.
β - Puerto - Costanera	1.10 1.36	Bloomberg	August/2007	Adjusted Beta information was considered initially by the PP, it corresponds to a measure of beta that is modified to represent a better estimation of companies that are at a very early stage on their life cycles (with immense growth opportunities) or at are the end of the life cycle (with no growth opportunities or about to die). This Adjusted Beta it is not deemed appropriate given the fact that no proof is given that the selected companies are in either stage of their life cycle. PP was requested to utilize information taken from Bloomberg that considers only not adjusted betas, or to provide further evidence about the stage of the life cycles of the selected companies that justifies the use of adjusted betas. Thus the PP corrected the betas considering companies along the life cycle.	Betas were validated against third party data provider yahoo finance screener, i.e. mean leverage ratio of peer companies. See files debt equity ratios DDS.xlsx (ref 53). The values are realistic against market data.
T = income tax	35%	Ministerio de Hacienda, Finanzas, Obras y Servicios Públicos, Law Nº 20,628 (article 69)	30/04/2004 (ref. 11.1 – 1.5.1.19)	The value is correct against the source (ref. 11.1 – 1.5.1.19). The value was crosschecked with the information registered in the World Bank (ref 43), and it is deemed correct.	No crosscheck against third party applicable
Rf = risk-free rate of interest	10.9%	Bloomberg		It was validated that PP used as risk free rate a 10-year bond issued by the Argentinian government (ref 186).	The value of the risk free rate was crosschecked using the bond price and its corresponding yield (ref 186), the calculation was done using information publicly available. Thus the Rf is deemed correct.
MP = market premium	5.5%	Damoradan, A. (2005) Applied Corporate Finance: A User's Manual, Wiley	2005	It was obtained from a reliable source, i.e., Damoradan, A. (2005) Applied Corporate Finance: A User's Manual, Wiley; Second Edition. Page 271, and was deemed correct and fair (5.5% annual average)	Since the Market risk premium is a standard parameter that changes slowly over the years, the source used by the PP is well known. The value was compared with an independent third party, the selected rate fell within the expected values reported per Fernandez (ref 184), thus the value used in the analysis is deemed correct.

ii) IRR calculation

Based in the PDD, annex 3 the project is not economically feasible because the project IRR (9.89%) is lower than the WACC (13.31%).

The project IRR is calculated in the file named "Loma de la Lata Calculator.xls (ref 7d), tab "FA_project". The calculation done is deemed correct. However, there were two issues that required further clarification. See below.

- The PP uses a 20 year assessment period, which is deemed appropriate given the type of the project: electricity generation plant; and its expected life time of its assets, which could be in use longer than that.

CAR 6 was previously raised to assess the expected life time of assets, the remaining life time (38

years) was correctly defined considering the baseline line conditions; the remaining life time is longer than the crediting period option (7-year renewable). Additionally it was validated that the investment analysis does not consider any overhaul. **CAR 6 was closed.**

- Depreciation was calculated using a linear depreciation model (total investments divided by the number of years in analysis) and added back for net profit calculation. Although the methodology and application are correct, the PP is requested to provide the applicable law/regulation established by tax regulations in Argentina regarding assets depreciation. **CL 12, item 1 was raised.** It was validated that the depreciation was applied correctly considering the lifetime of the equipments. Similarly it was validated as per the manufacturer (ref 62) that the lifetime is defined by the "rotor" (key part of the turbines) which is 200,000 hrs. **CL 12, Item 1 closed.**

The PP uses a perpetuity value to estimate the fair value of the project (ref 7d, tab "FA_project", AB35). Correspondingly, the perpetuity value estimation is inserted after the last cash flow, following a methodology that it is considered fair, and standard in investment financial practice.

Project cash flows considered both inflation and taxation, thus, benchmark rate accordingly considers, both after tax and nominal terms. It was validated that actual interest payable and capital repayment effects were equal to zero, and that income tax treatment properly considers this fact. The PP estimated a nominal benchmark rate using the after tax WACC formula (previously assessed). Consequently, the PP approach is deemed correct in this sense. Moreover, income and costs consider increments based on expected inflation. It was checked that the inflation rates were in line with an official and reliable source (Projected CPI until 2017, The Budget and Economic Outlook, Congressional Budget Office, Congress of the US, p. 79 (Aug. 2007)) and that the benchmark rate was consistently in nominal terms.

The incomes consider the additional generation of the plant attributable to the gas turbines - *Electricity sales Spot gas turbines* - (given to the improvement in the PLF) (ref 7d, tab "FA_project", line 10), the electricity generation attributable to the steam turbine - *Energy sales "Energía Plus" steam turbine* - (ref 7d, tab "FA_project", line 11) and the incomes by the additional capacity due to the steam turbine - *Capacity sales "Energía Plus" steam turbine* - (ref 7d, tab "FA_project", line 12). The assessment of the individual values involved in the analysis is summarized in the table 4 (following pages). Regarding the calculations with each income source were assessed as follow:

- Electricity sales Spot gas turbines (ref 7d, tab "FA_project", line 10): It was validated that this value corresponds to the additional amount of electricity generated by the gas turbines multiplied by the energy price. The increase of the generation by the GT is explained and supported by the improvement of the PLF (41.1%, average Sept 2004 – August 2007 to 86.9%, expected in combined cycle). The value is indexed yearly by the inflation rate. The calculation was correctly performed.
- Energy sales "Energía Plus" steam turbine (ref 7d, tab "FA_project", line 11): It corresponds to the amount of electricity generated by the steam turbine multiplied for the energy price under "Plus contract". It was validated that the energy price was estimated as the price offered by other power plant of the holding (Pampa Energía) (ref 36-9). Given that the cited energy price considered the gas price in its algorithm, the formula contains the correction with the gas price relevant for this project (at Neuquen basin). Finally the income is updated annually using the inflation rate. The calculation was correctly performed.
- Capacity sales "Energía Plus" steam turbine (ref 7d, tab "FA_project", line 12): It corresponds to the payment linked to the project capacity. The calculation was correctly performed.

The assessment of the values used in the incomes calculations are included in table 4, please see following pages.

Regarding costs, the project considers the additional costs of the plant linked to the operation/implementation of the steam turbine and additional gas consumed by the gas turbines. The costs are available in ref 7d, tab "FA_project", line 18:29. They are the followings:

- Incremental Natural gas cost (ref 7d, tab "FA_project", line 18), it corresponds to the additional cost linked to the additional amount of gas used to operate the gas turbines given the increase in the amount of operation hours (given to the increase in their PLF).

- Incremental cost of GT gas (ref 7d, tab "FA_project", line 19), it corresponds to the additional cost due to the difference in the historical gas price (short term contract) and the updated gas price (determined as per new long term gas contracts in the market). The cost is updated annually using the inflation rate.
- Incremental Salaries (ref 7d, tab "FA_project", line 20), it corresponds to the additional cost due to the increase in the amount of staff required in the plant to operate as combined cycle. The value is updated annually using the inflation rate.
- Water Cannon (ref 7d, tab "FA_project", line 21), it corresponds to an annual cost linked to the expenses to provide water to the steam turbine.
- Incremental Insurance (ref 7d, tab "FA_project", line 22), it corresponds to the insurance cost linked to the project investment.
- Incremental ENRE Services (ref 7d, tab "FA_project", line 23), it corresponds to the additional charges from the ENRE which are proportional to the incomes (by energy and capacity sales).
- Incremental CAMMESA Costs (ref 7d, tab "FA_project", line 24), it corresponds to the additional charges from the Cammesa which are proportional to the incomes (by energy and capacity sales).
- Incremental Overhead (ref 7d, tab "FA_project", line 25), it corresponds to the additional internal cost costs which are proportional to the generation. The value was calculated based on historical information.
- Incremental Maintenance&Other costs (ref 7d, tab "FA_project", line 26), it corresponds to the additional expenses linked to the steam turbine and the gas turbine (due to its increase in the hours operation).
- Debits taxes (ref 7d, tab "FA_project", line 27), it corresponds to the tax applied over transactions (ref 177).
- Management fee (ref 7d, tab "FA_project", line 29), it corresponds to the management cost which are proportional to the EBITDA.

The assessment of the values used in the costs calculations are included in table 4, please see following pages.

The PP uses an after tax nominal benchmark rate (after tax WACC), accordingly, all cost of financing expenditures, i.e. interest payments, loan repayments and or capital repayments to debt holders are not present in the calculation of the net profits, and thus, also of the calculations of the project IRR. This is deemed correct and applicable given the methodology chosen.

All financial parameters that were used by the PP in the financial analysis elaboration were checked by the financial expert and sectoral scope expert. In this sense, values and parameters used in the PDD are considered correct. Please see below table 4 with the summary of the assessment of each individual value used in the project IRR calculation:

Table 4 "Assessment of parameters included in the investment analysis"

Item	Value final PDD	Source cited in PDD/Excel file	Date of availability	SGS validation	SGS assessment / third party validation
Input Data Investment					
Investment	199,504,125 USD	Sum of the items below	--	It corresponds to the addition of the items described below.	The total investment was assessed as a whole against referential values. The project cost is 1,127 US/KW, based on the sectoral expert experience the investment value is in the higher end of the expected value for a project like this, but still is a realistic value. Additionally it was validated, against the contracts signed (ref 39), that the cost spent in the project implementation is over 200,000,000 USD, thus the value used at the decision time was realistic and so close to the value spent.
Combined Cycle Loma de la Lata	190,200,000	Isolux Corsán 13 July 2007	July/2007 (ref 75)	The value is correct against the source.	
Three phase power transformer 500 kV	0	--	--	No supporting evidence was available, thus this item (3,800,000 US\$) was deleted from the investment. It has to be noted that even the PP did not have available the supporting evidence about the cost of this item, the project can not operate without it.	
Substation Loma de la Lata 500 kV	4,194,000	Transener proposal 14 August 2007	14/07/2007 (ref. 11.1 – 1.5.1.1)	The value is correct against the source	
Cooling water system construction	5,110,125	Int. comp. Isolux and Man proposal March 2007	July /2007 (ref 100)	It was validated that in July 2007 the PP had a quotation from Man (ref 100) where the cooling system was included. The value of the	

				investment of this item was corrected to 5,110,125 US\$ (original value in PDD version 1 was 5,625,000 US\$).	
Boiler chimney	0	--	--	No supporting evidence was available, thus this item (1,500,000 US\$) was deleted from the investment. It has to be noted that even the PP did not have available the supporting evidence about the cost of this item, the project can not operate without it.	
Primary regulation of frequency	0	--	--	No supporting evidence was available, thus this item (100,000 US\$) was deleted from the investment. It has to be noted that even the PP did not have available the supporting evidence about the cost of this item, the project can not operate without it.	
Progress of work: per year -2 per year -1 per year 0 per year 1	22% 30% 40% 8%	Isolux Corsán proposal, Annex 7.2 - schedule (4 Sept. 2007)	September 2007	The distribution is correct against the source	No crosscheck against third party applicable.
General information					
Annual inflation rate	2.20%	Projected CPI until 2017, The Budget and Economic Outlook, Congressional Budget Office, Congress of the US, p. 79 (Aug. 2007)	--	Cross checked against third party database IMF World Economic Outlook Database 2006 and 2007(ref 51&52), see files Report for Selected Countries and Subjects 2006-2007.pdf (ref 49) and Report for Selected Countries and Subjects 2007-2008.pdf (ref 50)	No crosscheck against third party applicable.
Exchange rate	3.153 AR\$/US\$	Average exchange rate August 2007. Central Bank of Argentina; http://www.bcr.a.gov.ar/	August 2007	The information was crosschecked against the data published in the Central Bank of Argentina (ref 183), the value reported in PDD is correct against the source.	No crosscheck against third party applicable.
Input Data Revenues					
Price of capacity - spot	12.0 AR\$/MW-HRP	Resolution 317/2002. Based on 2.5.2.1.2 of CAMMESA Procedures (spot capacity remuneration). HRP (Horas de Remuneración de Potencia) = hours in which capacity is being paid	24/07/2002 (Ref. 11.1 - 1.5.1.5)	The value is correct against the local regulation (ref 135 and the "Procedures" published by Cammesa (ref 188)).	No crosscheck against third party applicable.
Hours of capacity remuneration	90 HRP/week	Resolution 317/2002. Based on 2.5.2.1.1 of CAMMESA Procedures (spot capacity remuneration)		The value is correct against the local regulation ("Procedures" published by Cammesa (ref 188))	No crosscheck against third party applicable.
Price of energy - spot	77.3 AR\$/MWh	CAMMESA hourly records	August 2007 (Ref. 11.1 -	The value is correct against the source (ref 11.1-1.5.1.8), which is	No crosscheck against third party applicable.

		monomic spot price for Loma de la Lata	1.5.1.8)	available at Cammesa web site.	
Monomic price of energy	83.7 AR\$/MWh	Calculated	--	It is calculated based on "Price of energy – spot", "hours of power remuneration" & "Price of power".	The value is correct against the information reported in the "node factor file" (ref 11.1 – 1.5.1.8).
Monomic price spot	26.6 USD/MWh	Calculated	--	The value corresponds to the "Monomic price of energy" expressed in USD. It was validated that currency conversion was done correctly.	No crosscheck against third party applicable.
Price of energy - "Energía Plus"	26.0 USD/MWh	Project developer. Firm 2007 Energía Plus proposal to potential client	03/09/2007 (Ref. 36-9) Document elaborated by the PP 03/09/2007 (Ref. 36-9)	The value is correct against the source.	The original signed document was reviewed during the site visit. The energy price is determined as the maximum value between 26 US\$/MWh and "(26+(Reference gas price – agreed price of the gas = 81.16 US\$/dam ³)*0.24)". It was validated against the energy proposal issued by Güemes (ref. 128, ref 36-9). Additionally it was validated that 81.16 US\$/dam ³ corresponds to the gas price at Noroeste basin (supplier of gas for Güemes) thus the factor ((Reference gas price – agreed price of the gas = 81.16 US\$/dam ³)*0.24) adjust price considering the gas price applicable to the project (from Neuquén basin). The energy price reported and its adjustment is used for calculation in the IRR calculation file (ref 7d), tab "FA_project", line 11.
Price of capacity - "Energía Plus"	30.0 USD/MWh	Project developer. Firm 2007 Energía Plus proposal to potential client			The validated values are realistic and conservative, they were assessed against the contract signed by the PP on 14/10/2009, where energy price was 4 US\$/MWh and the capacity 33.383 US\$/MW-month.
Node Factor	92%	Seasonal programming May-Oct 2007. Weighted nodal factor of 500 kV (31/08/2007)	31/08/2007 (ref 11.1 – 1.5.1.8)	The value is correct against the source, which is available at Cammesa web site.	No crosscheck against third party applicable.
Input Data Costs					
Natural gas price	0.21 AR\$/m ³	Average Price at Plant September 2007	September 2007 Ref. 11.1 – 1.5.1.9	It was validated that the average from three providers (ref 158) (Wintershall, Tecpetrol and Total) was obtained by the PP (ref 157) and used in the investment analysis (ref 7d) and updated PDD (ref 1d).	The value used by the PP is deemed correct because it corresponds to the price that the plant paid for the natural gas.
Natural gas price difference for old generation	0.10 AR\$/m ³	Calculated. Used to estimate the additional cost of gas for the Plant's historical consumption due to the need to secure gas at a higher price to be able to sell under Energía Plus contracts	--	It was obtained as the difference between (Natural gas price for Plus Contracts = 0.31 - Natural gas price = 0.21).	No crosscheck against third party applicable.
Natural gas price	33.76 US\$/Dam	Calculated	--	It corresponds to the equivalent of 0.10 AR\$/m ³ , the calculation was	No crosscheck against third party applicable.

difference for old generation	³			done correctly.	
Natural gas price for Plus Contracts	0.31 AR\$/m ³	Calculated	--	It corresponds to the equivalent of 97.26 US\$/Dam ³ . It was validated that the conversion was done correctly and the conversion rate is correct	No crosscheck against third party applicable.
Natural gas price for Plus Contracts	97.26 US\$/Dam ³	Average price of firm long-term contracts entered into during August 2007	August 2007 (Ref. 11.1 – 1.5.1.10)	It was validated that the price estimated by the PP (97.26 US\$/Dam ³) is based on real market information available at August 2007. The figure was validated against the public information of gas contracts published at www.megsa.com.ar (ref 179).	The value is realistic, it was obtained base on contracts signed (in the gas market) during August 2007 for the gas corresponding to Neuquén basin (the one that corresponds to LLL). Thus the value is deemed correct, because it reflects real market values. Other assessment is not possible, since this parameter is specific for each basin.
Natural gas price reference Price Energía Plus	81.16 US\$/Dam ³	Energy proposal issued for Güemes (another power plant owned by Pampa Energía) for a client.	03/09/2007 (Ref.128, 36-9) Document elaborated by the PP 03/09/2007	The reference value was obtained from the proposal issued for Güemes (ref.128, 36-9), it is correct. It is important to note that this price is considered in the Energy sales as per "Energía plus" system. It has to be noted that "Güemes" is not supplied by gas from Neuquen basin, thus this price in different than for Neuquén Basin. However this price was included in the analysis because is part of the algorithm to calculate the energy price, but only in a referential way because it is corrected with the gas price in the relevant basin (97.26 US\$/Dam ³)	No crosscheck against third party applicable.
Adjustment factor	0.24	Project developer. Firm 2007 Energía Plus proposal to potential client	03/09/2007 (Ref. 128 / 36-9) Document elaborated by the PP	The factor corresponds to a parameter given to calculate the energy price.). It was validated against the energy proposal issued for Güemes (ref. 128, ref 36-9). The original signed document was reviewed during the site visit.	No crosscheck against third party applicable.
Increase staff power plant	23 # of People	Book: Combines cycle power plants, Theory and design. Issued in 2006 Authors: Santiago Sabugal García y Florentino Gómez Moñux	2006	The value was assessed against the real increase of staff in the plant. It was validated that the plant in open cycle operated with 19 people while in combine cycle does it with 49 people (ref 182). Thus the increase was 27 people and the number used at the decision time (23) was conservative.	As per the project information 49 people works in the plant, it means around 11 people per MW. Based in the sectoral expert experience similar projects in Latin America has a rate around 13-16 people per MW. Thus the increased value used in the assessment is deemed correct and conservative.
Average cost/employee	51,697 US\$/year	Project developer	Mail dated 27/09/2007 (ref. 11.1. – 1.5.1.11)	As per the evidence provided the annual cost per employee is 163,003 AR\$/year, which using the validated exchange rate means 51,697 US\$/year. The value was corrected (from 70,498 to 51,697) in the calculation file (ref 7b) and PDD version 2 (ref 1b). It was validated that the value was obtained using salaries information included in the financial statements 2007 (ref 11.1 – 1.5.1.11).	The value was compared with public figures available, it was validated that the value is at the higher end of the average salaries (ref 189), but still possible. The SGS team validated the impact of having lower salaries and it was validated that even they were 30% less still the project IRR is under the benchmark. Thus the value used it is deemed acceptable and realistic. This parameter was not included in the sensitivity analysis because represents 2% of the annual cost.
Incremental Salaries	1,189,031 US\$/year	Calculated	--	The value is obtained as the cost per employee times the number of employees. The figure is correct in the last PDD (ref 1d) and calculation file (ref 7d), the value was corrected	Not applicable. The value was calculated and the values involved in the operation were duly validated and assessed.

				as per the revised cost per employee (incremental salaries changed from 1,621,450 to 1,189,031)	
"Water" costs	236,520 AR\$/year	Project developer. Calculated based on designs of water consumption and cost established by Decree 2814/1997 and Disposal 195/2005 DPRH, Provincia de Neuquén	Sept/2001& Nov/2005 (ref 11.1-1.5.1.12)	The value was estimated by the PP based on the amount of water used by the steam turbine and the local regulation (September 2001 & November 2005, ref 11.1-1.5.1.12) that defines the formula and applicable tariff. The calculation done by the PP (ref 8b) was reviewed and found correct. The amount of water considered is correct against the technical design (ref 11.1-1.5.1.2) and the price against the local regulation (ref 11.1-1.5.1.12)	The value was compared with the average cost of similar plants, according with the sectoral scope expert experience the cost for this tem is around 100,000 USD/year. Thus the value considered by the PP is deemed correct and realistic.
Insurance	488,078 US\$/year	Project developer. Estimated based on insurance 2007 increased by investment in new assets	June 2007 (ref 11.1 – 1.5.1.13)	The insurance cost was estimated using the project investment and the annual policy paid for the plant (open cycle in June 2007) and the sum insured (ref 11.1 – 1.5.1.13). It was validated that the calculation was done correctly and the insurance was the formal policy issued (ref 11.1 – 1.5.1.13).	The value was compared with the average cost of similar plants, under the scope expert assessment it deemed realistic. Additionally the value was crosscheck with a referential value obtained from an insurance company (ref 191), and it was found that the value used by the PP is conservative.
Services ENRE costs factor	0.3% (%gross income)	Project developer. Estimates based on ENRE's 2006 allocation of costs	20/12/2006 (ref 132 & 133)	It was validated that according to Law 24065, article 67 (ref 31), the generators (distributors and transports) have to pay a fee calculated as: "forecast of expenses & investment * Net operational incomes previous year of the company / Net operational incomes previous year of all the agents". It was validated that the PP estimated the annual cost based on the ENRE resolution 1113/2006 (ref 132) and its annex (ref 133). The calculation was correctly carryout by the PP in the excel file provided (ref 129).	No crosscheck with independent sources is possible, since this is a value defined by the authority.
CAMMESA costs factor	0.1% (%gross income)	Project developer. Estimates based on historical CAMMESA allocation of costs	May-September 2007 (ref 11.1 – 1.5.1.14)	It was validated that the PP estimated the annual cost based on the Cammesa historical charges (ref 11.1 – 1.5.1.14). The calculation was correctly carry out by the PP in the excel file provided (ref 130).	No crosscheck with independent sources is possible, since this is a value defined by the authority.
Overhead	0.22 US\$/MWh	Project developer	June 2007 (ref 8b)	It was obtained using the data from the balance issued in June 2007 (190). It was validated that the Balances were audited by an independent company (Price Waterhouse & C.O. S.R.L.). The fee was correctly obtained (ref 8b).	No crosscheck applicable.
TGs Maintenance and other costs	3.62 US\$/MWh	Average September 2007 Loma de la Lata declaration of CVP (variable production costs declared to CAMMESA)	Sep/2007 (ref 11.1 – 1.5.1.15)	As per the reference the cost is 11.42 AR\$/MWh, using the exchange rate the value reported is deemed correct against the Cammesa records.	The value is deemed correct because it corresponds to the real value of LLL operating in open cycle. This correspond a value registered by Cammesa.
TV	4.05	Average	Sep/2007 (ref	It was validated that the average	It was validated that the information

Maintenance and other costs	US\$/MWh	September 2007 Güemes declaration of CVP (variable production costs declared to CAMMESA)	11.1 1.5.1.15)	– from three TVs maintenance cost (at Güemes plant) was used. The information used corresponds to September 2007, and the source is information from a similar plant whose cost are recorded by Cammesa (from where the PP retrieved the information). The source was validated during the site visit and it was verified that excel files available in Cammesa web site (for authorized users) cannot be modified.	used corresponded to real data, thus it is realistic and was obtained from Cammesa (formal organization). Additionally the value was compared with referential values (ref 182, report prepared for the Environmental Protection Agency) where is stated that maintenance cost are typically around 5 US\$/MWh. Therefore the value considered in the analysis is deemed realistic
Management fee	12.4% (% EBITDA)	Amount paid in the third quarter 2007	June & August 2007	It was obtained using the data from the financial statements issued in June & September 2007 (190). It was validated that the financial statements were audited by an independent company (Price Waterhouse & C.O. S.R.L.). The fee was correctly obtained (ref 8).	No crosscheck against third party applicable.
Electricity generation & capacity					
PLF	86.9%	Report issued by “Mercados Energéticos Consultores” (ref. 11.2 – 1.5.2) and Cammesa	May 2007 (ref. 11.2 – 1.5.2)	It was obtained from a study conducted by “Mercados Energéticos Consultores” (ref. 11.2 – 1.5.2) in 2007 (89.9%) minus 3% defined by Cammesa as the Reserve for frequency regulation. The approach is deemed correct and complies with EB 48 annex 11, paragraph 3b.	The value presented by the PP was assessed against an external and independent source (ref 172), where it was found that PLFs for similar projects go between 85.12% to 98.2%, thus the value used by the PP is deemed realistic
Steam turbine net capacity	169.25 MW	Isolux proposal, Engineering project	July- 2007 (ref 75) September 2007 (ref 39)	It was obtained as the nominal capacity (176.9 MW) minus its own/auxiliary consumption (7.65 MW). The values were crosschecked against its source (ref 75 and 39 respectively). It is worth to mention that the capacity value used in the investment analysis correspond to the value defined in the documents linked to the technical proposal (ref 75 & 39), while the capacity used for the ER estimation is based on the technical specifications of the turbine installed (ref 18-4.2.3).	No crosscheck against third party applicable.
Combined cycle net capacity	537.86 MW	General Electric report	GT – July 1994 (ref. 11.2 – 1.5.2.4) ST -	The value was obtained as the net capacity of the TGs (368.61 MW) plus the net capacity of the steam turbine. The net capacity (gross capacity and own/auxiliary consumption) of the TGs was crosschecked against its technical data sheet (ref. 11.2 – 1.5.2.4) and is deemed correct.	No crosscheck against third party applicable.
Electricity supplied to the grid by the steam turbine	1,288,405 MWh/year	Calculated	--	The value was correctly obtained by the PP as “Steam turbine net capacity * PLF (combined cycle) * 8760”. The calculation is correct, the PLF complies with EB48 annex 11 (already assessed).	No crosscheck against third party applicable.
Additional gas turbine electricity generation injected to the grid	1,463,313 MWh/year	Calculated	--	The value was correctly obtained by the PP as the energy generated per year by the gas turbine operating in closed cycle minus average generation of the gas turbines per year (based on historical information). The historical generation and gas consumption	No crosscheck against third party applicable.

				was crosschecked against Cammesa Records and fuel provider respectively and was found correct. The electricity generated by the TG in combined cycle was calculated as "TG net installed capacity* PLF (combined cycle)*8760". The calculation is correct; the PLF complies with EB48 annex 11 (already assessed).	
Additional natural gas consumption by the gas turbines	468,311,429 m ³ /year	Calculated	--	The value was correctly obtained as the difference between the annual gas consumption of the TG operating in combined cycle minus the annual historical average of the TG gas consumption (open cycle). The historical gas consumption values were cross checked against the fuel provider acts (ref 69). The gas consumption in combined cycle was determined proportionally to the historical gas consumption, the calculation were reviewed and are deemed correct.	No crosscheck against third party applicable.
Taxes	Value	Reference			
Gross incomes	1.5% (% of sales)	Neuquén Law N° 1,994	1/1/1995 (ref. 11.1 – 1.5.1.18)	The tax rate was crosschecked against the law 2795 (ref 44), it was validated that from 01/01/2012 the tax rate is 2%. Thus the value used in the assessment is conservative.	No crosscheck against third party applicable.
Credits taxes	0.4% (% of sales)	National Law N° 25,413 and Decree N°534/2004	May/2004 (ref 45)	The value is correct against the source. Tax rate was checked against official law (ref 45). Impact of credit tax is reflected properly in the calculation of the spreadsheet on sheet FA project, row 15.	No crosscheck against third party applicable.
Debits taxes	0.6% (% of purchases)	National Law N° 25,413	March/2001 (ref 177)	Tax rate was checked against official law (ref 177). Impact of debit tax is reflected properly in the calculation of the spreadsheet on sheet FA project, row 27. The information was validated as well against "Doing business" records, published by the World Bank (ref 43).	No crosscheck against third party applicable.
Income tax	35%	Ministerio de Hacienda, Finanzas, Obras y Servicios Públicos, Law N° 20,628 (article 69)	06/08/1997 (ref. 94)	The value is correct against the source. (ref. 94). The tax rate was additionally verified against "Doing business" records, published by the World Bank (ref 43).	No crosscheck against third party applicable.

The project starting date is 06/09/2007. All financial values were valid and available at that the decision time, as these were taken from publicly available sources, including the Central Bank of Argentina, Bloomberg, "Comisión Nacional de Valores de Argentina" (National Securities Commission) and other legal and governmental local sources, as it was assessed in the table below.

In order to validate the source of financing of the project and discard its support from ODA, **CL 5 was raised**. It was validated against the annual report (2007) of Pampa Energía (ref 23) that the resources for the project were obtained through Pampa Energía equity contributions and loans (also from Pampa Energía), thus the capital involved does not correspond to public funding. **CL 5 was closed**.

Based on the calculations and validated information, it can be affirmed that the project IRR (9.89%) is correct. The project IRR is not financially attractive because it is under the benchmark (13.31%), thus based on the investment analysis the project is additional.

iii) Sensitivity analysis

The PP conducted a sensitivity analysis, all parameters that constitute more than 20% of total project costs or total project revenues either directly or indirectly are considered in the sensitivity analysis. These include total investment, O&Ms, energy generation, electricity price, and gas price. As per the sensitivity analysis performed, the project is not likely to reach the benchmark IRR if one of the mentioned parameters vary +/- 10%.

The PP was requested to analyse why a 10% variation is reasonable given the historical prices for electricity and gas prices. **CL 12, item 2 was raised.** It was validated that the sensitivity analysis was performed with dynamic formulae that are linked to the input data tabs (technical and financial) (ref 7b). Regarding the suitability of the sensitivity range of the electricity, the range +/- 10% is deemed correct because in 2007 was issued a regulation (ref 139) to cap the electricity price at 185 AR\$/MWh (58.67 US\$/MWh) which is almost 5% over the price (energy + power) considered in the financial assessment. **CL 12, item 2 was closed.**

As per the sensitivity analysis performed, the project is not likely to reach the benchmark IRR if one of the mentioned parameters varies +/- 10%.

Finally the compliance with the "Guidelines on the assessment of investment analysis" was validated and summarized as follows:

Guidance: *The period of assessment should not be limited to the proposed crediting period of the CDM project activity. Both project IRR and equity IRR calculations shall as a preference reflect the period of expected operation of the underlying project activity (technical lifetime), or if a shorter period is chosen include the fair value of the project activity assets at the end of the assessment period. In general a minimum period of 10 years and a maximum of 20 years will be appropriate. The IRR calculation may include the cost of major maintenance and/or rehabilitation if these are expected to be incurred during the period of assessment. Project participants are requested to justify and DOEs are requested to validate the appropriateness of the period of assessment in the context of the underlying project activity, without reference to the proposed CDM crediting period.*

The project was assessed in 20-year period, which is in line with the guidance. The period chosen is not limited by the crediting period, it is in compliance with the guidance requirement and finally the project considers perpetuity.

Guidance: *The fair value of any project activity assets at the end of the assessment period should be included as a cash inflow in the final year. The fair value should be calculated in accordance with local accounting regulations where available, or international best practice. It is expected that such fair value calculations will include both the book value of the asset and the reasonable expectation of the potential profit or loss on the realization of the assets.*

The project included a fair value (ref 72, tab "FA_project", cell AB35) obtained as perpetuity of the flow received in the last year of the assessment, the criteria applied and the calculation is deemed correct.

Guidance: *Depreciation, and other non-cash items related to the project activity, which have been deducted in estimating gross profits on which tax is calculated, should be added back to net profits for the purpose of calculating the financial indicator (e.g. IRR, NPV). Taxation should only be included as an expense in the IRR/NPV calculation in cases where the benchmark or other financial indicator is intended for post-tax comparisons.*

It was validated that depreciation was calculated using a linear depreciation model (total investments divided by the number of years in analysis), the depreciation was considered for the tax calculation, but it is added back to net profit calculation.

Guidance: *Input values used in all investment analysis should be valid and applicable at the time of the investment decision taken by the project participant. The DOE is therefore expected to validate the timing of the investment decision and the consistency and appropriateness of the input values with this timing. The DOE should also validate that the listed input values have been consistently applied in all calculations.*

As it was summarized in table 4 all financial values were valid and available at that the decision time, the values reported in table 4 corresponds to the ones available in the sources reviewed and were correctly used in the calculations.

Guidance: *In the case of project activities for which implementation ceases after the commencement and where implementation is recommenced due to consideration of the CDM the investment analysis should reflect the economic decision-making context at point of the decision to recommence the project. Therefore capital costs incurred prior to the revised project activity start date can be reflected as the recoverable value of the assets, which are limited to the potential reuse/resale of tangible assets.*

Not applicable, the project did not stop and resume the implementation.

Guidance: *Project participants should supply spreadsheet versions of all investment analysis. All formulas used in this analysis be readable and all relevant cells be viewable and unprotected. The spreadsheet will be made available to the Executive Board, UNFCCC secretariat and others contracted to assess the request for registration on behalf of the Board including assigned members of the Registration and Issuance Team. In cases where the project participant does not wish to make such a spreadsheet available to the public an exact read-only or PDF copy shall be provided for general publication. In case the PP wishes to black-out certain elements of the publicly available version, a clear justification for this shall be provided to the UNFCCC secretariat by the DOE when requesting registration.*

The PP decided to provide the excel file (ref 7e) as a confidential one and its equivalent version in PDF as a public version. It was validated that the excel file (ref 7e) is readable, the cells are unprotected and all the formulae and links are available.

Guidance: *The cost of financing expenditures (i.e. loan repayments and interest) should not be included in the calculation of project IRR.*

It was validated that financial cost (loan payment and interest) are not included in the financial flow of the project (ref 7e). Particularly, it was validated that actual interests payable and capital repayment effects were equal to zero, and that income tax treatment properly considers this fact..

Guidance: *In the calculation of equity IRR only the portion of investment costs which is financed by equity should be considered as the net cash outflow, the portion of the investment costs which is financed by debt should not be considered a cash outflow.*

It was validated that the whole investment value was considered in the assessment, no value was considered as debt and no financial cost (loan payment and interest) is included.

Guidance: *Due to the impact of loan interest on income tax calculations it is recommended that when a project IRR is calculated to demonstrate additionality a pre-tax benchmark be applied. In cases where a post-tax benchmark is applied the DOE shall ensure that actual interest payable is taken into account in the calculation of income tax.*

It was validated that the PP uses an after tax nominal benchmark rate, and accordingly all cost of financing expenditures, i.e. interest payments, loan repayments and or capital repayments to debt holders, are not present in the calculation of the project IRR. In particular, the PP estimated a WACC benchmark rate using parameters and methodology that are standard in the financial practice. Thus, both cash flows and benchmark rate were validated and checked to be appropriate to be used for judging the additionality of the project. This is deemed correct and applicable given the methodology chosen. Additionally as it was previously stated, it was validated that actual interests payable and capital repayment effects were equal to zero, and that income tax treatment properly considers this fact.

Guidance: *In cases where a benchmark approach is used the applied benchmark shall be appropriate to the type of IRR calculated. Local commercial lending rates or weighted average costs of capital (WACC) are appropriate benchmarks for a project IRR. Required/expected returns on equity are appropriate benchmarks for an equity IRR. Benchmarks supplied by relevant national authorities are also appropriate if the DOE can validate that they are applicable to the project activity and the type of IRR calculation presented.*

Considering that the financial cash flows include inflation on the calculation of income and costs, it was verified that the components of the WACC benchmark rate were also in the same terms (nominal). In particular, the market premium was obtained from a reliable source, i.e., Damoradan, A. (2005) Applied Corporate Finance: A User's Manual, Wiley; Second Edition. Page 271, which includes inflation on its calculation. Similarly, the risk free rate considers a 10-year bond issued by the Argentinian government (ref 186) with payments in US dollars and in nominal terms. R_d = cost of debt considers the actual payment of interest by peer companies, and it was also in nominal terms. Consequently, the resulting WACC is in nominal terms. In addition, it was checked that the inflation rates were in line with an official an reliable source (Projected CPI until 2017, The Budget and Economic Outlook, Congressional Budget Office, Congress of the US, p. 79 (Aug. 2007))

It was validated that project cash flow considered both inflation and taxation, thus, benchmark rate should be, accordingly, both after tax and nominal terms. The PP estimated a nominal benchmark rate using the after tax WACC formula. Consequently, the PP approach is deemed correct in this sense. The WACC formulae were correctly applied.

Guidance: *In the cases of projects which could be developed by an entity other than the project participant the benchmark should be based on parameters that are standard in the market. The DOE.s validation of the benchmark shall also include its opinion on whether a company-specific benchmark or a benchmark based on parameters that are standard in the market is suitable in the context of the underlying project activity.*

It was validated that the benchmark rate (WACC) was calculated using public information available in the market. It was validated as well that the data used is valid for the project assessment because it considers information of companies that are present in the same market (electricity generation in Argentina) that are liquid (have trading volume) and that can be considered peer companies given their size and industry similarity.

Guidance: *Internal company benchmarks/expected returns (including those used as the expected return on equity in the calculation of a weighted average cost of capital - WACC), should only be applied in cases where there is only one possible project developer and should be demonstrated to have been used for similar projects with similar risks, developed by the same company or, if the company is brand new, would have been used for similar projects in the same sector in the country/region. This shall require as a minimum clear evidence of the resolution by the company's Board and/or shareholders and will require the validating DOE to undertake a thorough assessment of the financial statements of the project developer including the proposed WACC to assess the past financial behavior of the entity during at least the last 3 years in relation to similar projects.*

It was validated that the benchmark IRR does not corresponds to an internal company benchmark. In fact, the PP estimated a WACC benchmark rate using information that is publicly available and with parameters that were calculated independently of the company characteristics. The PP used a market premium increased by a risk premium approach to estimate the cost of equity, and a releveraged approach to estimate the cost of debt. The releverage process considered two peer companies to estimate the capital structure. Both companies can be considered peer companies because they belong to the same industry and have trading volume in the relevant stock market. This methodology can be considered appropriate and standard in financial practice.

Guidance: *If the benchmark is based on parameters that are standard in the market, the cost of equity should be determined either by: (a) selecting the values provided in Appendix A; or by (b) calculating the cost of equity using best financial practices, based on data sources which can be clearly validated by the*

DOE, while properly justifying all underlying factors. The values in the table in Appendix A may also be used, as a simple default option, if a company internal benchmark is used.

It was validated that all parameters used in the benchmark determination are publicly available, are correct and realistic. The detailed assessment is available in table 3.

Guidance: *If a company's internal benchmark is used for the expected return on equity, the cost of debt should be based on the weighted average cost of debt financing of the legal entity owning the CDM project activity. For loans, use the weighted average cost of outstanding long-term debt. For bonds, use the weighted average yield of the bonds during the last three months prior to the submission of the CDM-PDD for validation or prior to the investment decision, whichever is earlier. The use of bonds to determine the cost of debt is only appropriate for corporate bonds issued in the host country of the CDM project. In cases where the debt finance structure of the project is not yet available (e.g. a letter of intent for debt funding is not available), the cost of debt can be assumed as the commercial lending rate in the country or the yield of a 10 year bond issued by the government of the host country or, if this is not available, the bond with the maturity which is closest to 10 years. The following should be documented in the CDM-PDD: (a) for bonds: the key parameters of the bond including the time of maturity, yield, registration issuance in the financial system and set-up in the market; (b) for loans from a financial institution: the contract of lending between the financial institution and the legal entity owning the assets of the project activity, or, in absence of the contract, a letter from the bank stating its intention to award the loan and the key terms for the loan; (c) for debt financing from a parent company: the transfer of capital to the legal entity, documented with the contract of lending between the parent company and the legal entity owning the assets of the project activity and/or the parameters of the corporate bonds as mentioned above. This latter option is only valid for corporate bonds issued in the host country of the CDM project activity. If the benchmark is based on parameters that are standard in the market, the cost of debt should be calculated as the cost of financing in the capital markets (e.g. commercial lending rates and guarantees required for the country and the type of project activity concerned), based on documented evidence from financial institutions with regard to the cost of debt financing of comparable projects. In cases where this data is not available, use the commercial lending rate in the host country to calculate the cost of debt.*

It was validated that the benchmark IRR does not corresponds to an internal company benchmark (see previous points). This guidance is not applicable.

Guidance: *If a company's internal benchmark is used for the expected return on equity, then the percentage of debt financing and equity financing should reflect the long-term debt/equity finance structure of the legal entity owning the assets of the project activity. The percentage should be determined based on the latest balance sheet provided under local fiscal/accounting standards and rules if: (a) the legal entity owning the assets of the project activity has balance sheets audited by a third party within two years prior to the submission of the CDM-PDD for validation; and (b) the accounting books of the legal entity reflect at least the total value of all the assets needed for the project activity. If the debt/equity finance structure is not yet available, 50% debt and 50% equity financing may be assumed as a default.*

It was validated that the benchmark IRR does not corresponds to a internal company benchmark. Thus this guidance is not applicable.

Guidance: *If the benchmark is based on parameters that are standard in the market, then the typical debt/equity finance structure observed in the sector of the country should be used. If such information is not readily available, 50% debt and 50% equity financing may be assumed as a default.*

It was validated that the information of the ratio debt/equity of the companies considered for the WACC determination was available, and it was correct against the corresponding source. In particular, the capital structure was estimated with information from two publicly traded companies that trade in the same market and belong to the same industry. This information was checked using audited and official financial statements from the mentioned companies (details available in table 3), thus the default value (50% debt and 50% equity) was not used.

Guidance: *If the proposed baseline scenario leaves the project participant no other choice than to make an investment to supply the same (or substitute) products or services, a benchmark analysis is not appropriate and an investment comparison analysis shall be used. If the alternative to the project activity is the supply of electricity from a grid this is not to be considered an investment and a benchmark approach is considered appropriate.*

It was validated that as result of the application of the combined additionality tool (ref 3a), the baseline scenario is “The continuation of single cycle plant operation”, which does not require any type of investment. Thus this guidance is not applicable.

Guidance: *Only variables, including the initial investment cost, that constitute more than 20% of either total project costs or total project revenues should be subjected to reasonable variation (all parameters varied need not necessarily be subjected to both negative and positive variations of the same magnitude), and the results of this variation should be presented in the PDD and be reproducible in the associated spreadsheets. Where a DOE considers that a variable which constitute less than 20% has a material impact on the analysis they shall raise a corrective action request to include this variable in the sensitivity analysis.*

It was validated that the PP conducted a sensitivity analysis that considers all parameters that constitute more than 20% of total project costs or total project revenues either directly or indirectly. It was validated as well that key parameters in the financial assessment (investment, energy price, gas price, generation operation and maintenance) are part of the sensitivity analysis.

Guidance: *The DOE should assess in detail whether the range of variations is reasonable in the project context. Past trends may be a guide to determine the reasonable range. As a general point of departure variations in the sensitivity analysis should at least cover a range of +10% and -10%, unless this is not deemed appropriate in the context of the specific project circumstances. In cases where a scenario will result in the project activity passing the benchmark or becoming the most financially attractive alternative the DOE shall provide an assessment of the probability of the occurrence of this scenario in comparison to the likelihood of the assumptions in the presented investment analysis, taking into consideration correlations between the variables as well as the specific socio-economic and policy context of the project activity.*

Regarding the suitability of the sensitivity range of the sensitivity analysis:

- Investment (+/- 10%) is deemed correct because is referential and there is not historical information to compare with.
- Operation and maintenance (+/- 10%) is deemed correct because the value used in the assessment correspond to a real value recorded by the local authority for similar plant. Details available in table 4.
- Energy generation (+/- 10%) is deemed correct, because the PLF considered by the PP for the analysis is the increase on 10% in the generation means a PLF equal to 95.59%, which is close to the higher end of the average range for similar projects. Details available in table 4. The DOE validated as well that if PLF increase 13% to reach the highest expected PLF for projects like this the project IRR would be 11.1%, still under the benchmark IRR.
- Electricity price (+/- 10%) is deemed correct because in 2007 was issued a regulation (ref 139) to cap the electricity price at 185 AR\$/MWh (58.67 US\$/MWh) which is almost 5% over the price (energy + power) considered in the financial assessment is realistic and within the range expected.
- Gas price (+/- 10%) is deemed correct. According with the historical records, the natural gas demand in Argentina increases while the production remains in the same status, thus it is expected to have higher prices (ref. 192).

Thus based on the assessment of the investment analysis it is deemed complete and correct.

4.6.5 Barrier analysis

The PP carried out the Barrier Analysis in the PDD version 1 (ref 1a), section B.4. The barrier analysis corresponds to step 2 of the Tool (ref 3b). The PP identified the following barriers in the PDD version 1 (ref 1a) step 2a:

- Institutional barrier

- Investment barriers
- Technological barrier
- Lack of prevailing practice

Later in step 2-b, each barrier is analysed per alternative scenario. Please see the assessment in the following paragraphs, where issues were assessed under **CL 14**.

- Institutional barrier, in the PDD version 1 (ref 1a), it is defined as *“This barrier is associated to Argentina’s energy policy framework, taking into account investment risks considering the overall economics of the electricity sector in the host country.”*.

The PP was requested to clarify why “investment risk” is linked to this barrier. **Open.** The “institutional barrier” has been re-written showing the impact of the changes in the regulation and the national economy over the projects alternatives. **Item closed.**

The barrier shows the impact of changes in the electrical regulation over the electricity sector, as per the assessment it is real and corresponds to a barrier that cannot be expressed in monetary terms.

It was validated that until 2001 the electricity sector in Argentina experienced a flourishing period, where new power plants were implemented in the country. Later as per the crisis experienced by Argentina in 2001/2002, in June 2002 the parity one-one between the American Dollars to Argentinean pesos (ref 134) was eliminated, and the Argentinean peso lost one fourth of its value. The crisis and the monetary policy changes had impact over the electricity tariffs as well.

As per PDD the impacts of the policy changes lead to reduce the increase rate of the installed capacity, which grew 3% between 2002 and 2007 (ref 1e). It was validated against the technical note N°22 (ref 178) issued by the Ministry of Economy and Public Finance of Argentina that after 2001 crisis the investment in the electric sector was stagnant.

The PDD points out changes in the electricity sector that threaten the attractiveness of the investment in the sector (the way the spot price of electricity was calculated, maximum electricity tariff, electricity generation companies’ payment and payment for capacity availability). It was validated that the identified changes in the regulation by the PP are correct; it was assessed against the corresponding laws (refs. 136, 137 & 138). The technical note mentioned before (ref 178) states that the investment in electric sector was stagnant after 2001, thus it establishes that from 2004 the Government started a plan to increase the installed and transmission capacity, within these actions was created ENARSA (a government company) that implemented 600MW in 32 small thermal (until 2009) plants. This evidence that the lack of incentives of private sector alone to establish new electricity capacity.

The PP was requested to clarify the distinction between the plants implemented from the crisis time until the project starting date. **Item open.** The PP provided an analysis of the increase in installed capacity (ref 198). It considers the new installed capacity (additions and brand new plants) added to the system, from the crisis time until the project starting date and from the project starting date ahead. The first group analysed is valid for the additionality analysis because are the plants that faced the same conditions that the project. While the second one is only referential because involves the plants implemented after the project starting date.

Regarding the distinctions of the proposed project activity and the new installed capacity, the PP identified the followings:

- (i) projects that were initiated before the 2001/2002 crisis, and that were finalized after 2002
- (ii) government additions to installed capacity
- (iii) power plants that were in operation before 2002, but that were connected to the Argentine grid (SADI) to deliver its electricity generation to the wholesale electricity market after 2002
- (iv) optimizations carried on to power plants built prior to 2002 (such as authorizations received by suppliers to operate the power plants at higher capacity).

The distinctions identified by the PP are deemed correct and realistic. It was validated that the information used by the PP to classify the plants in one of each of the defined groups is correct and obtained from Cammesa, ENARSA, power plants web pages and public information (ref 199&200). As per the reviewed information from the crisis until the project starting date 97% of the new installed capacity corresponds to one of the four distinct groups and therefore face different conditions than the proposed project activity,

for the remaining 3% the information was not available. Although the installed capacity after the starting date of the project is given as a reference only, it was validated that 84% of the ones with public information available, belong to one of the four distinct groups (or are CDM projects). It is important to highlight that the installed capacity after the project starting date is only referential because they did not necessarily faced exactly the same conditions than the proposed project activity did at the investment decision time.

As it was previously reported, as per the technical note N°22 (ref 178) issued by the Ministry of Economy and Public Finance of Argentina, after 2001 crisis the investment in the electric sector was stagnant. Therefore the information analyzed led to conclude that even there was new installed capacity from the crisis time until the project starting date, it had essential distinctions that allowed its implementation. **Item closed.**

Finally the arguments and conclusion reached in the PDD were crosschecked with an independent source (ref 127) where is recognized the fact that the policy changes after 2001 in the electrical sector lead to the almost total absence of new private investments (ref 127). As mentioned before the growth rate of the installed capacity from 2002-2007 (6 year period) was 3%, while the same rate for the previous 1996-2001 (6 years as well) was 30% (ref 197). Therefore even though in the period 2002-2007 some plants were implemented they presented essential distinctions, thus the impact of the identified barrier over the sector is evident.

Additionally it is worth to mention that vast majority of the plants implemented during period 2002 – 2007 were commissioned in 2002, therefore those power plants were approved/started before 2002 since to implement any thermal or hydro power plant more than 12 month are required (since investment decision until commissioning).

The fact of associating changes in the policy, as the ones described in the PDD, as barrier is deemed correct because besides to the impact over the projects profitability it creates an uncertain environment for investors, which cannot be quantified.

- Investment barrier, in the PDD version 1 (ref 1a), it is defined as *“This barrier evaluates the investment risks associated with each scenario, considering the overall economics of the energy sector in the host country and the conditions and financing availability for similar activities.”*.

The PP was requested to clarify why the “investment risk” identified cannot be assessed within the “investment analysis”. Additionally it is requested to clarify the difference between the “investment barrier” and the “institutional barrier”. **Open.**

Investment barrier, in the PDD version 1 (ref 1a) states *“As explained in the institutional barrier presented above, low electricity prices and limited profits have discouraged generation companies to invest in the expansion of the sector’s installed capacity”*. The investment barrier has been orientated only to lack of attractiveness to invest in Argentina rather than the financial attractiveness of the project itself, which is assessed in the “investment analysis”. **Items closed.**

The focus of the barrier is deemed correct because it pursues to illustrate the lack of attractiveness of the country to invest in, thus the sources of financing are reduced hindering the projects implementation. It was validated that the information used in the PDD (Benchmarking National Attractiveness for Private Investment in Latin American Infrastructure, issued by the World Economic Forum, ref 124) is independent and formal. Similarly it was validated that the information has been correctly quoted, thus it has been correctly identified the fact that Argentina is not well ranked in terms of investment attractiveness, actually it is in the same cluster than Venezuela and Bolivia. The information included in the PDD was crosschecked against the ranking elaborated by Doing Business from the World Bank group, where in the parameter “starting a business” Argentina is located almost to the end of the rank of the countries (ref 125, issued by). The information is consistent as well with the ranking of “political instability” (issued by “The economist” (ref 126), where Argentina is classified among the countries with “High risk”.

The Investment barrier is deemed real and correctly included as a barrier since the lack of attractiveness of the country to invest in cannot be quantified and included in the investment analysis.

- Technological barrier, in the PDD version 1 (ref 1a), it is defined as *“Evaluates whether the technology is currently available in the relevant geographical area, if there are indigenous skills to operate it, if the*

application of the technology is of regional, national or global standard, and generally if there are technological risks associated with the particular Project outcome being evaluated. “

The PP was requested to clarify the relation between “indigenous skill” and “trained labour” to operate the technology. Additionally it was requested to clarify how the availability of the technology in the relevant area becomes a “technological barrier”. **Open.** The “technological barrier” was removed from PDD. It is deemed correct since there are plants with the technology already implemented in the host country. **Item closed.**

- Lack of prevailing practice. The barrier was removed from PDD. It is deemed correct since there are plants already implemented in the host country. **Item closed.**

CL 14 was closed.

The future revenues from CDM will mean an additional income source to the project, thus it will help the investment recovery, thus will reduce the project risk.

Finally it was validated how in the PDD each scenario was analysed against the barriers identified, it was done correctly and concludes that scenario 2 (Continuation of the current practice) is the only one that is not prevented by the barriers, thus it corresponds to the baseline scenario.

4.6.6 Common practice analysis

The common practice analysis is carry out in the PDD section B.4, within step 4. The PDD follows the “Guidelines on common practice” version 1 (ref 25).

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

As per the PDD version 1 (ref 1a), the installed capacity of the project is 545.66MW, which corresponds to the total capacity (combine cycle). Thus the PP correctly defined the range from 272.83 to 818.49 MW.

Step 2: In the applicable geographical area, identify all plants that deliver the same output or capacity, within the applicable output range calculated in Step 1.

The PDD identifies the power plants in the range defined in step 1, however does not report the relevant geographical area/system. The PP is requested to complete the information. **CL 15 was raised.** It was validated that the plants included in PDD version 3 (ref 1c) common practice are correct against Cammesa records (ref 152), the analysis includes the plants that entered into operations until 2007 (considering that the project starting date is 06/09/2007).

The revised PDD identifies explicitly as geographical area the whole country “Argentina”, which is deemed correct because there one grid (SADI) that cover the whole country. The plants included in the analysis are the ones implemented until 2007, it is deemed correct as well because correspond to the year of starting of the project. Nall = 19 is correct.

Step 3: Within plants identified in Step 2, identify those that apply technologies different that the technology applied in the proposed project activity.

The PDD version 1 (ref 1a) states that all power plants identified in previous step are different to the proposed project activity because they were commissioned before December 2001 when a crisis started in Argentina. However as per the guideline Ndiff are the plants that apply a different technology in comparison with the proposed project activity, thus the classification as per the external conditions faced by the plants is not correct. **CL 15 was raised.**

Ndiff = 19 was correct because as per EB63 annex 12 can be considered as different:

- (i) Energy source/fuel;
- (ii) Feed stock;
- (iii) Size of installation (power capacity);
- (iv) Investment climate in the date of the investment decision, inter alia;
- (v) Other features, inter alia:

It was validated that plants considered different classifies under (i) different energy source or (iv) different investment climate. **CL 15 was closed.**

Step 4: Calculate factor $F=1-N_{diff}/N_{all}$ representing the share of plants using technology similar to the technology used in the proposed project activity in all plants that deliver the same output or capacity as the proposed project activity

Based on N_{all} and N_{diff} , $F = 0$, and $N_{all} - N_{diff} = 0$. Thus $F < 0.2$ and $N_{all} - N_{diff} < 3$, therefore the project is not common practice.

As double check it was validated by SGS that the project complies with the common practice conditions even if all the plants in the range implemented after 2007 (Leufú, Termo Andes, Güemes, Belgrano, Timbúes and Pilar) were included. Under this scenario N_{all} would be 25, N_{diff} 24, $F=0.04$ and $N_{all} - N_{diff} = 1$, thus the project is not common practice.

4.7 Application of Baseline Methodology and Calculation of Emission Factors

As per PDD, the emissions reductions will be calculated as:

$$ER_y = BE_y - PE_y - L_y$$

The calculation procedure to obtain the ER is included in the PDD version 1 (ref 1a) section B.6.1. The procedure related with the "baseline emissions" is assessed as described against ACM0007 version 06.1.0. For ex-ante calculations the PP used the last three years of operation in open cycle. (2008 to 2010), it was validated that the project (combined cycle) was commissioned on 01/11/2011 (ref 35) thus the vintage used corresponds to the last three years available at the validation starting.

Step 1: Determination of the baseline emissions for different scenarios of project electricity generation

The PDD identify option c) as the one applicable to the project, it is deemed correct because the whole plant will increase its efficiency (ratio Energy generation/ Energy consumed (gas)) due to the additional generation attributable to the steam turbine that will recover the energy from the exhaust gases. Thus PDD correctly states that

$$BE_y = EG_{BL,AVR} \cdot EF_{CO2,BL,y} + (EG_{MAX} - EG_{BL,AVR}) \cdot \min(EF_{CO2,BL,y}; EF_{grid,y}) + (EG_{PJ,adj,y} - EG_{MAX}) \cdot EF_{grid,y}$$

The ex-ante calculation is carried out in file "4.1 Emissions Reductions 2008-2010.xls" (ref 15a), tab "ER", cell E14. As per the data reported in PDD (ref 1e) and the ER calculation file, the vintage 2008 – 2010 was considered for those parameters that require three years of operational history ($EG_{x,y}$, $FC_{i,x}$, $NCV_{i,x}$, $EF_{CO2,min}$, $EF_{CO2,max}$, HMR_x). The vintage selection (2008-2010) done by the PP is deemed correct, because it corresponds to the operational history as a period of time immediately prior to the project implementation (01/11/2011), additionally that vintage is earlier than the period (2009-2011) previous to the PDD submission (January 2012). On the other hand, as it was reported in page 12 the combined cycle was commissioned on 01/11/2011, therefore 2011 is a year where the plant had generation as open and combined cycle and the last three full years operating in open cycle are 2008 to 2010. The ER calculation is correct.

- $EG_{BL,AVE}$: it corresponds to the average of the plant generation from 2008 until 2010. Calculation available in file "4.1 Emissions Reductions 2008-2010.xls" (ref 15c), tab "Raw data", cell G6. The calculation is correct. The annual data used for ex-ante calculations was crosschecked against Cammesa records (ref 74).

- EG_{MAX} : correspond to the maximum generation capacity. Calculation available in file "4.1 Emissions Reductions 2008-2010.xls" (ref 15c), tab "Raw data", cell G18. The calculation is correct against equation 5 of the methodology.

- $EG_{PJ,adj,y}$: It corresponds to the whole project generation, considering the efficiency increase due to the operation in combined cycle. $EG_{PJ,adj,y}$ was calculated as the expected electricity generated by the gas and

steam turbines. Calculation available in file "4.1 Emissions Reductions 2008-2010.xls" (ref 15a), tab "Raw data", cell G17.

The electricity generated by the gas turbines is $(OC = 368.61) * (T_{MAX} = 8760) * (Load\ factor = 86.9\%)$. It was validated that the load factor was determined by "Mercados Energéticos Consultores" (ref. 11.2 – 1.5.2.), who is independent party.

Regarding OC, it is installed capacity (open cycle, 369.9 MW) minus the auxiliary consumption (459*3 KW). The data involved was reviewed against General Electric report (ref. 11.2 – 1.5.2).

The PP was requested to clarify why 8760 hours were considered, knowing that TMAX has to be calculated as per equation 6 of the methodology. **CAR 16 item 1 was raised.** It was validated that the PP obtained in the ER calculation file (ref 15c) the Tmax as per equation 6 of the ACM0007 version 06.1.0. The same information is reported consistently in the PDD version 4 (ref 1d). **Item closed**

Step 2: Estimating the emissions factor for electricity generated in single cycle mode in the baseline ($EF_{CO_2,BL}$)

- $EF_{CO_2,BL}$: the value is calculated following equation 10 of the methodology. The calculation was available in file "4.1 Emissions Reductions 2008-2010.xls" (ref 15a), tab "ER", cell E13. It was found that the same value of the NCV was used in the calculation, however as per the methodology the yearly value is required. The PP was required to report the NCV 2008, 2009 and 2010 and clarify why the yearly value was not considered. **CAR 16 item 2 was raised.** The PDD version 2 (ref 1b) and updated calculation file (ref 15b) were reviewed, it was validated that equation 10 of the methodology is correctly calculated using the yearly information of NCV in ref 15b, tab "ER", cell E14. The NCV and EF values were obtained using the chromatographic analysis of the gas conducted by the gas provider (ref 69), it was validated that the raw data used in NCV and carbon content calculation (ref 70b) is correct against the source (ref 69) and calculation is correct. **Item closed.**

Step 3: Determine the emissions factor for the grid electricity system ($EF_{grid,y}$)

As per the PDD version 1 (ref 1a) and file "4.1 Emissions Reductions 2008-2010.xls" (ref 15a) the EF_{grid} was obtained from the Secretariat of Energy. The reported value is $EF_{grid,DD,2010} = 0.766\ tCO_2/MWh$. It was validated that the value reported in PDD was consistent with the one published by the Secretariat (ref. 18 – 4.2), which is publicly available at <http://energia3.mecon.gov.ar/contenidos/verpagina.php?idpagina=2311>. However 2010 does not correspond to the last vintage available. The PP provided the updated EF_{grid} calculation (ref 164b&165). Please see in the paragraphs below the assessment of the EF_{grid} determination and calculation. **CAR 16 item 4 was raised and closed.**

- $EF_{grid,y}$: As per ACM0007 version 06.1.0, the grid emission factor has to be calculated using the "Tool to calculate the emission factor for an electricity system" (ref 5). As per PDD version 1 (ref 1a), all the steps defined in the Tool were followed.

Step 3.1: Identify the relevant electricity systems

The PP correctly identified the SADI as the relevant electricity system, it is correct because correspond to the grid which cover the country for the electricity supply. The SADI is connected to neighboring countries (Brazil, Uruguay, Paraguay and Chile (northern system) (ref 20). For electricity imports the emissions are considered zero, which is deemed correct as per the Tool (ref 5), while for Build margin, the electricity exports are not going to be subtracted.

Step 3.2: Choose whether to include off-grid power plants in the project electricity system (optional)

The PP selected option I, only grid power plants are included in the calculation. The selection is applicable and valid.

Step 3.3: Select a method to determine the operating margin (OM)

The PP selected option (c) Dispatch Data Analysis, since this method was selected it has to be calculated ex-post. This is correct as per the PDD.

Step 3.4: Calculate the operating margin emission factor according to the selected method

It will be calculated as follow:

$$EF_{Grid,OM-DD,y} = \frac{\sum_h EG_{PJ,h} \cdot EF_{EL,DD,h}}{EG_{PJ,y}}$$

The previous equation and the parameters is correct against the Tool (ref 5), however the following equation to obtain $EF_{EL,DD,h}$ was incorrect because does not include the parameter NCV. Additionally the $EF_{CO_2,i,y}$ is defined as “CO₂ emission factor of fossil fuel type i in year y (tCO₂/tonne for solid and liquid fuels and tCO₂/dam³”, however as per the Tool the $EF_{CO_2,i,y}$ has to be expressed as “tCO₂/GJ”. **CAR 16 item 3 was raised.**

$$EF_{EL,DD,h} = \frac{\sum_{i,n} FC_{i,n,h} \cdot EF_{CO_2,i,y}}{\sum_n EG_{n,h}}$$

It was validated that in the PDD version 2 (ref 1b) the equation to calculate the parameter $EF_{EL,DD,h}$ was corrected. Additionally it was validated that the units of $EF_{CO_2,i,y}$ were corrected as well. **Item closed.**

Finally,

$$EF_{EL,DD,h} = \frac{\sum_{i,n} FC_{i,n,h} \cdot NCV_{i,y} \cdot EF_{CO_2,i,y}}{\sum_n EG_{n,h}}$$

The equation is correct and corresponds to one of the options offered by the methodology.

According to the “Tool to calculate the emission factor for an electricity system” version 2.2.1. (ref 5), “At each hour h , stack each grid power unit’s electricity generation using the merit order. The group of grid power units n in the dispatch margin includes the units in the top $x\%$ of total electricity dispatched in the hour h , where $x\%$ is equal to the greater of either:

(a) 10%; or

(b) The quantity of electricity displaced by the project activity during hour h divided by the total electricity generation by grid power plants during that hour h .”

Regarding the data availability for ex-ante calculations the PDD states that $EG_{n,h}$ data is available in “Grid Emission Factor 2010.xls”. The cited file (ref. 18 - 4.2) does not report the parameter. Additionally as per the EF_{grid} file provided by the PP (ref 18- 4.2.) (obtained from the Secretary of Energy) does not contain the data enough to validate that in every hour is being compared the 10% and $x\%$. **CAR 16 items 4 & 7 were raised.** It was validated that the file “corrida 2010 – pampa.xls” (ref 77) contains all the parameters required by the Tool (ref 5). Since this corresponds to data 2010, and last available is 2011 the calculation file was updated (ref 164b). It was validated that for the EF_{om} calculation there is a summarized file (ref. 164b /ref 164.1.1/) and one file per month that have the detailed data (ref. 164b /ref 164.1.2 to 164.1.13/), the last ones contain two tabs per each day, one reports the hourly information per power plant (marginal cost, generation, fuel consumed and CO₂ emissions issued). The other contains the aggregated information of each hour. It was validated that EF_{om} is calculated correctly as per the Tool (ref 5) requirement. The information used in the calculations was reviewed against the data from Cammesa (ref 163) and it deemed correct. **Items closed.**

The values used for ex-ante determination of the grid emission factor were assessed as follow:

- $EG_{n,h}$: the values reported in the monthly files “OM 2011 day by day.xlsb” (ref 164b) and Argentine grid building margin.xls” (ref 165) are correct against the source (Cammesa info, ref 163).
- $FC_{i,n,h}$: As the values reported in the monthly files “OM 2011 day by day.xlsb” (ref 164b) and “2011 Argentine grid building margin.xls” (ref 165) are correct against the source (Cammesa info, ref 163).
- Marginal cost: It was validated that it is obtained from Cammesa data, and it is available in the monthly files “OM 2011 day by day.xlsx” (ref 164b), tabs “dd-mm Datos”, the marginal cost correspond to “plant cost/node price*area price”. As per Cammesa confirmation (ref 175) it is done to assess all the plants in equal

conditions and avoid the differences by the node prices. The information used by the PP (ref 164b) was crosschecked against the Cammesa records (ref 163) and was found correct.

- NCV: NCV values of each type of fuel were corrected in the PDD version 3 (ref 1c), however they are not reported in the excel calculation file (ref 164b), in file "PP's Calculation of OM 2011.xlsb" (ref 164b), tab "values", it is only reported the product of NCV*EF, it was validated that the results included are correct. It is important to note that for the mineral coal (CM), the Argentinian communication (ref 32) reported the NCV for national and imported coal. The PP used the NCV assigned for the national coal, the criterion is deemed correct because this value is lower (in comparison with imported coal), thus it is conservative.

For ex-ante calculations the values are:

Fuel	NCV (GJ/tonne)
Natural gas	48.33
Fuel oil	41.03
Gasoil (Diesel)	42.71
Mineral coal	24.70

The values used in PDD are correct against the Second national communication (ref 32). Additionally it was validated that this corresponds to the lower calorific value.

- EFCO_{2i,y}: EFCO₂ values of each type of fuel are correct in PDD, however they are not reported in the excel calculation file (ref 164b), in file "PP's Calculation of OM 2011.xlsb" (ref 164b), tab "values", it is only reported the product of NCV*EF, it was validated that the results included are correct.

For ex-ante calculations the values are:

Fuel	Emission factor (tCO ₂ /GJ)
Natural gas	0.056140
Fuel oil	0.077926
Gasoil (Diesel)	0.074354
Mineral coal	0.094509

The values used in the PDD are correct against the Second national communication (ref 32).

Step 5: Calculate the build margin (BM) emission factor

The Tool (ref 5), offers two alternatives. PP selected option 1, which means that EF_{BM} will be calculated ex-ante for the first monitoring period. PDD describes correctly against the Tool the steps to obtain the EF_{BM}.

The PDD version 1 (ref 1a), reported value EF_{BM,2010} = 0.422 tCO₂/MWh and obtained from the Secretariat of Energy. It was validated that the value reported in PDD is consistent with the one published by the Secretariat (ref. 18 – 4.2), which is publicly available at <http://energia3.mecon.gov.ar/contenidos/verpagina.php?idpagina=2311>, however this does not correspond to the EF_{BM} as per the last year available (2011). The PP provided the updated EF_{BM} in the file "2011 Argentine grid building margin.xlsx" (ref 165). The data and the calculations done were reviewed, data included is correct against the source (ref 163, Cammesa), the calculation procedure is correct. Thus EF_{BM,2011} = 0.466 tCO₂/MWh, this value will remain fixed during the crediting period.

Step 6: Calculate the combined margin emission factor

The EF_{grid} is calculated as:

$$EF_{grid,CM,y} = EF_{grid,OM,y} \times W_{OM} + EF_{grid,BM,y} \times W_{BM}$$

As per the calculation file (ref. 164b) the W_{OM} and W_{BM} are equal to 0.5, it is deemed correct against the Tool (ref 5). Thus based on the data available at the validation stage and validated by SGS the EF_{grid} for ex-ante estimations is equal to 0.616 tCO₂/MWh,

As per PDD version 1 (ref 1a), the project emission will be calculated as:

$$PE_y = PE_{FC,j,y} = \sum_i FC_{i,j,y} \times COEF_{i,y}$$

Where the COEF_{i,y} will be calculated as per option b of the Tool (ref 4).

It is deemed correct, because as per the ACM0007 version 06.1.0, the project emissions have to be calculated as per the "Tool to calculate project or leakage CO₂ emissions from fossil fuel combustion" (ref 4).

The PP was requested to clarify if there are other devices related with the project implementations, such auxiliary engines, generators or similar that consumes fossil fuels. **CL → CAR 7 was raised.** During site visit it was found that the plant has three emergency diesel generators. Two of them installed in the plant since it operated in open cycle and one installed during the project conversion to combined cycle.

It was validated that in the annex to the contract (ref 63) signed between Pampa and Isolux it is stated that the plant already has an emergency fire system. Regarding the emergency generator to support the TGs, it was validated against a maintenance summary (ref 65) that the Detroit generator had maintenance in 1996. Thus it was validated that the cited equipments were installed before the project implementation. As per the PDD version 4 (ref 1d) section B.7.1., the fuel consumption of the emergency diesel generator linked to the steam turbine will be measured and taken into account in the ER calculations. **CAR 7 was closed.**

For ex-ante calculations, project emissions are available at "4.1 Emissions Reductions 2008-2010.xls" (ref 15c), tab "ER", lines 16 to 19. The calculation is correct against the Tool (ref 4) and the PDD (ref 1c).

Regarding the data used, it was assessed as follow:

Project emissions by natural gas consumption

- FC_{i,j,y}: it was estimated as: (average fuel consumption of the last three years / average generation of the last three years)* Electricity supplied by the gas turbines.

For ex-ante estimations it is deemed correct, because considers the historical yield of the turbines and the expected electricity generation. The historical consumption was validated against the acts issued by the gas provider (ref 69). This parameter that was calculated for ex-ante estimation, it will be monitored during the operation.

- COEF_{NG,y}: It was obtained as the NCV*EF_{CO2}. It was validated that the value was correctly calculated in "Emissions Reductions 2008-2010 15-05-2012.xls" (ref 15c), tab ER, cell E18. For ex-ante estimation, it was obtained using the average NCV and EF values from 2008 to 2010.

Project emissions by diesel consumption (emergency generator steam turbine)

- FC_{ST.DO,y}: for ex-ante purposes this parameter was estimated using the generator consumption rate defined by the provider (ref 64) and expecting 24 hours of operation. The calculation available in "Emissions Reductions 2008-2010 15-05-2012.xls" (ref 15c), tab Technical data, cell E35 is deemed correct. This parameter will be monitored during the crediting period.

- COEF_{diesel,y}: It was obtained as the NCV*EF_{CO2}. It was validated that the value was correctly calculated in "Emissions Reductions 2008-2010 15-05-2012.xls" (ref 15c), tab Technical data, cell E38. For ex-ante estimation, it was obtained using the NCV and EF published in the second communication from Argentina to UNFCCC, the values were crosschecked with the source (ref 32) and were found correct.

As per PDD version 1 (ref 1a), the leakage will be calculated as:

$$LE_y = LE_{upstream,y} + LE_{HR,y}$$

$$LE_{HR,y} = (Q_{HR,x} - Q_{HR,y}) \cdot EF_{CO2,max}$$

$$LE_{upstream,y} = \left(\left(\sum_i FC_{i,y} \cdot NCV_{i,y} \cdot EF_{i,upstream,CH4} \right) \cdot GWP_{CH4} + LE_{LNG,upstream,y} \right) \times \left(\frac{\sum_i FC_{i,y} \cdot NCV_{i,y}}{\frac{1}{3} \cdot \sum_{x=1}^3 \sum_i FC_{i,x} \cdot NCV_{i,x}} - 1 \right)$$

$$LE_{LNG, CO2,y} = FC_{LNG,y} \cdot NCV_{LNG,y} \cdot EF_{CO2,upstream,LNG}$$

The PDD version 1 (ref 1a), states that $LE_{HR,y}$ is zero. It is deemed correct because the plant did not recover energy from the exhaust gases in the past. In order to validate that no energy was recovered, PP was requested to provide some supporting evidence, as for instance the plant diagram before the project implementation. PP is requested to provide an energy balance to demonstrate that no energy was recovered before the project implementation. **CAR 8 item 2 was raised.** It was validated that as per the EIA presented to the authority (ref 33), the plant did not have a heat recovery system previous to the project implementation. **CAR 8, Item 2 closed.**

CAR 8 was re-assessed because the PP updated the PDD the as per the last version of the methodology issued in EB 67. It was validated that calculations performed to obtain the leakage were corrected in the file "Emissions Reductions 2008-2010 15-05-2012.xlsx" (ref 15c), tab "ER", cell E27. The formula used is correct against ACM0007 version 06.1.0.

$$LE_{upstream,y} = \max \left[0, \left(\sum_i (FC_{i,y} \cdot NCV_{i,y} \cdot EF_{i,upstream,CH4}) \cdot GWP_{CH4} + LE_{LNG,CO2,y} \right) \cdot \left(1 - \frac{\frac{1}{3} \cdot \sum_{x=1}^3 \sum_i FC_{i,x} \cdot NCV_{i,x}}{\sum_i FC_{i,y} \cdot NCV_{i,y}} \right) \right]$$

CAR 8 was closed.

According to PDD version 1 (ref 1a) $LE_{upstream}$ is calculated in file "4.1 Emissions Reductions 2008-2010.xls" (ref 15a), tab "ER", cell 23. The calculation is correct against the formula, however the yearly historical value of NCV has to be used. **CAR 16 item 2 was raised.** PDD version 3 (ref 1c) was updated as per last version of the methodology (ACM0007 version 06.1.0). It was validated as well that the formula was corrected in PDD (ref 1c) and ER calculation file as well (ref 15c). Finally it was validated too that NCV of each year (instead the average) was used in the calculation, which is correct against ACM0007 version 06.1.0. **CAR 16, Item 2 was closed.**

Finally LE_{LNG} is zero, it is deemed correct because the project only uses natural gas.

The ER estimation presented in the PDD version 1 (ref 1a) was reviewed, some mistakes were found (included in CAR 16 already analysed and closed) and duly addressed by the PP. Additionally the ER of the crediting period reported in the PDD version 1 (ref 1a) A.4.4. and B.6.4 (4,320,277) were not consistent with the yearly values reported in the same table. The PP was requested to correct the information. **CAR 4 was raised.** Las version of the PDD was reviewed and it was validated that the ER are reported correctly throughout the PDD and are consistent with the calculation excel files (ref 15c, 164 & 165). **CAR 4 was closed.**

4.8 Application of Monitoring Methodology and Monitoring Plan

In order to perform the ER calculations during the project operation, the PP will use parameters determined ex-ante and parameters that have to be monitored along the time.

As per the PDD version 1 (ref 1a) the parameters fixed are:

- EG_x ; $EG_{2008} = 1,744,754$ MWh; $EG_{2009} = 926,173$ MWh; $EG_{2010} = 447,390$ MWh. The PP is requested to provide the Cammesa records 2008, 2009 to assess the data. **CAR 16 item 8 was raised.** It was validated that the PP corrected the values as per Cammesa records, being the final and correct ones $EG_{2008} = 1,744,754$ MWh; $EG_{2009} = 925,817$ MWh; $EG_{2010} = 447,738$ MWh, the values were crosschecked against Cammesa records (ref 74).
- $FC_{i,x}$. $FC_{2008} = 585,005,099$ m³; $FC_{2009} = 312,905,078$ m³; $FC_{2010} = 154,490,255$ m³. In order to validate the parameter, PP is requested to provide the gas invoices for the year 2008, 2009 & 2010. **CL 17 item 1 was raised.** Gas Consumption. Based on the monthly acts (ref. 69) that record the gas consumption information, which are signed by an YPF and LLL representative, it was found that the gas consumption

recorded in the ER calculation file (ref 15) is wrong. As per the acts (ref 69) in 2008 the plant consumed 585,005,098 (m3), while the ER calculation file (ref 15b) reports 585,005,099 (m3).

Finally, the updated ER calculation file was reviewed (ref 15c), it was validated that the gas consumption of the year 2008 was correct. The value reported (ref 15c) is correct against the acts (ref 69). **CL 17 item1 was closed.**

- $NCV_{NG,i,x} = 47.94$ GJ/tonne (same value for 2008, 2009, 2010). As per the methodology, this parameter has to be reported annually. PP is requested to provide the information. **CAR 16 item 2 was previously raised and closed.** The updated calculation file "Emissions Reductions 2008-2010 15-05-2012.xlsx" (ref 15c) uses the NCV per each year, the values were reported correctly in the PDD version 3 (ref 1c). NCV. The NCV_{NG} reported in the PDD version 2 (ref 1b) and excel calculation file (ref 15b) was reviewed; the data for 2010 was crosschecked against the file "2. NCV and EF .xls" (ref 70a), it was found correct and the value is within the range define at 95% confidence level by IPCC 2006. However data 2008 & 2009 was not available in the file "2. NCV and EF .xls" (ref 70). Additionally it was noted that the NCV value reported in PDD (ref 1b), calculation file (ref 15b) and EF_NCV file (ref 70a) are not consistent with the values reported in the monthly acts (ref 69) signed by an YPF and LLL representative. Later based on the completed information received (ref 70b) NCV 2008 & 2009 were reviewed.

It was validated that the monthly values (obtained from the daily measurements) of the gas composition reported in the provider acts (ref 69) are correct against the values included in the excel file (ref 70b) were the NCV and EF of the natural gas used in the plant is obtained. It was validated as well that the NCV obtained in the excel file (ref 70b) is always lower than the values reported in the act because the act reports the higher heating value, thus they correspond to the LHV. **Item closed.**

- $EF_{CO_2,min} = 0.0554$ tCO₂/GJ. $EF_{CO_2,max} = 0.0556$ tCO₂/GJ. In order to validate the maximum and minimum value, PP is requested to provide the parameter from 2008 to 2010. **CAR 16 item 5 was raised.** It was validated that PDD version 2 (ref 1b) contains the yearly (2008, 2009 & 2010) values of NCV_{NG} , and $EF_{CO_2,NG}$. It was validated that all the NCV and EF values are reported in PDD version 3 (ref 1c) and ER calculation file (ref 15c), and the maximum and minimum were re-incorporated. **CAR 16 item 5 was raised.**
- $CAP_{MAX} = 369,93$ MW
- $T_{MAX} = 7,756$ hr. PP is requested to clarify why the value is different in PDD version 1 (ref 1a), page 47 and excel file "4.1 Emissions Reductions 2008-2010.xls" (ref 15a), tab "Technical data", cell E12. **CL 17 item 2 was previously raised.** It was validated that PP obtained in the ER calculation file (ref 15b) the T_{max} as per equation 6 of the ACM0007 version 06.1.0. The same information is reported consistently in PDD version 2 (ref 1b). **CL 17 item 2 was previously closed.**
- $HMR_x = 1,004$ hrs (same value for 2008, 2009, 2010). **CAR 16 item 6 was raised.** It was validated that PDD version 2 (ref 1b), section B.6.2. reports the yearly values of HMR_x . The amount of hours operated per year (reported in PDD (ref 1b) and the calculation file (ref 15)) was crosschecked with the availability records from the plant (ref 72), the data was found correct. **CAR 16 item 6 was closed.**
- $GWP_{CH_4} = 21$ tCO₂e/tCH₄
- $EF_{BM} = 0.466$ tCO₂/MWh. The value is correct, previously assessed.

Regarding the vintage of operational history ($x=2008-2010$) considered for $EG_{x,y}$, $FC_{i,x}$, $NCV_{i,x}$, $EF_{CO_2,min}$, $EF_{CO_2,max}$, HMR_x , it is deemed correct because it corresponds to the operational history as a period of time immediately prior to the project implementation. The plant (as combined cycle) was commissioned on 01/11/2011, therefore 2011 is a year where the plant had generation as open and combined cycle and the last three full years operating in open cycle are 2008 to 2010.

The section B.7.1 of the PDD version 1 (ref 1a) was reviewed and the following parameters were assessed against the ACM0007 version 06.1.0 or the Tools (Grid emission factor, ref 5 or Project emissions, ref 4).

ACM0007 version 06.1.0 parameters:

ACM0007	PDD ver. 1, Sec. B.7.1	SGS Assessment
$EG_{PJ,y}$	$EG_{PJ,y}$	Ok, parameter included in PDD. Parameter name, units are ok against the methodology. Regarding the monitoring frequency, PDD states "Measured continuously (every 15 minutes)". PP is requested to clarify if measures are every 15 minutes or if recording frequency is every 15 minutes. CAR 18 item 1 was raised. It was validated that PDD version 2 (ref 1b) corrected the description of the parameter monitoring. The detail provided complies with the ACM 0007 version 06.1.0 requirement.

		<p>Item closed.</p> <p>During site visit it was noted that the plant supplies energy to gas provider (plant MEGA), CAR 16 item 9 was raised requesting to explain if this energy was accounted by CAMMESA and complete the monitoring plan accordingly. The energy supplied to MEGA from TG1. Based on the generation records keep by Cammesa (ref 169) and the PP records (ref 166, 167 & 168), it was validated that the energy records linked to TG1 includes the energy sold to YPF (MEGA). Thus the energy supplied to MEGA is part of $EG_{PJ,y}$, it will be monitored with an independent meter. Item closed.</p> <p>In order to complete the QA/QC procedure, the PP is requested to include the accuracy of the equipments and its calibration frequency. CAR 18 item 2 was raised. It was validated that PDD version 2 (ref 1b) included the accuracy of the meters involved in the parameter monitoring and the calibration frequency (1 year). Item closed.</p> <p>The source of data identified is correct, because Cammesa is the grid operator. (http://portalweb.cammesa.com/Pages/Institucional/mision.aspx).</p> <p>Based on the generation records keep by Cammesa (ref 169) and the PP records (ref 166, 167 & 168), it was validated that the energy records linked to TG1 includes the energy sold to YPF. It means that it is considered as the energy injected to the grid, which is consistent because if LLL does not supply the electricity to YPF, they would have to consume from the grid.</p>
$FC_{i,y}$	$FC_{i,y}$	<p>Ok, parameter included in PDD. Parameter name, units, and monitoring frequency are ok against the methodology.</p> <p>In order to complete the QA/QC procedure, the PP was requested to include the accuracy of the equipments and its calibration frequency. Additionally PP was requested to clarify why the invoices from the gas provider are not going to be used directly for crosschecking purposes. CAR 18 item 3 & 6 were raised. It was validated that PDD version 2 (ref 1b) consider as well the crosscheck against the fuel invoices. Item 3 closed. Regarding the calibration frequency and accuracy, ENARGAS (ref 110) does not require a given calibration frequency and it has to be agreed between buyer and provider. It was validated that there is in practice a protocol regarding gas consumption measurements between YPF and LLL, which is a revised version of the protocol signed in 1998 (ref 118), however the revised protocol (ref 97) still has not been signed. The PDD contains the equipment calibration frequency as per the revised protocol (ref 97), but given that protocol still has to be signed and there is no a specific calibration frequency required by the methodology, (ACM 0007) this issue (calibration frequency & accuracy) will have to be assessed during verification stage. FAR 1 was raised. Item 6 closed.</p>
$\eta_{PJ,y}$	$\eta_{PJ,y}$	<p>Ok, parameter included in the PDD. Parameter name, units, and monitoring frequency are ok against the methodology. Additionally it will be obtained as one of the options offered by the methodology.</p> <p>For ex-ante calculations it was estimated as 1 (100%), the value is conservative for calculations.</p>
$Q_{HR,y}$	$Q_{HR,y}$	<p>This parameter is not included in the monitoring plan, it is correct because PDD reports that no energy was recovered from the exhaust gases. It was validated previously in section 4.5 (project boundaries), the plant did not recover exhaust gases / energy during its operation in open cycle.</p>
$NCV_{i,y}$	$NCV_{i,y}$	<p>The parameter is included in the monitoring plan. Parameter name and units are ok against the methodology. However PDD does not include any monitoring frequency, PP was requested to clarify this issue. Additionally PP was requested to provide the compliance with the international standards mentioned in PDD. CAR 18 item 5 was raised. It was validated that the PP obtain the NCV from the measurements done by the gas supplier using ISO 6976, which is correct against ENARGAS (ref 110). It was validated that the supplier (ref 69) reports only the higher capacity value of the gas, which is not the one required for ER calculations. The option selected (use data from fuel provider) is deemed correct against the methodology. Item closed.</p> <p>As it was pointed out in $FC_{i,y}$, regarding the calibration frequency and accuracy, ENARGAS (ref 110) does not require a given calibration frequency and it has to be agreed between buyer and provider. It was validated that there is in practice a protocol regarding gas consumption measurements between YPF and LLL which is a revised version of the protocol signed in 1998 (ref 118) however therevised protocol (ref 97) still has not been signed. The PDD contains the equipment calibration frequency included in the revised protocol (ref 97), given that protocol still has to be signed and there is no specific requirement from the methodology (ACM 0007), this issue (accuracy) will have to be assessed during verification stage. FAR 1 was raised.</p>

Tool to calculate the emission factor for an electricity system, version 2.2.1 (ref 5)

Tool EFgrid (ref 5)	PDD ver. 1, Sec. B.7.1	SGS Assessment
$EG_{n,h}$	$EG_{n,h}$	Ok, parameter included in the PDD. Parameter units, and monitoring frequency are ok against the methodology. However the name is wrong. PP is requested to correct it. CAR 18 item 6 was raised. It

		was validated that the parameter name (EG _{n,h}) was corrected in PDD version 3 (ref 1c). Item closed. The information will be obtained from CAMMESA (Argentinian grid operator).
FC _{i,n,h}	FC _{i,n,h}	Ok, parameter included in the PDD. Parameter name, units, and monitoring frequency are ok against the methodology. The data will be obtained from Cammesa (Argentinian grid operator). The information will be obtained from CAMMESA (Argentinian grid operator).
NCV _{i,y}	NCV _{i,y}	Ok, parameter included in the PDD. Parameter name and units are ok against the Tool. However the PDD version 1 states that the value will be obtained from the Secretariat of Energy. It was validated that this corresponds to the second option offered by the Tool (ref 5). The PDD version1 states "This data is monitored for eventual updates (fuel providers include higher heating values measured by them in the invoices)". It has to be noted that this parameter has to be monitored yearly. The PP was requested to correct the PDD. CAR 18 item 5 was previously raised. It was validated that the updated the PDD version included the frequency as per the methodology requirement. Item closed. The values will be obtained from the National Communications of Argentina to the UNFCCC, and as QA/QC procedure, the values will be compared with IPCC data.
EF _{CO2,i,y}	EF _{CO2,i,y}	Ok, parameter included in the PDD. Parameter name is ok against the Tool, however the units reported in the PDD are wrong. CAR 18 item 7 was raised. It was validated that the PDD version 2 (ref 1b), includes the units correctly as per the ACM0007 version 06.1.0 requirement. Item closed. The parameter will be obtained from the Secretariat of Energy and National Communications of Argentina. As QA/QC procedure, the values will be compared with IPCC data.
EG _{P,J,y}	EG _{P,J,y}	Already included as per ACM0007 version 06.1.0 requirements.
n _{m,y}	--	The parameter is not included in the monitoring plan. It is deemed correct because EF _{EL,DD,h} will be calculated as per equation 10 of the Tool (ref 5).
CAP _m , PLF _{default,off-grid,y} T _{grid,y}	--	The parameters are not included in the monitoring plan. It is deemed correct because as per the selection done by the PP only grid connected power plants are part of the analysis.

Tool to calculate project or leakage CO₂ emissions from fossil fuel combustion, version 2 (ref 4)

Tool (ref 4)	PDD ver. 1, Sec. B.7.1	SGS Assessment
FC _{i,j,y}	FC _{i,y}	The parameter (linked to natural gas consumed in the plant) is included in the monitoring plan as part of the ACM0007 monitored parameters (previously assessed).
w _{c,i,y} ρ _{i,y}	--	The parameters are not included in the monitoring plan. It is deemed correct because PP selected option B of the Tool (ref 4) to calculate COEF _{i,y} .
NCV _{i,y}	NCV _{i,y}	The parameter (linked to natural gas consumed in the plant) is repeated, it was previously assessed.
EF _{CO2,i,y}	EF _{CO2,i,y}	Ok, parameter included in the monitoring plan. The parameter units, and monitoring frequency are ok against the Tool (ref 4). As per PDD version 1 (ref 1a), the parameter will be obtained from the fuel supplier, it is deemed correct against the Tool (ref 4) requirement. The parameter will be obtained using information from the fuel provider. The option selected (use data from fuel provider) is deemed correct against the methodology. As it was pointed out in FC _{i,y} , regarding the calibration frequency and accuracy of the equipments involved with the parameter, ENARGAS (ref 110) does not require a given calibration frequency and it has to be agreed between buyer and provider. It was validated that there is in practice a protocol regarding gas consumption measurements between YPF and LLL, which is a revised version of the protocol signed in 1998 (ref 118) however the revised protocol (ref 97) still has not been signed. The PDD contains the equipment calibration frequency included in the revised protocol (ref 97), given that protocol still has to be signed and there is no specific requirement from the methodology (ACM 0007), this issue (accuracy) will have to be assessed during verification stage. FAR 1 was raised.
FC _{i,y}	FC _{ST,DO,y}	This parameter corresponds to the amount of diesel consumed by the emergency generator linked to the ST. The parameter description is correct against the Tool and will be monitored during the crediting period. The parameter has defined suitable QA/QC procedures.
NCV _{i,y}	NCV _{ST,DO,y}	The parameter is correct against the Tool (ref 4). It will be monitored annually and obtained from one of the sources offered by the Tool according to the information availability at the verification time.
EF _{CO2i,y}	EF _{CO2ST,DO,y}	The parameter is correct against the Tool (ref 4). It will be monitored annually and obtained from one of the sources offered by the Tool according to the information availability at the verification time

Regarding monitoring responsibilities, the PDD version 1 (ref 1a), section B.7.2, describes the parts involved with the measurements performed in the project site (gas consumption and electricity generation). The PDD does not include any description of the main CDM responsibilities. The PP was requested to identify the responsible authority for registration, monitoring, measurement, calculating, review and reporting of CDM project. **CL 19 was raised.** It was validated that updated PDD (ref 1d) identifies properly a responsible person by the CDM project in term of reporting. Similarly the PP provided a procedure in Spanish for the monitoring (ref 67). It was validated that the cited document (ref 67) identifies responsible for the equipments maintenance and calibration, as well for the monitoring, revision and data approval. The cited procedure will be useful for the monitoring process since it is in Spanish, however the monitoring plan included in the PDD will be the formal requirements that the project has to comply with. **CL 19 was closed.**

4.9 Environmental Impacts

Argentina has Federal Government, thus the regulations applicable to the project are those of “Neuquén” (province where the project is located). It was validated that the Law N°1,875 updated Law 2,267 (ref 30) establishes the principles to preserve, conserve, defend and improve the environment in the Province of Neuquén. As per its article 24, projects that due to the size can produce an alteration over the environment they have to present a Declaration of Environmental Impact and get the Environmental Management Plan approved by the authority.

The project presented the EIA to the Provincial Authority (Sub-Secretariat of Environment) on 11/04/2008 (ref 33) and to the national body in charge of the electricity sector (ENRE) on 23/12/2008 (ref. 33). The PDD reports the corresponding permits obtained from the authority, it was validated against the corresponding letters issued by the authorities (ref 33).

4.10 Local Stakeholder Comments

As per the PDD version 1, section E.1 (ref 1a), states that two stakeholder consultation were performed.

For the first, in the PDD version 1, there is not information available about the date and where it was conducted. The PP was requested to complete the information in the PDD and clarify if comments included in table 9 correspond to the first public consultation. **CL 20 item 1 was raised.** It was validated that the updated PDD (ref 1d), section E.1 completes the information regarding when the first stakeholder consultation was carried out. Similarly the E.2 identifies which comments correspond to each consultation. **CL 20 item 1 was closed.**

Based on the supplementary information provided by the PP (ref 34), the consultation carried out in 2008 was done via e-mail. In November 2008 LLL sent an e-mail informing about the project and asking for comments and observations. The letter was sent to: Cammesa, Fundación Bariloche (Bariloche Foundation), Centro de Ecología Aplicada de Neuquén (Center of applied ecology of Neuquén), Asociación de Grandes Usuarios de Energía Eléctrica de la República Argentina (Large Users of Electric Energy Association of Argentina), Secretaría de Estado de Relaciones Institucionales y Coordinación (Secretariat of Institutional Affairs of Neuquén), Subsecretaría de Medio Ambiente de Neuquén (Under-Secretariat of Environment, Neuquén), Universidad Nacional del Comahue (National University of Comahue), Fundación Ambiente y Recursos Naturales (Environment and Natural Resources Foundation) and Fundación Empresaria de la Patagonia (Patagonia Foundation Business).

After this consultation the Project received three comments, all of them were supporting the project. No observation or negative comment was received.

As reported in the PDD the second consultation was done by e-mail as well (ref 34), in November 2011. The PP was requested to provide the full list of stakeholders that received the project information. **CL 20 item 2 was raised.** It was validated that the full list of stakeholders that receive information of the project during the second consultation was included in the PDD version 2 (ref 1b). **CL 20 item 2 was closed.**

Thus based on the reviewed and validated information, it is possible to affirm that the stakeholder consultation process was done in a transparent way and in compliance with the VVM (paragraph 128 & 129).

5. Comments by Parties, Stakeholders and NGOs

In accordance with sub-paragraphs 40 (b) and (c) of the CDM modalities and procedures, the project design document of a proposed CDM project activity shall be made publicly available and the DOE shall invite comments on the validation requirements from Parties, stakeholders and UNFCCC accredited non-governmental organizations and make them publicly available. This chapter describes this process for this project.

5.1 Description of how and when the PDD was made publicly available

The Project Design Document for this project was made available twice for ISHC. The first time was available on <http://cdm.unfccc.int/Projects/Validation/DB/Y90E45C6SKNGOJ6RLGBSL7JLM86EOA/view.html> and open for comments from 06/11/2008 until 05/12/2008 on. The second time was available on <https://cdm.unfccc.int/Projects/Validation/DB/WFR9IGGBPU23ETATOPHJP70XMV7TPM/view.html> and was open for comments from 04/01/2012 until 02/02/2012. Comments were invited through the UNFCCC CDM homepage, but no comments were received.

5.2 Compilation of all comments received

No comments received.

5.3 Explanation of how comments have been taken into account

Not applicable, no comments received.

6. List of Persons Interviewed

Date	Name	Position	Short Description of Subject Discussed
7, 8 & 9/03/2012	Joaquin Gianantonio	Finance, Pampa Energía	- Project implementation - Energy meters
8 & 9/03/2012	Fabián Gaioli & Hugo Ventureira	Carbon advisor	- Emergency generator - Data measurement - Investment analysis - Additionality - Common practice - ER calculations - Monitoring plan - Stakeholder consultation
8&9/03/2012	Fabián Meca	Dispatch / Pampa Energía	- Historical records from Cammesa - Data handling
07/03/2012	Mario Dranovsky	Cammesa representative	- Review of dispatch system - Energy measurement system (SMEC) - Energy meters
07/03/2012	Juan Gerardo Meira	National Director of Prospective, Secretary of Energy - Argentina	- Incentives to investment for electricity generation - Evolution of regulation - Common practice - Grid emission factor
09/03/2012	Hector Lazzerini	Operation, Loma de la Lata	- Plant operation - Maintenance
09/03/2012	Jorge Michieletto	Plant Manager, Loma de la Lata	- Monitoring system - Project implementation - Historical data records (fuel used, operation hours, etc.) - Emergency generators

7. Document References

Category 1 Documents (documents provided by the Client that relate directly to the GHG components of the project, (i.e. the CDM Project Design Document, confirmation by the host Party on contribution to sustainable development and written approval of voluntary participation from the designated national authority):

Name of document
/1a/ Ref. 1a - Loma_de_la_Lata_PDD_28122011 v1.pdf – PDD Version 1, dated 22/12/2011
/1b/ Ref. 1b - Loma de la Lata PDD 02042012 clean.pdf – PDD version 2, dated 30/03/2012
/1c/ Ref. 1c - Loma de la Lata PDD version 3.pdf – PDD version 3, dated 12/05/2012
/1d/ Ref. 1d - Loma de la Lata PDD version 4.pdf - PDD version 4, dated 22/06/2012
/1e/ Ref. 1e - Loma de la Lata PDD version 5.pdf - PDD version 5, dated 24/07/2012
/7a/ Ref. 7a - 1.1 Loma de la Lata Calculator.xls – Financial analysis version 1
/7b/ Ref. 7b - 1.1 Loma de la Lata Calculator.xlsx - Financial analysis version 2
/7c/ Ref. 7c - Loma de la Lata Calculator 15-05-12.xlsx - Financial analysis version 3
/7d/ Ref. 7d - Loma de la Lata Calculator 27-06-2012.xlsx – Financial analysis version 4
/7e/ Ref. 7e - Loma de la Lata Calculator 24-07-2012.xlsx - Financial analysis version 5 – Confidential
/7e/ Ref. 7e - Loma de la Lata Calculator 24-07-2012.PDF - Financial analysis version 5 - Public
/8/ Ref. 8 - 1.2 Financial Analysis - Back Up.xlsx – Summary of information used in investment analysis
/8b/ Ref. 8b - 1.2 Financial Analysis - Back Up 27-06-2012.xlsx - Summary of information used in investment analysis, updated 27/06/2012
/15a/ Ref. 15a - 4.1 Emissions Reductions 2008-2010.xls – ER calculation file, version 1
/15b/ Ref. 15b - 1. Emissions Reductions 2008-2010.xlsx - ER calculation file, version 2
/15c/ Ref. 15c - Emissions Reductions 2008-2010 15-05-2012.xlsx - ER calculation file, version 3
/41/ Ref. 41 - 23. LoA – folder, Letter of approval
Ref. 41a -LoA.pdf – LoA dated 19/03/2009
Ref. 41b - Carta LoA.pdf – Letter dated 02/08/2012 ratifying validity of LoA issued on 19/03/2009
/54/ Ref. 54 - OAMDL 27-03-2012.pdf – Letter ratifying the approval of the project by the DNA:
/60/ Ref. 60 - 03-CAR MoC.pdf – Modalities of communication
/164/ Ref. 164 – OM – folder (Ref 164.1 - OM 2011 day by day.xls; Ref. 164.2 – PP's Calculation of OM 2011.xlsx) – Excel files containing EFom calculation – equivalent to ref 164b, but in two files, due to the size ref. 164 was splitted in parts as included in ref 164b
/164b/ Ref. 164b – OM – folder (Ref. 164.1.1 - OM 2011 day by day OUTPUT AND SETTINGS.xlsb, Ref. 164.1.2 - OM 2011 day by day 012011.xlsb, Ref. 164.1.3 - OM 2011 day by day 022011.xlsb, Ref. 164.1.4 - OM 2011 day by day 032011.xlsb, Ref. 164.1.5 - OM 2011 day by day 042011.xlsb, Ref. 164.1.6 - OM 2011 day by day 052011.xlsb, Ref. 164.1.7 - OM 2011 day by day 062011.xlsb, Ref. 164.1.8 - OM 2011 day by day 072011.xlsb, Ref. 164.1.9 - OM 2011 day by day 082011.xlsb, Ref. 164.1.10 - OM 2011 day by day 092011.xlsb, Ref. 164.1.11 - OM 2011 day by day 102011.xlsb, Ref. 164.1.12 - OM 2011 day by day 112011.xlsb, Ref. 164.1.13 - OM 2011 day by day 122011.xlsb) – Excel files containing EFom calculation.
/165/ Ref. 165 – BM – folder (Ref. 165 -2011 Argentine grid building margin.xlsx) - Excel files containing EFbm calculation

Category 2 Documents (background documents used to check project assumptions and confirm the validity of information given in the Category 1 documents and in validation interviews):

Name of document
/2/ Ref. 2 - ACM0007_ver5.0.0.pdf - Approved consolidated baseline and monitoring methodology ACM0007, version 5, dated 15/04/2011
/2b/ Ref. 2b - ACM0007 ver 6 eb67_repan15.pdf - Approved consolidated baseline and monitoring methodology ACM0007, version 6, dated 11/05/2012
/2c/ Ref. 2c - ACM0007 ver 6.1.pdf - Approved consolidated baseline and monitoring methodology ACM0007, version 06.1.0, dated 11/05/2012
/3/ Ref. 3 - Combined additionality tool am-tool-02-v3.0.1.pdf - Combined tool to identify the baseline scenario and demonstrate additionality, version 03.0.1, dated 11/08/2011
/3b/ Ref. 3b - am-tool-02-v4.0.0.pdf - Combined tool to identify the baseline scenario and demonstrate additionality, version 04.0.0, dated 02/03/2012
/4/ Ref. 4 - leakage_emissions am-tool-03-v2

/5/ Ref. 5 - Tool EFgrid am-tool-07-v2.2.1
/6/ Ref. 6 - Tool Lifetime - am-tool-10-v1
/8/ Ref. 8 - 1.2 Financial Analysis - Back Up.xls
/9/ Ref. 9 - 1.3 Technical Data for FA - Back up.xls
/10/ Ref. 10 - 1.4 Raw Data for FA - Back Up.xls
/11.1/ Ref. 11.1 - 1.5.1 Financial Analysis - Back Up
/11.2/ Ref. 11.2 - 1.5.2 Technical Data - Back Up
/11.3/ Ref. 11.3 - 1.5.3 Raw data - Back Up
/12.1/ Ref. 12.1 - 3.1 Project's Timeline
/12.2/ Ref. 12.2 - 3.2 PDD's Links and Backup
/13/ Ref. 13 - 3.3 Monitoring of natural gas quantities
/14/ Ref. 14 - 3.4. Leakage - Gas pipelines around Loma de la Lata
/16/ Ref. 16 - 4.2 Technical Data for Emission Reductions - Back up.xls
/17/ Ref. 17 - 4.3 Raw Data for Emission Reductions- Back Up.xls
/18/ Ref. 18 - 4.2 Technical Data - Back up
/19/ Ref. 19 - 4.3 Raw Data - Back Up
/20/ Ref. 20 - GEOSADI2011_09.pdf – Diagram of the SADI, retrieved from http://portalweb.cammesa.com/memnet1/Pages/descargas.aspx on 09/01/2012
/21/ Ref. 21 - VVM1.2.pdf – Validation and Verification Manual, version 1.2, dated 30/07/2010
/22/ Ref. 22 - Installed capacity.pdf – Installed capacity of SADI, retrieved on 09/01/2012 from http://portalweb.cammesa.com/Pages/Informes/Estadisticas1.aspx
/23/ Ref. 23 - Report Anual 2007.pdf – 2007 Annual Memory of Pampa Holding, retrieved on 09/01/2012 from http://ri.pampaenergia.com/pampaenergia/web/conteudo_es.asp?idioma=2&conta=47&tipo=23520
/24/ Ref. 24 - Report Anual 2008.pdf - 2007 Annual Memory of Pampa Holding, retrieved on 09/01/2012 from http://ri.pampaenergia.com/pampaenergia/web/conteudo_es.asp?idioma=2&conta=47&tipo=23520
/25/ Ref. 25 - eb63_repan12_common practice.pdf – Common practice guidance
/26/ Ref. 26 - eb62_repan5_investment guidilenes.pdf – Investment analysis guidelines
/27/ Ref. 27 - ISHC Loma Lata.pdf – International stakeholder consultations held
/28/ Ref. 28 - Final Ruling Loma Rejection.pdf – Rejection reason of the project.
/29/ Ref. 29 - BNA Central puerto - Pampa transaction.pdf – Public confirmation of transaction between Central Puerto and Pampa , retrieved on 10/01/2012 from http://www.bnamericas.com/news/energielectrica/Pampa_y_Central_Puerto_acuerdan_venta_de_planta_Loma_de_la_Lata
/30/ Ref. 30 - Law 1875-decreto2656-leyt.o.2267.pdf – Law 1785, retrieved on 10/01/2012 from http://www4.neuquen.gov.ar/cean/images/stories/leypcial1875-decreto2656-leyt.o.2267.pdf
/31/ Ref. 31 - Ley 24065 - Marco regulatorio electrico nacional.pdf - Regulation applicable for generation, transport and distribution of electricity.
/32/ Ref. 32 - Argentina report.pdf – 2 nd communication from the Argentinian Republic to the UNFCCC
/33/ Ref. 33 - 3. & 4. EIA – folder, Environmental Impact documents and approval
/34/ Ref. 34 - 7. Questionnaires Stakeholders – folder, Supporting documents related with the local stakeholder consultation.
/35/ Ref. 35 - 8. Power Connection Agreement - folder, Supporting documents (Cammesa, ENRE, SSEE) related with the power connection agreement
/36/ Ref. 36 - 9. Power Purchase Agreement – folder, Energy proposal issued by Güemes
/37/ Ref. 37 - 13. & 14. Project's components and electrical diagrams – folder, Annex of the contract signed between Isolux and Pampa containing engineering description and layouts.
/38/ Ref. 38 - 15. Project History, Status, Schedule- folder, Summary of main LLL events.
/39/ Ref. 39 - 16. List of Contracts – folder, list of contract related to the project.
/40/ Ref. 40 - 18. Poster for consultation – folder, project information disclosed within stakeholder for consultation.
/42/ Ref. 42 - eb51_repan59.pdf - Information note: previous rulings related to the appropriateness of benchmarks for project activities utilizing waste heat/waste gas for power generation
/43/ Ref. 43 - Argentina corporate tax.pdf – Corporate tax applicable in Argentina. Retrieved on 06/02/2012 from http://www.doingbusiness.org/data/exploreeconomies/argentina/paying-taxes/
/44/ Ref. 44 - LEY2795_Vig_Ao_2012 - neuquen.pdf – Federal tax rate. Retrieved on 08/02/2012 from http://www.dprneuquen.gov.ar/images/stories/leyes/LEY2795_Vig_Ao_2012.pdf
/45/ Ref. 45 - dtos d04 d0534 .pdf – Tax rate over credits and debits. Retrieved on 08/02/2012 from http://www.dae.com.ar/leg/dtos/d04/d0534.html
/46/ Ref. 46 - yahoo screener.csv.xls – Beta of companies used for independent assessment.
/47/ Ref. 47 - yahoo screener.pptx - Beta and debt of companies used for independent assessment.
/48/ Ref. 48 - yahoo screener peer ratios.xlsx – Debt / Equity ratio of companies used for independent assessment.
/49/ Ref. 49 - Report for Selected Countries and Subjects 2006-2007.pdf -
/50/ Ref. 32 - 1. FSR- folder – Expansion projects of CT. Güemes and CT. Loma de la Lata, May 2007
/51/ Ref. 51 - weoreptc CPI 2006-2007.xls – USA inflation records.
/52/ Ref. 52 - weoreptc CPI 2007-2008.xls - USA inflation records.
/53/ Ref. 53 - debt equity ratios DDS.xlsx – Assessment of debt equity ratios.
/55/ Ref. 55 - CCE22032012_00000.pdf – First act of gas consumption of the plant (May 1994).
/56/ Ref. 56 - July 1994 gas consumption.pdf – Third act of gas consumption of the plant (July 1994).

/57/ Ref. 57 - B-67122-1 C.T.LOMA DE LA LATA.pdf	– Cammesa's letter to LLL notifying commercial habilitation of Loma de Lata power plant operating in combined cycle.
/58/ Ref. 58 - B-67122-2 S.S.E.E..pdf	– Cammesa's letter to Energy Secretariat notifying commercial habilitation of Loma de Lata power plant operating in combined cycle.
/59/ Ref. 59 - B-67122-3 ENRE.pdf	– Cammesa's letter to ENRE notifying commercial habilitation of Loma de Lata power plant operating in combined cycle.
/61/ Ref. 61 - Operation record per turbine.pdf	– Operation records per gas turbine at 01/11/2011 and 09/03/2012
/62/ Ref. 62 - 3. GE Energy - Heavy duty gas turbine.pdf	– Heavy-Duty Gas Turbine Operating and Maintenance Considerations, General Electric .
/63/ Ref. 63 - 1. ANEXO1~1.pdf	– Technical annex, Isolux proposal.
/64/ Ref. 64 - 2. Diesel engines.pdf	– Technical description of emergency diesel generator linked to ST, Isolux proposal.
/65/ Ref. 65 - 3. Existing diesel engines maintenance evidence.xlsx	– Records of maintenance performed historically to the emergency diesel generators.
/66/ Ref. 66 - Pics- folder	– Photographic evidence recovered on site during site visit.
/67/ Ref. 67 - Monitoring process.pdf	– Internal (LLL) monitoring process.
/68/ Ref. 68 - Reglamento del servicio para distribucion de gas ENARGAS.pdf	– ENARGAS, Decree 2255/92 "Gas supply regulation"
/69/ Ref. 69 - Gas invoices – Folder	– Acts of gas consumption in the plant 2008 to 2010.
/70a/ Ref. 70a - 2. NCV and EF.xlsx	– NCV and EF records 2010
/70b/ Ref. 70b - NCV and EF 2008 2009 2010.xlsx	– NCV and EF records 2008 to 2010
/71/ Ref. 71 - 2. YPF Data - Natural Gas Real Consumption.xlsx	– Gas consumption 2008-2011
/72/ Ref. 72 - 6. Power Plant Availability 2008-2010.xlsx	– Records of availability of the plant per month, 2008 to 2010
/73/ Ref. 73 - 8. Electricity Generated 2008-2010 2012-03-16.xls	– LLL generation records 2008 to 2010
/74/ Ref. 74 - net generation – folder	– Electricity generation, Cammesa records
/75/ Ref. 75- Engineering Project, Key Reference Terms of Proposal.pdf	– Isolux proposal, July 2007.
/76/ Ref. 76 - 7. PP's Calculation of OM 2010.xlsx	– EFom calculation file, 2010.
/77/ Ref. 77 - corrida 2010 - pampa.xls	– Summary EFom calculation file, 2010.
/78/ Ref. 78 - 1. CL13.xlsx	– Detailed EFom calculation file, 2010.
/79/ Ref. 79 - 2. Informe IAMC.pdf	– Fact book 2007, issued by "Instituto Argentino de Mercado de Capitales"
/80/ Ref. 80 - 3. UNFCCC EB62 Guidance investment analysis v5.pdf	– Guidance investment analysis
/81/ Ref. 81 - 4. & 6. Damodaran-Estimating Risk Parameters.pdf	– Paper "Estimating Risk Parameters", Aswath Damodaran
/82/ Ref. 82 - 4. Bloomberg Beta Interpretation.pdf	– Definitions parameter Bloomberg
/83/ Ref. 83 - 5. CECO's Financial Statements- folder	– Central Costanera Financial reports 2006 - 2007
/84/ Ref. 84 - 5. CEPU's Financial Statements – folder	– Central Puerto Financial reports 2006 - 2007
/85/ Ref. 85 - 2. FW Presentacion de Econergy Argentina.msg	– mail dated 17/05/2006 from Econergy offering CDM services.
/86/ Ref. 86 - 3. RE Informacion.msg	– mails from May 2006 – July 2006 reviewing options to present the project to UNFCCC/CDM
/87/ Ref. 87 - 4. consultas contrato.msg	– mail dated 12/11/2007 from EcoSecurities acknowledging the appointment as the company to prepare the PDD and trade the CERs.
/88/ Ref. 88 - 5. contrato PESA y eco.pdf	– contract of CER purchase agreement between LLL and EcoSecurities
/89/ Ref. 89 - 6. Cambio Denominacion PESA a CTLL - Testimonio de inscripción.pdf	– Formal document to change the legal name from Pampa Energía S.A. to Loma de la Lata S.A.
/90/ Ref. 90 - 7. ANEXO 2 - On Shore initial date for commencement of work on site.pdf	– Contract Isolux, Annex II, on shore, Payments timetable.
/91/ Ref. 91 - 8. Nota Isolux sobre acceso a obrador 2008-07-29.pdf	– Isolux' s letter informing that no work has been done until July 2008
/92/ Ref. 92 - 1. depreciacion turbinas loma pildain.msg	– Supporting mail with reference to the Law related to the Depreciation criteria
/93/ Ref. 93 - 1. RE depreciacion turbinas loma aleksic.msg	– Supporting mail with reference to the Law related to the Depreciation criteria
/94/ Ref. 94 - 1. Ganacias Ley 20628 97.pdf	– Law of income tax
/95/ Ref. 95 - 2. APACHE_ PLUS_ 1178.pdf	– Natural gas invoice December 2011
/96/ Ref. 96 - 2. Gas Prices (International, AR Reference, Energía Plus) Aug06-Sept07.xlsx	– Records of historical natural gas prices
/97/ Ref. 97 - Protocol on Natural Gas Measurement Transfer Point.pdf	– Draft agreement YPF and LLL.
/98/ Ref. 98 - 3.1 Contratos Principales Construcción CC de CTLL.xls	– Summary of LLL contracts.
/99/ Ref. 99 - 3.1.1 ABB-OfertaEconómica_20120130200803.024_X.pdf	– ABB quotation, Transformer.
/100/ Ref. 100 - 3.1.1 Man Letter of Award 06.07.07 Final.pdf	– Man proposal dated 06/07/2007
/101/ Ref. 101 - 3.1.1 Orden de compra del transformador firmada.pdf	– Transformer purchase order 19/06/2008
/102/ Ref. 102 - 3.1.2 Amitech Loma La Lata. Informe Final.pdf	– Amitech quotation.
/103/ Ref. 103 - 3.1.2 Conagro - Construcción Acueducto CTLL.pdf	– water system contract Conagro - LLL
/104/ Ref. 104 - 3.1.2 Conagro adjustments.pdf	– Adjustment to the contract signed between Conagro - LLL
/105/ Ref. 105 - 3.1.2 OC-4700000129-TECNA - PESOS.pdf	– Purchase order water/discharge system, currency pesos.
/106/ Ref. 106 - 3.1.2 OC-4700000130-TECNA - USD.pdf	– Purchase order water/discharge system, currency US dollar.

/107/	Ref. 107 - 3.1.2 Ruhrpumpem InformedeMesadeCompras2_20120130195655.665_X.pdf – assessment water pumps
/108/	Ref. 108 - 3.1.3 INDELQUI-Cotiz.Original_20120130201526.524_X.pdf – cable quotation
/109/	Ref. 109 - 3.1.3 ISOLUX ANEXO 2 - Off Shore.pdf – Contract Isolux Annex II, off shore, Payments timetable.
/110/	Ref. 110 - Enargas resol. 622.pdf – Resolution to publish the regulation of the gas specifications.
/111/	Ref. 111 - 3.1.4 Ache ingenieria 28-9-2009.pdf – Commissioning and start up proposal.
/112/	Ref. 112 - 3.1.4 Contrato ABB por Subestacion.pdf – contract ABB – LLL expansion of the station and transformer
/113/	Ref. 113 - 3.1.4 COPA-Of.Económica_20120130201049.821_X.pdf – Quotation to implement offices and areas related with the plant conversion to combined cycle.
/114/	Ref. 114 - 3.1.4 TECNA - Upgrade de los Sistemas DCSMARK V y REMOTA PLANICIE BANDERITA.pdf – Quotation to extend the online monitoring system
/115/	Ref. 115 - 3.1.5 Isolux importación.xlsx – Summary of purchases linked to Isolux contract
/116/	Ref. 116 - 3.2 Decree 649-1997.pdf - Law of income tax
/117/	Ref. 117 - 3.3 Contrato abastecimiento (220) Loma.pdf – Contract LLL – Cammesa dated 14/10/2009
/118/	Ref. 118 - Protocolo medición de gas natural - old version.pdf - Former agreement YPF and LLL.
/119/	Ref. 119 - 3.4 Gas invoice september 2007.pdf – gas invoice consumption September 2007
/120/	Ref. 120 - 3.4 MEG_nota_SSC_1231_2008 (indices 200707_200802).pdf – Publication of index to obtain the gas price 2007-2008
/121/	Ref. 121 - 3.4 Natural gas price reference at basin including calculation of prices.xlsx – Value of natural gas price 2007
/122/	Ref. 122 - 3.4 norma 599.pdf – Decree 599, natural gas supply conditions
/123/	Ref. 123 - 3.4 Nota SSEE 2005 - 1133 (precios de referencia gas).pdf - Publication the gas price 2005-2006
/124/	Ref. 124 - WEF_GCR_BenchmarkingNationalAttractiveness_PrivateInvestmentLA_2007.pdf - Benchmarking National Attractiveness for Private Investment in Latin American Infrastructure, issued by World Economic Forum in 2007
/125/	Ref. 125 - RankingsData 1 .xlsx – Ranking of countries as per economical parameters, retrieved on 10/07/2012 from http://www.doingbusiness.org/rankings
/126/	Ref. 126 - Political instability ranking.htm – Ranking of countries per Political Instability Index, retrieved on 10/07/2012 from http://viewswire.eiu.com/site_info.asp?info_name=social_unrest_table&page=roads
/127/	Ref. 127 - 2009-03-dt31-subsidios-en-argentina.pdf – Subsidies in Argentina, general framework and energy sector, issued by Fundación para el Cambio. Retrieved on 10/07/2012 from http://www.paraelcambio.org.ar/contenido/dtrabajo/2009-03-dt31-subsidios-en-argentina.pdf
/128/	Ref. 128 - 3.5 Propuesta Energia Plus AXIS.pdf – referential energy proposal dated 03/09/2007
/129/	Ref. 129 - 3.7 Enre cost calculation.xlsx – Transaction cost charged by ENRE
/130/	Ref. 130 - 3.8 Cammesa costs calculation.xlsx - Transaction cost charged by Cammesa
/131/	Ref. 131 - 3.9 CTG TV Maintenance Costs.xls – Cammesa records of maintenance cost
/132/	Ref. 132 - Resolution 1113_2006.pdf – Application of charges ENRE
/133/	Ref. 133 - r1113anex.xls - Fees/charges 2007 per generatation plant
/134/	Ref. 134 - 1. Law 25,561.pdf – Public emergency law and reform of exchange regimen
/135/	Ref. 135 - 2. Resolution SE 317-02.pdf – Redefinition of parameter to define energy price
/136/	Ref. 136 - 3. Resolution SE 240-03.pdf – Mechanism to determine the prices in the electric wholesale market
/137/	Ref. 137 - 4. Resolution SE 943-03.pdf – Transitory modification to handle the credits in the wholesale market
/138/	Ref. 138 - 5. Resolution SE 406-03.pdf – Methodology to cover the energy demand that is not covered by contracts
/139/	Ref. 139 - 6. Resolution SE 567-07.pdf – Resolution to invoice demand surplus.
/140/	Ref. 140 - 7. Resolution SE 501-08.pdf – Resolution to control the load July 2007
/141/	Ref. 141 - 8. Energia Plus regulation and notes.pdf – Summary of documents linked to energy plus system.
/142/	Ref. 142 - Gas prices recorded by Cammesa.docx – Records of gas prices by Cammesa.
/143/	Ref. 143 - GE guaranteed data.jpg – General Electric, Technical specification of gas turbines.
/144/	Ref. 144 - LLL nameplate TGs.PNG – plant capacity reported in Pampa Energía web page
/145/	Ref. 145 - Pampa Energía's 2011 Annual Report.pdf – Company annual report (2011)
/146/	Ref. 146 - Siemens Steam Turbine Operations' Conditions.pdf - Steam turbine, technical sheet – conditions for turbine operation
/147/	Ref. 147 - Resumen Oper- LLL (1994-2011) vida util y rendimiento.xls – Remaining equipment lifetime.
/148/	Ref. 148 - LK3122 Level meter.pdf – Level sensor technical data sheet
/149/	Ref. 149 - Empty Irrevocable Gas Offer - Loma de la Lata.pdf – LLL' s offer to increase the natural gas purchases
/150/	Ref. 150 - Print screen megsa denied offers.PNG - MEGSA' s records offers rejection.
/151/	Ref. 151 - MEGSA web site .docx - MEGSA' s records of LLL' s offer rejection.
/152/	Ref. 152 - POTENCIA INSTALADA .xlsx – Cammesa's records power plants installed since 1999.
/153/	Ref. 153 - INFO1997.pdf – Report of the electricity sector 1997, issued by the Secretariat of Energy
/154/	Ref. 154 - INFO98.pdf - Report of the electricity sector 1998, issued by the Secretariat of Energy
/155/	Ref. 155 - INFO99.pdf - Report of the electricity sector 1999, issued by the Secretariat of Energy
/156/	Ref. 156 - Benchmark recalculated.xlsx – Correction to benchmark determination
/157/	Ref. 157 - Precio promedio ponderado Septiembre 2007.xlsx – Summary of gas price per gas provider
/158/	Ref. 158 - Facturas históricas.pdf – historical gas invoices
/159/	Ref. 159 - Despacho 09-2007 Operatoria.xlsx – Summary of gas contracts September 2007, Neuquén basin.
/160/	Ref. 160 - Total ratifica compromiso de aumentar su producción El Comahue Online.pdf – Newspaper report about natural gas production.

/161/	Ref. 161 - Summary of sales.xlsx – Summary of contract recorded by MEGSA and valid at August 2007
/162/	Ref. 162 - 3.4.1 printscreen de megsa.PNG – MEGSA gas contracts records at August 2007
/163/	Ref. 163 - Cammesa files – folder – CAMMESA 2011 operations records
/166/	Ref. 166 - 3MELL01P.xlsx – Energy records
/167/	Ref. 167 - Check MEGA Included in Cammesa LomaTG01 Calculation.xlsx - Energy records
/168/	Ref. 168 - LOLAM21P.xlsx - Energy records
/169/	Ref. 169 - PO120402.MDB – Energy records
/170/	Ref. 170 - Copia de INF DEL SECTOR ELEC06 parte4.docx – Extract of the report of the electricity sector 2006, issued by the Secretariat of Energy
/171/	Ref. 171 - inf_sec_elect_05_parte4.pdf - Extract of the report of the electricity sector 2005, issued by the Secretariat of Energy
/172/	Ref. 172 - Plants Benchmark.pdf – PLFs for power plants
/173/	Ref. 173 - MEG resolucio_n SE 925_2005.pdf – Resolution requesting to the gas consumers to present the information related with the gas supply contracts.
/174/	Ref. 174 - Secretaría de Energía 752 2005.docx - Resolution to determine the natural gas Price.
/175/	Ref. 175 - RV Datos de Contacto.msg - CAMMESA mail confirming mechanism to define the marginal cost.
/176/	Ref. 176 - www.megsa.com.ar/html/precios_5_2009.pdf – Summary of gas prices per basin.
/177/	Ref. 177 - Ley25413.pdf – Law 25.413 tax over account movements.
/178/	Ref. 178 - 22 NOTA TECNICA Nivel de Actividad inf 70.pdf – Technical note 22, “The Argentinian electric market”, Retrieved on 10/07/2012 from http://www.mecon.gov.ar/peconomica/informe/notas_tecnicas/22%20NOTA%20TECNICA%20Nivel%20de%20Actividad%20%20inf%2070.pdf
/179/	Ref. 179 - contratos gas megsa agosto 2007.docx – Records of contracts valid at August 2007, information retrived by SGS from MEGSA website.
/180/	Ref. 180 - RE LK CALIBRATION.msg - Calibration confirmation from the equipment manufacturer
/181/	Ref. 181 - P_14_Protocolo de CAMMESA para SMEC.pdf – CAMMESA procedure 14, SMEC external audit
/182/	Ref. 182 - Organizational Charts & operators list.pdf – LLL organizational charts
/183/	Ref. 183 - Tasa cambiaria Agosto 2007 Argentina.pdf – Argentinian peso – US dollar Exchange rate, August 2007
/184/	Ref. 184 - 184. SSRN-id1473225.pdf – Paper “The Equity Premium in 150 Textbooks”
/185/	Ref. 185 - SMEC Calibration- folder – Energy meters calibration records.
/186/	Ref. 186 - bono boden 2015.xlsx – file assessing the Argentinian bond.
/187/	Ref. 187 - catalog_chptech_steam_turbines.pdf - Technology Characterization: Steam Turbines, published by Environmental Protection Agency, December 2008. Retrieved on 07/07/2012 from http://www.epa.gov/chp/documents/catalog_chptech_steam_turbines.pdf
/188/	Ref. 188 - Cammesa procedures-folder – CAMMESA procedures applicable to the electric sector.
/189/	Ref. 189 - Salaries_argentina.docx – Summary of referential salaries in Argentina.
/190/	Ref. 190 – Balance – folder – Pampa Energia, financial reports 2007
/191/	Ref. 191 - RV PRIMA APROXIMADA.msg – Referential value of insurance cost.
/192/	Ref. 192 - Tendencias_03-12.pdf - Reports of trends of the energy sector in Argentina, issued by “Instituto Argentino de la Energía “General Mosconi””
/193/	Ref. 193 - Final ruling rejection.pdf - Final Ruling Regarding the Request for Registration of .Combined Cycle at Loma de la Lata Thermo Unit. (3311), EB 55, 17/03/2011
/194/	Ref. 194 - PDD after review.pdf - PDD version 2.2 dated 06/01/2011, submitted by the PP after the request for review.
/195/	Ref. 195 - DNA - Argentina.docx – UNFCCC screenshot, Argentina DNA. Retrieved on 02/08/2012 from http://cdm.unfccc.int/DNA/index.html
/196/	Ref. 196 - RE Loma de la Lata Project.msg – Mail from the DNA confirming documentation
/197/	Ref. 197 - potencia.xlsx – records of historical installed capacity, retrieved on 07/11/2012 from http://www.cammesa.com/inicio.nsf/marcomemnetag
/198/	Ref. 198 - MW Additions.xlsx – summary of new installed capacity per period (before and after project starting date).
/199/	Ref. 199 - Pre-LLL – Folder with information of the new installed capacity from crisis to project starting date.
/200/	Ref. 200 - Post-LLL – Folder with information of the new installed capacity from project starting date ahead.

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A.1 Annex 1: Local Assessment

This checklist is designed to provide confirmation of in-country data and information provided in the Project Design Document for Combined Cycle at Loma de la Lata Thermo Unit Project.

It serves as a “**reality check**” on the project that is completed by a local assessor from SGS Chile.

Issue	Findings	Source/Mean of Verification	Further Clarification / Action Required? / Information
CAR 7, Project boundaries	Emissions in the project site linked to the project implementation.	- Document review - Interview	Closed
CL 12, Investment analysis	Validation of local information used in the investment analysis.	- Document review - Interview	Closed
CL 13, Benchmark determination	Validation of local information used in the benchmark determination.	- Document review	Closed
CL 14, Barrier analysis	Validation of barriers identified by the PP.	- Document review - Interview	Closed
CAR 16, Ex-ante calculation	Validation of data used for ex-ante calculations against raw data	- Document review - Interview	Closed
CAR 18, Monitoring plan	Validation of equipments installed (for the available ones)	- Document review - Interview	Closed
CL 20, Stakeholder consultation	Information to validate the stakeholder consultation was requested.	- Document review - Telephone interviews	Closed.

A.2 Annex 2: Validation Checklist

Table 1 - Participation Requirements for Clean Development Mechanism (CDM) Project Activities (Ref PDD, Letters of Approval and UNFCCC website)

Requirement	Reference Criteria	SGS Assessment	Conclusion/CARs/CLs
<p>1. All Parties involved have approved the project activity</p> <p>1.1. Has the DNA of each Party involved in the proposed CDM project activity in section A.3 of the PDD provided a written letter of approval which confirms</p> <ul style="list-style-type: none"> a) The country is a Party to the Kyoto Protocol b) Participation is Voluntary c) The Host Party confirming that the proposed CDM project activity contributes to sustainable development of the country Non-Annex 1 Party shall submit a letter of approval d) It refers to the precise proposed CDM project activity title in the PDD being submitted for registration <p>1.2. Whether the LoA is unconditional with respect to (a)-(d) above?</p> <p>1.3. Is the LoA from the project participant or directly from the DNA, indicate the means of validation employed to assess the authenticity with DNA if the team doubt the authentic of LoAs.</p>	<p>Clean Development Mechanism, Validation and Verification Manual, Version 01.2 (from this point forwarded referenced as VVM) -- Para 44-50 and 126-127</p> <p>Paragraph 37 CDM Modalities and procedures</p>	<p>Argentina has ratified the protocol on September 28th 2001 and is allowed to participate. The web link is http://maindb.unfccc.int/public/country.pl?country=AR None Annex I Party is involved with the Project.</p> <p>The project activity will contribute to sustainable development.</p> <p>Argentina has nominated a DNA, it was validated against the information recorded at http://cdm.unfccc.int/DNA/index.html</p> <p>The letter of approval from Argentina has to be provided. CAR 1 was raised.</p> <p>PP provided a letter issued by the Argentinian DNA, MS. Maria Eugenia Rallo (ref 41b) where she confirmed that the LoA issued on 19/03/2009 (ref 41a) is valid for PDD version 5.</p> <p>It was validated that the LoA confirms that:</p> <ul style="list-style-type: none"> (a) Argentina is a Party to the Kyoto Protocol; (b) The participation is voluntary; (c) The project activity contributes to the sustainable development of Argentina; (d) Refers to the project with the same name stated in the PDD. 	<p>CAR 1 closed</p>

		CAR 1 was closed.	
2. Please state the project participants listed in the PDD and check with which of these project participants does SGS have a contract for the projects validation	Para 37 CDM M & P Para 7 EB 50 Annex 48	PDD version 1 (ref. 1) has one project participant, Central Térmica Loma de la Lata S.A.. The same PP is informed in all PDD versions. It was validated that project participant information reported in Annex 1.	
2.1. If the project participant(s) listed in the PDD published at international stakeholder ¹ consultation are not included in the PDD submitted with request for registration, a letter should be obtained from the withdrawn project participant(s) confirming its voluntary withdrawal from the proposed project activity.	EB 30 Para. 41. EB50 Annex 48 Para. 8	PP included in PDD version 1 and last version is the same.	N/A
2.2. Confirm while submitting a request for registration – all of the project participants with a contractual relationship are still listed in the PDD.	EB50 Annex 48 Para.7-9	Central Térmica Loma de la Lata S.A, the project participant, signed the validation contract with SGS.	Ok
2.3. Project participants who are listed in the PDD (submitted for global stakeholder consultation) but who do not have a contractual relationship with SGS for the purposes of the validation activity may be removed from the PDD which is submitted for registration	EB50 Annex 48 Para.7-9	There is only one PP (Central Térmica Loma de la Lata S.A), who signed the validation contract with SGS. The PP is the project developer.	N/A
2.4. SGS may restart the validation activity through the new or revised contract with a different set of project participants by; a. Indicating that the first validation contract has been terminated and; b. Republishing the PDD or revised PDD for global stakeholder consultation.	EB50 Annex 48 Para.7-9 (If applicable)	Not applicable.	N/A
2.5. The letter/s of approval are unconditional with respect to 1.1a to 1.1d above	VVM Para. 49/54	Yes, the letter (ref 41a) is not conditional to the previous points.	Yes
3. The project shall assist non-Annex I Parties in achieving	VVM Para. 54	According with the information reported PDD (ref 1a),	Yes

¹ Stakeholders mean the public, including individuals, groups or communities affected, or likely to be affected, by the proposed CDM project activity or actions leading to the implementation of such an activity

sustainable development and shall have obtained confirmation by the host country thereof, and be entered into voluntarily	Marrakech Accords, CDM Modalities §29 and §30 Kyoto Protocol Art. 12.2, Marrakech Accords, CDM Modalities §40a	the project will contribute to sustainable development through the use of cleaner and efficient technologies and technology transfer.	
4. Parties, stakeholders and UNFCCC accredited NGOs shall have been invited to comment on the validation requirements for a minimum of 30 days, and the project design document and comments have been made publicly available	VVM Para. 40-42 Marrakech Accords, CDM Modalities, §40	The project was published for international stakeholder consultation at https://cdm.unfccc.int/Projects/Validation/DB/WFR9IGGBPU23ETATOPHJP70XMV7TPM/view.html from 04/01/2012 until 02/02/2012. No comments were received.	Yes
5. The project design document is in accordance with the applicable CDM requirements for completing PDDs.	VVM Para. 55 - 57 Marrakech Accords, CDM Modalities, Appendix B, EB Decisions EB 25 Annex 15 EB 41 Annex 12	The PDD (ref 1a) uses the last template available at UNFCCC web site (version 3). The document contains all the sections and original headings/logo are kept.	Yes

Table 2 - PDD

Checklist Question	Reference Criteria	MoV*	SGS Assessment	Conclusion/ CARs/CLs
A. General Description of Project Activity				
A.1. Project Title				
A.1.1. Does the used project title clearly enable the reader to identify the unique CDM activity?	VVM Para.56 Guidelines for completing a CDM-PDD (PDD) section A.1	DR	The project title " <i>Combined Cycle at Loma de la Lata Thermo Unit Project</i> " is unique as per the projects under CDM.	Yes
A.1.2. Is there an indication of a revision number and the date of the revision?	VVM Para.56 PDD section A.1	DR	Yes, PDD includes its version and date in section A.1. - PDD version 1, dated 22/12/2011 (ref 1a)	Yes
A.2. Description of the Project Activity				
A.2.1. Does the proposed CDM project activities in existing facilities or utilizing existing equipments? Does a site inspection carried out by the assessment team?	VVM Para 60 Guidelines for completing a CDM-PDD (PDD) section A.2	DR SV	<p>The project consists in the conversion of an Open Cycle generation power plant to a Combined Cycle. Thus, the project involves existing facilities and equipments. Specifically, it involves the power plant "Central Térmica Loma de la Lata" which as PDD started operations in 1994, the information was validated against the data published in the company web page (http://www.pampaenergia.com/en/NUE_GEN_LOMA.ASP). In order to validate the operations starting date of the plant in open cycle, the PP is requested to provide evidence of the commissioning of the plant as open and combined cycle. (Please provide the commercial certificate, historical records, etc.). CL 2 was raised. Based on the notification sent by Cammesa (ref 57, 58 & 59) it was verified that the commissioning of the plant as combined cycle was on 01/11/2011. CL 2 was closed.</p> <p>The project correctly classifies as a large scale project.</p> <p>The site visit was conducted on March 7, 8 & 9 2012.</p>	CL 2 closed
A.2.2. Does the description of the proposed CDM project activity as contained in the PDD sufficiently cover all relevant elements accurately and	VVM Para.58-59 VVM Para. 64(a) PDD section A.2 see also A.4, A.4.3 and	DR	<p>The PDD provides a clear and transparent description of the project in section A.2. Later section A.4.3, reports detailed the technical characteristics of the project.</p> <p>The projects consist in the conversion of an open cycle power plant to a combined cycle. The plant will take advantage of the exhaust gases from three gas turbines (operated with natural gas, 369.93 MW) by</p>	Yes CL 2

* MoV = Means of Verification, DR= Document Review, I= Interview

provide the reader with a clear understanding of the nature of the proposed CDM project activity?	B.3		<p>the implementation of three Heat Recovery Steam Generators (HRSG). The energy from the exhaust gases will be used to generate steam and operate a steam turbine of 175.73 MW. As per PDD (ref 1b), installed capacity of the open cycle was 369.93 MW, and the installed capacity of the steam turbine 175.73 MW, it means 545.66 MW. As per the commercial habilitation given by Cammesa on 31/10/2011 (ref 35-8, Power connection agreement), the steam turbine will have a capacity of 165 MW and the combined cycle 540 MW. CL 2 was raised.</p> <p>It was validated that the installed capacity reported in PDD corresponds to the rated performance as per the local conditions as per the manufacturer, thus it corresponds to the maximum gross generation, as summarized below.</p> <ul style="list-style-type: none"> - TG: 369.93 MW (validated against General Electric technical specifications, ref 143) - TV: 175.73 MW (validated against General Electric technical specifications, ref 146) <p>The values used by the PP are deemed correct because are in line with the manufacturer definition. Regarding the capacity assigned by Cammesa is not deemed suitable, because it can change along the time and not necessarily represent the maximum capacity, as it has been validated (ref 35-8), for TG it correspond to the plate figure (nominal capacity) and for TV at a capacity estimated due to the operation condition due to the blade design fault.</p> <p>CL 2 was closed.</p> <p>As per PDD information no additional gas will be burnt in the plant to add more energy to the steam.</p> <p>The project will contribute to sustainable development through the use of cleaner and efficient technologies and technology transfer.</p>	closed
A.2.3. If the project activity involves the alternation of an existing installation or process, does the project de-scription clearly state the differences resulting from the project activity compared to the pre-project situation?	VVM Para.63 PDD section A.2 see also A.4, A.4.3 and B.3	DR	As it was described, the project means changes of installations already existent. The pre-project situation corresponds to the power plant "Central Térmica Loma de la Lata" running on natural gas and operating in open cycle. The electricity generated by the plant is injected to the SADI (Interconnected Argentinian System).	Yes
A.2.4. Is all information provided consistent and in compliance with the actual situation or planning?	VVM Para.64 PDD section A.2 see also A.4, A.4.3 and B.3	DR SV	Yes, it was validated during the site visit and assessed against the information included in the PDD.	Yes
A.2.5. Is all information with respect to project description deemed accurate and complete?	VVM Para.64(b) PDD section A.2	DR	Yes, the PDD includes in a complete manner all the project information, it was found consistent through the sections of the PDD.	Yes

A.3. Project Participants

A.3.1. Is the table required for the indication of project participants correctly applied?	VVM Para. 51-54 PDD section A.3	DR	The table located in section A.3 is correctly completed. It identifies the project participant (Central Térmica Loma de la Lata S.A.) the host country (Argentina) and states that Argentina is not a project participant.	Yes
A.3.2. Whether the participation of each project participant has been approved by at least one Party involved, either in a letter of approval or in a separate letter specifically to approve?	VVM Para. 52	DR	PP was requested to provide the Letter of Approval, CAR 1 was previously raised and closed. PPD version 5 (ref 12) contains only one PP, Central Térmica Loma de la Lata S.A., it was validated that the LoA (ref 41a) approves the PP participation.	CAR 1
A.3.3. Is all information provided in consistency with details provided by further chapters of the PDD (in particular Annex 1)?	VVM Para. 51 PDD section A.3/Annex 1	DR	Yes the information is consistent throughout the document.	Yes
A.3.4. Has the MoC been completed as per the latest Procedures for MoC between the project participants and the Executive Board?	EB 48 Annex 60 EB 45 Annex 59	DR	MoC using the last template available at UNFCCC website has to be provided. CAR 3 was raised. It was validated that the MoC was filled in the template 1.4., even new template is available the use of version 1.4 is deemed correct because the project is being validated under VVM. It was validated that the MoC was filled correctly, the project name is correct against PDD. It was validated against the Power of Attorney dated 15/01/2009 that the contact person is the President of "Central Térmica Loma de la Lata S.A." and President of the Board of Directors of "Pampa Energía". CAR 3 was closed.	CAR 3 closed

A.4. Technical Description of the Project Activity

A.4.1. Does the information provided on the location of the project activity allow for a clear identification of the site(s)? A.4.2. Are the latitude and longitude of the site indicated (decimal points)	VVM Para.64 PDD section A.4	DR	The PDD identifies its location and define the coordinates of: the entrance of the plant, each gas turbine and steam turbine. The project is located in one site. Entrance of the plant: 38° 30' 51.84 S, 68° 36' 18.73 W Gas turbine 1: 38° 30' 47.63 S, 68° 36' 22.70 W Gas turbine 2: 38° 30' 46.00 S, 68° 36' 22.66 W Gas turbine 3: 38° 30' 44.35 S, 68° 36' 22.38 W Steam turbine: 38° 30' 43.15 S, 68° 36' 22.35 W PP is requested to provide the project location using decimal points. CL 2 was raised. - It was validated that PDD version 2 (ref 1b) includes its location using decimal points, the information is equivalent to the information reported previously in PDD version 1 (ref 1a).	Yes CL 2 closed
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			Entrance of the plant: 38,5144000° S, 68,6052028° W Gas turbine 1: 38,5132306° S, 68,6063056° W Gas turbine 2: 38,5127778° S, 68,6062944° W Gas turbine 3: 38,5123194° S, 68,6062167° W Steam turbine: 38,5119861° S, 68,6062083° W CL 2 was closed.	
A.4.3. Does the proposed CDM project activity involve the alteration of existing installations or process?	VVM Para.64 PDD section A.4	DR	Yes, the project involves the alteration of an existent process, this is clearly reported in PDD. On the other hand this is correct according to the ACM0007 version 06.1.0 and it corresponds to one of the applicability conditions.	Yes
A.4.4. Is the category(ies) of the project activity correctly identified?	VVM Para.64 PDD section A.4	DR	PDD section A.4.2. classifies the project as Sectoral Scope 1, Energy Industry (non-renewable). This classification is correct because the project consist in the electricity generation after the implementation of a combine cycle.	Yes
A.4.5. Is all information provided in compliance with actual situation or planning as available by the project participants?	VVM Para.64 PDD section A.4 Guidelines for completing a CDM-PDD (PDD)	DR	Yes the information provided by PP in the PDD is consistent throughout the document. Additionally the information was validated against the project owner web page http://www.pampaenergia.com/en/NUE_GEN_LOMA.ASP . It was validated against the turbines purchase order that the equipment installed on site correspond to the equipment cited in PDD. The operation of the project does not represent an environmental risk, the technology used is broadly used in the world. It was verified against the information published in the Cammesa web page that Argentina generates electricity using the following technologies: Thermal, Hydro, Nuclear. Based on the verified information it can be affirmed that the base line was correctly identified.	Yes
A.4.6. Is the projected emission reductions in consistency with the ex-ante estimation in Section B.6.4?	VVM Para.64 PDD section A.4.4	DR	PDD section A.4.4. reports the estimated ER, the information is consistent with the detailed calculation procedure reported in PDD section B.6.1, the data available in section B.6.2. and B.6.4. However it has to be noted that the Total ER of the crediting period reported in A.4.4. and B.6.4 (4,320,277) is not consistent with the yearly values reported in the same table. PP is requested to consider figures without decimals and rounded down. CAR 4 was raised. Based on the updated documents (PDD (ref 1d), EFgrid (ref 164, 165) and ER calculation file (ref 15c)) it is validated that the estimated ER is reported correctly. CAR 4 was closed.	Yes CAR 4 closed
A.5. Public Funding				
A.5.1. Does the information on public funding provided conform to the actual situation or planning	PDD section A.4.5	DR	As per PDD version 1 (ref 1a), the project is not going to receive any kind of public funding from Annex I countries. This information was assessed against the "Annual Memory 2007" issued by Pampa Energia (ref 23), where is stated that Pampa Holding increase its "capital" through another countries bonds and	Yes CL 5

as presented by the project participants?			payment to providers. PP is requested to detail which countries provided resources against the bonds issued. CL 5 was raised. It was validated that the resources for the project were obtained through the bonds selling, Thus the capital involved does not correspond to public funding. CL 5 was closed.	closed						
A.5.2.Is all information provided consistent with details provided by further chapters of the PDD (in particular annex 2)?	PDD section A.4.5	DR	Yes, the information reported in PDD (version 1), section A.4.5. and Annex 2 is consistent.	Yes						
A.5.3.In case of public funding from Annex I Parties is it confirmed that such funding does not result in a diversion of official development assistance	PDD section A.4.5	DR	Not applicable, no funding from Annex I countries.	N/A						
B. Baseline and Monitoring Methodology										
B.1. Title and reference of the approved baseline and monitoring methodology applied of the project activity										
B.1.1.Is the baseline methodology previously approved by the CDM Methodology Panel?	VVM Para.65 VVM Para 68 PDD section B.1	DR	PDD section B.1., states that the project will follow ACM0007 version 06.1.0 (ref 2c) It was validated that the project will follow the last approved version of the methodology. The cited methodology will be used together with the “Tool to calculate the emission factor for an electricity system” version 2.2.1 (ref 5), “Combined tool to identify the baseline scenario and demonstrate additionality” version 3.0.1. (ref 3), “Tool to calculate project or leakage CO ₂ emissions from fossil fuel combustion” version 2 (ref 4) and .Tool to determine the remaining lifetime of equipment” version 1 (ref 6), which are the latest available.	Yes						
B.1.2.Is there any specific guidance (including the Tools) provided by EB and has these guidance been applied?	VVM Para.68-69 PDD section B (B.1-B.2)	DR	Yes, in addition to the methodology (ACM0007 version 06.1.0) the project follows: the “Tool to calculate the emission factor for an electricity system” version 2.2.1 (ref 5), “Combined tool to identify the baseline scenario and demonstrate additionality” version 3.0.1. (ref 3), “Tool to calculate project or leakage CO ₂ emissions from fossil fuel combustion” version 2 (ref 4) and .Tool to determine the remaining lifetime of equipment” version 1 (ref 6), which are the latest available. Finally it follows as well the “Guidelines on common practice” version 1 (ref 25) and “Guidelines on the assessment of investment analysis” version 5 (ref 26).	Yes						
B.2. Choice and Applicability of methodology										
B.2.1.Is the selected approved methodology applicable to the project activity in the PDD?	VVM Para.75/66a/68/73 PDD section B (B.1-B.2)	DR	Yes, the project complies with the requisites stated in ACM 0007 version 06.1.0. It was validated as follow: <table><tr><td>ACM0007 requisites</td><td>PDD</td><td>Compliance Assessment</td></tr><tr><td>The methodology applies to project activities that convert</td><td>Section A.2. “The Project activity consists of the conversion of the</td><td>The project complies with the basic condition of conversion from open to combined cycle. This was</td></tr></table>	ACM0007 requisites	PDD	Compliance Assessment	The methodology applies to project activities that convert	Section A.2. “The Project activity consists of the conversion of the	The project complies with the basic condition of conversion from open to combined cycle. This was	Yes CAR 6 closed
ACM0007 requisites	PDD	Compliance Assessment								
The methodology applies to project activities that convert	Section A.2. “The Project activity consists of the conversion of the	The project complies with the basic condition of conversion from open to combined cycle. This was								

			one or several grid connected power units at one site from single-cycle to combined-cycle mode	<i>existing plant into a combined cycle generation plant by adding three Heat Recovery Steam Generators (HRSGs)"</i>	validated against reported in the project description. PP does not assess this applicability condition in PDD section B.2. CAR 6 was raised. It was validated that PDD version 2 (ref 1b) includes the missing applicability condition. Similarly Based on the project evidence, it was validated that the condition is complied correctly. Item closed
			The unit(s) have an operational history of at least one year with no major retrofit, and at least one unit has an operational history of more than three years with no major retrofit. There is no major retrofit in these time periods	Section B.2. <i>"The three natural gas turbines of the single cycle power plant started to operate in 1994. They did not suffer any major retrofit since the operation start date."</i>	As per the information reported in PDD the plant started operations (as open cycle) in 1994. PP is requested to provide the corresponding commissioning certificate. CL 2 was raised. Based on the notification sent by Cammesa (ref 57, 58 & 59) it was verified that the commissioning of the plant as combined cycle was on 01/11/2011. During the site visit it was validated that the plants records are available since 1994, specifically gas consumption and electricity generation. Item Closed.
			In the case that a unit has less than three years operational history: all project power unit(s) were designed and commissioned for operation in single cycle mode only.	Section B.2. <i>"The three natural gas turbines were commissioned in 1994 to operate in single cycle mode only."</i>	As per PDD information the plant is over three operations years. The commissioning date will be assessed. CL 2 was raised. It was validated that the plant was operating previously in open cycle. Based on the notification sent by Cammesa (ref 57, 58 & 59) it was verified that the commissioning of the plant as combined cycle was on 01/11/2011. Item Closed.
			During the most recent three years prior to the implementation of the project activity and during the crediting period the project power unit(s) use(d) only the following fuel types: (a) Fossil fuels; and/or (b) Blends of fossil fuels and biofuels, where the biofuel is blended to the fossil fuel in a situation that is outside the control of the project participants (such as regulatory requirements to blend biodiesel with diesel or biogas with natural gas).	Section B.2. <i>"Since the single cycle started to operate in 1994 it only used fossil fuel (particularly natural gas) and will continue utilizing only fossil fuel during the Project crediting period."</i>	As per PDD information the fuel used is natural gas. In order to validate the information the PP is requested to provide the permit issued by the authority where is defined the type of fuel used by the plant. CAR 6 was raised. It was validated through the "EIA" submitted by the PP to the authority (ref. 33 - 3. & 4. EIA / 1. EIA-IA) that the project used natural gas during its operation in open cycle. Additionally during the site visit, were reviewed the monthly acts that records the daily consumption of natural gas, the cited acts were available since 1994, being the first act dated 03/06/1994). Therefore it is confirmed that the project complies correctly with the second applicability condition. Item closed
			The type(s) of fossil fuels used by the project power unit(s) during the crediting period were also used during the most recent three years prior to the implementation of the project activity, except, where applicable, any auxiliary fuel consumption (e.g. for start-ups) which shall not exceed 3% of the total fuel consumption in the unit(s) (measured on an energy	Section B.2. <i>"The Project power units will utilize natural gas during the crediting period, the same fuel that was also used during the most recent three years prior to the implementation of the Project activity."</i>	As per PDD information the used and will continue using natural. Thus, this condition is met. PP is requested to provide information (type of fuel and amount) about the auxiliary fuel used (e.g. For start ups). CAR 6 was raised. It was validated through the "EIA" submitted by the PP to the authority (ref. 33 - 3. & 4. EIA / 1. EIA-IA) that the project used natural gas during its operation in open cycle. Additionally during the site visit, were reviewed the monthly acts that records the daily consumption of natural gas, the cited acts were available since 1994, being the first act dated 03/06/1994). Therefore it is confirmed that the project

			<p>basis)</p> <p>The methodology is applicable under the condition that the project activity does not increase the lifetime of the existing gas turbine or engine during the crediting period.</p>	<p>Section B.2. " <i>The existing gas turbines were installed in May 1994. Up to November 1, 2011, gas turbine number three is the one that has operated more time (73,017 hours). According with General Electric (Loma de la Lata single cycle gas turbines provider), an area for attention, although a longer-term concern, is the life of the compressor and turbine rotors. Disassembly and inspection of all rotor components is required when the accumulated rotor starts or hours reach the inspection limit. When no recommendations have been made, rotor inspection should be performed at 5,000 factored starts or 200,000 factored hours. This interval indicates the serviceable life of the rotor and is generally considered to be the teardown inspection and repair/replacement interval for the rotor. According with the historical operation of Loma de la Lata single cycle and the expected operation in combined cycle, the limited factor for the rotor inspection is the factored hours (200,000). According with the above mentioned, the remaining lifetime of the gas turbines rotors would be at least 126,983 operative hours 38 years (...)</i>"</p>	<p>complies correctly with the second applicability condition. Item closed</p> <p>As per PDD information the "remaining lifetime" is determined as per option a) of the Tool (ref 6), it is deemed correct. As per PP information the turbine three has operated 73,017 hrs (since it started operations) and correspond to the unit with largest amount of hours, PP is requested to provide evidence of the operation hours and the manufacturer's (General Electric) technical information of life time. CAR 6 was raised.</p> <p>As per the information reported in PDD (ref 1b), "...rotor inspection should be performed at 5,000 factored starts or 200,000 factored hours....". It was validated against the "heavy-duty gas turbine operating and maintenance considerations" issued by General Electric (ref 62), that the rotor inspection interval has to be done at least every 5000 starts or 200,000 hrs. The steps followed by the PP to determine the remaining life time (ref 147) were validated. The accumulated operation time was reviewed against the turbines record (ref 61), slightly differences were found, however they do not threaten the applicability condition of the methodology. It was validated that the calculation used the average rate of operation (38.2%) of the turbines during the last five years, which is higher than the average of the last three last years (32.2%), the criteria applied is conservative. The remaining life time (38 years) was correctly defined; the remaining life time is longer than the crediting period option (7-year renewable). Item closed.</p>	
B.2.2. Is the discussion in the PDD in conformance with all applicability criteria of the applied methodology?	VVM Para.70-76 PDD section B (B.1-B.2)	DR	It was validated in B.1.1. that the PP carried out an analysis of the applicability conditions, and they were validated and reviewed in B.1.1.			Yes
B.2.3. Is there any GHG emissions occurring within the project boundary as a result of the implementation of the proposed project which are expected to contribute more than 1% of the overall expected average	VVM Para 77	DR SV	<p>As per PDD description there are no other sources of GHG. PP is requested to clarify if there are other devices related with the project implementations, such auxiliary engines, generators or similar that consumes fossil fuels. CL → CAR 7 was raised. During site visit it was found that the plant has three emergency diesel generators. Two of them installed in the plant since it operated in open cycle and one installed during the project conversion to combined cycle.</p> <p>It was validated that in the annex (ref 63) to the contract signed between Pampa and Isolux it is stated that plant already has an emergency fire system. Regarding the emergency generator to support the TGs,</p>			Yes CAR 7 closed

annual ERs, which are not addressed by the applied methodology.			it was validated against a maintenance summary (ref 65) that the Detroit generator had maintenance in 1996, thus there is evidence that the equipments were installed before the project implementation. As per PDD version 2 (ref 1b) section B.7.1., the fuel consumption will be measured and taken into account in the ER calculations. Item closed.	
B.2.4. Is the applicability of the selected methodology satisfied?	VVM Para.76	DR SV	Yes, all the applicability conditions are met.	Yes
B.3. Project Boundary				
B.3.1. Does the project boundary include the physical delineation of the proposed CDM project activity?	VVM Para. 78-80 PDD section B.3 also see section A.4.3	DR SV	<p>PDD section B.3. (ref 1a), table 3 defines the emissions sources included or excluded in the project boundary. It was reviewed and was found correct against the ACM0007 version 06.1.0. Additionally and in line with the Tool to calculate the grid emission factor and the ACM0007 version 06.1.0, PDD identifies as project boundary <i>"the spatial extent of the Project boundary includes the Project power units and all power plants connected to the same grid electricity system."</i>.</p> <p>On the other hand the methodology identifies the following emissions sources: <i>When determining project emissions, project participants shall include the following emissions sources:</i> <ul style="list-style-type: none"> • CO2 emissions from on-site consumption of fossil fuels to operate the project power unit(s); and As per PDD version 1 (ref 1a) this source is attributable to the project, it is deemed correct.</p> <ul style="list-style-type: none"> • CO2 emissions from on-site consumption of fossil fuels, to supplement the exhaust heat used to operate the steam turbine. <p>As per PDD version 1 (ref 1a) the plant is not going to burn additional gas in the steam turbine. In order to validate this assumption, the PP is requested to provide the dossier with the details of the projects and the corresponding permits where the plant operation (combined cycle) is defined. CL→CAR 7 is raised. It was validated against the EIA presented to the authority (ref. 33 - 3. & 4. EIA / 1. EIA-IA) that no authorization to burn additional gas was requested. The same information was validated against the annex (ref 63) to the main contract signed between Pampa Energía and Isolux, where is stated that the project does not consider any gas system. Item closed</p> <p><i>When determining baseline emissions, project participants shall include the following emission sources:</i> <ul style="list-style-type: none"> • CO2 emissions from fossil fuel fired power plants connected to the same electricity system as the project power unit(s); and • CO2 emissions from operation of the project power unit(s) in single cycle mode. As per PDD both sources of emissions are attributable to the project, it is deemed correct.</p>	Yes CAR 7 closed

B.3.2. Are all emission sources and gases related to the baseline scenario, project scenario and leakage clearly identified and described in a complete and transparent manner?	VVM Para.79-80 PDD section B.3	DR	As reviewed previously, PDD section B3 (ref 1a) identified all the emissions related with baseline and project scenario. As per the methodology (ref 2), <i>"Upstream emissions related to fossil fuels consumed by the project power unit(s) and emissions associated with the a change in the amount of exhaust heat recovery due to the project activity are outside the project boundary and included as leakage emissions."</i> PDD version 1(ref 1a) section B.3. does not refer to the leakage emissions. Even the leakage is identified in section B.6.1, PP is requested to complete the information in section B.3. CAR 8 is open. Updated PDD (ref 1b) was reviewed, it was validated that section B.3. includes the analysis regarding the leakage. It was validated as well that as per the EIA presented to the authority (ref 33), the plant did not have a heat recovery system previous to the project implementation. CAR 8 was closed.	Yes CAR 8 closed
B.3.3. In case of grid connected electricity projects: Is the relevant grid correctly identified in accordance with the latest version of tool to calculate emission factor of electricity system (wherever applicable) and the underlying methodology?	VVM Para.79 PDD section B.3 EB 50 Annex 14	DR	The project follows ACM0007 version 06.1.0 (ref 2c) and the Tool to calculate the emission factor for an electricity system version 2.2.1 (ref 5). The PP described in PDD (ref 1a) section B.6.1. all the steps followed to calculate the EFgrid. It was validated against the Tool (ref 5) that PP identifies the SADI, as the system where the project injects the electricity generated. It was validated against a diagram of the grid (ref 20) obtained from Cammesa web site, that Loma de la Lata power Plant is connected and it is part of the SADI. The equations, calculations and values used in the grid emission factor determination is reviewed in section B.6.1. of this checklist.	Yes
B.3.4. Are the project's geographical boundaries and the project's system boundaries (components and facilities used to mitigate GHGs) clearly defined?	VVM Para.76/79 PDD section B.3 also see section A.4.3	DR SV	Yes, the project boundaries correspond to the proposed project activity plus all the power plants connected to the grid.	Yes
B.4. Identification of the Baseline Scenario				
B.4.1. Does the PDD discuss the identification of the most likely baseline scenario? Does the PDD follow the steps to determine the baseline scenario required by the methodology/tool and has the application of the tools as per methodology been consulted, if the Tool(s) are required by the methodology?	VVM Para. 82/86 PDD Section B.4/B.5	DR	PDD section B.6.1 (ref 1a) follows the steps defined in the ACM0007 version 06.1.0. to identify the baseline scenario. The baseline corresponds to those emissions issued by the operation of the project as open cycle and the emissions from the grid-connected plants. The ACM007 version 06.1.0 defines three steps to define the baseline emissions (BEy). <u>Step 1: Determination of the baseline emissions for different scenarios of project electricity generation</u> PDD version 1 (ref 1a), section 6.1, follows correctly the cases (a to c) to define the baseline emissions by the project generation. The review of the equations/calculations is included in sections B.6.1., B 6.2, B.6.3, and B.6.4., of this checklist.	Yes

			<p><u>Step 2: Estimating the emissions factor for electricity generated in single cycle mode in the baseline ($EF_{CO2,BL}$)</u> As per PDD version 1 (ref 1a), the $EF_{CO2,BL}$ is calculated correctly using equation 10 of the methodology. The review of the calculations is included in sections B.6.1., B 6.2, B.6.3, and B.6.4., of this checklist.</p> <p><u>Step 3: Determine the emissions factor for the grid electricity system ($EF_{grid,y}$)</u> As per PDD version 1 (ref 1a), the $EF_{grid,y}$ is calculated following correctly the “Tool to calculate the emission factor for an electricity system” version 2.1.1. (ref 5). The review of the equations/calculations is included in sections B.6.1., B 6.2, B.6.3, and B.6.4., of this checklist.</p>	
B.4.2. Have all applicable CDM requirements been taken into account in the identification of the baseline scenario, including “relevant national and/or sectoral policies and circumstances?”	VVM Para.85/87(d) EB 22 Annex 3 EB 53 Annex 32	DR	Yes, to determine the baseline scenario was followed the ACM0007 version 06.1.0 (ref 2c) and the Tool to determine the grid emission factor (ref 5). As per ACM007 and PDD the baseline is given by “is the generation of electricity by the operation of the project power unit(s) in single cycle mode as well as by grid-connected power plants.”. Thus the baseline corresponds to types of power plants that already are in operation in the system (SADI), thus they are in compliance with the local regulation.	Yes
B.4.3. Are all potential realistic and credible alternative scenarios listed in the methodology are considered in identification of the most reasonable baseline scenario? Are all scenarios are reasonable in the con-text of the proposed CDM project and no reasonable alternative scenario has been excluded?	VVM Para. 81-84 PDD Section B.4/B.5	DR	Yes, as it was stated in B.4.2. the PP to determine the baseline scenario was followed the ACM0007 version 06.1.0 (ref 2c) and the Tool to determine the grid emission factor (ref 5). The baseline corresponds to the electricity generation from the grid and the plant operating in open cycle, which are already in operation.	Yes
B.4.4. Is conservativeness addressed in the way of identifying the baseline?	VVM Para.90 PDD Section B.4/B.5	DR	Yes, as it was stated in B.4.2. the PP to determine the baseline scenario was followed the ACM0007 version 06.1.0 (ref 2c) and the Tool to determine the grid emission factor (ref 5). The baseline corresponds to the electricity generation from the grid and the plant operating in open cycle, which are already in operation.	Yes
B.4.5. Is there a verifiable description of the baseline scenario? Does this include a description of the technology that would be employed and/or the activities that would take place in the absence of the proposed CDM project activity?	VVM Para.86 PDD Section B.4/B.5	DR	Yes, as it was stated in B.4.2. the PP to determine the baseline scenario was followed ACM0007 version 06.1.0 (ref 2c) and the Tool to determine the grid emission factor (ref 5). The baseline corresponds to the electricity generation from the grid and the plant operating in open cycle, which are already in operation.	Yes

B.4.6. Does the selected baseline represent the most likely scenario among other possible and/or discussed scenarios?	VVM Para.87 PDD Section B.4/B.5	DR	Yes, as it was stated in B.4.2. the PP to determine the baseline scenario was followed the ACM0007 version 06.1.0 (ref 2c) and the Tool to determine the grid emission factor (ref 5). The baseline corresponds to the electricity generation from the grid and the plant operating in open cycle, which are already in operation.	Yes
B.5. Additionality				
B.5.1. Does the PDD clearly demonstrate the additionality using the approach as specified in the methodology and by following all the required steps?	VVM Para. 94-97 PDD Section B.1/B.4/B.5	DR	<p>PDD, section B.4. contains the additionality analysis performed by the PP. It was done as per “Combined tool to identify the baseline scenario and demonstrate additionality”, version 3.0.1. (ref 3), it is deemed correct because is the Tool required by ACM0007 version 06.1.0 (ref 2c) and the last version was used.</p> <p>PDD follows the four steps defined in the Tool:</p> <p>STEP 1. Identification of alternative scenarios; Sub-step 1a: Define alternatives to the project activity; Sub-step 1b: Consistency with mandatory laws and regulations:</p> <p>STEP 2. Barrier analysis; Sub-step 2a: Identify barriers that would prevent the implementation of alternative scenarios Sub-step 2b: Eliminate alternative scenarios which are prevented by the identified barriers</p> <p>STEP 3. Investment analysis (if applicable); STEP 4. Common practice analysis.</p>	Yes
B.5.2. In case of using the additionality tool: Is the ‘Additionality Tool’ used in the PDD latest version? If an earlier version has been used, do the changes impact the discussion in the PDD? Are all steps followed in a transparent manner?	PDD Section B.1/B.4/B.5	DR	<p>The last version (3.0.1) of the “Combined tool to identify the baseline scenario and demonstrate additionality”, version 3.0.1. (ref 3). Similarly it was validated against UNFCCC website that the version 3.0.1 is the last one available.</p> <p>The PP followed correctly all the steps (4) defined in the Tool.</p>	N/A
B.5.3. Has all information been backed up with references, sources and certification? Is the data presented credible and reliable with complete transparency to all available data and documentation?	VVM Para.93/91 PDD Section B	DR SV	<p>Yes, the PP has used data and information from official sources (Cammesa, Secretaría de Energía, MEGSA, IPCC). The project documents reference the information correctly.</p> <p>The information included in the documents is correct against the corresponding sources.</p>	Yes

B.5.4. Is the discussion on additionality and the evidence provided consistent with the starting date of the project? If the project activity start date is prior to the validation is it discussed how the CDM was taken into account in the decision to go ahead with the project activity	VVM Para.98-99 VVM Para.103-104 PDD Section B.5	DR	<p>As per the CDM Glossary of terms Version 5 “<i>The starting date of a CDM project activity is the earliest date at which either the implementation or construction or real action of a project activity begins.</i>” and “<i>In light of the above definition, the start date shall be considered to be the date on which the project participant has committed to expenditures related to the implementation or related to the construction of the project activity. This, for example, can be the date on which contracts have been signed for equipment or construction/operation services required for the project activity.</i>”.</p> <p>As per PDD version 1 (ref 1a), section C.1.1., the project starting date was 06/09/2007 and correspond to the date of signature of contract between Pampa Energía S.A. and Isolux – Corsan. The document signed (ref 39) states that “<i>the agreement is understood to be accepted by Pampa Energía S.A. and therefore will be enforced in the instant that Pampa Energía S.A. hands to Tecna Estudios y Proyectos de Ingeniería S.A. a check in the amount of 3000 (three thousand) pesos of the Argentinian Republic</i>”. Thus PP is requested to provide the supporting evidence of the cited payment and revise the project starting date accordingly. CL 9 was raised. It was validated that on 06/09/2007 Isolux receives the check number 00000203 for the amount of 3000 (three thousand) Argentinian pesos (ref 39), thus it was confirmed that the contract between the parts entered into force on 06/09/2007. Therefore it has been validated that the project starting date has been defined correctly. CL 9 was closed.</p> <p>The proposed project activity is performing a second validation. As per the information recorded in the UNFCCC web site, the project was published for validation first time on 06/11/2008 (ref 27). As result of that validation process the project (under UN number 3311) was rejected on 17/03/2011 (ref 28). The project started a new validation process and PDD was published for ISHC on 04/01/2012 (ref 27). Thus in both cases the validation started after the “starting date of the project”.</p> <p>PDD version 1, section B.5. (ref 1a), includes a list of the main actions related with the project. The actions included are assessed in the list below:</p> <table><tr><th>PDD Date</th><th>Action</th><th>SGS Assessment</th></tr><tr><td>Jan – Jun 2006</td><td>Pampa Energía S.A. acquired 8.66% of the capital stock of Central Puerto S.A. (“Central Puerto”), an important electricity generation company in Buenos Aires and the then owner of the assets composing Loma de la Lata. At the same time, Pampa Energía S.A. began its analysis regarding the closing of the cycle at Loma de la Lata.</td><td>PP is requested to provide the supporting evidence. Open. It was validated in May 2006 (ref 86) a representative of Pampa Energía started the research with a consultant company to close the cycle at Loma de la Lata. Item closed.</td></tr><tr><td>May 2006</td><td>Pampa Energía S.A. started conversations with Eonergy Argentina to evaluate the CDM potential of the Project activity</td><td>Ok, it was validated that on 17/05/2006 Eonergy sent an e-mail (ref. 12.1) to Marcelo Mindlin (Pampa Energía president) providing information about CDM and company services.</td></tr></table>	PDD Date	Action	SGS Assessment	Jan – Jun 2006	Pampa Energía S.A. acquired 8.66% of the capital stock of Central Puerto S.A. (“Central Puerto”), an important electricity generation company in Buenos Aires and the then owner of the assets composing Loma de la Lata. At the same time, Pampa Energía S.A. began its analysis regarding the closing of the cycle at Loma de la Lata.	PP is requested to provide the supporting evidence. Open. It was validated in May 2006 (ref 86) a representative of Pampa Energía started the research with a consultant company to close the cycle at Loma de la Lata. Item closed.	May 2006	Pampa Energía S.A. started conversations with Eonergy Argentina to evaluate the CDM potential of the Project activity	Ok, it was validated that on 17/05/2006 Eonergy sent an e-mail (ref. 12.1) to Marcelo Mindlin (Pampa Energía president) providing information about CDM and company services.	Yes CL 9 closed CL10 closed
PDD Date	Action	SGS Assessment											
Jan – Jun 2006	Pampa Energía S.A. acquired 8.66% of the capital stock of Central Puerto S.A. (“Central Puerto”), an important electricity generation company in Buenos Aires and the then owner of the assets composing Loma de la Lata. At the same time, Pampa Energía S.A. began its analysis regarding the closing of the cycle at Loma de la Lata.	PP is requested to provide the supporting evidence. Open. It was validated in May 2006 (ref 86) a representative of Pampa Energía started the research with a consultant company to close the cycle at Loma de la Lata. Item closed.											
May 2006	Pampa Energía S.A. started conversations with Eonergy Argentina to evaluate the CDM potential of the Project activity	Ok, it was validated that on 17/05/2006 Eonergy sent an e-mail (ref. 12.1) to Marcelo Mindlin (Pampa Energía president) providing information about CDM and company services.											

			13/Sep/2006	Econergy presented a commercial proposal to be in charge of the validation process of the Project and purchase its CERs and an initial estimation of the amount of CERs to be generated by the Project.	Ok, it was validated that on 13/09/2006 (ref 12.1) an Econergy representative sent via e-mail the commercial proposal to develop a combined cycle power plant as a CDM project.
			04/Dec/2006	Central Puerto S.A. agreed to sell the assets comprising Central Térmica Loma de la Lata to Pampa Energía S.A.	Ok, it was validated that on 04/12/2006 Pampa Holding S.A. notified the approval of the acquisition of Central Puerto S.A. (ref 12.1.). Additionally it was crosschecked with the information published on "Business of Americas" web site (ref 29), where it was published that Central Puerto accepted to sell the plant "loma de la Lata" to "Pampa Holding"
			12/Mar/2007	EcoSecurities presented a proposal to manage the Project's validation process and to purchase its CERs. (EcoSecurities started conversations with Pampa Energía S.A. before that date, however there are no formal evidences to sustain that until March)	Ok, it was validated through e-mail correspondence (ref 12.1) that on 12/03/2007 EcoSecurities sent a proposal to develop the conversion of Loma de Lata to combined cycle power plant as a CDM project.
			17/May/2007	Closing of the acquisition of the Central Térmica Loma de la Lata by Project Developer	Ok, it was validated that on 17/05/2007 Pampa Holding S.A. notified the acquisition of the Power plant "Loma de la Lata" to Central Puerto S.A. (ref 12.1.).
			06/Jul/2007	A Pampa Energía S.A. Board Meeting took place in which it was stated that its subsidiary, the Project developer was in advanced negotiations with carbon consulting companies (MGM and Econergy) to develop the CDM component, essential source of revenue that would turn the Project economically viable	Ok, a copy of the board meeting held on 06/07/2007 was reviewed and it was validated that the board was informed about the negotiations with MGM and Econergy to register the project (Loma de la Lata) as a CDM project. It was validated that in that time the project developer expected to receives incomes from 3,000,000 to 4,000,000US\$ per year, thus this additional incomes would make the investment viable.
			11/Jul/2007	EcoSecurities continued negotiating a proposal until November 2007, when the Project developer informed that the proposal had been accepted.	As per the e-mail correspondence (ref. 12.1) between EcoSecurities and Loma de la Lata, it is validated that communication between the cited parts about the project. PP is requested to provide the contract signed with EcoSecurities. Open. It was validated that on 12/11/2007 a representative of EcoSecurities acknowledge the appointment by the PP of EcoSecurities to develop the CDM project and trade the bonds. Item closed.
			06/Sep/2007	Starting date of the Project activity. Date when the contract between the Project developer and the engineering firm that provides the equipments, installation and civil work was signed.	PP is requested to provide the contract signed between Pampa and Isolux Corsan. Open. It was validated that as per Annex 2 (ref 90) of the contract (ref 39-16-1), the starting was planned on 03/03/2008. Thus it was validated that no work was carried out before 06/09/2007 (starting dated, corresponding to date of the contract signed between the PP and

				Isolux). Item closed.	
			08/Sep/2007	Local newspaper published an article about the Project activity and its implementation as CDM Project	The publication cited (ref 12.1) was validated against the original publication available at http://www1.rionegro.com.ar/diario/2007/09/08/20079r08s06.php
			29/Nov/2007	EcoSecurities Project Implementation Team performed a site visit to Pampa Energía S.A. to achieve information and documentation required to start the implementation of the CDM Project	As per e-mail correspondence (ref 12.1) it was validated that on 28&29/11/2007 a visit by the EcoSecurities' team was performed to gather the project information.
			10/Dec/2007	Project Developer signed the CDM Emission Reduction Purchase Agreement with EcoSecurities relating to the Combined Cycle at Loma de la Lata Thermo Unit Project.	The PP provide as evidence an e-mail informing that the ERPA was signed. PP is requested to provide a copy of the ERPA signed. Open. It was validated against the signed contract (ref 88), that an ERPA was signed between EcoSecurities and Pampa Energía on 10/12/2007. Item closed.
			Jan-Oct/2008	EcoSecurities and the Project Developer worked in the elaboration of a CDM Project Design Document.	No evidence required, since this correspond to internal work. However the contract between EcoSecurities and Pampa was required and it supports the work performed.
			Sep/2008	Start of civil works at Project site.	As per a letter sent by Isolux Corsan on 11/09/2008 (ref 12.1), the civil works were re-initiated on 15/09/2008. PP is requested to clarify when the works were started by first time. Open. It was validated that as per Annex 2 (ref 90) of the contract (ref 39-16-1), the starting was planned on 03/03/2008. Thus it was validated that no work was carried out before 06/09/2007 (starting dated, corresponding to date of the contract signed between the PP and Isolux). Item closed.
			06/Nov/2008	First PDD version was published for global stakeholder consultation (start of validation).	Ok, the data is correct against UNFCCC information (ref 28).
			28/Jan/2008	Project submitted for registration.	
			27/Mar/2011	Project rejected by the CDM-EB.	As per UNFCCC the project was rejected on 17/03/2011 (ref 28). PP is requested to correct the PDD. Open. PDD version 2 (ref 1b) reports the information correctly. Item closed.
			Dec/2011	Project resubmitted to the UNFCCC for global stakeholder process.	As per the actions conducted, it was in January 2012. PP is requested to correct the PDD. Open. As per the actions conducted, it was in January 2012. Please correct the PDD. Item closed.
			CL 10 was closed.		

			Based on the information reviewed and validated, it is confirmed that real and continuous action were taken to ensure the CDM project status.	
B.5.5. Is the project activity a new project activity or existing project activity? How is the early consideration demonstrated?	VVM Para.100-102 PDD Section B.5	DR	<p>As reviewed previously the project starting date is 06/09/2007, thus as per VVM 1.2, para 100 the project correspond to an "existing project activity".</p> <p>In previous item (B.5.4) it was validated the evidence provided by the PP in order to demonstrate that the project took into account the CDM benefits. As per the information validated, it can be ensured that there was awareness of CDM, it is supported by contact established between Pampa and EcoSecurities and Eenergy before the project starting date (ref 12.1). It was validated that the cited consultant companies provided information about the CDM and proposals to get the project registered as CDM. Similarly it was validated that in the board meeting held on 06/07/2007 the board was informed about the negotiations with MGM and Eenergy to register the project (Loma de la Lata) as a CDM project. It was validated that in that time the project developer expected to receives incomes from 3,000,000 to 4,000,000US\$ per year, thus this additional incomes would make the investment viable.</p> <p>On the other hand, it was validated that continues and real actions were carried out by the PP in order to ensure the CDM status. Thus it was validated that in November 2007 a contract was signed between EcoSecurities and Pampa. Similarly it was validated that the PP received an ERPA offers from EcoSecurities, which was signed in December 2007 (ref. 88)</p> <p>Finally it was validated that the PP conducted actions with a periodicity less than a two years.</p>	OK
B.5.6. For an existing project activity with a start date before 2 August 2008, for which the start date is prior to the date of publication of the PDD for global stakeholder consultation, is the real documented evidence for an assessment of real and continuing actions available for validation and is this evidence authentic?	EB 49, annex.22	DR	Yes, as it was reviewed previously (B.5.5.) the project records real and continuing actions to ensure the CDM status of the proposed project activity.	Yes
B.5.7. Are all credible and plausible alternatives correctly identified? Do the identified baseline	VVM Para.105-107	DR	PP identified the alternative scenarios in PDD version 1 (ref 1a), section B.4 as per the "Combined tool to identify the baseline scenario and demonstrate additionality" (ref 3), Step 1. Identification of alternative scenarios.	Yes

<p>scenarios include technologies and practices that include outputs or services comparable with the proposed CDM project activity? Do they also abide by the same applicable laws and legislations?</p>		<p>The scenarios identified by the PP in PDD version 1 (ref 1a) are the followings:</p> <ol style="list-style-type: none"> <i>1. Proposed project activity undertaken without being registered as a CDM project activity.</i> <i>2. Continuation of the current practice (to not implement the project activity).</i> <i>3. If applicable, the proposed project activity undertaken without being registered as a CDM project activity undertaken at a later point in time.</i> <i>4. Investment in a new fossil fuel plant of annual output equivalent to the proposed Project.</i> <i>5. Commercial renewable power plant of equivalent capacity to the proposed Project.</i> <p>As per the Tool (ref 3) alternative scenarios: “ (a) are available to the project participants, (b) cannot be implemented in parallel to the proposed project activity, and (c) provide outputs or services with comparable quality, properties and application areas as the proposed CDM project activity”.</p> <p>On the other hand the Tool (ref 3) states that alternative scenarios shall be included (S1 to S6), however the ACM0007 version 06.1.0 (ref 2c), requires to consider three alternatives:</p> <ul style="list-style-type: none"> ▪ (a) <i>Proposed project activity undertaken without being registered as a CDM project activity;</i> ▪ (b) <i>Continuation of the current practice (to not implementing the project activity);</i> ▪ (c) <i>If applicable the .proposed project activity undertaken without being registered as a CDM project activity. undertaken at a later point of time.</i> <p>The alternatives identified by the PP are assessed below according with the ACM0007 version 06.1.0 (ref 2c) requirements, because the Methodology supersedes the Tool.</p> <p>It was validated that the PP complies with the three minimum alternatives required by the Methodology. Regarding the scenarios itself, please see the individual assessment below:</p> <ol style="list-style-type: none"> <i>1. Proposed project activity undertaken without being registered as a CDM project activity.</i> This is a correct and valid alternative. <i>2. Continuation of the current practice (to not implement the project activity).</i> This is a correct and valid alternative, and it correspond to the supply of the demand of electricity by all the other plants connected to the grid. <i>3. If applicable, the proposed project activity undertaken without being registered as a CDM project activity undertaken at a later point in time.</i> This scenario was discarded by the PP considering that there is not and it is not expected to have any legal regulation that obliges to convert the open to combined cycle. During the site visit it was validated that there is no obligation to close open cycles, additionally as per the list of power plants that operates in Argentina (ref 163) currently there plants that continue operating in open cycle. 	
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			<p><i>4. Investment in a new fossil fuel plant of annual output equivalent to the proposed Project.</i> As per PDD version 1 (ref 1a), it is stated that this scenario represents higher demand of gas, which presents limited supply. PP is requested to provide the evidence of the gas availability and its impact over the prices. CL 11 was open. At that time 2,500,000 m³/day were requested. It was verified through the public information available at MEGSA web site that the gas request presented by Loma de la Lata in August 2007 (ref 149) (before the project starting) was denied (ref 151). Similarly, through the same public information, it was validated that since August 2007 44 gas request have been presented to MEGSA, and only 2 of them have been approved. Based on the reviewed and validated evidence, it can be confirm that the scenario "Investment in a new fossil fuel plant of annual output equivalent to the proposed Project" was discarded correctly due to the lack of gas availability. CL 11 was closed.</p> <p><i>5. Commercial renewable power plant of equivalent capacity to the proposed Project.</i> This is a correct and valid alternative.</p> <p>As result of the analysis the PP discarded correctly options 3 & 4 as alternative scenarios.</p>	
B.5.8. If an investment analysis has been used, has it been demonstrated that the proposed project activity is not the most economically or financially attractive alternative, or is not economically or financially feasible, without the revenue from the sale of CERs.	VVM Para. 108-109 PDD Section B.5	DR	<p>PDD (ref 1a) uses investment analysis to demonstrate additionality. As per the information recorded in Annex 3, the benchmark analysis was chosen.</p> <p>To define the benchmark IRR, PP followed option b of the Tool (ref 3). The selection of the option is considered correct because is one of the options offered by the Tool and there is no restriction linked. .</p> <p>The PP performed an investment analysis, which is included in PDD Annex 3 (ref 1a) and "1.1 Loma de la Lata Calculator.xls" (ref 7a). In the excel file (ref 7a) all formulas are readable and the spreadsheet was elaborated dynamically, making use of referenced cells and formulas. Spreadsheet functionality is sound, including easy access and modification of parameters for sensitivity analysis,</p> <p>Based on the assumption included in PDD version 1 (ref 1a), annex 3 the project is not economically feasible. This is based on the assessment of the financial analysis provided by the PP in annex 3, and it is due mainly to the fact that construction of cash flows for the estimation of the project IRR is deemed appropriate PP uses a 20 year assessment period, which is deemed appropriate given the type of the project: electricity generation plant; and its expected life time of its assets, which could be in use longer than that. CAR 6 was previously raised to assess the expected life time of assessts, The remaining life time (38 years) was correctly defined considering the baseline line conditions; the remaining life time is longer that the crediting period option (7-year renewable). Additionally it was validated that the investment analysis does not consider any overhaul. CAR 6 was closed.</p>	<p>Yes</p> <p>CAR 6 closed</p>

			<p>PP uses a perpetuity value to estimate the fair value of the project (ref 7b, tab "FA_project", AB35). Correspondingly, the perpetuity value estimation is inserted after the last cash flow, following a methodology that it is considered fair, and standard in investment financial practice.</p> <p>Depreciation was calculated using a linear depreciation model (total investments divided by the number of years in analysis) and added back for net profit calculation. Although the methodology and application are correct, PP is requested to provide the applicable law/regulation established by tax regulations in Argentina regarding assets depreciation. CL 12, item 1 was raised. It was validated that the depreciation was applied correctly considering the lifetime of the equipments. Similarly it was validated as per the manufacturer (ref 62) that the lifetime is defined by the "rotor" (key part of the turbines) which is 200,000 hrs. CL 12, Item 1 closed.</p> <p>Project cash flows considered both inflation and taxation, thus, benchmark rate should be, accordingly, both after tax and nominal terms. PP estimated a nominal benchmark rate using the after tax WACC formula. Consequently, PP approach is deemed correct in this sense. See more details in section B.5.12</p> <p>The incomes consider the additional generation of the plant attributable to the gas turbines (given to the improvement in the PLF) (ref 7b, tab "FA_project", line 10), the electricity generation attributable to the steam turbine (ref 7b, tab "FA_project", line 11) and the incomes by the additional capacity due to the steam turbine (ref 7b, tab "FA_project", line 12).</p> <p>The project starting date is 06/09/2007. All financial values were valid and available at that time, as these were taken from publicly available sources, including the Central Bank of Argentina, Bloomberg Terminal, Comision Nacional de Valores de Argentina and other legal and governmental local sources.</p> <p>PP uses an after tax nominal benchmark rate (after tax WACC), accordingly, all cost of financing expenditures, i.e. interest payments, loan repayments and or capital repayments to debt holders are not present in the calculation of the net profits, and thus, also of the calculations of the project IRR. This is deemed correct and applicable given the methodology chosen.</p> <p>Alternative to the project activity is the supply of electricity from a grid, accordingly a benchmark financial analysis was followed.</p> <p>The PP conducted a sensitivity analysis, All parameters that constitute more than 20% of total project costs or total project revenues either directly or indirectly are considered in the sensitivity analysis. These include total investment, O&Ms, energy generation, electricity price, and gas price. PP is requested to analyse why a 10% variation is reasonable given the historical prices for electricity and gas prices. CL 12, item 2 was raised. It was validated that the sensitivity analysis was performed with dynamic formulae that are linked to the input data tabs (technical and financial) (ref 7b). Regarding the suitability of the</p>	
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			<p>sensitivity range of the electricity, the range +/- 10% is deemed correct because in 2007 was issued a regulation (ref 139) to cap the electricity price at 185 AR\$/MWh (58.67 US\$/MWh) which is almost 5% over the price (energy + power) considered in the financial assessment. CL 12, item 2 was closed.</p> <p>Project cash flows considered both inflation and taxation, thus, benchmark rate should be, accordingly, both after tax and nominal terms. PP estimated a nominal benchmark rate using the after tax WACC formula. Consequently, PP approach is deemed correct in this sense. However, several parameters and application of the WACC formulas require actions, as describe below in section B.5.12.</p> <p>All financial parameters that were considered relevant and or used by the PP in the financial analysis elaboration were checked by the financial expert. In this sense, values and parameters used in the PP are considered correct and valid except when properly indicated in the comments provided by the financial expert. Of particular interest is the incorrect estimation and application of the WACC formulas for the estimation of the benchmark rate. More information about this point is given in section B.5.12</p> <p>As per PDD the project IRR is used to assess the project profitability.</p>																			
B.5.9.Is the investment analysis carried out in accordance with specific guidance from EB?	VVM Para. 110 EB 62 Annex 5 EB 48 Annex 11	DR	<p>Yes the investment analysis follows the “Guidance on the Assessment of Investment Analysis” last version, EB 62 annex5) and “guidelines for the reporting and validation of plant load factors” (EB 48 annex 11).</p> <p>Regarding PLF (86.9%), it was obtained from a study conducted by “Mercados Energéticos Consultores” (ref. 11.2 – 1.5.2) in 2007 (89.9%) minus 3% defined by Cammesa as the Reserve for frequency regulation. The approach is deemed correct and complies with EB 48 annex 11, paragraph 3b. The value presented by the PP was assessed against an external and independent source (ref 172), where it was found that PLF goes between 85.12% to 98.2%, thus the value used by the PP is deemed realistic.</p>	Yes																		
B.5.10.Is the investment analysis complete and accurate? (Important)	VVM Para. 111 PDD Section B.5 EB 62 Annex 5 EB 54 Para 53 EB 53 Annex 32		<p>Yes, the investment analysis available in file “Loma de la Lata Calculator 27-06-2012.xlsx” (ref 7d) is complete and correct. The calculation criteria applied by the PP were previously assessed in section B.5.8. Regarding the values used in the calculation were assessed individually as follow:</p> <table><tr><th>Item</th><th>Value final PDD</th><th>Source cited in PDD/Excel file</th><th>Date of availability</th><th>SGS validation</th><th>SGS assessment / third party validation</th></tr><tr><td>Input Data Investment</td><td>199,504,125 USD</td><td>Sum of the items below</td><td>--</td><td>It corresponds to the addition of the items described below.</td><td>The total investment was assessed as a whole against referential values. The project cost is 1,127 US/KW, based on the sectoral expert experience the investment value is in the higher end of the expected value for a project like this, but still is a realistic value.</td></tr><tr><td>Combined Cycle Loma de la Lata</td><td>190,200,000</td><td>Isolux Corsán 13 July 2007</td><td>July/2007 (ref 75)</td><td>The value is correct against the source.</td><td>Additionally it was validated, against the contracts signed (ref 39), that the cost spent in the project implementation is over 200,000,000 USD, thus the value used at the decision time was realistic and so close to the value spent.</td></tr></table>	Item	Value final PDD	Source cited in PDD/Excel file	Date of availability	SGS validation	SGS assessment / third party validation	Input Data Investment	199,504,125 USD	Sum of the items below	--	It corresponds to the addition of the items described below.	The total investment was assessed as a whole against referential values. The project cost is 1,127 US/KW, based on the sectoral expert experience the investment value is in the higher end of the expected value for a project like this, but still is a realistic value.	Combined Cycle Loma de la Lata	190,200,000	Isolux Corsán 13 July 2007	July/2007 (ref 75)	The value is correct against the source.	Additionally it was validated, against the contracts signed (ref 39), that the cost spent in the project implementation is over 200,000,000 USD, thus the value used at the decision time was realistic and so close to the value spent.	
Item	Value final PDD	Source cited in PDD/Excel file	Date of availability	SGS validation	SGS assessment / third party validation																	
Input Data Investment	199,504,125 USD	Sum of the items below	--	It corresponds to the addition of the items described below.	The total investment was assessed as a whole against referential values. The project cost is 1,127 US/KW, based on the sectoral expert experience the investment value is in the higher end of the expected value for a project like this, but still is a realistic value.																	
Combined Cycle Loma de la Lata	190,200,000	Isolux Corsán 13 July 2007	July/2007 (ref 75)	The value is correct against the source.	Additionally it was validated, against the contracts signed (ref 39), that the cost spent in the project implementation is over 200,000,000 USD, thus the value used at the decision time was realistic and so close to the value spent.																	

			Three phase power transformer 500 kV	0	--	--	No supporting evidence was available, thus this item (3,800,000 US\$) was deleted from the investment.		
			Substation Loma de la Lata 500 kV	4,194,000	Transener proposal 14 August 2007	14/07/2007 (ref. 11.1 – 1.5.1.1)	The value is correct against the source		
			Cooling water system construction	5,110,125	Int. comp. Isolux and Man proposal March 2007	July /2007 (ref 100)	It was validated that in July 2007 the PP had a quotation from Man (ref 100) where the cooling system was included. The value of the investment of this item was corrected to 5,110,125 US\$ (original value in PDD version 1 was 5,625,000 US\$).		
			Boiler chimney	0	--	--	No supporting evidence was available, thus this item (1,500,000 US\$) was deleted from the investment.		
			Primary regulation of frequency	0	--	--	No supporting evidence was available, thus this item (100,000 US\$) was deleted from the investment.		
			Progress of work: per year	22% 30% 40% 8%	Isolux Corsán proposal, Annex 7.2 - schedule (4 Sept. 2007)	September 2007	The distribution is correct against the source	No crosscheck against third party applicable.	
General information									
			Annual inflation rate	2.20%	Projected CPI until 2017, The Budget and Economic Outlook, Congressional Budget Office, Congress of the US, p. 79 (Aug. 2007)	--	Cross checked against third party database IMF World Economic Outlook Database 2006 and 2007(ref 51&52), see files Report for Selected Countries and Subjects 2006-2007.pdf (ref 49) and Report for Selected Countries and Subjects 2007-2008.pdf (ref 50)	No crosscheck against third party applicable.	
			Exchange rate	3.153 AR\$/US\$	Average exchange rate August 2007, Central Bank of Argentina; http://www.bcra.gov.ar/	August 2007	The information was crosschecked against the data published in the Central Bank of Argentina (ref 183), the value reported in PDD is correct against the source.	No crosscheck against third party applicable.	
Input Data Revenues									
			Price of capacity - spot	12.0 AR\$/MW-HRP	Resolution 317/2002. Based on 2.5.2.1.2 of CAMMESA Procedures (spot capacity remuneration). HRP (Horas de Remuneración de Potencia) = hours in which capacity is being paid	24/07/2002 (Ref. 11.1 – 1.5.1.5)	The value is correct against the local regulation (ref 135 and the "Procedures" published by Cammesa (ref 188).	No crosscheck against third party applicable.	
			Hours of capacity remuneration	90 HRP/week	Resolution 317/2002. Based on 2.5.2.1.1 of CAMMESA Procedures (spot capacity remuneration)		The value is correct against the local regulation ("Procedures" published by Cammesa (ref 188))	No crosscheck against third party applicable.	
			Price of energy - spot	77.3 AR\$/MWh	CAMMESA hourly records monomic spot price for Loma de la Lata	August 2007 (Ref. 11.1 – 1.5.1.8)	The value is correct against the source (ref 11.1-1.5.1.8), which is available at Cammesa web site.	No crosscheck against third party applicable.	
			Monomic price of energy	83.7 AR\$/MWh	Calculated	--	It is calculated based on "Price of energy – spot", "hours of power remuneration" & "Price of power".	The value is correct against the information reported in the "node factor file" (ref 11.1 – 1.5.1.8).	
			Monomic price spot	26.6 USD/MWh	Calculated	--	The value corresponds to the "Monomic price of energy" expressed in USD. It was validated that currency conversion was done correctly.	No crosscheck against third party applicable.	

			Price of energy - "Energia Plus"	26.0 USD/MWh	Project developer. Firm 2007 Energia Plus proposal to potential client	03/09/2007 (Ref. 36-9) Document elaborated by the PP 03/09/2007 (Ref. 36-9)	The value is correct against the source.	The original signed document was reviewed during the site visit. The energy price is determined as the maximum value between 26 US\$/MWh and "(26+(Reference gas price – agreed price of the gas = 81.16 US\$/dam³)*0.24)". It was validated against the energy proposal issued for Güemes (ref. 128, ref 36-9). Additionally it was validated that 81.16 US\$/dam³ corresponds to the gas price at Noroeste basin (supplier of gas for Güemes) thus the factor ((Reference gas price – agreed price of the gas = 81.16 US\$/dam³)*0.24) adjust price considering the gas price applicable to the project (from Neuquén basin). The energy price reported and its adjustment is used for calculation in the IRR calculation file (ref 7d), tab "FA_project", line 11. The validated values are realistic and conservative, they were assessed against the contract signed by the PP on 14/10/2009, where energy price was 4 US\$/MWh and the capacity 33.3 US\$/MW-month.	
			Price of capacity - "Energia Plus"	30.0 USD/MWh	Project developer. Firm 2007 Energia Plus proposal to potential client				
			Node Factor	92%	Seasonal programming May-Oct 2007. Weighted nodal factor of 500 kV (31/08/2007)	31/08/2007 (ref 11.1 – 1.5.1.8)	The value is correct against the source, which is available at Cammesa web site.	No crosscheck against third party applicable.	
Input Data Costs									
			Natural gas price	0.21 AR\$/m³	Average Price at Plant September 2007	September 2007 Ref. 11.1 – 1.5.1.9	It was validated that the average from three providers (ref 158) (Wintershall, Tecpetrol and Total) was obtained by the PP (ref 157) and used in the investment analysis (ref 7d) and updated PDD (ref 1d).	The value used by the PP is deemed correct because it corresponds to the price that the plant paid for the natural gas.	
			Natural gas price difference for old generation	0.10 AR\$/m³	Calculated. Used to estimate the additional cost of gas for the Plant's historical consumption due to the need to secure gas at a higher price to be able to sell under Energia Plus contracts	--	It was obtained as the difference between (Natural gas price for Plus Contracts = 0.31 - Natural gas price = 0.21).	No crosscheck against third party applicable.	
			Natural gas price difference for old generation	33.76 US\$/Dam³	Calculated	--	It corresponds to the equivalent of 0.10 AR\$/m³, the calculation was done correctly.	No crosscheck against third party applicable.	
			Natural gas price for Plus Contracts	0.31 AR\$/m³	Calculated	--	It corresponds to the equivalent of 97.26 US\$/Dam³. It was validated that the conversion was done correctly and the conversion rate is correct	No crosscheck against third party applicable.	
			Natural gas price for Plus Contracts	97.26 US\$/Dam³	Average price of firm long-term contracts entered into during August 2007	August 2007 (Ref. 11.1 – 1.5.1.10)	It was validated that the price estimated by the PP (97.26 US\$/Dam³) is based on real market information available at August 2007. The figure was validated against the public information of gas contracts published at www.megsa.com.ar (ref 179).	The value is realistic, it was obtained base on contracts signed (in the gas market) during August 2007 for the gas corresponding to Neuquén basin (the one that corresponds to LLL). Thus the value is deemed correct, because it reflects real market values. Other assessment is not possible, since this parameter is specific for each basin.	
			Natural gas price reference Price Energia Plus	81.16 US\$/Dam³	Energy proposal issued for Güemes (another power plant owned by Pampa Energia) for a client.	03/09/2007 (Ref. 128, 36-9) Document elaborated by the PP 03/09/2007	The reference value was obtained from the proposal issued for Güemes (ref.128, 36-9), it is correct. It is important to note that this price is considered in the Energy sales as per "Energia plus" system. It has to be noted that "Güemes" is not supplied by gas from Neuquén basin, thus this price is different than for Neuquén Basin. However this price was included in the analysis because is part of the algorithm to calculate the energy price, but only in a referential way because it is corrected with the gas price in the relevant basin (97.26 US\$/Dam³)	No crosscheck against third party applicable.	

				Adjustment factor	0.24	Project developer. Firm 2007 Energía Plus proposal to potential client	03/09/2007 (Ref. 128 / 36-9) Document elaborated by the PP	The factor corresponds to a parameter given to calculate the energy price. It was validated against the energy proposal issued for Güemes (ref. 128, ref 36-9). The original signed document was reviewed during the site visit.	No crosscheck against third party applicable.
				Increase staff power plant	23 # of People	Book: Combines cycle power plants. Theory and design. Issued in 2006 Authors: Santiago Sabugal García y Florentino Gómez Moñux	2006	The value was assessed against the real increase of staff in the plant. It was validated that the plant in open cycle operated with 19 people while in combine cycle does it with 49 people (ref 182). Thus the increase was 27 people and the number used at the decision time (23) was conservative.	As per the project information 49 people works in the plant, it means around 11 people per MW. Based in the sectoral expert experience similar projects in Latin America has a rate around 13-16 people per MW. Thus the increased value used in the assessment is deemed correct and conservative.
				Average cost/employee	51,697 US\$/year	Project developer	Mail dated 27/09/2007 (ref. 11.1. – 1.5.1.11)	As per the evidence provided the annual cost per employee is 163,003 AR\$/year, which using the validated exchange rate means 51,697 US\$/year. The value was corrected (from 70,498 to 51,697) in the calculation file (ref 7b) and PDD version 2 (ref 1b). It was validated that the value was obtained using salaries information included in the Balance 2007 (ref 11.1 – 1.5.1.11).	The value was compared with public figures available, it was validated that the value is at the higher end of the average salaries (ref 189), but still possible. The SGS team validated the impact of having lower salaries and it was validated that even they were 30% less still the project IRR is under the benchmark. Thus the value used it is deemed acceptable and realistic. This parameter was not included in the sensitivity analysis because represents 2% of the annual cost.
				Incremental Salaries	1,189,031 US\$/year	Calculated	--	The value is obtained as the cost per employee times the number of employees. The figure is correct in the last PDD (ref 1d) and calculation file (ref 7d), the value was corrected as per the revised cost per employee (incremental salaries changed from 1,621,450 to 1,189,031)	Not applicable. The value was calculated and the values involved in the operation were duly validated and assessed.
				"Water" costs	236,520 AR\$/year	Project developer. Calculated based on designs of water consumption and cost established by Decree 2814/1997 and Dispositional 195/2005 DPRH, Provincia de Neuquén	Sept/2001 & Nov/2005 (ref 11.1-1.5.1.12)	The value was estimated by the PP based on the amount of water used by the steam turbine and the local regulation (September 2001 & Nov2005, ref 11.1-1.5.1.12) that defines the formula and applicable tariff. The calculation done by the PP (ref 8b) was reviewed and found correct. The amount of water considered is correct against the technical design (ref 11.1-1.5.1.12) and the price against the local regulation (ref 11.1-1.5.1.12)	The value was compared with the average cost of similar plants, according with the sectoral scope expert experience the cost for this is around 100,000 USD/year. Thus the value considered by the PP is deemed correct and realistic.
				Insurance	488,078 US\$/year	Project developer. Estimated based on insurance 2007 increased by investment in new assets	June 2007 (ref 11.1 – 1.5.1.13)	The insurance cost was estimated using the project investment and the annual policy paid for the plant (open cycle in June 2007) and the sum insured (ref 11.1 – 1.5.1.13). It was validated that the calculation was done correctly and the insurance was the formal policy issued (ref 11.1 – 1.5.1.13).	The value was compared with the average cost of similar plants, under the scope expert assessment it seemed realistic. Additionally the value was crosscheck with a referential value obtained from an insurance company (ref 191), and it was found that the value used by the PP is conservative.
				Services ENRE costs factor	0.3% (%gross income)	Project developer. Estimates based on ENRE's 2006 allocation of costs	20/12/2006 (ref 132 & 133)	It was validated that according to Law 24065, article 67 (ref 31), the generators (distributors and transports) have to pay a fee calculated as: "forecast of expenses & investment * Net operational incomes previous year of the company / Net operational incomes previous year of all the agents". It was validated that the PP estimated the annual cost based on the ENRE resolution 1113/2006 (ref 132) and its annex (ref 133). The calculation was correctly carryout by the PP in the excel file provided (ref 129).	No crosscheck with independent sources is possible, since this is a value defined by the authority.
				CAMMESA costs factor	0.1% (%gross income)	Project developer. Estimates based on historical CAMMESA allocation of costs	May-September 2007 (ref 11.1 – 1.5.1.14)	It was validated that the PP estimated the annual cost based on the Cammesa historical charges (ref 11.1 – 1.5.1.14). The calculation was correctly carry out by the PP in the excel file provided (ref 130).	No crosscheck with independent sources is possible, since this is a value defined by the authority.
				Overhead	0.22 US\$/MWh	Project developer	June 2007 (ref 8b)	It was obtained using the data from the balance issued in June 2007 (190). It was validated that the financial statements were audited by an independent company (Price Waterhouse & C.O. S.R.L.). The fee was correctly obtained (ref 8b).	No crosscheck applicable.
				TGs Maintenance and other costs	3.62 US\$/MWh	Average September 2007 Loma de la Lata declaration of CVP	Sep/2007 (ref 11.1 – 1.5.1.15)	As per the reference the cost is 11.42 AR\$/MWh, using the exchange rate the value reported is deemed correct against the Cammesa records.	The value is deemed correct because it corresponds to the real value of LLL operating in open cycle. This correspond a value registered by Cammesa.

				(variable production costs declared to CAMMESA)			
TV Maintenance and other costs	4.05 US\$/MWh	Average September 2007 Güemes declaration of CVP (variable production costs declared to CAMMESA)	Sep/2007 (ref 11.1 - 1.5.1.15)	It was validated that the average from three TVs maintenance cost (at Güemes plant) was used. The information used corresponds to September 2007, and the source is information from a similar plant whose cost are recorded by Cammesa (from where the PP retrieved the information). The source was validated during the site visit and it was verified that excel files available in Cammesa web site (for authorized users) cannot be modified.	It was validated that the information used corresponded to real data, thus it is realistic and was obtained from Cammesa (formal organization). Additionally the value was compared with referential values (ref 182, report prepared for the Environmental Protection Agency) where is stated that maintenance cost are typically around 5 US\$/MWh. Therefore the value considered in the analysis is deemed realistic		
Management fee	12.4% (% EBITDA)	Amount paid in the third quarter 2007	June & August 2007	It was obtained using the data from the financial balance statements issued in June & September 2007 (190). It was validated that the Balances were audited by an independent company (Price Waterhouse & C.O. S.R.L.). The fee was correctly obtained (ref 8).	No crosscheck against third party applicable.		
Electricity generation & capacity							
PLF	86.9%	Report issued by "Mercados Energéticos Consultores" (ref. 11.2 - 1.5.2) and Cammesa	May 2007 (ref. 11.2 - 1.5.2)	It was obtained from a study conducted by "Mercados Energéticos Consultores" (ref. 11.2 - 1.5.2) in 2007 (89.9%) minus 3% defined by Cammesa as the Reserve for frequency regulation. The approach is deemed correct and complies with EB 48 annex 11, paragraph 3b.	The value presented by the PP was assessed against an external and independent source (ref 172), where it was found that PLFs for similar projects go between 85.12% to 98.2%, thus the value used by the PP is deemed realistic		
Steam turbine net capacity	169.25 MW	Isolux proposal, Engineering project	July-2007 (ref 75) September 2007 (ref 39)	It was obtained as the nominal capacity (176.9 MW) minus its own/auxiliary consumption (7.65 MW). The values were crosschecked against its source (ref 75 and 39 respectively). It is worth to mention that the capacity value used in the investment analysis correspond to the value defined in the documents linked to the technical proposal (ref 75 & 39), while the capacity used for the ER estimation is based on the technical specifications of the turbine installed (ref 18-4.2.3).	No crosscheck against third party applicable.		
Combined cycle net capacity	537.86 MW	General Electric report	GT - July 1994 (ref. 11.2 - 1.5.2.4) ST -	The value was obtained as the net capacity of the TGs (368.61 MW) plus the net capacity of the steam turbine. The net capacity (gross capacity and own/auxiliary consumption) of the TGs was crosschecked against its technical data sheet (ref. 11.2 - 1.5.2.4) and is deemed correct.	No crosscheck against third party applicable.		
Electricity supplied to the grid by the steam turbine	1,288,405 MWh/year	Calculated	--	The value was correctly obtained by the PP as "Steam turbine net capacity * PLF (combined cycle) * 8760". The calculation is correct, the PLF complies with EB48 annex 11 (already assessed).	No crosscheck against third party applicable.		
Additional gas turbine electricity generation injected to the grid	1,463,313 MWh/year	Calculated	--	The value was correctly obtained by the PP as the energy generated per year by the gas turbine operating in closed cycle minus average generation of the gas turbines per year (based on historical information). The historical generation and gas consumption was crosschecked against Cammesa Records and fuel provider respectively and was found correct. The electricity generated by the TG in combined cycle was calculated as "TG net installed capacity" * PLF (combined cycle)*8760". The calculation is correct; the PLF complies with EB48 annex 11 (already assessed).	No crosscheck against third party applicable.		
Additional natural gas consumption by the gas turbines	468,311.429 m³/year	Calculated	--	The value was correctly obtained as the difference between the annual gas consumption of the TG operating in combined cycle minus the annual historical average of the TG gas consumption (open cycle). The historical gas consumption values were cross checked against the fuel provider acts (ref 69). The gas consumption in combined cycle was determined proportionally to the historical gas consumption, the calculation were reviewed and are deemed correct.	No crosscheck against third party applicable.		
Taxes	Value	Reference					
Gross incomes	1.5% (% of sales)	Neuquén Law Nº 1,994	1/1/1995 (ref. 11.1)	The tax rate was crosschecked against the law 2795 (ref 44), it was validated that from 01/01/2012 the tax rate is	No crosscheck against third party applicable.		

			<table><tr><td></td><td></td><td></td><td>– 1.5.1.18)</td><td>2%. Thus the value used in the assessment is conservative.</td><td></td></tr><tr><td>Credits taxes</td><td>0.4% (% of sales)</td><td>National Law Nº 25,413 and Decree N°534/2004</td><td>May/2004 (ref 45)</td><td>The value is correct against the source. Tax rate was checked against official law (ref 45). Impact of credit tax is reflected properly in the calculation of the spreadsheet on sheet FA project, row 15.</td><td>No crosscheck against third party applicable.</td></tr><tr><td>Debits taxes</td><td>0.6% (% of purchase s)</td><td>National Law Nº 25,413</td><td>March/2001 (ref 177)</td><td>Tax rate was checked against official law (ref 177). Impact of debit tax is reflected properly in the calculation of the spreadsheet on sheet FA project, row 27.</td><td>No crosscheck against third party applicable.</td></tr><tr><td>Income tax</td><td>35%</td><td>Ministerio de Hacienda, Finanzas, Obras y Servicios Públicos, Law Nº 20,628 (article 69)</td><td>30/04/2004 (ref. 11.1 – 1.5.1.19)</td><td>The value is correct against the source. (ref. 11.1 – 1.5.1.19). The tax rate was additionally verified against "Doing business" records, published by the World Bank (ref 43).</td><td>No crosscheck against third party applicable.</td></tr></table>				– 1.5.1.18)	2%. Thus the value used in the assessment is conservative.		Credits taxes	0.4% (% of sales)	National Law Nº 25,413 and Decree N°534/2004	May/2004 (ref 45)	The value is correct against the source. Tax rate was checked against official law (ref 45). Impact of credit tax is reflected properly in the calculation of the spreadsheet on sheet FA project, row 15.	No crosscheck against third party applicable.	Debits taxes	0.6% (% of purchase s)	National Law Nº 25,413	March/2001 (ref 177)	Tax rate was checked against official law (ref 177). Impact of debit tax is reflected properly in the calculation of the spreadsheet on sheet FA project, row 27.	No crosscheck against third party applicable.	Income tax	35%	Ministerio de Hacienda, Finanzas, Obras y Servicios Públicos, Law Nº 20,628 (article 69)	30/04/2004 (ref. 11.1 – 1.5.1.19)	The value is correct against the source. (ref. 11.1 – 1.5.1.19). The tax rate was additionally verified against "Doing business" records, published by the World Bank (ref 43).	No crosscheck against third party applicable.	
			– 1.5.1.18)	2%. Thus the value used in the assessment is conservative.																								
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Debits taxes	0.6% (% of purchase s)	National Law Nº 25,413	March/2001 (ref 177)	Tax rate was checked against official law (ref 177). Impact of debit tax is reflected properly in the calculation of the spreadsheet on sheet FA project, row 27.	No crosscheck against third party applicable.																							
Income tax	35%	Ministerio de Hacienda, Finanzas, Obras y Servicios Públicos, Law Nº 20,628 (article 69)	30/04/2004 (ref. 11.1 – 1.5.1.19)	The value is correct against the source. (ref. 11.1 – 1.5.1.19). The tax rate was additionally verified against "Doing business" records, published by the World Bank (ref 43).	No crosscheck against third party applicable.																							
B.5.11. Does the investment analysis rely on the values from Feasibility Study Reports (FSR) that approved by national authorities for proposed CDM project activity?	VVM Para. 113 PDD Section B.5	DR	No, the investment analysis is based on quotations, market values, local sources.			No																						
B.5.12. If a benchmark is used, is it ensured that it is selected in accordance with the requirements of the tool /methodology and it represents standard returns in the market (not linked to the subjective profitability expectation or risk profile of a particular project developer).	VVM Para. 112 PDD Section B.5 EB 62 Annex 5 EB 51 Annex 59	DR	<p>PP uses only data about two companies to estimate the applicable commercial lending rates, and the cost of capital. PP was requested to provide evidence why the selected companies should be considered representative of peer companies and or appropriate market values. CL 13 item 1 was raised. It was verified that companies selected and reasoning for selection (highly traded companies) is confirmed by references provided (ref 78). Both companies are listed and are public companies with audited financial statements. CL 13 item 1 was closed Moreover, only one month of data was used to estimate the lending rates and other relevant parameters, such as risk free rates and Betas. PP is requested to consider three months of data at least for estimation of lending rates and risk free rates, and no less than 3 years for beta values. CL 13 item 2 was raised. Evidence provided by PP plus further research from financial experts corroborates that local interest rates tendency was up. For instance, yield to maturity on Argentinian government bonds with similar maturities increased on average 7.63% for the period 2007-2008. Moreover, estimations using the 6 year periods for betas also corroborates that original estimation proposed by PP was conservative. CL 13 item 2 was closed.</p> <p>PP uses the WACC formulas to estimate the benchmark rate and is based on publicly available data sources, including stock market prices and financial information taken from the Bloomberg terminal, local lending rates and borrowing rates estimated using information available on the financial statements of public companies obtained from the Comisión Nacional de Valores de Argentina website, and market premiums obtained from the Prof Damodaran financial investment book. All previous sources are considered correct, valid and appropriate, but some information obtained from them was applied incorrectly by the PP. See points below.</p> <ul style="list-style-type: none">- Market premium was obtained from a reliable source, i.e., Damoradan, A. (2005) Applied Corporate Finance: A User's Manual, Wiley; Second Edition. Page 271, and was deemed correct and fair (5.5% annual average) however, the market risk premium, i.e. market premium times the beta of the			Yes																						

			<p>project, is incorrectly estimated as the betas from peer companies used to estimate the beta of the project are not used in a correct way. CL 13 item 3 was raised. Adjusted betas should be used as a proxy for future betas only for companies that are at beginning of their life cycle or at the end of their life cycle as per definition quoted by PP. Finally the PP corrected the beta' s values. CL 13 item 3 was closed.</p> <p>PP selects two peer power companies listed in Argentina in the Buenos Aires stock exchange market (Merval, Mercado de Valores) ("Central Puerto" and "Central Costanera"). However, only one month of data, as of 30 June 2007, is used to estimate the beta arguing that <i>"The month prior to project start was selected since it is more representative of the increasing tendency of all parameters involved in the financial analysis."</i></p> <p>CL 13 item 1 & 2 were previously raised and closed.</p> <p>It was verified that companies selected and reasoning for selection (highly traded companies) is confirmed by references provided (ref 78). Both companies are listed and are public companies with audited financial statements. Evidence provided by PP plus further research from financial experts corroborates that local interest rates tendency was up. For instance, yield to maturity on Argentinian government bonds with similar maturities increased on average 7.63% for the period 2007-2008. Moreover, estimations using the 6 year periods for betas also corroborates that original estimation proposed by PP was conservative.</p> <ul style="list-style-type: none"> - PP uses the Adjusted Beta information, provided by Bloomberg, which corresponds to a measure of beta that is modified to represent a better estimation of companies that are at a very early stage on their life cycles (with immense growth opportunities) or at are the end of the life cycle (with no growth opportunities or about to die). This Adjusted Beta it is not deemed appropriate given the fact that no proof is given that the selected companies are in either stage of their life cycle. PP was requested to utilize information taken from Bloomberg that considers only not adjusted betas, or to provide further evidence about the stage of the life cycles of the selected companies that justifies the use of adjusted betas. CL 13 item 4 was raised. Adjusted betas should be used as a proxy for future betas only for companies that are at beginning of their life cycle or at the end of their life cycle as per definition quoted by PP. Finally PP corrected the beta' s value. CL 13 item 4 was closed. - As per EB 62 Annex 5 guidance 18 the typical debt/equity finance structure observed in the sector of the country should be used. If such information is not readily available, 50% debt and 50% equity financing may be assumed as a default. PP uses two peer companies, one with 1.48 debt/equity ratio and one with 0.33 debt/equity to estimate the debt/equity finance structure in the sector. As can be seen the dispersion of these two values is too much to consider them representative of the market value, and as such, more information should be provided on why the average between those two is a good estimator of the sector value. PP is requested to provide more evidence of why these indicators are representative, by providing previous historical figures of such ratios and their expected evolution, and give reason why only two companies are considered representative of the sector. CL 13 item 5 was raised. Information and references (ref 78) provided are considered complete and 	
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			<p>fair, justification for the debt to equity ratio it is now acceptable. CL 13 item 5 was closed.</p> <p>As explained previously, the PP uses betas from two peer companies, which not only have a different debt/equity ratio, but also, that have different cost of debt (16.7% vs 17.7%). A final estimation of the leverage beta of the project should consider an appropriate unleverage-leveraged peer information procedure, using the representative cost of debt and debt/equity ratio. PP is requested to provide further evidence that their approach provides good estimators for both cost of debt and debt/equity sector values, and to provide details of the releverage procedures. CL 13 item 6 was raised. As per point 1, companies can be considered peer companies and representative of the sector, thus information used in the re leveraging procedure is then considered methodologically correct. CL 13 item 6 was closed.</p> <p>Whether the proposed project is WHR power generation projects? Yes, but as per para 5 of EB51 annex 59 does not have to apply the note (Previous rulings related to the appropriateness of benchmarks for project activities utilizing waste heat/waste gas for power generation), because it is for industrial facilities, while the proposed project activity is a power plant.</p> <p>PP exports the electricity to the grid, and also considers a WHR project, but the core of the business is electricity generation, for which similar prices are paid and received for the extra generation associated with the WHR portion. In this sense, the financial opinion of the expert is that it is appropriate to use the benchmark of the core business for the project, as this is in a way, just an extension of the normal business but using a different technology.</p>	
B.5.13. If a barrier analysis has been used, has it been shown that the proposed project activity faces barriers that prevent the implementation of this type of proposed project activity but would not have prevented the implementation of at least one of the alternatives?	VVM Para. 115/118 PDD Section B.5	DR	<p>The PP carried out the Barrier Analysis in PDD version 1 (ref 1a), section B.4. The barrier analysis corresponds to step 2 of the Tool (ref 3). The PP identified the following barriers in step 2a:</p> <ul style="list-style-type: none"> - Institutional barrier - Investment barriers - Technological barrier - Lack of prevailing practice <p>Later in step 2-b, each barrier is analysed per alternative scenario. Please see the assessment in the following paragraphs.</p> <ul style="list-style-type: none"> - Institutional barrier, in PDD version 1 (ref 1a), it is defined as “<i>This barrier is associated to Argentina’s energy policy framework, taking into account investment risks considering the overall economics of the electricity sector in the host country.</i>”. PP is requested to clarify why “investment risk” is linked to this barrier. Open. The “institutional barrier” has been re-written showing the impact of the changes in the regulation and the national economy over the projects alternatives. Item closed. - Investment barrier, in PDD version 1 (ref 1a), it is defined as “<i>This barrier evaluates the investment</i> 	<p>Yes</p> <p>CL 14 closed</p>

			<p><i>risks associated with each scenario, considering the overall economics of the energy sector in the host country and the conditions and financing availability for similar activities.”.</i></p> <p>PP is requested to clarify why the “investment risk” identified cannot be assessed within the “investment analysis”. Additionally it is requested to clarify the difference between the “investment barrier” and the “institutional barrier”. Open.</p> <p>Investment barrier, in PDD version 1 (ref 1a) states “<i>As explained in the institutional barrier presented above, low electricity prices and limited profits have discouraged generation companies to invest in the expansion of the sector’s installed capacity</i>”. Similarly as it is stated before, those aspects with direct impact over the investment analysis have to be included in an objective way. Open. The investment barrier has been orientated only to lack of attractiveness to invest in Argentina rather than the financial attractiveness of the project, which is assessed in the “investment analysis”. Items closed.</p> <ul style="list-style-type: none"> - Technological barrier, in PDD version 1 (ref 1a), it is defined as “<i>Evaluates whether the technology is currently available in the relevant geographical area, if there are indigenous skills to operate it, if the application of the technology is of regional, national or global standard, and generally if there are technological risks associated with the particular Project outcome being evaluated.</i>” The PP is requested to clarify the relation between “indigenous skill” and “trained labour” to operate the technology. Additionally it is requested to clarify how the availability of the technology in the relevant area becomes a “technological barrier”. Open. The “technological barrier” was removed from PDD. It is deemed correct since there are similar projects already implemented in the host country. Item closed. - Lack of prevailing practice. The barrier was removed from PDD. It is deemed correct since there are similar projects already implemented in the host country. Item closed. <p>CL 14 was closed.</p>	
B.5.14. Is the discussion on additionality consistent with the identification of all plausible and credible baseline scenarios?	VVM Para. 105 PDD Section B.5	DR	As it was assessed previously in B.5.14, PDD identifies relevant and possible alternative scenarios, they are realistic and were determined correctly as per ACM0007 version 06.1.0 (ref 2c).	Yes
B.5.15. Has the barriers correctly identified and they prevent the implementation of the project activity but not the implementation of at least one of the possible alternatives.	VVM Para. 116-118	DR	Yes it was validated that the barriers identified are realistic and prevent the project implementation, but not the alternative scenarios identified and analysed in PDD:	Yes
B.5.16. If a barrier analysis has been	VVM Para 116-117	DR	Yes, the two barriers (“Institutional barrier” and “Investment barrier”) that remain in PDD after the	Yes

used have the 'guidelines for objective demonstration and assessment of barriers' been followed? Have all applicable steps been considered and substantiated with objective evidence?	EB 50 Annex 13		assessment, are realistic and cannot be quantified , thus they were correctly left aside in the investment analysis.	
B.5.17. Do the identified baseline scenarios include technologies and practices that include outputs or services comparable with the proposed CDM project activity? Do they also abide by the same applicable laws and legislations?	VVM Para. 105 PDD Section A.4.3/B.5	DR	Yes, all scenarios deliver the same output (electricity generation) than the proposed project activity. Additionally all the alternatives are already in place in the Argentinian grid. The law 24065 (ref 31) establishes the regulatory framework for the Argentinian electrical sector.	Yes
B.5.18. Is the proposed project type be justified as first-of-its kind?	VVM Para. 119 PDD Section B.5	DR	PDD version 1 (ref 1a) does not present evidence to classify as first-of-its-kind.	No
B.5.19. Is the project activity not common practice?	VVM Para. 120-121 PDD Section B.5	DR	<p>The common practice analysis is carry out in PDD version 1 (ref 1a) section B.4, within step 4. PDD follows the "Guidelines on common practice" version 1 (ref 25).</p> <p><u>Step 1: Calculate applicable output range as +/-50% of the design output or capacity of the proposed project activity.</u> As per PDD version 1 (ref 1a), the installed capacity of the project is 545.66MW, which corresponds to the total capacity (combine cycle). Thus the PP correctly defined the range from 272.83 to 818.49 MW.</p> <p><u>Step 2: In the applicable geographical area, identify all plants that deliver the same output or capacity, within the applicable output range calculated in Step 1.</u></p> <p>PDD identifies the power plants in the range defined in step 1, however does not report the relevant geographical area/system. PP is requested to complete the information. CL 15 was raised. It was validated that the plants included in PDD version 3 (ref 1c) common practice are correct against Cammesa records (ref 152), the analysis includes the plants that entered into operations until 2007 (considering that the project starting date is 06/09/2007). Revised PDD identifies explicitly as geographical area the whole country "Argentina" , which is deemed correct because there one grid (SADI) that cover the whole country. The plants included in the analysis are the ones implemented until 2007, it is deemed correct as well because correspond to the year of starting of the project. Nall – 19, it is correct.</p>	Yes

			<p><u>Step 3: Within plants identified in Step 2, identify those that apply technologies different that the technology applied in the proposed project activity.</u></p> <p>PDD version 1 (ref 1a) states that all power plants identified in previous step are different to the proposed project activity because they were commissioned before December 2001 when a crisis started in Argentina. However as per the guideline Ndiff are the plants that apply a different technology in comparison with the proposed project activity, thus the classification as per the external conditions faced by the plants is not correct. PP is required to revise. CL 15 was raised.</p> <p>Ndiff = 19. It is deemed correct, as per EB63 annex 12 can be considered different :</p> <ul style="list-style-type: none"> (i) Energy source/fuel; (ii) Feed stock; (iii) Size of installation (power capacity): (iv) Investment climate in the date of the investment decision, inter alia: (v) Other features, inter alia: <p>It was validated that plants considered different classifies under (i) different energy source or (iv) different investment climate.</p> <p><u>Step 4: Calculate factor $F=1-N_{diff}/N_{all}$ representing the share of plants using technology similar to the technology used in the proposed project activity in all plants that deliver the same output or capacity as the proposed project activity</u></p> <p>Based on N_{all} and N_{diff}, $F = 0$, and $N_{all} - N_{diff} = 0$. Thus $F < 0.2$ and $N_{all} - N_{diff} < 3$, therefore the project is not common practice.</p> <p>As double check it was validated by SGS that the project complies with the common practice conditions even if all the plants in the range implemented after 2007 (Leufú, Termo Andes, Güemes, Belgrano, Timbues and Pilar) are included. Under this scenario N_{all} would be 25, N_{diff} 24, $F=0.04$ and $N_{all} - N_{diff} = 1$, thus the project is not common practice.</p> <p>CL 15 was closed.</p>	
B.5.20. What are the key distinctions between the project activity and any similar projects that are widely used as common practice?	VVM Para. 118, 119c/d PDD Section B.5	DR	The key distinction between the proposed project activity and the plants that deliver the same output (identified in step 3, as per the "Common practice guideline" are its energy source/technology used and the economic and regulatory environment at the time the investment decision.	ok
B.5.21. Is the proposed project activity additional?	PDD Section B.5	DR	Yes, the project demonstrated its additionally correctly and it was validated in the items above that the project is additional.	Yes

B.6. Algorithms and/or formulae used to determine emission reductions

<p>B.6.1. Are the steps and equations applied to calculate baseline emissions in compliance with the requirements of selected baseline and monitoring methodology?</p>	<p>VVM Para. 67c VVM Para. 89-90 VVM Para. 93 PDD Section B.6.1</p>	<p>DR</p>	<p>The calculation procedure to obtain the ER is included in PDD version 1 (ref 1a) section B.6.1. The procedure related with the “baseline emissions” is assessed as described against ACM0007 version 06.1.0 (ref 2c)</p> <p><u>Step 1: Determination of the baseline emissions for different scenarios of project electricity generation</u></p> <p>PDD identify option c) as the one applicable to the project, it is deemed correct because the whole plant will increase its efficiency (ratio Energy generation/ Energy consumed (gas)) due to the additional generation attributable to the steam turbine that will recover the energy from the exhaust gases. Thus PPD correctly states that</p> $BE_y = EG_{BL,AVR} \cdot EF_{CO_2,BL,y} + (EG_{MAX} - EG_{BL,AVR}) \cdot \min(EF_{CO_2,BL,y}; EF_{grid,y}) + (EG_{PJ,adj,y} - EG_{MAX}) \cdot EF_{grid,y}$ <p>The calculation is carried out in file “4.1 Emissions Reductions 2008-2010.xls” (ref 15a), tab “ER”, cell E14. The calculation is correct.</p> <p>$EG_{BL,AVE}$: correspond to the average of the plant generation from 2008 until 2010. Calculation available in file “4.1 Emissions Reductions 2008-2010.xls” (ref 15a), tab “Raw data”, cell G6. The calculation is correct.</p> <p>$EF_{CO_2,BL,y}$: EG_{MAX}: correspond to the maximum generation capacity. Calculation available in file “4.1 Emissions Reductions 2008-2010.xls” (ref 15a), tab “Raw data”, cell G18. The calculation is correct against equation 5 of the methodology.</p> <p>$EG_{PJ,adj,y}$: it corresponds to the whole project, considering the efficiency increase due to the operation in combined cycle. $EG_{PJ,adj,y}$ was calculated as the expected electricity generated by the gas and steam turbines. Calculation available in file “4.1 Emissions Reductions 2008-2010.xls” (ref 15a), tab “Raw data”, cell G17.</p> <p>The electricity generated by the gas turbines is “(OC = 368.61) * (T_{MAX} = 8760) * (Load factor = 89.9%)”. It was validated that the load factor was determined by “Mercados Energéticos Consultores” (ref. 11.2 – 1.5.2.), who is independent party.</p> <p>Regarding OC, it is installed capacity (open cycle, 369.9 MW) minus the auxiliary consumption (459*3 KW). The data involved was reviewed against General Electric report (ref. 11.2 – 1.5.2).</p> <p>PP is requested to clarify why 8760 hours are considered, knowing that T_{MAX} has to be calculated as per equation 6 of the methodology CAR 16 item 1 was raised. It was validated that PP obtained in the ER calculation file (ref 15b) the T_{max} as per equation 6 of the ACM0007 version 5. The same information is</p>	<p>Yes</p>
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			<p>reported consistently in PDD version 2 (ref 1b). Item closed.</p> <p><u>Step 2: Estimating the emissions factor for electricity generated in single cycle mode in the baseline ($EF_{CO2,BL}$)</u> $EF_{CO2,BL}$: the value is calculated following equation 10 of the methodology. The calculation is available in file "4.1 Emissions Reductions 2008-2010.xls" (ref 15a), tab "ER", cell E13. It was found that the same value of NCV was used in the calculation, however as per the methodology the yearly value is required. PP is required to report the NCV 2008, 2009 and 2010 and clarify why the yearly value was not considered. CAR 16 item 2 was raised. The PDD version 2 (ref 1b) and updated calculation file (ref 15b) were reviewed, it was validated that equation 10 of the methodology is correctly calculated using the yearly information of NCV in ref 15b, tab "ER", cell E14. Item closed.</p> <p><u>Step 3: Determine the emissions factor for the grid electricity system ($EF_{grid,y}$)</u> $EF_{grid,y}$: As per ACM0007 version 06.1.0 (ref 2c), the grid emission factor has to be calculated using the "Tool to calculate the emission factor for an electricity system" (ref 5). As per PDD version 1 (ref 1a), all the steps defined in the Tool. <u>Step 3.1: Identify the relevant electricity systems</u> PP correctly identified the SADI as the relevant electricity system, it is correct because correspond to the grid which cover the country for the electricity supply. The SADI is connected to neighbouring countries (Brazil, Uruguay, Paraguay and Chile (northern system) (ref 20). For electricity imports the emissions will be considered zero, which is deemed correct as per the Tool (ref 5), while for Build margin, the electricity exports are not going to be subtracted. <u>Step 3.2: Choose whether to include off-grid power plants in the project electricity system (optional)</u> PP selected option I, only grid power plants are included in the calculation. The selection is applicable and valid. <u>Step 3.3: Select a method to determine the operating margin (OM)</u> PP selected option (c) Dispatch Data Analysis, since this method was selected it has to be calculated ex-post. This is correct as per PDD. <u>Step 3.4: Calculate the operating margin emission factor according to the selected method</u> it will be calculated as follow: $EF_{Grid,OM-DD,y} = \frac{\sum_h EG_{PJ,h} \cdot EF_{EL,DD,h}}{EG_{PJ,y}}$ The equation and the parameters is correct against the Tool (ref 5).</p>	
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			$EF_{EL,DD,h} = \frac{\sum_{i,n} FC_{i,n,h} \cdot EF_{CO2,i,y}}{\sum_n EG_{n,h}}$ <p>The equation is incomplete because does not include the parameter NCV, additionally the $EF_{CO2,i,y}$ is defined as “CO₂ emission factor of fossil fuel type i in year y (tCO₂/tonne for solid and liquid fuels and tCO₂/dam³”, however as per the Tool the $EF_{CO2,i,y}$ has to be expressed as “tCO₂/GJ”. CAR 16 item 3 was raised. It was validated that in PDD version 2 (ref 1b) the equation to calculate the parameter $EF_{EL,DD,H}$ was corrected. Additionally it was validated that the units of $EF_{CO2,i,y}$ were corrected. Item closed</p> <p>Finally,</p> $EF_{EL,DD,h} = \frac{\sum_{i,n} FC_{i,n,h} \cdot NCV_{i,y} \cdot EF_{CO2,i,y}}{\sum_n EG_{n,h}}$ <p>The equation is correct and corresponds to one of the options offered by the methodology.</p> <p>As per PDD version 1 (ref 1a) and file “4.1 Emissions Reductions 2008-2010.xls” (ref 15a) the $EF_{grid,BM,y}$ was obtained from the Secretariat of Energy. The reported value is $EF_{grid,DD,2010} = 0.766$ tCO₂/MWh. It was validated that the value reported in PDD is consistent with the one published by the Secretariat (ref. 18 – 4.2), which is publicly available at http://energia3.mecon.gov.ar/contenidos/verpagina.php?idpagina=2311.</p> <p>According to the “Tool to calculate the emission factor for an electricity system” version 2.2.1. (ref 5) and PDD version 1 (ref 1a) “At each hour h, stack each grid power unit’s electricity generation using the merit order. The group of grid power units n in the dispatch margin includes the units in the top $x\%$ of total electricity dispatched in the hour h, where $x\%$ is equal to the greater of either: (a) 10%; or (b) The quantity of electricity displaced by the project activity during hour h divided by the total electricity generation by grid power plants during that hour h.”</p> <p>As per the EF_{grid} file provided by the PP (ref 18- 4.2.) (obtained from the Secretary of Energy) does not contain the data enough to validate that in every hour is being compared the 10% and $x\%$. PP is requested to clarify the calculation procedure. CAR 16 item 4 was raised. It was validated that the calculation file (ref 77) contains two tabs per each day, one reports the hourly information per power plant (marginal cost, generation, fuel consumed and CO₂ emissions issued). The other contains the aggregated information of each hour. It was validated that EF_{om} is calculated correctly as per the Tool (ref 5)</p>	
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			<p>requirement. Since this corresponds to data 2010, and last available is 2011 the calculation file was updated (OM 2011 day by day.xls, ref 164). The information used in the calculations was reviewed against the data from Cammessa (ref 163) and it deemed correct.</p> <p>Thus $EF_{OM2011} = 0.765$ (tCO₂/MWh).</p> <p>CAR 16 item 4 was closed.</p> <p><u>Step 5: Calculate the build margin (BM) emission factor</u> The Tool (ref 5), offers to alternatives. PP selected option 1, which means that EF_{BM} will be calculated ex-ante for the first monitoring period. PDD version 1 (ref 1a) describes correctly against the Tool the steps to obtain the EF_{BM}.</p> <p>The reported value is $EF_{BM,2010} = 0.422$ tCO₂/MWh, it was obtained from the Secretariat of Energy. It was validated that the value reported in PDD is consistent with the one published by the Secretariat (ref. 18 – 4.2), which is publicly available at http://energia3.mecon.gov.ar/contenidos/verpagina.php?idpagina=2311.</p> <p>Since this does not correspond to the last information available (2011) it was updated to the file “2011 Argentine grid building margin.xlsx” (ref 165). The data and the calculations done were reviewed, data included is correct against the source (ref 163, Cammessa).</p> <p><u>Step 6: Calculate the combined margin emission factor</u></p> <p>The EF_{grid} is calculated as:</p> $EF_{grid,CM,y} = EF_{grid,OM,y} \times W_{OM} + EF_{grid,BM,y} \times W_{BM}$ <p>As per the calculation file (ref. 164) the W_{OM} and W_{BM} are equal to 0.5, it is deemed correct against the Tool (ref 5).</p>	
B.6.2. Are the steps and equations applied to calculate project emissions in compliance with the requirements of selected baseline and monitoring methodology?	<p>VVM Para. 67c</p> <p>VVM Para. 89-90</p> <p>VVM Para. 93</p> <p>PDD Section B.6.1</p>	DR	<p>As per PDD version 1 (ref 1a), the project emission will be calculated as:</p> $PE_y = PE_{FC,j,y} = \sum_i FC_{i,j,y} \times COEF_{i,y}$ <p>Where the $COEF_{i,y}$ will be calculated as per option b of the Tool (ref 4). It is deemed correct, because as per the ACM0007 version 06.1.0 (ref 2c), the project emissions have to be calculated as per the “Tool to calculate project or leakage CO₂ emissions from fossil fuel combustion” (ref 4).</p> <p>Given that the project installed a diesel emergency generator, linked to the steam turbine, the ER calculations and the monitoring plan. The calculation procedure of the diesel emission was done as per</p>	

			<p>the “Tool to calculate project or leakage CO₂ emissions from fossil fuel combustion” (EB 41 annex 11).</p> <p>For ex-ante calculations, project emissions are available at “4.1 Emissions Reductions 2008-2010.xls” (ref 15a), tab “ER”, lines 16 to 19. The calculation is correct against the Tol (ref 4) and PDD (ref 1a).</p> <p>Regarding the data used, it was assessed as follow:</p> <p>$FC_{i,j,y} = 947,011,783 \text{ (m}^3\text{/year)}$, it was estimated as: (average fuel consumption of the last three years / average generation of the last three years)* Electricity supplied by the gas turbines</p> <p>For ex-ante estimations it is deemed correct, because considers the historical yield of the turbines and the expected electricity generation. However this parameter has to be monitored during the operation.</p>	
<p>B.6.3. Are the steps and equations applied to calculate leakages in compliance with the requirements of selected baseline and monitoring methodology?</p>	<p>VVM Para. 67c VVM Para. 89-90 VVM Para. 93 PDD Section B.6.1</p>	DR	<p>As per PDD version 1 (ref 1a), the leakage will be calculated as:</p> $LE_y = LE_{upstream,y} + LE_{HR,y}$ $LE_{HR,y} = (Q_{HR,x} - Q_{HR,y}) \cdot EF_{CO_2,max}$ $LE_{upstream,y} = \left(\left(\sum_i FC_{i,y} \cdot NCV_{i,y} \cdot EF_{i,upstream,CH_4} \right) \cdot GWP_{CH_4} + LE_{LNG,upstream,y} \right) \times \left(\frac{\sum_i FC_{i,y} \cdot NCV_{i,y}}{\frac{1}{3} \cdot \sum_{x=1}^3 \sum_i FC_{i,x} \cdot NCV_{i,x}} - 1 \right)$ $LE_{LNG, CO_2,y} = FC_{LNG,y} \cdot NCV_{LNG,y} \cdot EF_{CO_2,upstream,LNG}$ <p>PDD version 1 (ref 1a), states that $LE_{HR,y}$ is zero. It is deemed correct because the plant did not recover energy from the exhaust gases in the past. In order to validate that no energy was recovered, PP was requested to provide some supporting evidence, as for instance the plant diagram before the project implementation. PP is requested to provide an energy balance to demonstrate that no energy was recovered before the project implementation. CAR 8 item 2 was raised. It was validated that as per the EIA presented to the authority (ref 33), the plant did not have a heat recovery system previous to the project implementation. CAR 8, Item 2 closed.</p> <p>CAR 8 was re-assessed because the PP updated PDD the as per the last version of the methodology issued in EB 67. It was validated that calculations performed to obtain the leakage were corrected in the file “Emissions Reductions 2008-2010 15-05-2012.xlsx” (ref 15c), tab “ER”, cell E27. The formula used is correct against ACM0007 version 06.1.0 (ref 2c). CAR 8 was closed.</p>	Yes

			<p>According to PDD version 1 (ref 1a) $LE_{upstream}$ is calculated in file "4.1 Emissions Reductions 2008-2010.xls" (ref 15a), tab "ER", cell 23. The calculation is correct against the formula, however the yearly historical value of NCV has to be used. PP is requested to correct, CAR 16 item 2 was raised. PDD version 3 (ref 1c) was updated as per last version of the methodology (version 06.1.0). It was validated as well that the formula was corrected in PDD (ref 1c) and ER calculation file as well (ref 15c). Finally it was validated too that NCV of each year (instead the average) was used in the calculation, which is correct against ACM0007 version 06.1.0. CAR 16, Item 2 was closed.</p> <p>Finally LE_{LNG} is zero, it is deemed correct because the project only uses natural gas.</p>	
B.6.4. Are the steps and equations applied to calculate emission reductions in compliance with the requirements of selected baseline and monitoring methodology?	<p>VVM Para. 67c</p> <p>VVM Para. 89-90</p> <p>VVM Para. 93</p> <p>PDD Section B.6.1</p>		<p>As per PDD version 1 (ref 1a), the emissions reductions will be calculated as:</p> $ER_y = BE_y - PE_y - L_y$ <p>Each of the parameters involved were reviewed previously from B.6.1. to B.6.3.</p> <p>The steps followed are correct.</p>	Yes
B.6.5. Where there is an option between different equations or parameters, has the methodological choices for the project been explained, have they been properly justified and are they correct?	<p>VVM Para.89/90/91</p> <p>PDD Section B (B.6.2 -B.71)</p>		<p>As it was reviewed previously from section B.6.1. to B.6.3, in those cases where more than one option was available, the PP selected the options according with the Tools (4 &5) and the methodology (ref 2b).</p>	Yes
B.6.6. Are uncertainties in the GHG emissions estimates properly addressed in the documentation?	<p>PDD Sections B.5-C</p>	<p>DR</p> <p>SV</p>	<p>The calculations done by the PP requires some corrections. However this issue does not involve uncertainty in the GHG estimation because are specific mistakes that need to be addressed.</p> <p>In order to validate if the project will have some emission source the PP was requested to clarify if the plant will have some diesel (or similar) generator for auxiliary consumption. CL 7 item 2 was raised. During the site visit it was verified that there are three diesel generators in the plant, one Detroit generator to support the TGs (ref 66, pics 1-2), one to support the fire system (ref 66, pics 3-4) and one to support the ST (ref 66, pics 5-8). It is important to highlight that the first two emergency generators are installed in the plant before the project implementation, therefore they do not add additional emissions. It was validated that PP included in section B.7.1 the parameters to calculate the emissions due to the operation of the emergency generator to support the TV. (ref 1b). As per PDD version 2 (ref 1b), section B.7.1. includes the parameters to calculate the corresponding emissions. CL 7 item 2 was closed.</p>	Yes
B.6.7. Are the ex-ante fixed data provided in compliance with the methodology and/or relevant	<p>VVM Para. 67c</p>		<p>As per PDD version 1 (ref 1a) the parameters fixed are:</p> <ul style="list-style-type: none"> - EG_x; $EG_{2008} = 1,744,754$ MWh; $EG_{2009} = 926,173$ MWh; $EG_{2010} = 447,390$ MWh. PP is requested to provide the Cammesa records 2008, 2009 to assess the data. CAR 16 item 8 was raised. 	Yes

tools (if applicable)?	VVM Para. 91 VVM Para. 93 PDD Section B.6.3B.6.4	<ul style="list-style-type: none"> - $FC_{i,x}$. $FC_{2008} = 585,005,099 \text{ m}^3$; $FC_{2009} = 312,905,078 \text{ m}^3$; $FC_{2010} = 154,490,255 \text{ m}^3$. In order to validate the parameter, PP is requested to provide the gas invoices for the year 2008, 2009 & 2010. CL 17 item 1 was raised. Gas Consumption. Based on the acts (ref. 69) that record the gas consumption information, which are signed by an YPF and LLL representative, it was found that the gas consumption recorded in the ER calculation file (ref 15) is wrong. As per the acts (ref 69) in 2008 the plant consumed 585,005,098 (m3), while the ER calculation file (ref 15b) reports 585,005,099 (m3). Finally, the updated ER calculation file was reviewed (ref 15c), it was validated that the gas consumption of the year 2008 was correct. The value reported (ref 15c) is correct against the acts (ref 69). CL 17 item1 was closed. - $NCV_{NG,i,x} = 47.94 \text{ GJ/tonne}$ (same value for 2008, 2009, 2010). As per the methodology, this parameter has to be reported annually. PP is requested to provide the information. CAR 16 item 2 was previously raised and closed. The updated calculation file "Emissions Reductions 2008-2010 15-05-2012.xlsx" (ref 15c) uses the NCV per each year, the values were reported correctly in PDD version 3 (ref 1c). NCV. The NCV_{NG} reported in PDD version 2 (ref 1b) and excel calculation file (ref 15b) was reviewed; the data for 2010 was crosschecked against the file "2. NCV and EF .xls" (ref 70a), it was found correct and the value is within the range define at 95% confidence level by IPCC 2006. However data 2008 & 2009 was not available in the file "2. NCV and EF .xls" (ref 70). Additionally it was noted that the NCV value reported in PDD (ref 1b), calculation file (ref 15b) and EF_NCV file (ref 70a) are not consistent with the values reported in the monthly acts (ref 69) signed by an YPF and LLL representative. Later based on the completed information received (ref 70b) NCV 2008 & 2009 were reviewed. It was validated that the monthly values (obtained from the daily measurements) of the gas composition reported in the provider acts (ref 69) are correct against the values included in the excel file (ref 70b) were the NCV and EF of the natural gas used in the plant is obtained. It was validated as well that the NCV obtained in the excel file (ref 70b) is always lower than the values reported in the act because the act reports the higher heating value, thus they correspond to the LHV. Item closed. - $EF_{CO2,min} = 0.0555 \text{ tCO}_2/\text{GJ}$. $EF_{CO2,max} = 0.0555 \text{ tCO}_2/\text{GJ}$. In order to validate the maximum and minimum value, PP is requested to provide the parameter from 2008 to 2010. CAR 16 item 5 was raised. It was validated that PDD version 2 (ref 1b) contains the yearly (2008, 2009 & 2010) values of NCV_{NG}, and $EF_{CO2,NG}$. It was validated that all the NCV and EF values are reported in PDD version 3 (ref 1c) and ER calculation file (ref 15c), and the maximum and minimum were re-incorporated. CAR 16 item 5 was raised. - $CAP_{MAX} = 369,93 \text{ MW}$ - $T_{MAX} = 7,756 \text{ hr}$. PP is requested to clarify why the value is different in PDD version 1 (ref 1a), page 47 and excel file "4.1 Emissions Reductions 2008-2010.xls" (ref 15a), tab "Technical data", cell E12. CL 17 item 2 was previously raised. It was validated that PP obtained in the ER calculation file (ref 15b) the Tmax as per equation 6 of the ACM0007 version 5. The same information is reported
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			<p>consistently in PDD version 2 (ref 1b). CL 17 item 2 was previously closed.</p> <ul style="list-style-type: none"> - HMRx = 1,004 hrs (same value for 2008, 2009, 2010). CAR 16 item 6 was raised. It was validated that PDD version 2 (ref 1b), section B.6.2. reports the yearly values of HMRx. The amount of hours operated per year (reported in PDD (ref 1b) and the calculation file (ref 15)) was crosschecked with the availability records from the plant (ref 72), the data was found correct. CAR 16 item 6 was closed. - $GWP_{CH_4} = 21 \text{ tCO}_2\text{e/tCH}_4$ - $EF_{BM} = 0.466 \text{ tCO}_2/\text{MWh}$. The value is correct. 	
B.6.8. Is all the data derived from official data sources or replicable records and have these been correctly quoted?	VVM Para. 91a/b PDD Section B.6.3/B.6.4	DR	Yes, the information was gathered from official sources and has been correctly quoted.	Yes
B.6.9. Is the vintage of the baseline data correct?	PDD Section B.6.3/B.6.4	DR	Yes, as per ACM0007 version 06.1.0 (ref 2c) requirement, the last 3 years (2008, 2009, 2010) of operation in open cycle where used for calculations. Additionally data 2011 (latest available) was used to calculate the grid emission factor.	Yes
B.6.10. Is all the data appropriate and correctly applied to the CDM project activity?	VVM Para. 91c PDD Section B.6.3/B.6.4	DR	Yes, the data has been correctly applied to perform the calculation as per the ACM0007 version 06.1.0 (ref 2c) and the Tool to calculate the grid emission factor.	Yes
B.6.11. Are data and parameters that are not being monitored and remained fixed throughout the crediting period appropriately assessed, correct, and will they result in conservative estimates?	VVM Para. 90 PDD Section B.6.3/B.6.4	DR	Yes, the ex-ante parameters were correctly identified and their values are conservative.	Yes
B.6.12. Are the ex-post monitored data estimated appropriated for calculation of ex-ante emission reductions?	VVM Para. 67c VVM Para. 91 VVM Para. 93 PDD Section B.6.3B.6.4	DR	Yes, the ex-post parameters were estimated correctly to perform ex-ante calculations.	Yes

B.6.13. Is sampling approach used for any parameters?	EB 50 Annex 30 Para. 30	DR	The parameters monitoring is not going to follow a sampling procedure. The parameters will be monitored according to the frequency defined by the methodology.	No
B.6.14. Are all the steps taken and equations applied to calculate project emissions, baseline emissions and leakage and emission reductions correct and appropriate?	VVM Para. 67c VVM Para. 92	DR	Yes, the calculation procedure followed by the PP in PDD version 1 is correct. Regarding the calculations performed, as it was reviewed previously there were observations addressed in CAR 16 and CL 17 previously raised and closed.	Yes
B.6.15. Where applicable, the plant load factor shall be defined ex-ante in the CDM-PDD according to one of the following three options: (a) The plant load factor provided to banks and/or equity financiers while applying the project activity for project financing, or to the government while applying the project activity for implementation approval; (b) The plant load factor determined by a third party contracted by the project participants (e.g. an engineering company)	EB 48 Annex 11	DR	The load factor of the project, it means the power plant operating in combined cycle, was determined by third independent company "Mercados Energéticos Consultores" (ref 11.2) in May 2007. It was validated that the company is based in Buenos Aires and has 14-year experience http://www.me-consultores.com/ . It was verified that the cited report complies with the EB 48 annex 11. It was validated that the value of the plant load factor equal to 89.9% reported in PDD version 1 (ref 1a) and calculation file (ref 15a) is correct against the source. It is important to note that 3% was discounted to obtain the effective plant load factor, which is 86.9%. It was validated that the 3% was correctly deducted and correspond to the reserve for frequency regulation of the net (ref. 11.2).	Yes
B.7. Monitoring methodology and Monitoring Plan				
B.7.1. Does the monitoring methodology provide a consistent approach in the context of all parameters to be monitored and further information provided by the PDD? Are all parameters and data that are available at validation consistent with the approved	VVM Para. 67e PDD Section B.7- B.8 see also Annex 4		As it was reviewed previously in B.6.7, as per PDD version 1 (ref 1a) the parameters fixed are: - EG_x ; $EG_{2008} = 1,744,754 \text{ MWh}$; $EG_{2009} = 926,173 \text{ MWh}$; $EG_{2010} = 447,390 \text{ MWh}$ - $FC_{i,x}$. $FC_{2008} = 585,005,099 \text{ m}^3$; $FC_{2009} = 312,905,078 \text{ m}^3$; $FC_{2010} = 154,490,255 \text{ m}^3$ - $NCV_{NG,i,x} = 47.94 \text{ GJ/tonne}$ (same value for 2008, 2009, 2010). As per the methodology, this parameter has to be reported annually. PP is requested to provide the information. CAR 16 item 2 was previously raised and closed. It was validated that PP obtained in the ER calculation file (ref 15b) the Tmax as per equation 6 of the ACM0007. The same information is reported consistently in PDD version 2 (ref 1b). - $EF_{CO_2,max} = 0.0555 \text{ tCO}_2/\text{GJ}$. $EF_{CO_2,min} = 0.0555 \text{ tCO}_2/\text{GJ}$. In order to validate the maximum and minimum value, PP is requested to provide the parameter from 2008 to 2010. CAR 16 item 5 was previously raised. PDD was completed, information 2008 -2010 was included and correct value	

methodology. Has this data been interpreted and applied correctly?

was used in calculations. **Item closed.**

- $CAP_{MAX} = 369,93 \text{ MW}$
- $T_{MAX} = 7,756 \text{ hr}$. PP is requested to clarify why the value is different in PDD version 1 (ref 1a), page 47 and excel file "4.1 Emissions Reductions 2008-2010.xls" (ref 15a), tab "Technical data", cell E12. **CL 17 item 2 was previously raised and closed.** It was validated that PP obtained in the ER calculation file (ref 15b) the Tmax as per equation 6 of the ACM0007 version 5. The same information is reported consistently in PDD version 2 (ref 1b). **Item closed**
- $HMR_{2008} = 342 \text{ hrs}$, $HMR_{2009} = 1,573 \text{ hrs}$, $HMR_{2010} = 1,098 \text{ hrs}$
- $GWP_{CH_4} = 21 \text{ tCO}_2\text{e/tCH}_4$
- $EF_{BM} = 0.422 \text{ tCO}_2\text{/MWh}$. The parameter was obtained using information from Cammesa/Secretariat of Energy. It is deemed correct against the source (ref.163&74). The calculation performed in "2011 Argentine grid building margin.xlsx" (ref 165) is correct. As per the PDD information it will remain fixed, thus it is included in section B.6.2.

Finally, regarding parameters that will be monitored during the crediting period, the following tables contain the assessment of the estimation for ex-ante calculations:

ACM0007 version 06.1.0 (ref 2c) parameters:

ACM0007	PDD Sec. B.6.2	SGS Assessment
EG _{PJ,y}	EG _{PJ,y}	<p>The source of data identified is correct, because Cammesa is the grid operator. (http://portalweb.cammesa.com/Pages/Institucional/mision.aspx).</p> <p>Based on the generation records keep by Cammesa (ref 169) and the PP records (ref 166, 167 & 168), it was validated that the energy records linked to TG1 includes the energy sold to YPF. It means that it is considered as the energy injected to the grid, which is consistent because if LLL does not supply the electricity to YPF, they would have to consume from the grid.</p> <p>The ex ante estimation was done by the PP considering the PLF (86.9%), the installed capacity (gas and steam turbine) and the operation hours.</p>
FC _{i,y}	FC _{i,y}	For ex-ante calculations, it was calculated as "(average fuel consumption of the last three years / average generation of the last three years)* Electricity supplied by the gas turbines", it is deemed correct because only the gas turbines receive energy from the natural gas combustion.
η _{PJ,y}	η _{PJ,y}	For ex-ante calculations it was estimated as 1 (100%), the value is conservative for calculations.
QHR _y	QHR _y	This parameter is not available in PDD, it is correct because PDD reports that no energy was recovered from the exhaust gases.
NCV _{i,y}	NCV _{i,y}	For ex-ante calculation the NCV of natural gas was obtained using the information received from the gas provider (ref 64). It was validated that it corresponds to the first alternative offered by the methodology.

Tool to calculate the emission factor for an electricity system, version 2.2.1 (ref 5)

Tool EF _{grid} (ref 5)	PDD Sec. B.7.1	SGS Assessment										
EG,n,h	EG,n,h	Regarding the data availability for ex-ante calculations PDD states that data is available in “Grid Emission Factor 2010.xls”. The cited file (ref. 18 - 4.2) does not report the parameter. PP is requested to provide the parameter information. CAR 16 item 7 was raised. It was validated that the file “OM 2011 day by day .xlsx” (ref 164) contains EG,n,h required by the Tool (ref 5). The data was crosschecked against Cammesa records (ref 163 & 74). Item closed.										
FCi,n,h	FCi,n,h	<p>PDD version 1 states “<i>Total hourly consumption by type of fossil fuel of the top 10% of marginal power plants provided by the Secretariat of Energy will be downloaded.....</i>”. It has to be noted that as per the Tool “<i>At each hour h, stack each grid power unit’s electricity generation using the merit order. The group of grid power units n in the dispatch margin includes the units in the top x% of total electricity dispatched in the hour h, where x% is equal to the greater of either:</i></p> <p><i>(a) 10%; or (b) The quantity of electricity displaced by the project activity during hour h divided by the total electricity generation by grid power plants during that hour h.”</i></p> <p>PP is requested to clarify how will be performed the comparison of a) & b). CAR 16 item 4 was previously raised.</p> <p>It was validated as well that the calculation file (ref 165) contains two tabs per each day, one reports the hourly information per power plant (marginal cost, generation, fuel consumed and CO₂ emissions issued). The other contain the aggregated information of each hour. It was validated that EFom is calculated correctly as per the Tool (ref 5) requirement. Item closed.</p>										
NCVi,y	NCVi,y	<p>For ex-ante calculations the values are:</p> <table><tr><th>Fuel</th><th>NCV (GJ/tonne)</th></tr><tr><td>Natural gas</td><td>48.33</td></tr><tr><td>Fuel oil</td><td>41.03</td></tr><tr><td>Gasoil (Diesel)</td><td>42.71</td></tr><tr><td>Mineral coal</td><td>24.70</td></tr></table> <p>The values used in PDD version 1 (ref 1a) are correct against the Second national communication (ref 32). Additionally it was validated that this corresponds to the lower calorific value.</p>	Fuel	NCV (GJ/tonne)	Natural gas	48.33	Fuel oil	41.03	Gasoil (Diesel)	42.71	Mineral coal	24.70
Fuel	NCV (GJ/tonne)											
Natural gas	48.33											
Fuel oil	41.03											
Gasoil (Diesel)	42.71											
Mineral coal	24.70											
EFCO _{2,i} ,y	EFCO _{2,i} ,y	<p>For ex-ante calculations the values are:</p> <table><tr><th>Fuel</th><th>Emission factor (tCO₂/GJ)</th></tr><tr><td>Natural gas</td><td>0.056140</td></tr><tr><td>Fuel oil</td><td>0.077926</td></tr></table>	Fuel	Emission factor (tCO ₂ /GJ)	Natural gas	0.056140	Fuel oil	0.077926				
Fuel	Emission factor (tCO ₂ /GJ)											
Natural gas	0.056140											
Fuel oil	0.077926											

		<table><tr><td>Gasoil (Diesel)</td><td>0.074354</td></tr><tr><td>Mineral coal</td><td>0.094509</td></tr></table> <p>The values used in PDD version 1 (ref 1a) are correct against the Second national communication (ref 32).</p>	Gasoil (Diesel)	0.074354	Mineral coal	0.094509
Gasoil (Diesel)	0.074354					
Mineral coal	0.094509					
EG _{PJ,Y}	EG _{PJ,Y}	Already included as per ACM0007 version 06.1.0 (ref 2c) requirement.				
n _{m,y}		The parameter is not included in the monitoring plan. It is deemed correct because EF _{EL,DD,h} will be calculated as per equation 10 of the Tool (ref 5).				
CAP _m , PLF _{default} t _{off-grid,y} T _{grid,y}		The parameters are not included in the monitoring plan. It is deemed correct because as per the selection done by the PP only grid connected power plants are part of the analysis.				

Tool to calculate project or leakage CO2 emissions from fossil fuel combustion, version 2 (ref 4)

Tool	PDD, Sec. B.7.1	SGS Assessment
FC _{i,j,y}	FC _{i,y}	For ex-ante calculations, it was calculated as “(average fuel consumption of the last three years / average generation of the last three years)* Electricity supplied by the gas turbines”, it is deemed correct because only the gas turbines receive energy from the natural gas combustion.
w _{C,i,y} ρ _{i,y}	--	The parameters are not included in the monitoring plan. It is deemed correct because PP selected option B of the Tool (ref 4) to calculate COEF _{i,y} .
NCV _{i,y}	NCV _{i,y}	Regarding the parameter value for ex-ante calculations, PP is requested to provide the invoices to assess the value. CL 17 item 1 was previously raised. It was validated that the monthly values (obtained from the daily measurements) of the gas composition reported in the provider acts (ref 69) are correct against the values included in the excel file (ref 70b) were the NCV and EF of the natural gas used in the plant is obtained. It was validated as well that the NCV obtained in the excel file (ref 70b) is always lower than the values reported in the act because the act reports the higher heating value, thus they correspond to the LHV. Item closed. The values (NCV ₂₀₀₈ = 47.8 TJ/Gg, NCV ₂₀₀₉ = 48.05 TJ/Gg, NCV ₂₀₁₀ = 47.94 TJ/Gg) are correct.
EF _{CO2,i,y}	EF _{CO2,i,y}	Regarding the parameter value for ex-ante calculations, PP is requested to provide the invoices to assess the value. CL 17 item 1 was previously raised. It was validated that the monthly values (obtained from the daily measurements) of the gas composition reported in the provider acts (ref 69) are correct against the values included in the excel file (ref 70b) were the NCV and EF of the natural gas used in the plant is obtained. It was validated as well that the NCV obtained in the excel file (ref 70b) is always lower than the values reported in the act because the act reports the higher heating value, thus they correspond to the LHV. Item closed.

					The values $EF_{CO2,i,2008} = 0.0555$, $EF_{CO2,i,2009} = 0.05540$ and $EF_{CO2,i,2010} = 0.5546$ are correct.													
B.7.2. Is the monitoring plan compliant with the approved monitoring methodology and/or relevant tools (if applicable)?	VVM Para. 123(a) PDD Section B.7		<p>The section B.7.1 of PDD version 1 (ref 1a) was reviewed and the following parameters were assessed against the ACM0007 version 06.1.0 (ref 2c) or the Tools (Grid emission factor, ref 5 or Project emissions, ref 4).</p> <p>ACM0007 version 06.1.0 (ref 2c) parameters:</p> <table><tr><th>ACM0007</th><th>PDD Sec. B.7.1</th><th>SGS Assessment</th></tr><tr><td>EG_{PJ,y}</td><td>EG_{PJ,y}</td><td><p>Ok, parameter included in PDD. Parameter name, units are ok against the methodology. Regarding the monitoring frequency, PDD states "Measured continuously (every 15 minutes)". PP is requested to clarify if measures are every 15 minutes or if recording frequency is every 15 minutes. CAR 18 item 1 was raised. It was validated that PDD version 2 (ref 1b) corrected the description of the parameter monitoring. The detail provided complies with the ACM0007 version 06.1.0 (ref 2c) requirement. Item closed.</p><p>In order to complete the QA/QC procedure, the PP is requested to include the accuracy of the equipments and its calibration frequency. CAR 18 item 2 was raised. It was validated that PDD version 2 (ref 1b) included the accuracy of the meters involved in the parameter monitoring and the calibration frequency (1 year). Item closed.</p><p>The source of data identified is correct, because Cammesa is the grid operator. (http://portalweb.cammesa.com/Pages/Institucional/mision.aspx).</p></td></tr><tr><td>FC_{i,y}</td><td>FC_{i,y}</td><td><p>Ok, parameter included in PDD. Parameter name, units, and monitoring frequency are ok against the methodology.</p><p>In order to complete the QA/QC procedure, the PP was requested to include the accuracy of the equipments and its calibration frequency. Additionally PP was requested to clarify why the invoices from the gas provider are not going to be used directly for crosschecking purposes. CAR 18 item 3 & 6 were raised. It was validated that PDD version 2 (ref 1b) consider as well the crosscheck against the fuel invoices. Item 3 closed. Regarding the calibration frequency and accuracy, ENARGAS (ref 110) does not require a given calibration frequency and it has to be agreed between buyer and provider. It was validated that there is in practice a protocol regarding gas consumption measurements between YPF and LLL, which is a revised version of the protocol signed in 1998 (ref 118), however this revised protocol (ref 97) still has not been signed. Given that protocol is been subject of modification and there is no specific calibration frequency required by the methodology (ACM 0007) for the measurement system implemented this issue will have to be assessed during verification stage. FAR 1 was raised. Item 6 closed.</p></td></tr><tr><td>nPJ,v</td><td>nPJ,v</td><td>Ok, parameter included in PDD. Parameter name, units, and monitoring frequency</td></tr></table>				ACM0007	PDD Sec. B.7.1	SGS Assessment	EG _{PJ,y}	EG _{PJ,y}	<p>Ok, parameter included in PDD. Parameter name, units are ok against the methodology. Regarding the monitoring frequency, PDD states "Measured continuously (every 15 minutes)". PP is requested to clarify if measures are every 15 minutes or if recording frequency is every 15 minutes. CAR 18 item 1 was raised. It was validated that PDD version 2 (ref 1b) corrected the description of the parameter monitoring. The detail provided complies with the ACM0007 version 06.1.0 (ref 2c) requirement. Item closed.</p> <p>In order to complete the QA/QC procedure, the PP is requested to include the accuracy of the equipments and its calibration frequency. CAR 18 item 2 was raised. It was validated that PDD version 2 (ref 1b) included the accuracy of the meters involved in the parameter monitoring and the calibration frequency (1 year). Item closed.</p> <p>The source of data identified is correct, because Cammesa is the grid operator. (http://portalweb.cammesa.com/Pages/Institucional/mision.aspx).</p>	FC _{i,y}	FC _{i,y}	<p>Ok, parameter included in PDD. Parameter name, units, and monitoring frequency are ok against the methodology.</p> <p>In order to complete the QA/QC procedure, the PP was requested to include the accuracy of the equipments and its calibration frequency. Additionally PP was requested to clarify why the invoices from the gas provider are not going to be used directly for crosschecking purposes. CAR 18 item 3 & 6 were raised. It was validated that PDD version 2 (ref 1b) consider as well the crosscheck against the fuel invoices. Item 3 closed. Regarding the calibration frequency and accuracy, ENARGAS (ref 110) does not require a given calibration frequency and it has to be agreed between buyer and provider. It was validated that there is in practice a protocol regarding gas consumption measurements between YPF and LLL, which is a revised version of the protocol signed in 1998 (ref 118), however this revised protocol (ref 97) still has not been signed. Given that protocol is been subject of modification and there is no specific calibration frequency required by the methodology (ACM 0007) for the measurement system implemented this issue will have to be assessed during verification stage. FAR 1 was raised. Item 6 closed.</p>	nPJ,v	nPJ,v	Ok, parameter included in PDD. Parameter name, units, and monitoring frequency
ACM0007	PDD Sec. B.7.1	SGS Assessment																
EG _{PJ,y}	EG _{PJ,y}	<p>Ok, parameter included in PDD. Parameter name, units are ok against the methodology. Regarding the monitoring frequency, PDD states "Measured continuously (every 15 minutes)". PP is requested to clarify if measures are every 15 minutes or if recording frequency is every 15 minutes. CAR 18 item 1 was raised. It was validated that PDD version 2 (ref 1b) corrected the description of the parameter monitoring. The detail provided complies with the ACM0007 version 06.1.0 (ref 2c) requirement. Item closed.</p> <p>In order to complete the QA/QC procedure, the PP is requested to include the accuracy of the equipments and its calibration frequency. CAR 18 item 2 was raised. It was validated that PDD version 2 (ref 1b) included the accuracy of the meters involved in the parameter monitoring and the calibration frequency (1 year). Item closed.</p> <p>The source of data identified is correct, because Cammesa is the grid operator. (http://portalweb.cammesa.com/Pages/Institucional/mision.aspx).</p>																
FC _{i,y}	FC _{i,y}	<p>Ok, parameter included in PDD. Parameter name, units, and monitoring frequency are ok against the methodology.</p> <p>In order to complete the QA/QC procedure, the PP was requested to include the accuracy of the equipments and its calibration frequency. Additionally PP was requested to clarify why the invoices from the gas provider are not going to be used directly for crosschecking purposes. CAR 18 item 3 & 6 were raised. It was validated that PDD version 2 (ref 1b) consider as well the crosscheck against the fuel invoices. Item 3 closed. Regarding the calibration frequency and accuracy, ENARGAS (ref 110) does not require a given calibration frequency and it has to be agreed between buyer and provider. It was validated that there is in practice a protocol regarding gas consumption measurements between YPF and LLL, which is a revised version of the protocol signed in 1998 (ref 118), however this revised protocol (ref 97) still has not been signed. Given that protocol is been subject of modification and there is no specific calibration frequency required by the methodology (ACM 0007) for the measurement system implemented this issue will have to be assessed during verification stage. FAR 1 was raised. Item 6 closed.</p>																
nPJ,v	nPJ,v	Ok, parameter included in PDD. Parameter name, units, and monitoring frequency																

		are ok against the methodology. Additionally it will be obtained as one of the options offered by the methodology.
QHR,y	QHR,y	This parameter is not available in PDD, it is correct because PDD reports that no energy was recovered from the exhaust gases.
NCVi,y	NCVi,y	<p>The parameter is included in the monitoring plan. Parameter name and units are ok against the methodology. However PDD does not include any monitoring frequency, PP was requested to clarify this issue. Additionally PP was requested to provide the compliance with the international standards mentioned in PDD. CAR 18 item 5 was raised. It was validated that the PP obtain the NCV from the measurements done by the gas supplier using ISO 6976, which is correct against ENARGAS (ref 110). It was validated that the supplier (ref 69) reports only the higher capacity value of the gas, which is not the one required for ER calculations. Item closed.</p> <p>As it was pointed out in FCI,y, regarding the calibration frequency and accuracy, ENARGAS (ref 110) does not require a given calibration frequency and it has to be agreed between buyer and provider. It was validated that there is a protocol between YPF and LLL), which is a revised version of the protocol signed in 1998 (ref 118), however this revised protocol (ref 97) still has not been signed. Given that protocol is been subject of modification and there is no specific requirement from the methodology (ACM 0007), this issue will have to be assessed during verification stage. FAR 1 was raised</p>

Tool to calculate the emission factor for an electricity system, version 2.2.1 (ref 5)

Tool EFgrid	PDD Sec B.7.1	SGS Assessment
EG,n,h	EG,n,h	Ok, parameter included in PDD. Parameter units, and monitoring frequency are ok against the methodology. However the name is wrong. PP is requested to correct it. CAR 18 item 6 was raised. It was validated that the parameter name (EGn,h) was corrected in PDD version 3 (ref 1c). Item closed.
FCi,n,h	FCi,n,h	Ok, parameter included in PDD. Parameter name, units, and monitoring frequency are ok against the methodology. The data will be obtained from Secretariat of Energy and Cammesa, which is the grid operator.
NCVi,y	NCVi,y	Ok, parameter included in PDD. Parameter name and units are ok against the Tool. However PDD version 1 states that the value will be obtained from the Secretariat of Energy. It was validated that this corresponds to the second option offered by the Tool (ref 5). PDD version1 states “This data is monitored for eventual updates (fuel providers include higher heating values measured by them in the invoices)”. It has to be noted that this parameter has to be monitored yearly. PP is requested to correct PDD. CAR 18 item 6 was previously raised. It was validated that PDD version 2 (ref 1b) includes the monitoring frequency of the NCV. Item closed.

					As QA/QC procedure, the values will be compared with IPCC data.
			EFCO _{2,i,y}	EFCO _{2,i,y}	Ok, parameter included in PDD. Parameter name is ok against the Tool, however the units reported in PDD are wrong. CAR 18 item 8 was raised. PDD version 1 states that the value will be obtained from the Secretariat of Energy. It was validated that this corresponds to the second option offered by the Tool (ref 5). PDD version 1 states "This data is monitored for eventual updates; emission factors informed by the government were calculated from chromatography analysis of the fuels". It has to be noted that this parameter has to be monitored yearly. PP is requested to correct PDD. CAR 18 item 9 was raised. It was validated that PDD version 2 (ref 1b), updated the units and monitoring frequency as per ACM0007. Items closed.
			EG _{Pj,Y}	EG _{Pj,Y}	As QA/QC procedure, the values will be compared with IPCC data. Already included as per ACM0007 version 06.1.0 (ref 2c) requirement.
			n _{m,y}		The parameter is not included in the monitoring plan. It is deemed correct because EF _{EL,DD,h} will be calculated as per equation 10 of the Tool (ref 5).
			CAP _m , PLF _{default,off-grid,y} T _{grid,y}		The parameters are not included in the monitoring plan. It is deemed correct because as per the selection done by the PP only grid connected power plants are part of the analysis.
			Tool to calculate project or leakage CO₂ emissions from fossil fuel combustion, version 2 (ref 4)		
			Tool	PDD Sec. B.7.1	SGS Assessment
			FC _{i,j,y}	FC _{i,y}	Ok, parameter included in PDD. Parameter units, and monitoring frequency are ok against the methodology and the Tool (ref 4). In order to complete the QA/QC procedure, the PP is requested to include the accuracy of the equipments and its calibration frequency. Additionally PP is requested to clarify why the invoices from the gas provider will be use directly for crosschecking purposes. CAR 18 item 4 was raised. It was validated that PDD version 2 (ref 1b) consider as well the crosscheck against the fuel invoices. Item closed.
			w _{C,i,y} p _{i,y}	--	The parameters are not included in the monitoring plan. It is deemed correct because PP selected option B of the Tool (ref 4) to calculate COEF _{i,y} .
			NCV _{i,y}	NCV _{i,y}	Ok, parameter included in PDD. Parameter units, and monitoring frequency are ok against the Tool (ref 4). As per PDD version 1 (ref 1a), the parameter will be obtained from the fuel supplier, it is deemed correct against the Tool (ref 4) requirement. As per the Tool (ref 4) the NCV "Measurements should be undertaken in line with national or international fuel standards. PP is requested to provide the procedure to obtain the parameter (test). CAR 18 item 10 was raised. The explanation is consistent against the Local requirements defined by ENARGAS (ref 68). Item

			<table><tr><td></td><td></td><td>closed. According with PDD version 1 (ref 1a), the data will be obtained monthly from the provider. It is deemed correct against the Tool (ref 4) that requires that the parameter should be obtained for each fuel delivery.</td></tr><tr><td>EF_{CO2,i,y}</td><td>EF_{CO2,i,y}</td><td>Ok, parameter included in PDD. Parameter units, and monitoring frequency are ok against the Tool (ref 4). As per PDD version 1 (ref 1a), the parameter will be obtained from the fuel supplier, it is deemed correct against the Tool (ref 4) requirement. PP is requested to provide the procedure to obtain the parameter (test). CAR 18 item 10 was raised. The explanation is consistent against the Local requirements defined by ENARGAS (ref 68). Item closed.</td></tr></table>			closed. According with PDD version 1 (ref 1a), the data will be obtained monthly from the provider. It is deemed correct against the Tool (ref 4) that requires that the parameter should be obtained for each fuel delivery.	EF _{CO2,i,y}	EF _{CO2,i,y}	Ok, parameter included in PDD. Parameter units, and monitoring frequency are ok against the Tool (ref 4). As per PDD version 1 (ref 1a), the parameter will be obtained from the fuel supplier, it is deemed correct against the Tool (ref 4) requirement. PP is requested to provide the procedure to obtain the parameter (test). CAR 18 item 10 was raised. The explanation is consistent against the Local requirements defined by ENARGAS (ref 68). Item closed.	
		closed. According with PDD version 1 (ref 1a), the data will be obtained monthly from the provider. It is deemed correct against the Tool (ref 4) that requires that the parameter should be obtained for each fuel delivery.								
EF _{CO2,i,y}	EF _{CO2,i,y}	Ok, parameter included in PDD. Parameter units, and monitoring frequency are ok against the Tool (ref 4). As per PDD version 1 (ref 1a), the parameter will be obtained from the fuel supplier, it is deemed correct against the Tool (ref 4) requirement. PP is requested to provide the procedure to obtain the parameter (test). CAR 18 item 10 was raised. The explanation is consistent against the Local requirements defined by ENARGAS (ref 68). Item closed.								
			Since PDD does not include any diagram with the monitoring points CAR 18 item 11 was raised. It was validated that the diagram included in PDD version 3 (ref 1c), section B.7.2. is a valid representation of the structure implemented on site. Item closed.							
B.7.3. Is the implementation of monitoring plan feasible and verifiable.	VVM Para. 123(b) PDD Section B.7	DR SV	Yes, the monitoring plan can be implemented properly. During the site visit, it was validated that already the plant is monitoring most of the required parameters, thus the missing ones will be included in their records.	Yes						
B.7.4. Is it ensured that data provisions will be free of potential conflicts of interests resulting in a tendency of overestimating emission reductions?	VVM Para. 19	DR	The data that will be used for ER calculations will be obtained from formal organizations (Cammesa & Secretariat of Energy) and from gas provider: thus the data is gathered from third independent parties. It is not expected to have ER over estimation.	Yes						
B.7.5. Is the proposed monitoring plan compliance with the methodology/tools and feasible for implementation?	VVM Para. 124	DR SV	Yes, as it was assessed and validated previously the monitoring plan is in compliance with the applicable methodology and tools. Based on the information reviewed for ex-ante calculation and how it was obtained by the PP it was validated that the PP already has in place most of the monitoring conditions stated for each parameter, and the missing ones have to be implemented. Based on the document reviewed, the data available at the validation time and the site visit (interviews with staff in the plant), no problems for the full implementation of the monitoring plant are expected.	Yes						
B.7.6. Does the information contained in Annex 4 in consistency with the information in Section B.7 of PDD?	PDD Annex 4	DR	The monitoring plan is contained in section B.7.1 & B.7.2, no additional information is included in Annex 4.	N/A						
B.7.7. Does the monitoring plan in the PDD comply with the approved methodology provided for the collection and archiving of all relevant data	VVM Para. 91a/91d/121/79 PDD Section B.7-B.7.2	DR	Yes, as it was described in previous sections, the monitoring plan complies with the applicable methodology and the tools. Regarding the data gathered, PDD states that it will be stored electronically and backed up regularly.	Yes						

necessary for estimation or measuring the emission reductions within the project boundary during the crediting period?				
B.7.8. Are the choices of project GHG indicators reasonable and in conformance with the requirements set by the approved methodology applied?	PDD Section B.7-B.7.2/B.6.2	DR	As it was reviewed previously in B.6.1, all the selections done by the PP are correct and eligible against the Methodology (ref 2) and the Tools (ref. 3, 4, 5, 6).	Yes
B.7.9. Will it be possible to determine the specified project GHG indicators?	PDD Section B.6.2-B.8	DR	According with the parameters included in the monitoring plan, PDD version 1 (ref 1a) section B.7.1, it will be possible to calculate the ER.	Yes
B.7.10. Is the information given for each monitoring variable by the presented table sufficient to ensure the verification of a proper implementation of the monitoring plan?	PDD Section B.6.2-B.7.1	DR	Yes, as it was validated previously in B.7.2, the monitoring plan is complete and will allow to guide the actions correctly at the operation time.	Yes
B.7.11. Is the monitoring approach in line with current good practice, i.e. will it deliver data in a reliable and reasonably acceptable accuracy?	PDD Section B.5-B.7.2	DR	The monitoring plan contained in PDD version 4 (ref 1d), section B.7.1 is clear and reflects good practices. QA/QC procedures defined for the parameter will allow to ensure reliable data.	Yes
B.7.12. Are all formulae used to determine project emission clearly indicated and in compliance with the monitoring methodology.	PDD Section B.6.2-B.7.1	DR	<p>All the formulae stated in PDD were reviewed against the methodology or the corresponding tool, all of them were found correct except the following:</p> $EF_{EL,DD,h} = \frac{\sum_{i,n} FC_{i,n,h} \cdot EF_{CO_2,i,y}}{\sum_n EG_{n,h}}$ <p>The equation is incomplete because does not include the parameter NCV, additionally the $EF_{CO_2,i,y}$ is defined as "CO₂ emission factor of fossil fuel type <i>i</i> in year <i>y</i> (tCO₂/tonne for solid and liquid fuels and tCO₂/dam³ ", however as per the Tool the $EF_{CO_2,i,y}$ has to be expressed as "tCO₂/GJ". CAR 16 item 3 was previously raised. It was validated that in PDD version 2 (ref 1b) the equation to calculate the parameter $EF_{EL,DD,H}$ was corrected. Additionally it was validated that the units of $EF_{CO_2,i,y}$ were corrected. CAR 16 item 3 was previously closed.</p>	Yes

B.8. Operational and Management Structure

B.8.1. Is the authority and responsibility of project management clearly described?	PDD Section B.7	DR	PDD version 1 (ref 1a), section B.7.2, describes the parts involved with the measurements performed in the project site (gas consumption and electricity generation). PDD does not include any description of the main CDM responsibilities. PP is requested to identify the responsible authority for registration, monitoring, measurement, calculating, review and reporting of CDM project. CL 19 was raised. It was validated that PDD version 2 (ref 1b) identifies properly a responsible person by the CDM project in term of reporting. Similarly the PP provided a procedure in Spanish for the monitoring (ref 67). It was validated that the cited document (ref 67) identifies responsible for the equipments maintenance and calibration, as well for the monitoring, revision and data approval. The procedure will be useful for the monitoring process since it is in Spanish, however the monitoring plan included in the PDD will be the formal requirements that the project has to comply with. CL 19 was closed.	Yes
B.8.2. Is the authority and responsibility for registration, monitoring, measurement and reporting clearly described?	PDD Section B.8	DR	As it was previously reviewed, PDD does not provide further information about the CDM responsibilities assignation within Loma de la Lata. PP was requested to complete the PDD. CL 19 was previously raised. It was validated that PDD version 2 (ref 1b) identifies properly a responsible person by the CDM project in term of reporting. Similarly the PP provided a procedure in Spanish for the monitoring (ref 67). It was validated that the cited document (ref 67) identifies responsible for the equipments maintenance and calibration, as well for the monitoring, revision and data approval. The procedure will be useful for the monitoring process since it is in Spanish, however the monitoring plan included in the PDD will be the formal requirements that the project has to comply with. CL 19 was closed.	Yes
B.8.3. Are procedures identified for training of monitoring personnel?	PDD Section B.7	DR	Yes, PDD states that trained people operate the plant, and that for CDM purposes and external consultant will provide training on CDM matters.	Ok

B.9. Baseline Information

B.9.1. Is the information contained in Annex 3 consistent with the Section B.4, B.5 and B.6?	PDD Annex 3	DR	All the information included in PDD sections B.4, B.5 & B.6 and Annex 3 is correct and consistent.	Yes
B.9.2. Is there any indication of a date when determining the baseline?	PDD Section B.8/Annex 3	DR	Yes, as per PDD version 1 (ref 1a), the baseline was completed on 29/11/2011 by the carbon advisors (Hugo Ventureira & Fabián Gaoli).	Yes
B.9.3. Is this consistent with the time line of the PDD history?	PDD Section B.8	DR	As per PDD version 1 (ref 1a), section B.8., the baseline and monitoring methodology was completed on 29/11/2011. It is consistent with the PDD history and it is consistent with the vintage of the data used for ex-ante estimations.	Yes

B.9.4. Is all data required provided in a complete manner by annex 3 of the PDD?	PDD Annex 3	DR	Yes, throughout PDD (section B.6 and annex 3) the data used for ex-ante calculations is available. Given the volume of information related with EFom, it is only available in the excel files that will be submitted to UNFCCC.	Yes
B.9.5. What is the documented crediting period of the project? Is this inline with available data?		DR	Yes, since the baseline was completed in November 2011, the last year with all the information available is 2010. The crediting period selected by PP is 7-year renewable period. In a 7-year period the project expects to reach 651,610 tCO ₂ emission reductions.	Yes
B.9.6. In cases where the methodology specifies, has the 'Tool to determine the remaining lifetime of equipment' been correctly applied?	EB 50 Annex 15	DR	Yes, the ACM0007 version 06.1.0 (ref 2c) requires the use of the "Tool to determine the remaining lifetime of equipment". As per PDD information the "remaining lifetime" is determined as per option a) of the Tool (ref 6), it is deemed correct. As per PP information the turbine three has operated 73,017 hrs (since it started operations) and correspond to the unit with largest amount of hours, PP is requested to provide evidence of the operation hours and the manufacture's (General Electric) technical information of life time. CAR 6 was previously raised and closed. The steps followed by the PP to determine the remaining life time (ref 147) were validated. The accumulated operation time was reviewed against the turbines record (ref 61), slightly differences were found, however they do not threaten the applicability condition of the methodology. It was validated that the calculation used the average rate of operation (38.2%) of the turbines during the last five years, which is higher than the average of the last three last years (32.2%), the criteria applied is conservative. The remaining life time (38 years) was correctly defined; the remaining life time is longer that the crediting period option (7-year renewable). PP updated the PDD (version 3) as per the last version (number 6) of the methodology, it was validated that the applicability conditions are the same than in version 5, thus the project complies with the applicability condition of ACM0007 version 06.1.0 (ref 2c). CAR 6 was closed.	
B.9.7. In cases where the 'Tool to determine the remaining lifetime of equipment' has been used the project participants may use one of the following options to determine the remaining lifetime of the equipment: -Use manufacturer's information on the technical lifetime of equipment and compare to the date of first commissioning; - Obtain an expert evaluation; - Use default values.	EB 50 Annex 15	DR	Please see assessment in item below (B.9.6).	Ok

C. Duration of the Project / Crediting Period				
C.1.1.Are the project's starting date and operational lifetime clearly defined and reasonable?	VVM Para. 99 PDD Section C.1.1/C.1.2		As per PDD version 1 (ref 1a), the project starting date is 06/09/2007. As per PDD version 1 (ref 1a) the remaining lifetime of the power plant is 38 years. The PP chosen a renewable 7-year crediting period, it results reasonable with the remaining lifetime.	Yes
C.1.2.Is the assumed crediting time clearly defined and reasonable (renewable crediting period of max 7 years with potential for 2 renewals or fixed crediting period of max. 10 years)?	VVM Para. 102a PDD Section C.2/C.2.1/C.2.2		As per PDD version 1 (ref 1a), section C.2.1.1., the starting date of the crediting period will be 01/04/2012 or the registration date. The type of crediting period selected is renewable, which length is 7 years. Later as per PDD version 4 (ref 1d) the starting date of the crediting period is 01/09/2012.	Yes
C.1.3.Does the project's operational lifetime exceed the crediting period	VVM Para. 102a PDD Section C.1.2/C.2.1.1/C.2.1.2	DR	Yes, as it was stated in C.1.2. the expected operational lifetime is longer than the crediting period.	Yes
C.1.4.Does the start date indicate whether this is a new project activity or a pre-existing project activity?	VVM Para. 102a/ 98 PDD Section C.1.1/C.2.1.1	DR	As reviewed previously in B.5.4., this corresponds to an "existing project activity". The CDM prior consideration was reviewed and assessed in B.5.5..	Yes
D. Environmental Impacts				
D.1.1.Does the project comply with environmental legislation in the host country?	VVM Para. 131-133 PDD section D		Argentina has Federal Government, thus the regulations applicable to the project are those of "Neuquén" (province where the project is located). It was validated that the Law N°1,875 updated Law 2,267 (ref 30) establishes the principles to preserve, conserve, defend and improve the environment in the Province of Neuquén. As per its article 24, projects that due to the size can produce an alteration over the environment they have to present a Declaration of Environmental Impact and get the Environmental Management Plan approved by the authority.	Yes
D.1.2.Has an analysis of the environmental impacts of the project activity been sufficiently described?	VVM Para. 131-133 PDD section D	DR	Yes, PDD provides a proper description of the environmental impacts of the project.	Yes
D.1.3.Are there any Host Party requirements for an Environmental Impact Assessment (EIA), and if yes, is an EIA approved?	VVM Para. 131-133 PDD section D	DR	Yes. The project presented the EIA to the Provincial Authority (sub-secretariat of Environment) on 11/04/2008 (ref 33) and to the national body in charge of the electricity sector (ENRE) on 23/12/2008 (ref. 33). PDD reports the corresponding permits obtained from the authority, it was validated against the corresponding letters issued by the authorities (ref 33).	Yes

D.1.4. Will the project create any adverse environmental effects?	VVM Para. 131-133 PDD section D	DR	No. As per the project technology, it is not expected adverse environmental effects.	No
D.1.5. Are trans-boundary environmental impacts considered in the analysis?	VVM Para. 131-133 PDD section D	DR	The project does not have transnational effects.	N/A
D.1.6. Have identified environmental impacts been addressed in the project design?	VVM Para. 131-133 PDD section D	DR	Yes, PDD (ref 1a), includes a summary of the environmental impacts identified and the corresponding preventing action.	Yes
E. Stakeholder Comments				
E.1.1. Have local stakeholders been invited by the PPs to comment on the proposed CDM project activity prior to the publication of the PDD on the UNFCCC web	VVM Para. 128-129 PDD Section E.1	DR	<p>As per PDD version 1, section E.1 (ref 1a), states that two stakeholder consultation was performed. For the first, in PDD version 1, there is not information available about the date and where it was conducted. PP is requested to complete the information in PDD and clarify if comments included in table 9 correspond to the first public consultation. CL 20 item 1 was raised. It was validated that PDD version 2 (ref 1b), section E1. completes the information regarding when the first stakeholder consultation was carried out. Similarly the E.2. identifies which comments correspond to each consultation. CL 20 item 1 was closed.</p> <p>Based on the supplementary information provided by the PP (ref 34), the consultation carried out in 2008 was done via e-mail. In November 2008 LLL sent an e-mail informing about the project and asking for comments and observations. The letter was sent to: Cammesa, Fundación Bariloche (Bariloche Foundation), Centro de Ecología Aplicada de Neuquén (Centre of Applied Ecology of Neuquén), Asociación de Grandes Usuarios de Energía Eléctrica de la República Argentina (Large Users of Electric Energy Association of Argentina), Secretaría de Estado de Relaciones Institucionales y Coordinación (Secretariat of Institutional Affairs of Neuquén), Subsecretaría de Medio Ambiente de Neuquén (Under-Secretariat of Environment of the Neuquén Province), Universidad Nacional del Comahue (National University of Comahue), Fundación Ambiente y Recursos Naturales (Environment and Natural Resources Foundation) and Fundación Empresaria de la Patagonia (Patagonia Business Foundation).</p> <p>After this consultation the Project received three comments, all of them were supporting the project. No observation or negative comment was received.</p> <p>As reported in PDD the second consultation was done by e-mail (ref 34), in November 2011. PP was requested to provide the full list of stakeholders that received the project information. CL 20 item 2 was raised. 2. It was validated that the full list of stakeholders that receive information of the project during the second consultation was included in PDD version 2 (ref 1b). CL 20 item 2 was closed</p>	Yes

E.1.2. Have appropriate media been used to invite comments by local stakeholders?	VVM Para. 128-129 PDD Section E.1	DR	The consultation was done by e-mail and post. The information provided to the consulted people/organizations is realistic and consistent with the PDD.	Yes
E.1.3. Is the undertaken stakeholder process described in a complete and transparent manner?	VVM Para. 128-129 PDD Section E.1	DR	Yes, PDD provides a complete and transparent description of the stakeholder consultation process. Additionally it was validated that they were performed as described through a telephonic interview with one of the consulted stakeholders.	Yes
E.1.4. Is a summary of the stakeholder comments received provided?	VVM Para. 128-129 PDD Section E.2	DR	Yes, PDD version 1 includes a summary of the comments received. They were validated against the answer provided by each one to the LLL enquiry (ref 34).	Yes
E.1.5. Has due account been taken of any stakeholder comments received?	VVM Para. 128-129 PDD Section E.3	DR	Yes, there was one comment including a question about the technological transfer. The PP answered the question. (ref 34).	Yes
E.1.6. How the team validate the adequacy of stakeholder consultation?	VVM Para. 130	DR	The information available of the stakeholder consultation was validated against the documents supplied by the PP (ref 34), and additionally one person that attended to the meetings was contacted telephonically by the validation team.	Yes

A.3 Annex 3: Overview of Findings

Findings Overview Summary

	CARs	CLs	FARs
Total Number raised	8	12	1, derived from CARs 7 & 18, please see below

Date:	20/01/2012	Raised by:	Alicia Fernández		
Type:	CAR	Number:	1	Reference:	AU4, A.1.
Lead Assessor Comment:					
LoA Please provide the Letter of Approval issued by the Argentinian DNA. CAR 1 was raised.					
Project Participant Response:				Date: 02/04/2012	
<i>The reconfirmation of the LoA was issued on 27 March 2012 through a note reconfirming the original LoA issued on 19 March 2009.</i> <i>The PDD was revised to include a comment by the DNA, requiring the PP to include a complete Argentine map in Figure 1.</i>					
Documentation Provided by Project Participant: <i>The LoA is attached as OAMDL 27-3-2012.pdf.</i>					
Information Verified by Lead Assessor: <i>- OAMDL 27-03-2012.pdf (ref 54)</i>					
Reasoning for not Acceptance or Acceptance and Close Out:				Date: 03/04/2012	
As per the letter received (ref 54), the LoA issued on 19/03/2009 (ref 41a) is valid for version 1 of PDD published on www.ambiente.gob.ar/oamdl . Please note that PDD was not found in the mentioned web site, additionally if the letter issued recently (ref 54) condition the LoA for a specific PDD version and it does not match with the current PDD version. CAR 1 remains open.					
Acceptance and Close out by Lead Assessor:				Date: 03/04/2012	
Project Participant Response:				Date: 16/05/2012 – mail dated 02/08/2012	
The LoA will be asked to be issued by the DNA once PP has the final version of the PDD.					
Documentation Provided by Project Participant: Carta LoA español.pdf					
Information Verified by Lead Assessor: Ref. 41a - LoA.pdf Ref. 41b - Carta LoA.pdf					
Reasoning for not Acceptance or Acceptance and Close Out:				Date: 02/08/2012	
PP provided a letter issued by the Argentinian DNA, MS. Maria Eugenia Rallo (ref 41b) where she confirmed that the LoA issued on 19/03/2009 (ref 41a) is valid for PDD version 5. It was validated that the LoA confirms that: (a) Argentina is a Party to the Kyoto Protocol; (b) The participation is voluntary; (c) The project activity contributes to the sustainable development of Argentina; (d) Refers to the project with the same name stated in the PDD. CAR 1 was closed.					
Acceptance and Close out by Lead Assessor:				Date: 02/08/2012	

Date:	20/01/2012	Raised by:	Alicia Fernández		
Type:	CL	Number:	2	Reference:	AU4, A.2.
Lead Assessor Comment:					
Project description & Information					
<p>- As per PDD the power plant "Central Térmica Loma de la Lata" started operations in 1994 as open cycle. Please provide the supporting evidence of the commissioning of the plant as open and combined cycle.</p> <p>- Please include in PDD the project location (coordinates) using decimal points.</p>					
CL 2 was raised.					
Project Participant Response:				Date: 02/04/2012	
<p>The units composing the single cycle at Central Térmica Loma de la Lata commenced operations from May 1994 through July 1994 (TG3 on May 23, 1994, TG2 on July 7, 1994 and TG3 on July 12, 1994). In 2007, the PP acquired the assets composing the plant but the original notifications from CAMMESA regarding the starting of commercial operations of the units was not part of the documents received in the acquisition and are in the possession of the prior owner. While there is sufficient alternative evidence that the units became operational on the dates mentioned above, the generation records from CAMMESA for 1994 are only kept in printed form and are not available for the PP. As alternative evidence, we are providing copies of the gas consumption records from May 1994 and from July 1994 that evidence the operation of the units. Correspondence from CAMMESA to the PP, ENRE and Secretariat of Energy regarding the commissioning of the steam turbine and of the plant in combined cycle, as from November 1, 2011, is provided. Please refer to CAR 6, item 3, for confirmation that the power plant started operating as single cycle. The PDD was modified to include the project location (coordinates) using decimal points.</p>					
Documentation Provided by Project Participant:					
<p>Commissioning of the steam turbine, list of documents provided (in pdf form): Acta N° 1 1994: Gas measurement between 10 May and 31 May 1994 (CCE22032012_00000.pdf) Acta N° 3 1994: Gas measurement between 1 July and 31 July 1994 (July 1994 gas consumption.pdf) B-67122-1 C.T.LOMA DE LA LATA.pdf B-67122-2 S.S.E.E..pdf B-67122-3 ENRE.pdf</p>					
Information Verified by Lead Assessor:					
<ul style="list-style-type: none"> - Loma de la Lata PDD 02042012 clean.pdf (ref 1b) - CCE22032012_00000.pdf (ref 55) - July 1994 gas consumption.pdf (ref 56) - B-67122-1 C.T.LOMA DE LA LATA.pdf (ref 57) - Ref. 58 - B-67122-2 S.S.E.E..pdf (ref 58) - Ref. 59 - B-67122-3 ENRE.pdf (ref 59) 					
Reasoning for not Acceptance or Acceptance and Close Out:				Date: 03/04/2012	
<p>- Based on the historical gas consumption records dated June and August 1994 (ref 55&56) that reports the measurements in "monitoring point 81" (same measurement point existent nowadays and verified during the site visit), it was validated that the plant is in operation since 1994. Similarly, based on the notification sent by Cammesa (ref 57, 58 & 59) it was verified that the commissioning of the plant as combined cycle was on 01/11/2011. Item closed.</p> <p>- It was validated that PDD version 2 (ref 1b) includes its location using decimal points, the information is equivalent to the information reported previously in PDD version 1 (ref 1a). Item closed.</p> <p>- As per PDD (ref 1b), installed capacity of the open cycle was 369.93 MW, and the installed capacity of the steam turbine 175.73 MW, it means 545.66 MW. As per the commercial habilitation given by Cammesa on 31/10/2011 (ref 35-8, Power connection agreement), the steam turbine will have a capacity of 165 MW and the combined cycle 540 MW. Please clarify the differences with the PDD. Item open.</p>					
CL 2 remains open.					
Acceptance and Close out by Lead Assessor:				Date: 03/04/2012	
Project Participant Response:				Date: 16/05/2012	

<p>Regarding the installed capacity of the open cycle, the nameplate indicates 125 MW for each turbine (total gas turbines of 375 MW), and the capacity guaranteed by the manufacturer General Electric is 369.93 MW, as stated in the PDD. Regarding the installed capacity of the steam turbine, the capacity guaranteed by the manufacturer (Siemens) is 175.73 MW, as stated in the PDD. For the four turbines –open cycle and steam turbine– we took for our analysis the manufacturers guaranteed installed capacity because we considered it was the most conservative value to show.</p>	
<p>As per the habilitation by Cammesa granted on 31 October 2011 of 165 MW installed capacity for the steam turbine, on August 2011 the contractor hired for the closing of Central Térmica Loma de la Lata"s combined cycle, Isolux, informed to us that Siemens, the steam turbine supplier, had detected a fault in design that generated vibrations in other turbines of similar technology. The last blade wheel was replaced and Central Térmica Loma de la Lata"s combined cycle began its commercial operations on November 1, 2011, with a provisory blade wheel and with an installed capacity of 165 MW, lower than the 175.73 MW guaranteed by the manufacturer. The provisional blade wheel will be replaced when the contractor, along with the turbine supplier, find a solution to the problem, as informed in Pampa Energía"s 2011 Annual Report. It is estimated that the replacement will take place in June 2013, date on which the turbine would be operating at the guaranteed power. At the time of project starting, this design fault problem was not previewed. Thus, for Cammesa records Central Térmica Loma de la Lata has an installed capacity of 540 MW, composed by 375 MW from gas turbines" nameplate and 165 MW belonging to the closing of the combined cycle with a provisional blade (as we stated before, to be replaced as soon as Siemens find a solution).</p>	
<p>Documentation Provided by Project Participant:</p> <ul style="list-style-type: none"> - Gas turbines nameplate installed capacity: in Pampa Energía's investor relations webpage http://ri.pampaenergia.com/pampaenergia/web/conteudo_es.asp?idioma=2&conta=47&tipo=23514. Print screen: LLL nameplate TGs.PNG - Gas turbines guaranteed installed capacity: sent in 22 December 2011 request for validation data room, \Sent for Validation\1. Financial Analysis\1.5 Attachments\1.5.2 Technical Data - Back Up\1.5.2.4 TG's Data\GE guaranteed data.jpg - Steam turbine guaranteed installed capacity: sent in 22 December 2011 request for validation data room, \Sent for Validation\2. CER Calculations\2.4 Attachments\2.4.1 Technical Data - Back up\2.4.1.3 Gross Capacity ST\Siemens Steam Turbine Operations' Conditions.pdf - CTTLL "s fault in design event: reported in Pampa Energía's 2011 Annual Report, page 36 (Pampa Energía's 2011 Annual Report.pdf) 	
<p>Information Verified by Lead Assessor:</p> <ul style="list-style-type: none"> - LLL nameplate TGs.PNG (ref 144) - GE guaranteed data.jpg (ref 143) - Siemens Steam Turbine Operations' Conditions.pdf (ref 146) - Pampa Energía"s 2011 Annual Report.pdf (ref 145) 	
<p>Reasoning for not Acceptance or Acceptance and Close Out:</p>	<p>Date: 31/05/2012</p>
<p>It was validated that the installed capacity reported in PDD corresponds to the rated performance as per the local conditions as per the manufacturer, thus it corresponds to the maximum gross generation, as summarized below.</p> <ul style="list-style-type: none"> - TG: 369.93 MW (validated against General Electric technical specifications, ref 143) - TV: 175.73 MW (validated against General Electric technical specifications, ref 146) <p>The values used by the PP are deemed correct because are in line with the manufacturer definition. Regarding the capacity assigned by Cammesa is not deemed suitable, because it can change along the time and not necessarily represent the maximum capacity, as it has been validated (ref 35-8), for TG it correspond to the plate figure (nominal capacity) and for TV at a capacity estimated due to the operation condition due to the blade design fault.</p> <p>CL 2 was closed.</p>	
<p>Acceptance and Close out by Lead Assessor:</p>	<p>Date: 31/05/2012</p>

Date:	20/01/2012		Raised by:	Alicia Fernández	
Type:	CAR	Number:	3	Reference:	AU4, A.3.4.
Lead Assessor Comment:					
MoC Please provide the MoC using the latest template available. CAR 3 was raised.					
Project Participant Response:				Date: 02/04/2012	
<i>We are attaching the form Reg_form_19_MoC-CTLLL.pdf. The form will be filled once validation process is concluded.</i>					
Documentation Provided by Project Participant:					
<i>Reg_form_19_MoC-CTLLL.pdf</i> <i>03-CAR MoC.pdf (file received by e-mail on 10/04/2012)</i>					
Information Verified by Lead Assessor:					
<i>03-CAR MoC.pdf (ref 60)</i>					
Reasoning for not Acceptance or Acceptance and Close Out:				Date: 12/04/2012	
It was validated that the MoC was filled in the template 1.4., even new template is available the use of version 1.4 is deemed correct because the project is being validated under VVM. It was validated that the MoC was filled correctly, the project name is correct against PDD. It was validated against the Power of Attorney dated 15/01/2009 that the contact person is the President of "Central Térmica Loma de la Lata S.A." and President of the Board of Directors of "Pampa Energía". CAR 3 was closed.					
Acceptance and Close out by Lead Assessor:				Date: 12/04/2012	

Date:	20/01/2012	Raised by:	Alicia Fernández		
Type:	CAR	Number:	4	Reference:	AU4, A.4.5.
Lead Assessor Comment:					
PDD					
PDD section A.4.4. reports the estimated ER, the information is consistent with the detailed calculation procedure reported in PDD section B.6.1, the data available in section B.6.2. and B.6.4. However it has to be noted that the Total ER of the crediting period reported in A.4.4. and B.6.4 (4,320,277) are not consistent with the yearly values reported in the same table. Please revise figures without decimals and rounded down.					
CAR 4 was raised.					
Project Participant Response:				Date: 02/04/2012	
<i>The PDD was revised accordingly (tables A.4.4 and B.6.4). Estimated ERs have been updated as requested in CAR 16.</i>					
Documentation Provided by Project Participant:					
<i>Emissions Reductions Calculator: Emissions Reductions 2008-2010.xlsx; 2010 Operating Margin Calculation: PP's Calculation of OM 2010.xlsx; and 2010 Operating Margin Calculation, day by day: corrida 2010 - pampa (2).zip</i>					
Information Verified by Lead Assessor:					
<i>Loma de la Lata PDD version 5.pdf (ref 1e) 2011 Argentine grid building margin.xlsx (ref 165) PP's Calculation of OM 2011.xlsx (ref 164.2) Emissions Reductions 2008-2010 10-07-2012.xlsx (ref 15c)</i>					
Reasoning for not Acceptance or Acceptance and Close Out:				Date: 24/04/2012	
Pending assessment. This finding will assessed once solved all the comments regarding data used in the calculations.					
CAR 4 remains open.					
Re-assessed on 20/06/2012					
Based on the updated documents (PDD (ref 1d), EFgrid (ref 164, 165) and ER calculation file (ref 15c)) it is validated that the estimated ER is reported correctly.					
CAR 4 was closed.					
Acceptance and Close out by Lead Assessor:				Date: 20/06/2012	

Date:	20/01/2012		Raised by:	Alicia Fernández	
Type:	CL	Number:	5	Reference:	AU4, A.5.1
Lead Assessor Comment:					
Project funding As per PDD version 1 (ref 1a), the project is not going to receive any kind of public funding from Annex I countries. This information was assessed against the "Annual Memory 2007" issued by Pampa Energia (ref 23), where is stated that Pampa Holding increase its "capital" through another countries bonds and payment to providers. PP is requested to detail which countries provided resources against the bonds issued. CL 5 was raised.					
Project Participant Response:				Date: 02/04/2012	
<i>The Project did not seek nor received any public funding from Annex I countries. The paragraph cited from the Annual Memory 2007 or Pampa Energía reads: "To be able to meet Pampa Energía's obligations in connection with the implementation and start-up of its new generation projects, Pampa Holding capitalized Pampa Energía by means of two capital increases made in June 2007 for an aggregate amount of Ps. 300 million (the first capital increase for Ps. 85 million and the second one for Ps. 215 million). These capital increases were paid partly in cash and through the delivery of foreign government bonds and partly as advanced payments and payments to suppliers." In other words, Pampa Energía (formerly known as Pampa Holding), the parent company of the PP (formerly known as Pampa Energía), made equity contributions and provided credit to the PP in order for the PP to be able to fund its obligations in relation with the Project. Pampa Energía made this funding in the form of cash, in the form of cash equivalents (bonds that Pampa Energía owned and that it had bought in the open market), and also in the form of advances and payments to suppliers of CTLLL for the Project. There was no public funding from Annex I countries for the Project, including resources from Official Development Assistance (ODA).</i>					
Documentation Provided by Project Participant:					
<i>Annual Report.pdf</i>					
Information Verified by Lead Assessor:					
<i>- Report Anual 2007.pdf (ref 23)</i>					
Reasoning for not Acceptance or Acceptance and Close Out:				Date: 12/04/2012	
PP provided a detailed explanation of mechanism used to inject new resources to the society, it was validated that the resources were obtained through the bonds selling, Thus the capital involved does not correspond to public funding. CL 5 was closed.					
Acceptance and Close out by Lead Assessor:				Date: 12/04/2012	

Date:	20/01/2012	Raised by:	Assessment team		
Type:	CAR	Number:	6	Reference:	AU4, B.2.1
Lead Assessor Comment:					
Methodology applicability					
1. Please include in PDD, section B.2., the assessment of the first applicability condition defined in the methodology.					
2. As per PDD information the fuel used by the power plant (currently and historically) is natural gas. Please provide the permit issued by the authority (or a similar supporting evidence) where is defined the type of fuel used by the plant.					
3. As per PDD information the "remaining lifetime" is determined as per option a) of the Tool (ref 6), it is deemed correct. As per PP information the turbine three has operated 73,017 hrs (since it started operations) and corresponds to the unit with largest amount of hours. Please provide evidence of the operation hours of each turbine and the manufacturer's (General Electric) technical information of life time.					
CAR 6 was raised.					
Project Participant Response:				Date: 02/04/2012	
1. The assessment of the first applicability condition was included in the PDD.					
2. The fuel used by the power plant (currently and historically) is natural gas. The Environmental Impact Study, performed by the National Technological University (UTN for its initials in Spanish), states on pages 9 and 19 of its Executive Summary that the existing gas turbines had used and will use only natural gas as fuel. Also on pages 5 and 9 of the Annex I, Off-Shore Agreement, Isolux Corsán describes the existing units as burning only natural gas. During the site visit the DOE inspected the fuel records (gas records), the plant, and was able to verify that there are no existing liquid fuel connections to the turbines, or any storage facilities for the use of these fuels in the turbines.					
3. Plant's records of the operation of each turbine and the manufacturer's technical information of life time were provided to the DOE and inspected during the site visit. The information regarding the hours of operation of the turbines was included in support information for the PDD under: 2. CER Calculations/ 2.4 Attachments/ 2.4.2 Raw Data - Back Up/ 2.4.2.3 Operation Hours/ Operation Hours 2008-2010.xls. GE technical information of life time (see page 35 of GE manual which indicates rotor inspection interval for type E -no special recommendation) is also included and was reviewed on site.					
Documentation Provided by Project Participant:					
1. New version of the PDD					
2. Executive Summary of the EIS: pampatomoresumenejecutivo.pdf; Annex I Off shore agreement: ANEXO I~1.pdf					
3. Operation Hours 2008-2010.xls, GE Energy – Heavy duty gas turbine.pdf					
Information Verified by Lead Assessor:					
- Loma de la Lata PDD 02042012 compared to 22122011.doc (ref 1b)					
- 1. Emissions Reductions 2008-2010.xls (ref 15b)					
- Executive Summary of the EIS: pampatomoresumenejecutivo.pdf; Annex I Off shore agreement: ANEXO I~1.pdf (ref. 33 - 3. & 4. EIA / 1. EIA-IA)					
- 3. Operation Hours 2008-2010.xls (Ref. 19 - 4.3 Raw Data - Back Up / 4.3.3 Operation Hours)					
- 3. GE Energy - Heavy duty gas turbine.pdf (ref 62)					
Reasoning for not Acceptance or Acceptance and Close Out:				Date: 12/04/2012	

1. It was validated that PDD version 2 (ref 1b) includes the missing applicability condition. Similarly Based on the project evidence, it was validated that the condition is complied correctly. **Item closed.**
2. It was validated through the "EIA" submitted by the PP to the authority (ref. 33 - 3. & 4. EIA / 1. EIA-IA) that the project used natural gas during its operation in open cycle. Additionally during the site visit, were reviewed the monthly acts that records the daily consumption of natural gas, the cited acts were available since 1994, being the first act dated 03/06/1994). Therefore it is confirmed that the project complies correctly with the second applicability condition. **Item closed.**
3. As per the information provided by the PP (Ref. 19 - 4.3 Raw Data - Back Up / 4.3.3 Operation Hours), during the period 2008 – 2010 the turbines operated 3367 hours per year in average. Regarding the total operation time per turbine, it was verified on site (ref 61) against the control system that each turbine has operated the following amount of hours since the operation beginning until 01/11/2011 (date when the plant started its operation as combined cycle, Ref. 35 - 8. Power Connection Agreement):

Turbine	Operation hours until 01/11/2011 (ref 61)	Starts until 01/11/2011 (ref 61)
TG1	67,799.7	1789
TG2	72,150.2	1828
TG3	73,638.3	2008

As per the information reported in PDD (ref 1b), "...rotor inspection should be performed at 5,000 factored starts or 200,000 factored hours....". It was validated against the "heavy-duty gas turbine operating and maintenance considerations" issued by General Electric (ref 62), that the rotor inspection interval has to be done at least every 5000 starts or 200,000 hrs. Thus still the turbine with bigger amount of operational hours has over 120,000 hours before the rotor inspection. Considering that the turbines have operated since 1994, it means that from 1994-2011 they operated in average 5,085 hours/year, therefore still they have over 23 operation year without a retrofit.

As per the "Tool to determine the remaining lifetime of equipment" (ref 6), option A has the following applicability conditions:

Condition	SGS Assessment
(i) Manufacturer's information for the technical lifetime of the equipment is available	Ok, manufacturer defines the life time of the key part of the turbines (its rotor). Ref. 62.
(ii) The project participants can demonstrate that the equipment has been operated and maintained according to the recommendations of the equipment supplier to ensure that the technical lifetime specified by the manufacturer is not reduced; and	Ok. During the site visit it was validated against the maintenance records, that the turbines have had their maintenance as per the provider recommendation. It was validated that the lasts maintenance performed were on July 2006 for TG1, may 2005 for TG2 and 2004 for TG3, the cited information was validated against the corresponding work order (N° 0296442, 0296444 and 0296443).
(iii) There are no periodic replacement schedules or scheduled replacement practices specific to the industrial facility, that require early replacement of equipment before the expiry of the technical lifetime	Ok, during the site visit it was validated that plant has operated normally and the required maintenances have been performed. No action that lead to have an early replacement of the turbines was identified.
(iv) The equipment has no design fault or defect and did not have any industrial accident due to which the equipment cannot operate at rated performance levels.	Ok, during the site visit it was validated that the equipments have operated normally. It was validated considering the average operational hours (5,085 hours/year average since the operation starting 1994 until November 2011).

It was verified that the maximum operation hours registered in PDD (126,983 hours) is slight different with the information validated during the site visit. Please correct the information. similarly, please clarify how was obtained the remaining life time of 38 years. **Item remains open.**

CAR 6 remains open.

Acceptance and Close out by Lead Assessor:	Date: 12/04/2012
Project Participant Response:	Date: 16/05/2012

<p>6. Based on the file 'Resumen Oper- LLL (1994-2011) vida util y rendimiento.xls', the 126,983 hours are calculated from the total hours of operation guaranteed by the turbine manufacturer, GE, of 200,000 hours, minus the number 3 gas turbine (TG3) historical accumulated hours, which as of 1 November 2011 it was 73,017 hours. We considered only TG3 remaining lifetime hours because it had the least remaining hours and it was the most conservative criteria. The plant's historical load factor of the single cycle has been 38.2% on average according to historical records from 2005 to 2010. Assuming that value maintained in the future if the project was not done, hours of operation per year would be $8,760 \times 38.2\% = 3,346.32$. The remaining 126,983 hours spread over the hours of operation carried per year would be the calculation of $126,983 / 3,346.32 = 37.947$. That is, about 38 years.</p>	
<p>Documentation Provided by Project Participant:</p> <ul style="list-style-type: none"> - <i>Resumen Oper- LLL (1994-2011) vida util y rendimiento.xls</i> - <i>Evidence of GR guaranteed hours of operation: GE GER 3620k.pdf, page 35 first paragraph</i> 	
<p>Information Verified by Lead Assessor:</p> <ul style="list-style-type: none"> - <i>Resumen Oper- LLL (1994-2011) vida util y rendimiento.xls (ref 147)</i> - <i>GE GER 3620k.pdf (ref 62)</i> 	
<p>Reasoning for not Acceptance or Acceptance and Close Out:</p>	<p>Date: 31/05/2012</p>
<p>The steps followed by the PP to determine the remaining life time (ref 147) were validated. The accumulated operation time was reviewed against the turbines record (ref 61), slightly differences were found, however they do not threaten the applicability condition of the methodology. It was validated that the calculation used the average rate of operation (38.2%) of the turbines during the last five years, which is higher than the average of the last three last years (32.2%), the criteria applied is conservative.</p> <p>The remaining life time (38 years) was correctly defined; the remaining life time is longer that the crediting period option (7-year renewable).</p> <p>PP updated the PDD (version 3) as per the last version (number 6) of the methodology, it was validated that the applicability conditions are the same than in version 5, thus the project complies with the applicability condition of ACM0007 version 6.</p> <p>CAR 6 was closed.</p>	
<p>Acceptance and Close out by Lead Assessor:</p>	<p>Date: 31/05/2012</p>

Date:	20/01/2012		Raised by:	Alicia Fernández	
Type:	CL → CAR	Number:	7	Reference:	AU4, B.3.1 – site visit
Lead Assessor Comment:					
Project boundaries					
<ol style="list-style-type: none"> As per PDD version 1 (ref 1a) the plant is not going to burn additional gas in the steam turbine. Please provide the dossier with the details of the project and the corresponding permits where the plant operation (combined cycle) is defined. Please clarify if the plant will have some diesel (or similar) generator for auxiliary/emergency consumption. During site visit it was found that the plant has three emergency diesel generators. Two of them installed in the plant since it operated in open cycle and one installed during the project conversion to combined cycle. Consider the following comments: <ol style="list-style-type: none"> Please provide the supporting evidence to demonstrate that two generators (fire system & emergency generator) were installed before the commissioning of the combined cycle (pre-project). Please include in the monitoring plan (B.7.1.) the parameters to monitor the emissions due to the diesel consumption in the generator installed next to the steam turbine. 					
CAR 7 was raised.					
Project Participant Response:				Date: 02/04/2012	
<ol style="list-style-type: none"> The plant is not going to burn additional gas in the HRSGs of the steam turbine. The Environmental Impact Study, performed by the National Technological University (UTN for its initials in Spanish) states on page 19 of its Executive Summary that expansion into a combined cycle does not incorporate additional firing in the heat recovery steam generators. Also on pages 9 and 25 of the Annex I, Off-Shore Agreement, Isolux Corsán describes that the HRSGs will have only natural circulation and will use the residual hot gasses produced in the gas turbines. The same Annex I states on page 118 that the expansion will not include any gas system works. During the site visit the DOE inspected the HRSGs to confirm that there were no supplemental firing installations present. The plant has three diesel generators, one of 850 kVA for auxiliary services of GTs with a Detroit 16 BF 92 engine and another of 325 kVA for auxiliary services of ST with a Volvo TAD 941 GE engine (this is the only equipment related to the project activity) and one genset for the fire system pump. The PDD was modified to include this information. On page 42 of the Annex I, Off-Shore Agreement, Isolux Corsán describes that the fire pumping system (which includes its diesel generator) was existent and corresponded to the fire system of the three gas turbines. Also copies of records and invoices of maintenance performed on the fire system and emergency generators are provided. Both generators were inspected on site. The PDD was modified to include this information. 					
Documentation Provided by Project Participant:					
<ol style="list-style-type: none"> Executive Summary of the EIS: pampatomoresumenejecutivo.pdf; Annex I Off shore agreement: ANEXO I~1.pdf Diesel engines.xlsx Annex I Off shore agreement: ANEXO I~1.pdf;; Diesel engines.xlsx New version of the PDD 					
Information Verified by Lead Assessor:					
<ul style="list-style-type: none"> Executive Summary of the EIS: pampatomoresumenejecutivo.pdf; Annex I Off shore agreement: ANEXO I~1.pdf (ref. 33 - 3. & 4. EIA / 1. EIA-IA) 1. ANEXO I~1.pdf (ref 63) 2. Diesel engines.pdf (ref 64) 3. Existing diesel engines maintenance evidence.xls (ref 65) Loma de la Lata PDD 02042012 clean.pdf (ref 1b) 					
Reasoning for not Acceptance or Acceptance and Close Out:				Date: 12/04/2012	

<p>1. It was validated against the EIA presented to the authority (ref. 33 - 3. & 4. EIA / 1. EIA-IA) that no authorization to burn additional gas was requested. The same information was validated against the annex (ref 63) to the main contract signed between Pampa Energia and Isolux, where is stated that the project does not consider any gas system. Item closed.</p> <p>2. During the site visit it was verified that there are three diesel generators in the plant, one Detroit generator to support the TGs (ref 66, pics 1-2), one to support the fire system (ref 66, pics 3-4) and one to support the ST (ref 66, pics 5-8). It is important to highlight that the first two emergency generators are installed in the plant before the project implementation; therefore they do not add additional emissions. It was validated that PP included in section B.7.1 the parameters to calculate the emissions due to the operation of the emergency generator to support the TV. (ref 1b). As per PDD version 2 (ref 1b), section B.7.1. includes the parameters to calculate the corresponding emissions. Item closed.</p> <p>3.1. It was validated that in the annex (ref 63) to the contract signed between Pampa and Isolux it is stated that plant already has an emergency fire system. Regarding the emergency generator to support the TGs, it was validated against a maintenance summary (ref 65) that the Detroit generator had maintenance in 1996, thus there is evidence that the equipments was installed before the project implementation. Item closed.</p> <p>3.2. As per PDD version 2 (ref 1b) section B.7.1., the fuel consumption will be measured and as a QA/QC procedure the value will be compared with the consumption defined in the technical sheet. Please note that as per the generator plate its capacity is 360Kva, please revise the information included in PDD and provide the equipment technical specifications to validate its hourly consumption. Item remains open.</p> <p>CAR 7 remains open</p>	
Acceptance and Close out by Lead Assessor:	Date: 12/04/2012
Project Participant Response:	Date: 16/05/2012
<p>3.2. We modified the measurement system. The daily tank has a level meter with transmitter that connects the PLC, which will perform the flow calculations. The information is available on the DCS control room. For monitoring plan we will use a monthly record. The consistency of the measured gas oil consumption will be cross-checked with the product of the hours on services of emergency power unit (GE SSAA TV) in year y times the hourly specific fuel consumption of the equipment. The accuracy of level meter system is +/- 2% deviation from the range of measuring value. The calibration frequency is executed every three years. Regarding the generator plate capacity, we modified to 360 kVA as DOE requested. This technical input was modified in the PDD as well as emissions reductions calculation. The PDD was modified.</p>	
Documentation Provided by Project Participant:	
<ul style="list-style-type: none"> - Measurement system brochure: Level Sensor Efector 160 LK 3122 Model - Emissions Reductions 2008-2010 15-05-2012.xlsx - New version of the PDD 	
Information Verified by Lead Assessor:	
<ul style="list-style-type: none"> - LK3122 Level meter.pdf (ref 148) - Emissions Reductions 2008-2010 15-05-2012.xlsx (ref 15c) - Loma de la Lata PDD version 3.pdf (ref 1c) 	
Reasoning for not Acceptance or Acceptance and Close Out:	Date: 31/05/2012
<p>PDD version 3 (ref 1c) was reviewed, it was validated that PP defined the measurement system of the parameter. Regarding the QA/QC method, it is defined properly and its implantation has to be assessed during verification stages.</p> <p>PDD includes the accuracy of the equipment involved and defined a calibration frequency. As per EB 52 annex 60 the equipments has to be calibrated as per specifications of the local/national standards, or as per the manufacturer specification, if they are not available international standards may be used.</p> <p>The technical sheet of the meter (diesel) (ref 148) does not refer to the calibration frequency; please provide the supporting evidence to define the calibration frequency (at least every three years) defined in PDD. Item remains open.</p> <p>As per EB 52 annex 60 please provide the supporting evidence to support the calibration frequency of each equipment involved in the monitoring (generation, gas consumption, etc.). Item open.</p> <p>CAR 7 remains open.</p>	
Acceptance and Close out by Lead Assessor:	Date: 31/05/2012
Project Participant Response:	Date: 19/06/2012

<p>Regarding the evidence to support the calibration frequency of the following equipment involved in the monitoring of:</p> <ul style="list-style-type: none"> - Gas consumption, point No. 81: The calibration frequency described in the monitoring plan and PDD corresponds to a revised version of Protocol on Natural Gas Measurement Transfer Point, which is pending of signature. The PDD was modified. - Electricity generation, eight SMEC owned by Central Térmica Loma de la Lata and one owned by MEGA: we provide the 'Technical Protocol N° PT-14' of CAMMESA, where said entity determines in page 42, bullet IV, an annual calibration frequency for SMEC equipment. The PDD was modified. - Diesel oil consumption, level meter: we provide an e-mail from the level meter manufacturer IFM, dated on June 14, 2012, stating that 'IFM does not have a recommended calibration schedule for this sensor because it is all subjective based on how it's used and the environment it is exposed to'. Thus, we chose to execute an annual calibration frequency for the level meter. The PDD was modified. 	
<p>Documentation Provided by Project Participant:</p> <ul style="list-style-type: none"> - New version of the PDD - Protocol on Natural Gas Measurement Transfer Point.pdf - Protocolo medición de gas natural – old version.pdf - P_14_ Protocolo de CAMMESA para SMEC.pdf - RE LK CALIBRATION.msg 	
<p>Information Verified by Lead Assessor:</p> <ul style="list-style-type: none"> - RE LK CALIBRATION.msg (Ref. 180) - P_14_ Protocolo de CAMMESA para SMEC.pdf (Ref. 181) 	
<p>Reasoning for not Acceptance or Acceptance and Close Out:</p>	<p>Date: 04/07/2012</p>
<ul style="list-style-type: none"> - Gas consumption: PDD version 4 (ref 1d) does not include information about the calibration frequency and equipments accuracy. It was validated that there is in practice a protocol regarding gas consumption measurements between YPF and LLL, which reports the maximum error of the devices and it is a revised version of the protocol signed in 1998 (ref 118), however this protocol is being revised and (ref 97) still has not been signed. Given that the revised protocol is pending of signature and there is no requirement from the methodology (ACM 0007) this issue (accuracy) will have to be assessed during verification stage. FAR 01 was raised. Item closed. - Electricity generation, it was validated that as per Cammesa regulation (ref 181), electricity meters have to be verified in a yearly basis. It was validated that PDD (ref 1d) includes the verification frequency as per Cammesa regulation. It was validated as well that PPD (version 4) includes the accuracy of the meters involved in the monitoring. The accuracy of each meter was crosschecked against the verification acts of the meters (ref 185). Item closed. - Diesel oil consumption, it was validated as per mail from the equipment manufacturer representative (ref 179) that a specific calibration frequency is not recommended. Thus the PP decided to follow an annual calibration. It is deemed suitable. Regarding the equipment accuracy, it is stated in PDD version 4, the data was crosschecked against the sensor technical sheet (ref 148). Item closed. 	
<p>CAR 7 was closed (open issues remains as FAR 1)</p>	
<p>Acceptance and Close out by Lead Assessor:</p>	<p>Date: 05/07/2012</p>

Date:	20/01/2012	Raised by:	Alicia Fernández		
Type:	CAR	Number:	8	Reference:	AU4, B.3.2
Lead Assessor Comment:					
Leakage					
<p>1. As per the methodology (ref 2), "Upstream emissions related to fossil fuels consumed by the project power unit(s) and emissions associated with the a change in the amount of exhaust heat recovery due to the project activity are outside the project boundary and included as leakage emissions.". PDD version 1 (ref 1a) section B.3. does not refer to the leakage emissions. Even leakage is identified in section B.6.1, Please complete the information in section B.3.</p> <p>2. Please provide supporting evidence to demonstrate that no energy was recovered before the project implementation. Please provide an energy balance or other relevant evidence.</p>					
CAR 8 was raised.					
Project Participant Response:				Date: 02/04/2012	
<p>1. Information about leakage was completed in the PDD.</p> <p>2. No energy was recovered before the Project implementation. On page 2 of the Annex I, Off-Shore Agreement, Isolux Corsán includes a picture of the then existing installation of the three gas turbines with their original stacks that shows that there are no installations for recovering energy from the exhaust gases of the natural gas fired turbines. The Environmental Impact Study, performed by the National Technological University (UTN for its initials in Spanish), on page 19 (Aire section) and on page 21 (Emisiones a la Atmósfera section) of its Executive Summary describes the baseline for the analysis and does not describe any use of the exhaust gases prior to the implementation of the Project.</p>					
Documentation Provided by Project Participant:					
<p>1. New version of the PDD</p> <p>2. Annex I Off shore agreement: ANEXO I~1.pdf; Executive Summary of the EIS: pampatomoresumenejecutivo.pdf</p>					
Information Verified by Lead Assessor:					
<p>- Loma de la Lata PDD 02042012 clean.pdf.doc (ref 1b)</p> <p>- Executive Summary of the EIS: pampatomoresumenejecutivo.pdf; Annex I Off shore agreement: ANEXO I~1.pdf (ref. 33 - 3. & 4. EIA / 1. EIA-IA)</p>					
Reasoning for not Acceptance or Acceptance and Close Out:				Date: 12/04/2012	
<p>1. Updated PDD (ref 1b) was reviewed, it was validated that section B.3. includes the analysis regarding the leakage. Item closed.</p> <p>2. It was validated that as per the EIA presented to the authority (ref 33), the plant did not have a heat recovery system previous to the project implementation. Item closed.</p>					
CAR 8 was closed, 12/04/2012					
<p>CAR 8 was re-assessed because the PP updated PDD the as per the last version of the methodology issued in EB 67. It was validated that calculations performed to obtain the leakage were corrected in the file "Emissions Reductions 2008-2010 15-05-2012.xlsx" (ref 15c), tab "ER", cell E27. The formula used is correct against ACM0007 version 6.</p>					
CAR 8 was closed.					
Acceptance and Close out by Lead Assessor:				Date: 06/06/2012	

Date:	20/01/2012	Raised by:	Alicia Fernández		
Type:	CL	Number:	9	Reference:	AU4, B.5.4
Lead Assessor Comment:					
Project Starting date As per PDD version 1 (ref 1a), section C.1.1., the project starting date was 06/09/2007 and corresponds to the date of signature of contract between Pampa Energía S.A. and Isolux – Corsan (ref 39). The document signed (ref 39) states that <i>"the agreement is understood to be accepted by Pampa Energía S.A, and therefore will be enforced in the instant that Pampa Energía S.A. hands to Tecna Estudios y Proyectos de Ingeniería S.A, a check in the amount of 3000 (three thousand) pesos of the Argentinian Republic"</i> . Please provide the supporting evidence of the cited payment and revise the project starting date accordingly. CL 9 was raised.					
Project Participant Response:				Date: 02/04/2012	
<i>A copy of the check in the amount of 3,000 (three thousand) pesos of the Argentinian Republic, and a copy of the sign acknowledgment by Pampa Energía S.A. and Tecna Estudios y Proyectos de Ingeniería S.A that the check was delivered on 06/09/2007, was provided to the DOE during the Validation visit and are also included at the end of the pdf file that includes the signed Framework Agreement (Acuerdo Marco) between the parties.</i>					
Documentation Provided by Project Participant:					
PESA 5 - INDICE + ACUERDO MARCO.pdf					
Information Verified by Lead Assessor:					
- 16. List of Contracts.pdf (ref 39 / 1. Isolux / Archivos Finales / Acuerdo Marco)					
Reasoning for not Acceptance or Acceptance and Close Out:				Date: 12/04/2012	
It was validated that on 06/09/2007 Isolux receives the check number 00000203 for the amount of 3000 (three thousand) Argentinian pesos (ref 39), thus it was confirmed that the contract between the parts entered into force on 06/09/2007. Therefore it has been validated that the project starting date has been defined correctly. CL 9 was closed.					
Acceptance and Close out by Lead Assessor:				Date: 12/04/2012	

Date:	20/01/2012		Raised by:	Alicia Fernández	
Type:	CL	Number:	10	Reference:	AU4, B.5.4

Lead Assessor Comment:

CDM prior consideration

PDD version 1, section B.5. (ref 1a), includes a list of the main actions related with the project. The actions included are assessed, please provide the supporting evidence of the following events:

Date	Action	SGS Comment
Jan – Jun 2006	Pampa Energía S.A. acquired 8.66% of the capital stock of Central Puerto S.A. ("Central Puerto"), an important electricity generation company in Buenos Aires and the then owner of the assets composing Loma de la Lata. At the same time, Pampa Energía S.A. began its analysis regarding the closing of the cycle at Loma de la Lata.	Please provide the supporting evidence. Open.
11/Jul/2007	EcoSecurities continued negotiating a proposal until November 2007, when the Project developer informed that the proposal had been accepted.	As per the e-mail correspondence (ref. 12.1) between EcoSecurities and Loma de la Lata, it is validated that communication between the cited parts about the project. Please provide the contract signed with EcoSecurities. Open.
06/Sep/2007	Starting date of the Project activity. Date when the contract between the Project developer and the engineering firm that provides the equipments, installation and civil work was signed.	Assessed in CL 9.
10/Dec/2007	Project Developer signed the CDM Emission Reduction Purchase Agreement with EcoSecurities relating to the Combined Cycle at Loma de la Lata Thermo Unit Project.	The PP provided as evidence an e-mail informing that the ERPA was signed. Please provide a copy of the ERPA signed. Open.
Sep/ 2008	Start of civil works at Project site.	As per a letter sent by Isolux Corsan on 11/09/2008 (ref 12.1), the civil works were re-initiated on 15/09/2008. Please clarify when the works were started by first time. Open.
27/Mar/2011	Project rejected by the CDM-EB.	As per UNFCCC the project was rejected on 17/03/2011 (ref 28). Please correct the PDD. Open.
Dec/ 2011	Project resubmitted to the UNFCCC for global stakeholder process.	As per the actions conducted, it was in January 2012. Please correct the PDD. Open.

CL 10 was raised.

Project Participant Response:

Date: 02/04/2012

Internal emails of Pampa Energía (formerly known as Pampa Holding, is the parent company of the PP - Central Térmica Loma de la Lata, which, in turn, was formerly known as Pampa Energía) from May 2006 to July 2006 are provided which demonstrate that the company was analysing the closing of the cycle at Loma de la Lata and its registration under CDM at that time. In page 33 of the Annual Report 2007, Pampa Holding announces the sale of its 8.66% equity interest in Central Puerto S.A. in November 2007.

The signed contract between EcoSecurities and the PP (formerly known as Pampa Energía) is provided, together with an email from EcoSecurities, dated November 12, 2007, in which EcoSecurities acknowledges the verbal communication by Pampa Energía that it has been awarded the contract.

The civil works on site were started on September 15, 2008. The civil works at the site were expected to commence on or about March 3, 2008, but the PP could not guarantee access to the site to the EPC contractor until September 15, 2008. Annex 2 from the On-Shore Agreement and a letter from the contractor are provided commenting on this subject.

The PDD was modified to reflect the correct rejection date by the CDM-EB.

The PDD was modified to reflect the correct date when the Project was resubmitted to the UNFCCC for global stakeholder process.

Documentation Provided by Project Participant:

1. Annual Report.pdf
2. FW Presentación de Econergy Argentina.msg
3. RE Informacion.msg
4. Email from Federico Moyano of EcoSecurities, dated November 12, 2007, consultas contrato.msg
5. Signed contract between EcoSecurities and the PP, contrato PESA y eco.pdf
6. Name change of the PP to CTLL; Cambio Denominacion PESA a CTLL - Testimonio de inscripción.pdf
7. ANEXO 2 - On Shore initial date for commencement of work on site.pdf
8. Note from Isolux Corsán related to delays to enter the site to commence the civil works; Nota Isolux sobre acceso a obrador 2008-07-29.pdf

Information Verified by Lead Assessor:

- 1. Annual Report.pdf (ref 27)
- 2. FW Presentación de Econergy Argentina.msg (ref 85)
- 3. RE Informacion.msg (ref 86)
- 4. consultas contrato.msg (ref 87)
- 5. contrato PESA y eco.pdf (ref 88)
- 6. Cambio Denominacion PESA a CTLL - Testimonio de inscripción.pdf (ref 89)
- 7. ANEXO 2 - On Shore initial date for commencement of work on site.pdf (ref 90)
- 8. Nota Isolux sobre acceso a obrador 2008-07-29.pdf (ref 91)

Reasoning for not Acceptance or Acceptance and Close Out:

Date: 23/04/2012

Date	Action	SGS Comment
Jan – Jun 2006	Pampa Energía S.A. acquired 8.66% of the capital stock of Central Puerto S.A. ("Central Puerto"), an important electricity generation company in Buenos Aires and the then owner of the assets composing Loma de la Lata. At the same time, Pampa Energía S.A. began its analysis regarding the closing of the cycle at Loma de la Lata.	It was validated in May 2006 (ref 86) a representative of Pampa Energia started the research with a consultant company to close the cycle at Loma de la Lata. Item closed.
11/Jul/2007	EcoSecurities continued negotiating a proposal until November 2007, when the Project developer informed that the proposal had been accepted.	It was validated that on 12/11/2007 a representative of EcoSecurities acknowledge the appointment by the PP of EcoSecurities to develop the CDM project and trade the bonds. Item closed.
06/Sep/2007	Starting date of the Project activity. Date when the contract between the Project developer and the engineering firm that provides the equipments, installation and civil work was signed.	Ok, as per assessment in CL 9 that was closed.
10/Dec/2007	Project Developer signed the CDM Emission Reduction Purchase Agreement with EcoSecurities relating to the Combined Cycle at Loma de la Lata Thermo Unit Project.	It was validated against the signed contract (ref 88), that an ERPA was signed between EcoSecurities and Pampa Energia on 10/12/2007. Item closed.
Sep/ 2008	Start of civil works at Project site.	It was validated that as per Annex 2 (ref 90) of the contract (ref 39-16-1), the starting was planned on 03/03/2008. Thus it was validated that no work was carried out before 06/09/2007 (starting dated, corresponding to date of the contract signed between the PP and Isolux). Item closed.
27/Mar/2011	Project rejected by the CDM-EB.	PDD version 2 (ref 1b) reports the information correctly. Item closed.
Dec/ 2011	Project resubmitted to the UNFCCC for global stakeholder process.	As per the actions conducted, it was in January 2012. Please correct the PDD. Item closed.

CL 10 was closed.

Acceptance and Close out by Lead Assessor:

Date: 23/04/2012

Date:	20/01/2012	Raised by:	Alicia Fernández		
Type:	CL	Number:	11	Reference:	AU4, B.5.7
Lead Assessor Comment:					
Baseline scenarios					
As per PDD version 1 (ref 1a) the alternative scenario "Investment in a new fossil fuel plant of annual output equivalent to the proposed Project" was discarded. Please provide supporting evidence of the following information reported in PDD: "new natural gas single cycle unit at the same location of the Project activity will not be able to secure a constant supply of gas due to its low efficiency and consequent bad position in the dispatch order". CL 11 was raised.					
Project Participant Response:			Date: 02/04/2012		
A new natural gas single cycle unit at the same location of the Project activity will face higher uncertainties to secure the firm supply of a larger volume of additional natural gas. As described in the PDD (Sub-Step 1a.4), the new fossil fuel plant would be of the same technology and efficiency as the existing plant, and the "increase in natural gas consumption would be 792 million m ³ compared to 468 million m ³ for the Project activity (69% higher)". As a consequence, it will face higher uncertainties than the Project activity to secure firm gas contracts (which is a requirement to be able to enter into long term power purchases agreements such as Energía Plus contracts), in a context of limited supply of gas. The PDD was modified to clarify this point.					
Documentation Provided by Project Participant:					
New version of the PDD					
Information Verified by Lead Assessor:					
- - Loma de la Lata PDD 02042012 clean.pdf (ref 1b)					
Reasoning for not Acceptance or Acceptance and Close Out:			Date: 23/04/2012		
The explanation regarding the difference in gas consumption, but there is no evidence that this project alternative wouldn't have gas supply from the provider. Please provide. CL 11 remains open.					
Acceptance and Close out by Lead Assessor:			Date: 23/04/2012		
Project Participant Response:			Date: 16/05/2012		
As we previously stated in this finding response and in PDD version 3, page 14, in August 2007 a new natural gas single cycle unit with the same technology and efficiency as the existing plant will face higher uncertainties than the Project activity to secure firm gas contracts, a requirement to enter into long term power purchase agreements. We are not stating that the gas supply is not possible, only highlighting that by then the uncertainty was evidenced. As a proof, we attach an irrevocable supply request made by Central Térmica Loma de la Lata (which was formerly known as Pampa Energía S.A.) to MEGSA (Mercado Electrónico de Gas S.A., in English known as Gas Electronic Market Supplier), dated 3 August 2007 and reference number O133. The gas supply request was denied by MEGSA, since there was no offer response by gas producers to such request. Also, as you may see in files attached of the print screen from MEGSA's website (http://www.megsa.com.ar/), in the section Operatoria (Operation) ->Ofertas Irrevocables de Compra (Irrevocable Purchase Offerings) ->Operatoria vigente (Current framework), there is listed all the irrevocable supply requests and their final status. From the publication of Loma de la Lata's request on 6 August 2007 to 19 August 2011, only 2 requests out of 25 had positive responses and had been supplied, the remaining were denied. This clearly demonstrates that the gas supply uncertainty was already high and therefore, based on these supplying conditions, to undertake a new investment implying on a larger consumption would not be considered a rational approach taking into account higher uncertainty.					
Documentation Provided by Project Participant:					
- Empty Irrevocable Gas Offer - Loma de la Lata.pdf - Print screen megsa denied offers.PNG					
Information Verified by Lead Assessor:					
- Empty Irrevocable Gas Offer - Loma de la Lata.pdf (ref 149) - Print screen megsa denied offers.png (ref 150)					
Reasoning for not Acceptance or Acceptance and Close Out:			Date: 31/05/2012		

<p>The gas request presented to MEGSA (ref 149) was reviewed, it was verified that at that time 2,500,000 m3/day were requested. It was verified through the public information available at MEGSA web site, that the request presented by Loma de la Lata in August 2007 (before the project starting was denied) (ref 151). Similarly, through the same public information, it was validated that since August 2007 44 gas request have been presented to MEGSA, and only 2 of them have been approved. Based on the reviewed and validated evidence, it can be confirm that the scenario "Investment in a new fossil fuel plant of annual output equivalent to the proposed Project" was discarded correctly due to the lack of gas availability.</p> <p>CL 11 was closed.</p>	
Acceptance and Close out by Lead Assessor:	Date: 31/05/2012

Date:	20/01/2012		Raised by:	Assessment team	
Type:	CL	Number:	12	Reference:	AU4, B.5.8
Lead Assessor Comment:					
Investment analysis					
1. PP is requested to provide the applicable law/regulation established by tax regulations in Argentina regarding assets depreciation.					
2. A sensitivity analysis was conducted and included in PDD version 1 (ref 1a). PP is requested to include in PDD and provide the supporting evidence to demonstrate that 10% of variation is reasonable for electricity and gas prices given the historical prices.					
3. Regarding the information used in the investment analysis:					
Item	Value	Source cited PDD/Excel file	Date of avail. /Ref.	Comment	
Three phase power transformer 500 kV	3,800,000	Int. comp. Isolux and Man proposal March 2007	(ref. 11.1 – 1.5.1.1)	Please provide the information source. The comparison is not enough.	
Cooling water system construction	5,265,000	Int. comp. Isolux and Man proposal March 2007			
Boiler chimney	1,500,000	Int. comp. Isolux and Man proposal March 2007			
Primary regulation of frequency	100,000	Int. comp. Isolux and Man proposal March 2007			
T = income tax	35%	National Decree 649/97		Please note that the link available in Investment file does not work.	
Price of energy - "Energía Plus"	26.0 USD/MWh	Project developer. Firm 2007 Energía Plus proposal to potential client	03/09/2007 (Ref. 36-9) Document elaborated by the PP 03/09/2007 (Ref. 36-9)	Please provide the official letter (with stamp) and the OED approval of the same.	
Price of capacity - "Energía Plus"	30.0 USD/MWh	Project developer. Firm 2007 Energía Plus proposal to potential client			
Natural gas price	0.20 AR\$/m ³	Average Price at Plant August 2007	Ref. 11.1 – 1.5.1.9	The reference is a set of data in Excel. Please provide the historical invoices.	
Natural gas price difference for old generation	0.11 AR\$/m ³	Calculated. Used to estimate the additional cost of gas for the Plant's historical consumption due to the need to secure gas at a higher price to be able to sell under Energía Plus contracts		Please provide the supporting evidence	
Natural gas price for Plus Contracts	97.26 US\$/Dam ³	Average price of firm long-term contracts entered into during August 2007	Ref. 11.1 – 1.5.1.10	The reference is a set of data in Excel. Please provide the supporting evidence.	
Adjustment factor	0.24	Project developer. Firm 2007 Energía Plus proposal to potential client		Please provide the supporting evidence	
Average cost/employee	70,498 US\$/year	Project developer	Mail dated 27/09/2007 (ref. 11.1. – 1.5.1.11)	As per the evidence provided the annual cost per employee is 163,003 AR\$/year, which using the validated exchange rate means 51,697 US\$/year. Please revise.	
Services ENRE costs factor	0.3% (%gross income)	Project developer. Estimates based on ENRE's 2006 allocation of costs		Please provide the supporting evidence.	
CAMMESA costs factor	0.1% (%gross income)	Project developer. Estimates based on historical CAMMESA allocation of costs		Please provide the supporting evidence	
TV Maintenance and other costs	4.05 US\$/MWh	Average September 2007 Güemes declaration of CVP (variable production costs declared to CAMMESA)	Sep/2007 (ref 11.1 – 1.5.1.15)	As per the reference the cost is 10.71 AR\$/MWh, using the exchange rate the cost should be 3.39 US\$/MWh. Please revise.	
CL 12 was raised.					
Project Participant Response:			Date: 02/04/2012		

1. The Income Tax Law (No. 20,628) establishes in its article #84 that assets will be depreciated for tax purposes according to their expected lifetime and following the applicable technical procedures (see email from M. Pildain), in this case the applicable technical procedure is the Technical resolution #21 from the Argentine accounting body (see mail from D. Aleksic). Accordingly, the PP depreciates its turbines in proportion to its fired ours and, in the case of the new steam turbine, uses an expected lifetime of 200,000 fired hours (mail from M. Pildain). The PDD was modified to include the calculation of the depreciation of the assets with this method.

2. The electricity price was capped at AR\$ 185/MWh by the Secretariat of Energy through Note N° 567 of June 15, 2007 for customers GUMAS and GUMES. This value represents a +4.77% upside of the Energía Plus prices used in the financial analysis. For this reason a floor of -10% (default) and a ceiling of +5% for the calculation of sensitivity of the variable cost of the Energía Plus sold by the Power Plant Loma de la Lata is deemed appropriate. However, the variations are taken for the range $\pm 10\%$ as a conservative assumption. The trend in gas prices was rising in the period 2006-2007 and the international price of gas was three times that of Argentina in the same period (see series 'Gas Prices (International, AR Reference, Energía Plus) Aug06-Sept07.xlsx'), so that the value adopted for the natural gas price for Plus contracts is a conservative value. The invoice (December 31, 2011) of one of the natural gas suppliers under the Plus contract shows that the value at the date of payment was 5 US\$/MMBTU. For this reason a $\pm 10\%$ as the default value for variations in relation to price considerations is considered reasonable. It is moreover reinforced considering that a reduction in natural gas prices is unlikely within a market that is reducing its reserves and is increasing the imports of primary resources. Moreover, a significant increase in the price of gas for the project would be not feasible without a corresponding increase in the price of energy, which was capped at the time of investment decisions.

3. At the time of the start of the Project activity, the PP estimated the expected capital costs by taking into consideration the price proposals from potential EPC contractors and proposals from suppliers, and estimated the remaining 3% of the total cost from informal consultations with potential suppliers. It should be noted that in the financial analysis we did not include a generic contingency cost to cover cost overruns. The costs estimates are conservative and this is proven by a comparison with actual costs and with the EPC proposal of MAN (July 6, 2007), which reached € 163,100,000 (equivalent to 220 million dollars, at € 1 = USD 1.35; representing more than 7% of the value used in the PDD). Copies of the actual invoices or of the supply proposals for the transformer and for the water cooling intake and discharge system are attached. An estimate from a potential EPC contractor and copies of the actual contracts related to it (only large value contracts are included for reference) are also attached. The invoice of a second transformer included in the final construction cost is also provided. The costs of the HRSG chimney and the primary frequency regulation equipment are included within the final EPC agreement with Isolux (a copy of the price schedule of this agreement is provided, together with a complete list of all equipment supplied under this agreement). In this sample of contracts the value of the cost adjustment to the Isolux On Shore contract as per the formulas contained in the same are not included. As a reference, the actual final cost of the Project activity was over USD 230 million. A summary of all actual costs of the project is provided for reference and comparison to the conservative costs estimates used for the financial analysis.

The link to the updated version of the Decree 649/97 was corrected in the supporting information for the investment analysis. A copy of the Decree is also provided.

A copy of the Energía Plus contract proposal is provided and was available for review at the validation visit. This contract proposal is the source of the value for the price of energy and capacity for Energía Plus and of the adjustment factor. A copy of the current contract with CAMMESA was reviewed during the validation visit and is also provided.

Documentation Provided by Project Participant:

1.1 Loma de la Lata Calculator.xlsx
1. Email from M. Pildain (depreciacion turbinas loma pildain.msg), email from D. Aleksic
1. RE depreciacion turbinas loma aleksic.msg
1. Ganacias_Ley_20628_97.pdf.
2. APACHE_PLUS_1178.pdf
2. Gas Prices (International, AR Reference, Energía Plus) Aug06-Sept07.xlsx)
2. Resolution SE 567-07.pdf
3.1.1 ABB-OfertaEconómica_20120130200803.024_X.pdf
3.1.1 Man Letter of Award 06.07.07 Final.pdf
3.1.1 Orden de compra del transformador firmada.pdf
3.1.2 Amitech Loma La Lata. Informe Final.pdf
3.1.2 Conagro - Construcción Acueducto CTLLL.pdf
3.1.2 Conagro adjustments.pdf
3.1.2 OC-4700000129-TECNA - PESOS.pdf
3.1.2 OC-4700000130-TECNA - USD.pdf
3.1.2 Ruhrpumpem InformedeMesadeCompras2_20120130195655.665_X.pdf
3.1.3 INDELQUI-Cotiz.Original_20120130201526.524_X.pdf
3.1.3 ISOLUX ANEXO 2 - Off Shore.pdf
3.1.3 ISOLUX ANEXO 2 - On Shore.pdf
3.1.4 Ache ingenieria 28-9-2009.pdf
3.1.4 Contrato ABB por Subestacion.pdf
3.1.4 COPA-Of.Económica_20120130201049.821_X.pdf
3.1.4 TECNA - Upgrade de los Sistemas DCSMARK V y REMOTA PLANICIE BANDERITA.pdf
3.1.5 Isolux importación.xlsx
3.2 Decree 649-1997.pdf
3.3 Contrato abastecimiento (220) Loma.pdf
3.3 PROVIS~1.PDF
3.4 Gas invoice september 2007.pdf
3.4 MEG_nota_SSC_1231_2008 (indices 200707_200802).pdf
3.4 Natural gas price reference at basin including calculation of prices.xlsx
3.4 norma 599.pdf
3.4 Nota SSEE 2005 - 1133 (precios de referencia gas).pdf
3.4.1 printscreen de megsa.PNG
3.4.2 printscreen de ejemplo en megsa1.PNG
3.4.2 printscreen de ejemplo en megsa2.PNG
3.4.3 printscreen de Summary de Sales.PNG
3.5 Propuesta Energia Plus AXIS.pdf
3.7 Enre cost calculation.xlsx
3.8 Cammesa costs calculation.xlsx
3.9 CTG TV Maintenance Costs.xls

Information Verified by Lead Assessor:

All references provided by the PP.

Reasoning for not Acceptance or Acceptance and Close Out: **Date:** 24/04/2012

1. It was validated that the depreciation was applied correctly considering the lifetime of the equipments. Similarly it was validated as per the manufacturer (ref 62) that the lifetime is defined by the "rotor" (key part of the turbines) which is 200,000 hrs. **Item closed.**
2. It was validated that the sensitivity analysis was performed with dynamic formulae that are linked to the input data tabs (technical and financial) (ref 7b). Regarding the suitability of the sensitivity range of the electricity, the range +/- 10% is deemed correct because in 2007 was issued a regulation (ref 139) to cap the electricity price at 185 AR\$/MWh (58.67 US\$/MWh) which is almost 5% over the price (energy + power) considered in the financial assessment.
Regarding the sensitivity range applied to the gas price (+/- 10%) is deemed conservative, because as per the reference price recorded by Cammesa (ref 142) for the gas in the Neuquén province, it increased steadily since 2004 until 2006). Thus it results consistent with the evolution of the gas price provided by the PP (ref 96).
3. Assessment of the values involves in the investment analysis.

Item	Value	Information received	Date of availb. /Ref.	Comment
Three phase power transformer 500 kV	3,800,000	ABB quotations (ref 101 & 99)	19/06/2008 (ref 101) 19/04/2010 (ref 99)	The supporting evidence provided is not enough because are not consistent with the project starting date. Item remains open.
Cooling water system construction	5,265,000	References from Tecna, Conagro, etc. (ref. 102 to108), all together reach 4,476,825 US\$.	2009 & 2010	The supporting evidence provided is not enough because are not consistent with the project starting date. Item remains open.
Boiler chimney	1,500,000	As per PP answer these items were obtained from the final EPC agreement with Isolux. The values couldn't be identified.		As per PP answer these items were obtained from the final EPC agreement with Isolux. The values couldn't be identified. Please note that the information used in the investment analysis should be available before the project starting date. As per your description this is based on the signed contract. Item remains open.
Primary regulation of frequency	100,000			
T = income tax	35%	Ref. 116	06/08/1997 (ref 116)	The source is correct. Item closed.
Price of energy - "Energía Plus"	26.0 USD/MWh	Energy proposal issued for Güemes (another power plant owned by Pampa Energía).	03/09/2007 (Ref.128, 36-9) Document elaborated by the PP 03/09/2007	The original signed document was reviewed during the site visit. The energy price is determined as the maximum value between 26 US\$/MWh and "(26+(Reference gas price – agreed price of the gas = 81.16 US\$/dam ³)*0.24)". It was validated against the energy proposal issued for Güemes (ref. 128, ref 36-9). Additionally it was validated the contract signed later (14/10/2009), where the capacity price is 33.3 US\$/MW-month and 4 US\$/MWh the energy. Thus it was validated that the values considered by the PP during the assessment are realistic and conservative. Item closed.
Price of capacity - "Energía Plus"	30.0 USD/MWh			
Natural gas price	0.20 AR\$/m ³	Invoice from gas supplier (Total Austral S.A) (ref 119).	19/10/2007	Please note that as per the calculation file (ref 7b), this parameter correspond to the average price at the plant in August 2007. The invoice received as evidence (ref 119) is dated 19/10/2007 (date no consistent with the hypothetical reference) and does not correspond to the natural gas supplied to the plant., it corresponds to the natural gas price from other gas field (Aguada Pichana & San Roque). Please provide the historical invoices for Loma de la Lata power plant. Item remains open.

Natural gas price difference for old generation	0.11 AR\$/m ³	The following files were provided "3.4 MEG_nota_SSC_1231_2008 (indices 200707_200802).pdf" (ref 120) and "- 3.4 Natural gas price reference at basin including calculation of prices.xls" (ref 121).		Please clarify why difference of the price is calculated. Item remains open.
Natural gas price for Plus Contracts	97.26 US\$/Dam ³			Please clarify how this value was obtained. Item remains open.
Natural gas price reference Price Energía Plus	81.16 US\$/Dam ³	Energy proposal issued for Güemes (another power plant owned by Pampa Energía).	03/09/2007 (Ref. 128, 36-9) Document elaborated by the PP 03/09/2007	The reference value was obtained from the proposal issued for Güemes (Ref. 128, 36-9), it is correct.
Adjustment factor	0.24	3.5 Propuesta Energia Plus AXIS.dpf (ref 128, ref 36-9)	03/09/2007 (Ref. 128 / 36-9) Document elaborated by the PP	The factor corresponds to a parameter given to calculate the energy price.). It was validated against the energy proposal issued for Güemes (ref. 128, ref 36-9). The original signed document was reviewed during the site visit. Item closed.
Average cost/employee	51,697 US\$/year	The value was corrected by the PP (from 70,498 to 51,697)	Mail dated 27/09/2007 (ref. 11.1. – 1.5.1.11)	As per the evidence provided the annual cost per employee is 163,003 AR\$/year, which using the validated exchange rate means 51,697 US\$/year. The value was corrected in the calculation file (ref 7b) and PDD version 2 (ref 1b). Item closed.
Services ENRE costs factor	0.3% (%gross income)	The estimation of the cost was provided in the excel file (ref 129), it provides the ENRE's fees as percentage of the companies revenues.	Ref (132 & 133) 20/12/2006	It was validated that the PP estimated the annual cost based on the ENRE resolution 1113/2006 (ref 132) and its annex (ref 133). The calculation was correctly carryout by the PP in the excel file provided (ref 129). Item closed.
CAMMESA costs factor	0.1% (%gross income)	The estimation of the cost was provided in the excel file (ref 130), it provides the Cammesa's fees as percentage of the companies revenues	Ref (11.1 – 1.5.1.14)) Jun-Sep/2007	It was validated that the PP estimated the annual cost based on the Cammesa historical charges (ref 11.1 – 1.5.1.14). The calculation was correctly carryout by the PP in the excel file provided (ref 130). Item closed.
TV Maintenance and other costs	4.05 US\$/MWh	As per the reference the cost is 10.71 AR\$/MWh, using the exchange rate the cost should be 3.39 US\$/MWh. No clarification about the difference was received.		No clarification about the difference was received. Item remains open.

4. The investment analysis, file "1.1 Loma de la Lata Calculator.xls" (ref 7b), tab "FA_project", line 18 represents the cost of the additional gas consumed by the gas turbines due to the increase in its operational time (due to the increase in the PLF). The inclusion of this cost is deemed correct because is a result of the project implementation. But, please clarify why in file "1.1 Loma de la Lata Calculator.xls" (ref 7b), tab "FA_project", line 19 is included the cost related with the gas consumption of the gas turbines as per the baseline scenario. This cost is not attributable to the project because is expended by the plant historically (before the project implementation). **Item open.**

CL 12 remains open.

Acceptance and Close out by Lead Assessor:	Date: 26/04/2012
Project Participant Response:	Date: 16/05/2012

Item	Value	Related evidence	Explanation
Three phase power transformer 500 kV	3,800,000	<ul style="list-style-type: none"> - Investment Comparatives for LLL 2007.pdf (sent in the data room for validation request, 22 Dec 2011) - 3.1.1 ABB-OfertaEconómica_20120130200803.024_X.pdf - 3.1.1 Man Letter of Award 06.07.07 Final.pdf - Euro 06072007.gif - 3.1.1 Orden de compra del transformador firmada.pdf - 3.1.2 Amitech Loma La Lata. Informe Final.pdf - 3.1.2 Conagro - Construccion Acueducto CTLLL.pdf - 3.1.2 Conagro adjustments.pdf - 3.1.2 OC-4700000129-TECNA - PESOS.pdf - 3.1.2 OC-4700000130-TECNA - USD.pdf - 3.1.2 Ruhrpumpem 	<p>Using a conservative approach it was excluded from the investment item in the financial analysis, although it is worth to mention that the Project would not work without the power transformer.</p> <p>This approach was applied, even though it was identified internal evidence such as ABB quotations and PP's own estimates contained in the internal benchmark comparison.</p> <p>This was modified in the new version of the PDD.</p>
Hydrant Construction	5,110,125	<ul style="list-style-type: none"> - InformedeMesadeCompras2_20120130195655.665_X.pdf - 3.1.3 INDELQUI-Cotiz.Original_20120130201526.524_X.pdf - 3.1.3 ISOLUX ANEXO 2 - Off Shore.pdf - 3.1.3 ISOLUX ANEXO 2 - On Shore.pdf - 3.1.4 Ache ingenieria 28-9-2009.pdf - 3.1.4 Contrato ABB por Subestacion.pdf - 3.1.4 COPA-Of.Económica_20120130201049.821_X.pdf - 3.1.4 TECNA - Upgrade de los Sistemas DCSEMARK V y REMOTA PLANICIE BANDERITA.pdf - 3.1.5 Isolux importación.xlsx 	<p>There is physical evidence prior to the project starting date from a letter of award of MAN, dated on 6 July 2007. In that letter, it can be evidenced that MAN proposed an optional budgetary price for EUR 3,750,000 (equivalent to US\$5,110,125 at an exchange rate of US\$1.3627/Euro).</p> <p>This was modified in the new version of the PDD.</p>
Boiler chimney	1,500,000		<p>Using a conservative approach it was excluded from the investment item in the financial analysis, although it worth to mention that the Project would not work without the boiler chimney.</p> <p>This approach was applied, even though it was identified internal evidence such as Tecna EPC agreement with Isolux and PP's own estimates contained in the internal benchmark comparison.</p> <p>This was modified in the new version of the PDD.</p>
Primary regulation of frequency	100,000		<p>Using a conservative approach it was excluded from the investment item in the financial analysis, although it is worth to mention that the Project would not work without the primary regulation of frequency.</p> <p>This approach was applied, even though it was identified internal evidence such as Tecna EPC agreement with Isolux and PP's own estimates contained in the internal benchmark comparison.</p> <p>This was modified in the new version of the PDD.</p>

Item	Value	Related evidence	Explanation
Natural gas price	0.21 AR\$/m ³	<ul style="list-style-type: none"> - Precio promedio ponderado Septiembre 2007.xlsx - Facturas históricas.pdf - Despacho 09-2007 Operatoria.xlsx - Total ratifica compromiso de aumentar su producción– El Comahue Online.pdf 	<p>PP provides historical invoices for Loma de la Lata power plant, which corresponds to the natural gas consumption for the open cycle for the period of day 1 to 30 September 2007. On Excel file 'Despacho gas Septiembre 2007.xls' we evidenced that the historical invoices attached are for the consumption during September, more precisely, from 1 September 2007 which is previous to the Project starting date.</p> <p>The Total invoice sent as evidence dated on 19 October 2007 corresponds to a partial invoicing for a partial consumption from the period of September 2007, and the last delivery day was on 30 September 2007, registered in the invoice. Thus, the invoice date may be different and later than the delivery dates. The receipt attached by then was invoiced to Pampa Energía SA, as Loma de la Lata was formerly known. The gas was supplied from Aguada Pichana and San Roque, both fields which belongs to Neuquina Basin.</p> <p>As DOE can see in the other historical invoices, Total was the main supplier of gas for Loma de la Lata, and for the period of September 2007 did not submit only one invoice, there were six of them.</p> <p>PP made a calculation from the historical invoices, including from other suppliers, and the average weighted gas cost was AR\$0.2085/m³. The value obtained was the product of each invoice by its weight participation in supplied gas.</p> <p>As also shown in Wintershall and Tecpetrol's invoices, the period of charge was September 2007.</p> <p>This was modified in the new version of the PDD.</p>
Natural gas price difference for old generation	0.10 AR\$/m ³		<p>Calculated as the difference between AR\$0.31/m³ (a conversion from US\$97.26/Dam³ to AR\$/m³) and AR\$0.21/m³. As explained below, to be able to sell under Energía Plus market the PP needs to have firm long-term natural gas contracts. The natural gas consumed prior to the implementation of the Project activity was bought on a short-term basis.</p>
Natural gas price for firm long-term Contracts	97.26 US\$/dam ³	<ul style="list-style-type: none"> - Summary of sales.xlsx (sent in the data room for validation request, 22 Dec 2011) - 3.4.1 printscreen de megsa.PNG - 3.4.2 printscreen de ejemplo en megsa1.PNG - 3.4.2 printscreen de ejemplo en megsa2.PNG - 3.4.3 printscreen de Summary de Sales.PNG 	<p>Please refer to PDD version 3, page 87, that to be able to sell under Energía Plus market the PP needs to have firm long-term natural gas contracts. The natural gas consumed prior to the implementation of the Project activity was bought on a short-term basis, which resulted in no offers from providers at that price and term. Accordingly, the price of US\$0.09726/m³ was calculated from the 86 private contracts of gas supply in US\$ currency, published and available for consultation in the Electronic Gas Market (MEGSA) website. PP downloaded all the deals that were closed during August 2007 as private contracts (<i>ventas a término</i>) in the Neuquina basin. To calculate the Energía Plus gas price, PP weighted each contract's gas price per m³ by its size weight in the entire sample, in order to be accurate (the result is a weighted average gas price). To arrive to the natural gas price for Plus Contracts in AR\$/m³, we converted the weighted average price of US\$0.09726/m³ at an exchange rate of AR\$3.153/US\$, resulting in AR\$0.31/m³.</p> <p>This was modified in the new version of the PDD.</p>
TV Maintenance and other costs	4.05 US\$/MWh	<ul style="list-style-type: none"> - Financial Analysis - Back Up.xlsx, Maintenance TV sheet (sent in the data room for validation request, 22 Dec 2011) - CTG TV Maintenance Costs.xls 	<p>AR\$10.71/MWh is taken only from the TV number 3 from Güemes (GUEM TV3, as shown in Maintenance TV sheet of 1.2 Financial Analysis - Back Up.xlsx), and the exchange rate of AR\$3.39/US\$ is not correct for the time analysed. Our calculation is shown in the abovementioned Excel sheet (Maintenance TV), where we take each TV turbine's declared cost, we sum up all (AR\$38.30/MWh) and we divide by 3, the total number of turbines. This average cost is in pesos AR\$, so we convert to US\$ dollars using the exchange rate AR\$3.15/US\$ declared in the same Excel file.</p>

<p>4. The value included in file "1.1 Loma de la Lata Calculator.xls" (ref 7b), tab "FA_project", line 19 is the additional cost of natural gas due to the project activity. It is related with the gas consumption of the gas turbines as per the baseline scenario since the additional cost refers to the cost of the gas bought under the firm long-term contracts for all the gas consumed in the project activity compared the amount of gas consumed in the baseline under short-term contracts, which is now not available . The traceability of the values can be followed in the CER calculation spreadsheet 'Loma de la Lata Calculator 15-05-2012.xlsx. As it was show in the explanation given in CL 11, an irrevocable supply request made by Central Térmica Loma de la Lata (which was formerly known as Pampa Energía S.A.) to MEGSA (Mercado Electrónico de Gas S.A., in English known as Gas Electronic Market Supplier), dated 3 August 2007 and reference number O133, was denied by MEGSA, since there was no offer response by gas producers to such request, Thus, an additional price has been paid by CTLL, the one referred in file "1.1 Loma de la Lata Calculator.xls" (ref 7b), tab "Finacial Input data", line 29 and used in file "1.1 Loma de la Lata Calculator.xls" (ref 7b), tab "FA_project", line 19.</p>	
<p>Documentation Provided by Project Participant:</p> <ul style="list-style-type: none"> - New version of the PDD - Loma de la Lata Calculator 15-05-2012.xlsx - Investment Comparatives for LLL 2007.pdf - Euro 06072007.gif - 3.1.1 ABB-OfertaEconómica_20120130200803.024_X.pdf - 3.1.1 Man Letter of Award 06.07.07 Final.pdf - 3.1.1 Orden de compra del transformador firmada.pdf - 3.1.2 Amitech Loma La Lata. Informe Final.pdf - 3.1.2 Conagro - Construccion Acueducto CTLL.pdf - 3.1.2 Conagro adjustments.pdf - 3.1.2 OC-4700000129-TECNA - PESOS.pdf - 3.1.2 OC-4700000130-TECNA - USD.pdf - 3.1.2 Ruhrpumpem InformedeMesadeCompras2_20120130195655.665_X.pdf - 3.1.3 INDELQUI-Cotiz.Original_20120130201526.524_X.pdf - 3.1.3 ISOLUX ANEXO 2 - Off Shore.pdf - 3.1.3 ISOLUX ANEXO 2 - On Shore.pdf - 3.1.4 Ache ingeniería 28-9-2009.pdf - 3.1.4 Contrato ABB por Subestacion.pdf - 3.1.4 COPA-Of.Económica_20120130201049.821_X.pdf - 3.1.4 TECNA - Upgrade de los Sistemas DCSMARK V y REMOTA PLANICIE BANDERITA.pdf - 3.1.5 Isolux importación.xlsx - Precio promedio ponderado Septiembre 2007.xlsx - Facturas históricas.pdf - Despacho 09-2007 Operatoria.xlsx - Total ratifica compromiso de aumentar su producción– El Comahue Online.pdf - Summary of sales.xlsx (sent in the data room for validation request, 22 Dec 2011) - 3.4.1 printscreen de megsa.PNG - 3.4.2 printscreen de ejemplo en megsa1.PNG - 3.4.2 printscreen de ejemplo en megsa2.PNG - 3.4.3 printscreen de Summary de Sales.PNG - Financial Analysis - Back Up.xlsx - CTG TV Maintenance Costs.xls 	
<p>Information Verified by Lead Assessor:</p> <ul style="list-style-type: none"> - 3.1.1 Man Letter of Award 06.07.07 Final.pdf (ref. 100) - Precio promedio ponderado Septiembre 2007.xlsx (ref. 157) - Facturas históricas.pdf (ref. 158) - Despacho 09-2007 Operatoria.xlsx (ref. 159) - Total ratifica compromiso de aumentar su producci+ nÔÇô El Comahue Online.pdf (ref. 160) - Summary of sales.xlsx (ref. 161) - 3.4.1 printscreen de megsa.PNG (ref. 162) 	
<p>Reasoning for not Acceptance or Acceptance and Close Out:</p>	<p>Date: 01/06/2012</p>

Item	Value	Information received	Date of availb. /Ref.	Comment
Three phase power transformer 500 kV	3,800,000 - excluded	ABB quotations (ref 101 & 99)	19/06/2008 (ref 101) 19/04/2010 (ref 99)	Since the PP does not have evidence to demonstrate that this cost was considered at the decision time, the PP decided to eliminate this item from the investment analysis. Item closed.
Cooling water system construction	5,265,000 updated to 5.110.125	References from Tecna, Conagro, etc. (ref. 102 to108), all together reach 4,476,825 US\$. Posterior evidence from quotation dated 06/07/2007 issued by Man (ref 100)	2009 & 2010 2007	The PP clarified the information source, it was validated that in July 2007 the PP had a quotation from Man (ref 100) where the cooling system was included. The value of the investment of this item was corrected to 5,110,125 US\$. Item closed.
Boiler chimney	1,500,000 - excluded	As per PP answer these items were obtained from the final EPC agreement with Isolux. The values couldn't be identified.		Since the PP does not have evidence to demonstrate that this cost was considered at the decision time, the PP decided to eliminate this item from the investment analysis. Item closed.
Primary regulation of frequency	100,000 - excluded			
T = income tax	35%	Ref. 116	06/08/1997 (ref 116)	The source is correct. Item closed.
Price of energy - "Energía Plus"	26.0 USD/MWh	Energy proposal issued for Güemes (another power plant owned by Pampa Energía).	03/09/2007 (Ref.128, 36-9) Document elaborated by the PP 03/09/2007	The original signed document was reviewed during the site visit. The energy price is determined as the maximum value between 26 US\$/MWh and "(26+(Reference gas price – agreed price of the gas = 81.16 US\$/dam ³)*0.24)". It was validated against the energy proposal issued for Güemes (ref. 128, ref 36-9). Additionally it was validated the contract signed later (14/10/2009), where the capacity price is 33.3 US\$/MW-month and 4 US\$/MWh the energy. Thus it was validated that the values considered by the PP during the assessment are realistic and conservative. Item closed.
Price of capacity - "Energía Plus"	30.0 USD/MWh			
Natural gas price	0.20 AR\$/m ³ updated to 0.21	Invoice from gas supplier (Total Austral S.A) (ref 119) Invoices from gas supplier (Wintersall, Tecpetrol, Total Austral S.A) (ref 158)	19/10/2007 September 2007	The PP provided the relevant invoices (September 2007) from gas provider (ref 158), it was validated that the average from three providers (Wintershall, Tecpetrol and Total) was obtained by the PP (ref 157) and used in the investment analysis (ref 7c) and updated PDD (ref 1c). Item closed.

Natural gas price difference for old generation	0.11 AR\$/m ³	The following files were provided "3.4 MEG_nota_SSC_1231_2008 (indices 200707_200802).pdf" (ref 120) and "- 3.4 Natural gas price reference at basin including calculation of prices.xls" (ref 121).		According with the information provided and validated, the difference is originated by the different level prices in short and long term contracts.
Natural gas price for Plus Contracts	97.26 US\$/Dam ³			The price reported by the PP was estimated using the price of the contracts available in Megsa web site (ref 162) and signed for gas commercialization in the same basin (Neuquén) than the project. However as per the "irrevocable offer" (ref 149) presented by LLL on 03/08/2007 the maximum price would be the value informed by the SE as per the Resolution SE752/05 & Res. 925/05. As per SE 752/05 (ref 174), art. 20, is stated that the price will be published by the "Secretaría de Energía" and "Mercado electronico de gas". Based on the prices information published by MEGSA (ref 176) for the Neuquén basin in August 2007 the natural gas price was 1.86080US\$/MMBTU, equivalent approximately to 59.4 US\$/Dam ³ . Considering that this was the price used in the offer, please clarify why a different value (from the contracts signed) was considered in the assessment. Item remains open.
Natural gas price reference Price Energía Plus	81.16 US\$/Dam ³	Energy proposal issued for Güemes (another power plant owned by Pampa Energía).	03/09/2007 (Ref.128, 36-9) Document elaborated by the PP 03/09/2007	The reference value was obtained from the proposal issued for Güemes (Ref.128, 36-9), it is correct. It is important to note that this price is considered in the Energy sales as per "Energía plus" system. It has to be noted that "Güemes" is not supplied by gas from Neuquén basin, please clarify why this price was considered and why is pertinent for Loma. Item remains open.
Adjustment factor	0.24	3.5 Propuesta Energía Plus AXIS.dpf (ref 128, ref 36-9)	03/09/2007 (Ref. 128 / 36-9) Document elaborated by the PP	The factor correspond to a parameter given to calculate the energy price.). It was validated against the energy proposal issued for Guemes (ref. 128, ref 36-9). The original signed document was reviewed during the site visit. Item closed.
Average cost/employee	51,697 US\$/year	The value was corrected by the PP (from 70,498 to 51,697)	Mail dated 27/09/2007 (ref. 11.1. – 1.5.1.11)	As per the evidence provided the annual cost per employee is 163,003 AR\$/year, which using the validated exchange rate means 51,697 US\$/year. The value was corrected in the calculation file (ref 7b) and PDD version 2 (ref 1b). Item closed.
Services ENRE costs factor	0.3% (%gross income)	The estimation of the cost was provided in the excel file (ref 129), it provides the ENRE's fees as percentage of the companies revenues.	Ref (132 & 133) 20/12/2006	It was validated that the PP estimated the annual cost based on the ENRE resolution 1113/2006 (ref 132) and its annex (ref 133). The calculation was correctly carryout by the PP in the excel file provided (ref 129). Item closed.
CAMMESA costs factor	0.1% (%gross income)	The estimation of the cost was provided in the excel file (ref 130), it provides the Cammesa's fees as percentage of the companies revenues	Ref (11.1 – 1.5.1.14)) Jun-Sep/2007	It was validated that the PP estimated the annual cost based on the Cammesa historical charges (ref 11.1 – 1.5.1.14). The calculation was correctly carryout by the PP in the excel file provided (ref 130). Item closed.
TV Maintenance and other costs	4.05 US\$/MWh	As per the reference the cost is 10.71 AR\$/MWh, using the exchange rate the cost should be 3.39 US\$/MWh. No clarification about the difference was received.	Sep/2007 (ref. 131-3.9)	The criteria applied by the PP was revised. It was validated that the average from three TVs (at Güemes plant) was used. It was validated that the information used corresponds to September 2007, and that the source correspond to information from a similar plant whose cost are recorded by Cammesa (from where the PP retrieved the information). The source was validated during the site visit and it was verified that excel files available in Cammesa web site (for authorized users) cannot be modified. Item closed.

<p>4. It was validated that in the financial calculation file (ref 7c), tab "FA project", line 19, is correct because considers the difference in the gas price due to the necessity of has a long term gas contract. Since this cost (price difference) identified as "Incremental cost of GT gas" would not face by the plant in the baseline scenario (because they could continue with the old contract), it was correctly included in the cash flow. The price difference corresponds to estimated price of the gas for long term contracts (0.31 AR\$/m³) minus the historical gas price (0.21 AR\$/m³). Pending assessment (to be reviewed after clarification of gas prices requested in item 3).</p>	
CL 12 remains open	
Acceptance and Close out by Lead Assessor:	Date: 01/06/2012
Project Participant Response:	Date: 19/06/2012
<p>Response for:</p> <ul style="list-style-type: none"> Natural gas price for Plus Contracts (value: 97.26 US\$/Dam3): we do not consider the natural gas cost of US\$59.4/Dam3 stated in the irrevocable offer as the price we offered to buy gas because, as we stated on CL11, an irrevocable supply request made by Central Térmica Loma de la Lata to MEGSA was denied since there was no offer response by gas producers to such request. In order to be able to sell under Energía Plus market the PP needs to have firm long-term natural gas contracts, therefore to buy it at a higher price such as executed in private contracts of gas supply in US\$ currency published, available in MEGSA website. For that reason, to reflect the market price situation, PP calculated from 86 private contracts of gas supply published in MEGSA website a weighted average price of US\$97.26/dam3. Natural gas price reference Price Energía Plus (value: 81.16 US\$/Dam3): we consider this value because as you may see in the Energy Plus contract for Axis Logística S.A. supplied by Güemes, the energy sale price of US\$56/MWh is resulting from an equation considering an initial gas price of US\$81.16/dam3 and in the event of future increases in said gas price, the equation contemplates its cost pass through to the energy sale price. Therefore, the value of Natural gas price reference (US\$81.16/dam3) is only used to determine a higher initial energy sale price, which includes a pass-through of the higher natural gas cost (US\$97.26/dam3 versus initial US\$81.16/dam3). 	
Documentation Provided by Project Participant:	
<ul style="list-style-type: none"> Empty Irrevocable Gas Offer - Loma de la Lata.pdf Axis Energy Plus Contract: PROVIS~1.pdf 	
Information Verified by Lead Assessor:	
<ul style="list-style-type: none"> Axis Energy Plus Contract: PROVIS~1.pdf (ref 128) Empty Irrevocable Gas Offer - Loma de la Lata.pdf (ref 149) 	
Reasoning for not Acceptance or Acceptance and Close Out:	Date: 20/06/2012
<p>It was validated against the public records available at www.megsa.com.ar that the gas offer presented by LLL (ref 149) was denied, thus this price could not be considered in the assessment. On the other hand it was validated that reference price of the gas included in the energy proposal issued for Güemes (ref 128) cannot be valid as well for LLL because is located in another basin ("Noroeste") (ref 176). Therefore the price estimated by the PP (97.26 USD/Dam³) is deemed suitable, it is based on real market information available at August 2007. The figure was validated against the public information of gas contracts published at www.megsa.com.ar. Item closed.</p> <p>4. The difference between the old contract and the estimated gas price is correct. Item closed.</p>	
CL 12 was closed	
Acceptance and Close out by Lead Assessor:	Date: 20/06/2012

Date:	20/01/2012		Raised by:	Assessment team	
Type:	CL	Number:	13	Reference:	AU4, B.5.12
Lead Assessor Comment:					
Benchmark IRR					
<p>1. The data of two companies to estimate the applicable commercial lending rates and the cost of capital was used. Please provide evidence why the selected companies should be considered representative of peer companies and or appropriate market values.</p> <p>2. Only one month of data was used to estimate the lending rates and other relevant parameters, such as risk free rates and Betas. PP is requested to consider three months of data at least for estimation of lending rates and risk free rates, and no less than 3 years for beta values.</p> <p>3. Market premium was obtained from a reliable source, i.e., Damoradan, A. (2005) Applied Corporate Finance: A User's Manual, Wiley; Second Edition. Page 271, and was deemed correct and fair (5.5% annual average) however, the market risk premium, i.e. market premium times the beta of the project, is incorrectly estimated as the betas from peer companies used to estimate the beta of the project are not used in a correct way.</p> <p>4. Adjusted Beta information provided by Bloomberg is used, which corresponds to a measure of beta that is modified to represent a better estimation of companies that are at a very early stage on their life cycles or at the end of the life cycle. This Adjusted Beta it is not deemed appropriate given the fact that no proof is given that the selected companies are in either stage of their life cycle. Please provide further evidence about the stage of the life cycles of the selected companies that justifies the use of adjusted betas or please considers not only adjusted betas.</p> <p>5. As per EB 62 Annex 5 guidance 18 the typical debt/equity finance structure observed in the sector of the country should be used. If such information is not readily available, 50% debt and 50% equity financing may be assumed as a default. In this project two peer companies were used, one with 1.48 debt/equity ratio and one with 0.33 debt/equity to estimate the debt/equity finance structure in the sector. Please provide supporting evidence of why these indicators are representative, by providing previous historical figures of such ratios and their expected evolution, and give reason why only two companies are considered representative of the sector.</p> <p>6. Betas from two peer companies are used, which not only have a different debt/equity ratio, but also, that have different cost of debt (16.7% vs 17.7%). A final estimation of the leverage beta of the project should considered an appropriate unleverage-leveraged peer information procedure, using the representative cost of debt and debt/equity ratio. Please provide further evidence that the approach followed provides good estimators for both cost of debt and debt/equity sector values, and to provide details of the releverage procedures.</p>					
CL 13 was raised.					
Project Participant Response:				Date: 02/04/2012	

1. *The two companies chosen as electricity generation peers (Central Puerto, ticker CEPU2, and Endesa Costanera, ticker CECO2) are public companies listed in Buenos Aires Stock Exchange ("BASE"), and they were and still are the only electricity generation companies listed in the BASE besides Pampa Energía, although Pampa Energía cannot be taken as a peer since it is an integrated electricity company, including electricity transmission and distribution assets. As such and being listed, they provide audited public information (financial statements).*
2. *We used one-month data in the lending rates such as risk free and corporate lending rates because the trend was significantly rising. If we consider a 3-month period, in the case of the Argentine risk free rate the series starts with an 8.5% annual yield to maturity rate in June 1, 2007 and it grows to an 11.2% annual rate at the end of August 2007. In the case of Argentine corporate bonds such as Transener 2016, the annual yield to maturity recorded from an 8.5% on June 1, 2007, to an 11.1% by August 31, 2007. Edenor 2016 was the most volatile, recording a 6.5% annual yield to maturity at the series' beginning, and posted a 15.8% annual rate by August 31, 2007. Therefore, in order to show the most representative data, we decided to restrain possible outliers which could affect the sample and the calculated IRR Benchmark. In the case of the Betas, as we selected one-month data for lending rates, we decided to extend the data criteria to the Betas, in order to keep data consistency. Nevertheless, if we use adjusted Betas considering a six-year period, the resulting IRR Benchmark (12.1% annual rate) is still above the Project's IRR (9.25% annual rate).*
3. *Please refer to bullet 4 in order to find the justification for using adjusted Betas.*
4. *As stated in "Bloomberg Beta Interpretation", the adjusted Beta is an estimate of a security's future Beta, which is derived from historical data but is modified by the assumption that a security's true Beta will move towards one (the market Beta). Quoting Damodaran's paper "Estimating Risks Parameters", page 12, the reason to use Adjusted Betas "(...) can be traced to studies that indicate that, over time, there is a tendency on the part of Betas of all companies to move towards one. Intuitively, this should not be surprising. Firms that survive in the market tend to increase in size over time, become more diversified and have more assets in place, producing cash flows. All of these factors should push Betas towards one".*
As per the market premium, we considered 5.5% annual average as a good proxy and from a reliable source. However, it is a conservative value since in bullet 3 from the "Default values for the expected return on equity" page 7 of EB 62's Report, Annex 5's Appendix, a 6.5% annual average equity risk premium is considered as a default value.
5. *In the case of Central Puerto, after the debt restructuring until late 2007, the debt level was considerably constant. The equity defined as Market Cap was fluctuant, due to high variations in Central Puerto's share price. The same rationale applies for Endesa Costanera, which also shows, from 2005 until late 2007 a stable level of debt. We selected Central Puerto and Endesa Costanera as industry representatives based on our argument in bullet 1.*
6. *The referred 'cost of debt' by the Auditor (16.7% vs. 17.7%) is actually the cost of equity, stated in the Financial Analysis back up Excel file. We have used the same cost of debt (7.2%).*

As we stated in the preceding bullet 1, the two selected companies are good estimators since they are public companies that offer audited financial figures, and are the two only electricity generation companies listed in the BASE.

As for the Betas releverage procedures, given that we are using the same capital structure of each company to determine the WACC, to unlever the Beta of each company and then relever it with the same capital structure, gives the same result than to use the levered Beta of each company directly. The procedures to releverage, as provided by Damoradaran's paper "Estimating Risks Parameters", page 26 are:

- a. Take adjusted Betas from Bloomberg
- b. Unleverage following the formula:

$$\frac{\beta_{adjusted}}{\left[1 + (1 - \text{tax rate}) * \left(\frac{D}{E}\right)\right]}$$

Where:

Tax rate = 35% as stated in the CL13 Excel back up 'Income Tax' sheet;

D = debt, best proxy is financial debt from financial statements' balance sheet; and

E = equity, best proxy is the company's market capitalization

- c. Releverage the Betas following the formula:

$$\beta_{adjusted} * \left[1 + (1 - \text{tax rate}) * \left(\frac{D}{E}\right)\right]$$

Documentation Provided by Project Participant:

The back up is provided in the Excel file named 'CL13.xlsx', located in the folder 'CL13'.

1. The documentation back up for BASE companies' composition is provided in the sheet 'CL13-1'. Also it is attached the IAMC 2007 annual report.
2. Back up are provided in the sheet 'CL13-2a' regarding the justification for using one-month lending rates series, and in the sheet 'CL13-2b' are the IRR Benchmark calculations using a six-year Adjusted Beta, just to demonstrate that IRR Benchmark is still higher than the Project's IRR.
3. Back up is provided in the sheet 'CL13-3', where it is shown the market premium considered by EB 62. Also it is attached the UNFCCC Guideline.
4. Back up is provided in the sheet 'CL13-4', where it is shown the interpretation of Adjusted Beta by Bloomberg, and the need to reflect a better estimation of Beta through using adjusted Beta stated in Damoradaran's paper. Also it is attached the entire slide of Bloomberg Interpretation Beta and Damoradaran's entire paper.
5. The figures back up are provided in the sheet 'CL13-5'. The attached financial statements that back up those figures can be found in the Argentine Securities Exchange Commission (CNV) website.
6. The calculations to show that the result of unlevering the Betas and releveraging them with the same capital structure provides the same result, is given in the sheet 'CL13-6'.

Information Verified by Lead Assessor:

- 1. CL13.xlsx (ref 78)
- 2. Informe IAMC.pdf (ref 79)
- 3. UNFCCC EB62 Guidance investment analysis v5.pdf (ref 80)
- 4. & 6. Damodaran-Estimating Risk Parameters.pdf (ref 81)
- - 4. Bloomberg Beta Interpretation.pdf (ref 82)
- 5. CECO's Financial Statements – folder (ref 83)
- 5. CEPU's Financial Statements – folder (ref 84)

Reasoning for not Acceptance or Acceptance and Close Out:

Date: 23/04/2012

<p>1. It was verified that companies selected and reasoning for selection (highly traded companies) is confirmed by references provided (ref 78). Both companies are listed and are public companies with audited financial statements. Item closed.</p> <p>2. Evidence provided by PP plus further research from financial experts corroborates that local interest rates tendency was up. For instance, yield to maturity on Argentinian government bonds with similar maturities increased on average 7.63% for the period 2007-2008. Moreover, estimations using the 6 year periods for betas also corroborates that original estimation proposed by PP was conservative. Item closed.</p> <p>3. Adjusted betas should be used as a proxy for future betas only for companies that are at beginning of their life cycle or at the end of their life cycle as per definition quoted by PP. An explanation why in the PP point of view selected companies were in such part of the cycle was needed. If such explanation is not available please refer to using Raw betas for benchmark estimations. Item remains open. Market risk premium is OK, no further explanation from this issue is required.</p> <p>4. Please refer to point 3. Item remains open.</p> <p>5. Information and references (ref 78) provided are considered complete and fair, justification for the debt to equity ratio it is now acceptable. Item closed.</p> <p>6. Explanation is considered correct. As per point 1, companies can be considered peer companies and representative of the sector, thus information used in the re leveraging procedure is then considered methodologically correct. Item closed.</p>	
CL 13 remains open.	
Acceptance and Close out by Lead Assessor:	Date: 23/04/2012
Project Participant Response:	Date: 16/05/2012
<p>3. & 4.: We modified the Benchmark Calculation as requested by the DOE using raw betas. The WACC benchmark rose from 13.03% to 13.31% annual rate. The new version 3 of the PDD and the cash flow spreadsheet reflect this change.</p>	
Documentation Provided by Project Participant:	
<ul style="list-style-type: none"> - New version of the PDD - Benchmark recalculated.xlsx - Loma de la Lata Calculator 15-05-2012.xlsx 	
Information Verified by Lead Assessor:	
<ul style="list-style-type: none"> - Loma de la Lata PDD version 3.pdf (ref 1c) - Benchmark recalculated.xlsx (ref 156) - Loma de la Lata Calculator 15-05-2012.xlsx (ref 7c) 	
Reasoning for not Acceptance or Acceptance and Close Out:	Date: 06/06/2012
<p>Corrections are in line with was requested.</p> <p>CL 13 was closed</p>	
Acceptance and Close out by Lead Assessor:	Date: 06/06/2012

Date:	20/01/2012	Raised by:	Assessment team		
Type:	CL	Number:	14	Reference:	AU4, B.5.8
Lead Assessor Comment:					
Barrier analysis					
1. Institutional barrier.					
1.1. Please clarify why "Institutional barrier" is linked to investment risk (PDD page 17). As per barrier Guidances EB 50 annex 13, paragraph 7, those barriers that can be mitigated by additional financial means has to be included in the Investment analysis.					
1.2. PDD page 25, links tariff values, inflation and devaluation with the Institutional barrier. Please note that they have direct impact over the investment analysis.					
2. Investment barrier, in PDD version 1 (ref 1a), it is defined as <i>"This barrier evaluates the investment risks associated with each scenario, considering the overall economics of the energy sector in the host country and the conditions and financing availability for similar activities."</i>					
Please clarify and provide the supporting evidence why the "investment risk" identified cannot be assessed within the "investment analysis". Additionally please clarify the difference between the "investment barrier" and the "institutional barrier".					
3. Investment barrier.					
3.1. PDD version 1 (ref 1a), page 21, states <i>"As explained in the institutional barrier presented above, low electricity prices and limited profits have discouraged generation companies to invest in the expansion of the sector's installed capacity"</i> . Similarly as it is stated before, those aspects with direct impact over the investment analysis have to be included in an objective way.					
3.2. PDD version 1 (ref 1a), page 26, mentions the following issues as part of the Investment barrier <i>"Higher investment requirements. - Longer construction period. Availability of sites. - Government concession required"</i> . Please note that these issues were not discussed previously in PDD and are not related with the "Investment barrier".					
4. Technological barrier.					
4.1. Please clarify the relation between "indigenous skill" and "trained labour" to operate the technology. The training of local workers is not a barrier, and this issue has to be included in the investment analysis (EB50, annex 13, para 7).					
4.3. Please clarify how the availability of the technology in the relevant area becomes a "technological barrier".					
4.4. PDD page 24 states <i>"Hence, no native factories of the required equipment are found at host country (Argentina). Therefore, the first barrier is related to equipment provision."</i> Please note that this is not a technical barrier.					
4.5. PDD page 24 states <i>"In addition, uncertainties related to the natural gas supply represent potential risks to the Project as varying amount of fuel to a gas turbine will decrease efficiency quickly as output is reduced from full load because of the steep heat rate curve of the gas turbine and the multiplying effect on the steam turbine....."</i> Please note that this issue has direct impact over the investment analysis.					
5. As per the information reported in PDD the barrier "first in its kind" does not prevent the implementation of the project and the alternative scenarios. Thus, this is not a barrier and has to be removed from PDD.					
CL 14 was raised.					
Project Participant Response:				Date: 02/04/2012	
1. Institutional barrier.					
1.1. By definition only issues that can be monetized are applicable to be part of an investment analysis. Hence, many standard conditions such as institutional stability have to be met prior to the possibility to undertake an investment analysis. However, many conditions found within the institutional framework identified in Argentina at the time when the investment decision was made had direct impact on the investment environment in spite of the possibility to be communicated in monetary ways, and did not depend on the availability of additional financing.					

In that sense, there had been continuous changes in the rules of the electricity system, such as:

- a). In 2002 the “pesification” program converted dollar tariffs into peso tariffs at a rate of AR\$1 (one Argentine peso) = US\$ 1 (one US dollar) (Law 25,561, article 8), impacting significantly electricity generation companies given that the capacity payment, which used to be 10 US\$/MW-Hrp, was converted to Argentine pesos and set at 10 AR\$/MW-Hrp, and latter through resolution SE 317/2002 in July 2002 fixed at AR\$12/MW-Hrp.*
- b). As it was explained in the PDD, “the convertibility law that had fixed the exchange rate at AR\$1 (one Argentine peso) = US\$1 (one US dollar) was derogated in 2002 and therefore the Argentine peso highly devaluated, reaching in few months an exchange rate of 3.90 AR\$/US\$ (June 25, 2002)”.*
- c). In August 2003, through resolution SE 240/2003, the regulator (i) changed the way the spot price of electricity was calculated, which used to be set as the marginal cost of electricity, to a system where the marginal cost is determined assuming the availability, at regulated prices, of natural gas for thermal units, regardless of the actual fuel used to generate, therefore artificially lowering the spot price in cases where the marginal unit consumed, for example, fuel oil or diesel oil, and (ii) capped the maximum spot price a generator could receive at AR\$120 per MWh.*
- d). Only a month later, in September 2003 through resolution SE 406/2003, the regulator determined that the difference between the new spot price defined in (c) above and the actual cost of the generator would only be paid if CAMMESA had sufficient funds available.*
- e). In November 2003 through resolution 943/2003, the regulator determined that those credits mentioned in (d) above would have an undefined maturity.*
- f). Regarding the “Energía Plus” Program, which was launched in September 2006, the regulator (i) capped the price paid by consumers not entering into “Energía Plus” contracts at AR\$185 per MWh (Note 567/07 of June 2007) effectively putting a cap reference on the prices that new generators could negotiate with large consumers (previously, large consumers not entering into “Energía Plus” contracts would have had to pay the marginal cost of the system) and (ii) reduced the size of the potential demand of Energía Plus by limiting the need for large consumers to contract 100% of the difference between their actual demand and their demand in the year 2005, to 75% of it (Note 567/07 of June 2007) and latter to 50% of it (Note 501/08 of May 2008).*

None of these measures follow the expected economic rationale and are not part of a stable set of conditions that are required to undertake consistent investment analysis overtime. The PDD was modified accordingly to clarify these points.

1.2. The Argentine energy policy framework presented a scenario where, due to institutional reasons, and as explained with the examples to answer 1.1, no monetization or even planning of revenues followed the expected economic rationality, making it very hard to translate conditions such as tariff values, inflation and devaluation into monetary terms. However, such sets of conditions combined can be easily understood by businesses as representing a high perceived risk scenario that prevents any new investment to be decided. For example, as it is described in the PDD, as per Resolutions 406 and 943, “electricity generation companies would no longer collect in cash their profit (the difference between their costs and the spot price mentioned above) but instead they began to accrue credits with undefined maturity against CAMMESA and to collect only their variable costs”. The same analysis is applicable to the impact of the devaluation of the local currency. The PDD was modified accordingly to clarify this point.

2. Investment barrier.

Following the guidance of the combined tool, investment barriers, other than insufficient financial returns, can be assessed by means of identifying the results presented by investment reports of reputed origin. The results of the study published by World Economic Forum clearly present the poor attractiveness of Argentina to drive private investment into infrastructure, including to the electricity sector. The assessment of the attractiveness took into account the following pillars:

- *Macroeconomic environment: economic stability, market size and growth prospects*
- *Legal framework (rule of law), including regulatory efficiency, public ethics and the effectiveness of dispute settlement procedures*
- *Political risk*
- *Ease of access to information*
- *Sophistication and development of the financial markets that enable infrastructure financing*
- *The country track record on private investment in infrastructure over the past 15 years*
- *Relations between government and society, including society's willingness to pay for the services related to infrastructure*
- *Government readiness to deal with and ability to facilitate private investment in infrastructure*

Hence, the PDD was revised accordingly to clarify that at the time of the start date of the Project activity, any new investment project by the electricity sector in Argentina faced a significant lack of private capital availability from domestic and international capital markets due to real and perceived risks associated with any new infra-structure investments in the country.

In addition, as it was demonstrated at the institutional barrier assessment the investment climate in Argentina was very unpredictable at the time of the investment decision. The government was actively intervening in the way businesses were being done, constantly adjusting the regulations affecting the sector, creating a scenario in which few investment agents were attracted to invest in Argentina. As it was explained in the PDD, "generation installed capacity only increased 3% between 2002 and 2007, growing from 23,609 MW in 2002 to 24,407 MW in 2007". This situation cannot be assessed through the investment analysis because of the lack of predictability of government actions at that time. The investment barrier that was not attracting new investment was the investment climate itself that was created by the actions of the government (as explained with the examples of answer 1.1). In the case of the investment in a new generation plant, until the "Energía Plus" Program was launched in September 2006, the low electricity prices determined by the government and the limits on profits imposed an investment barrier that no investor would like to confront. This barrier cannot be overcome by additional financial means because it would represent a guaranteed loss as the generator would be paid only its operational costs. As it was explained in the PDD, "electricity companies would no longer collect in cash their profit (the difference between their costs and the spot price mentioned above) but instead they began to accrue credits with undefined maturity against CAMMESA and to collect only their variable costs". Even after the "Energía Plus" Program was implemented, investment agents had no guarantee that the regulator would not change said program, affecting the profitability of new investments. In fact, as explained in answer 1.1. (f), the regulator introduced several measures in June 2007 that negatively affected said profitability.

The institutional barrier refers specifically to the lack of predictability and discretionary actions of the government that would create a very risky institutional environment with no guarantees of long-lasting rules or, that those decisions could be changed very quickly after they were undertaken (as explained with the examples of answer 1.1). These are examples of institutional risks that are related to the lack of guarantee of a proper business environment, and would prevent new investors to come to Argentina and also discourage Argentine companies to invest because of the investment climate, no matter what their financial means may be. So, as per the clarification provided above the major difference between the "investment barrier" and the "institutional barrier" are associated to the scale and specificity of the assessment. The first one uses a broader view to analyses the attractiveness of the Argentine economy to attract capital to the implementation of new investment to be undertaken while second one digs deep on the specific electricity regulation and uncertain institutional stability. Despite they have differences in scope; their results are very complementary to demonstrate the additionality of the project activity. The PDD was modified accordingly to clarify this point.

3. Investment barrier.

3.1. Please refer to answer 1.1 above. The PDD was modified accordingly to clarify this point.

3.2. The issues discussed in that page were related to the investment barrier as no hydroelectric project (an objective fact that can be confirmed by the ex-post evidence, as no hydro unit of relevant size was constructed in Argentina by the private sector) were undertaken in Argentina in that period because of the perceived high risk to the investor. In other words, it was very risky to start a very large investment and pay interest during construction for several years in an environment where tariffs and the remuneration to the owner of the hydro plant could be changed by the government at any time, which would make the investment unfeasible. As the Government has been taking unilateral measures in the electricity sector, some of the required steps to build a hydro plant, like requiring a concession (a requirement set in national Law 15,336, and in the provincial Law 899 for an investment in Neuquén province) could become a political decision and prone to risk. The PDD was modified accordingly to clarify this point.

4. Technological barrier.

The technological barriers analysis was deleted from the PDD as they did not represent a prohibitive barrier to any of the scenarios analysed.

5. The PDD was also reviewed to delete the Lack of prevailing practice barriers as these barriers did not represent a prohibitive barrier to any of the scenarios analysed.

Documentation Provided by Project Participant:

1. Law 25,561.pdf)
2. Resolution 317-02.pdf
3. Resolution SE 240-03.pdf
4. Resolution SE 406-03.pdf
5. Resolution SE 943-03.pdf
6. Resolution SE 567-07
7. Resolution SE 501-08.pdf
8. Energía Plus resolutions (Energía Plus regulation and notes.pdf).

Information Verified by Lead Assessor:

1. Law 25,561.pdf (ref 134)
 2. Resolution 317-02.pdf (ref 135)
 3. Resolution SE 240-03.pdf (ref 136)
 4. Resolution SE 406-03.pdf (ref 137)
 5. Resolution SE 943-03.pdf (ref 138)
 6. Resolution SE 567-07 (ref 139)
 7. Resolution SE 501-08.pdf (ref 140)
 8. Energía Plus resolutions (Energía Plus regulation and notes.pdf (ref 141)
- Loma de la Lata PDD 02042012 compared to 22122011.doc (ref 1b)

Reasoning for not Acceptance or Acceptance and Close Out:

Date: 24/04/2012

1.
 - 1.1. The “institutional barrier” has been re-written showing the impact of the changes in the regulation and the national economy over the projects alternatives. **Item closed.**
 - 1.2. Summary of the Institutional barrier over the project scenarios is consistent with the analysis previously done. **Item closed.**
2. The investment barrier has been orientated only to lack of attractiveness to invest in Argentina rather than the financial attractiveness of the project, which is assessed in the “investment analysis”. **Item closed.**
- 3.1. The text related to the electricity prices as supporting argument of the investment barrier was deleted. **Item closed.**
- 3.2. The text was completed providing the link between the impact of the time required for the project implementation with the difficulty to find financial support. **Item closed.**
4. The “technological barrier” was removed from PDD. It is deemed correct since there are similar projects already implemented in the host country. **Item closed.**
5. Ok, the barrier was not a real one.

CL 14 was closed on 24/04/2012

CL 14 has been re-opened on 07/11/2012 after the incomplete received by the project during the “Information and reporting check stage”.

Institutional Barrier:

As per information reported in PDD (pg 90-93), 11 plants were incorporated to the grid in the period 2001 until the project starting date.

- Please clarify the essential distinction that allow the implementation of the cited plants (from period 2001-2007) even though the regulation changed in 2001 doing the electrical sector less attractive for the investors and provide the supporting evidence.
- Please clarify as well why the plants implemented since November 2007 were not prevented by the Institutional Barrier.

CL 14 remains open.

Acceptance and Close out by Lead Assessor:	Date: 07/11/2012
Project Participant Response:	Date: 15/11/2012
<p>- As stated in the PDD on page 19, “generation installed capacity only increased 3% between 2002 and 2007, growing from 23,609 MW in 2002 to 24,407 MW in 2007”. That is to say, generation installed capacity increased by 798 MW. In contrast, and as also mentioned in the PDD on page 19 and 20, “electricity demand in Argentina increased in the same period by 33%, growing from 81,348 GWh in 2002 to 108,482 GWh in 2007”. This minor increase in generation installed capacity vis-a-vis demand growth was given by “the institutional barrier presented by the regulatory changes in the sector and its consequent reduction in profitability”, as explained in the PDD also on page 19. The fact that minor capacity additions were installed during the period do not invalidate the barriers presented, and can be explained by other reasons, such as (i) projects that were initiated before the 2001/2002 crisis, and that were finalized after 2002, (ii) government additions to installed capacity, which follow different objectives than investments done by private investors, (iii) power plants that were in operation before 2002, but that were connected to the Argentine grid (SADI) to deliver its electricity generation to the wholesale electricity market after 2002, and therefore considered an addition to installed capacity, and (iv) optimizations carried on to power plants built prior to 2002 (such as authorizations received by suppliers to operate the power plants at higher capacity). As presented in the file ‘MW additions.xlsx’ included herein, at least 96.7% of the 798 MW of additional capacity mentioned above, correspond to the factors (i) to (iv) described. We do not have information to determine the factors and reasons that led to the addition of the remaining 3.3%, although they could have also been influenced by the factors (i) to (iv) mentioned above.</p>	

<p>- Plants implemented after the beginning of the project activity, which was on September 6, 2007, are out of the scope analysed and not relevant at the time of decision making for the Project Participant. After the decision taken it is not relevant for this project activity analysis whether the regulatory conditions were changed or not. It is important to note that up to the point in time in which the decision was taken the barriers would prevent implementation to a private oriented company. The concept of baseline is counter-factual, hence it is incorrect to monitor and verify the baseline after the project activity has already started, because the conditions after investment decision might not be the same. Nevertheless, as shown on file 'MW additions.xlsx', at least 83.6% of the additions done between 2008 and 2011 were plants that (i) were also done by the Argentine or a provincial government; (ii) were in operation before 2002, but that were connected to the grid (SADI) to deliver its electricity generation to the wholesale electricity market after 2002, and therefore considered an addition to installed capacity, or (iii) projects that were carried out under Clean Development Mechanism (CDM) as incentive, in order to obtain Certified Emissions Reductions (CERs). This data only confirms that even after the decision to implement the project activity the barriers conditions continued to apply although they were not relevant to the LLL project activity that has already taken the decision to be implemented as CDM project activity.</p>	
<p>Documentation Provided by Project Participant:</p> <p>MW Additions.xlsx Cacheuta Nueva - Los potrerosillos PDD.pdf Pluspetrol Norte - News clipping 13.09.2001 – lanacion.pdf Yacyretá - Binational dam's webpage.pdf Las Maderas - Argentina's Quinquennial Electric Sector Report.pdf Termoandes - AES Financial Statements Appendix, 2008.pdf Comahue hydro plants - Consultation to Cammesa.msg Dec 2011 Cammesa Report.zip ENARSA Energia - Company Profile.pdf EPEC – Institutional.pdf FONINVEMEM.pdf Termoandes - AES Financial Statements Appendix, 2008.pdf Diadema – PDD.pdf Energía del Sur - CT Patagonia - PDDFEB07.pdf Los Caracoles – PDD.pdf</p>	
<p>Information Verified by Lead Assessor:</p> <p>- MW Additions.xlsx (ref 198) - Cacheuta Nueva - Los potrerosillos PDD.pdf (ref 199) - Pluspetrol Norte - News clipping 13.09.2001 – lanacion.pdf (ref 199) - Yacyretá - Binational dam's webpage.pdf (ref 199) - Las Maderas - Argentina's Quinquennial Electric Sector Report.pdf (ref 199) - Termoandes - AES Financial Statements Appendix, 2008.pdf (ref 199) - Comahue hydro plants - Consultation to Cammesa.msg (ref 199) - Dec 2011 Cammesa Report.zip (ref 200) - ENARSA Energia - Company Profile.pdf (ref 200) - EPEC – Institutional.pdf (ref 200) - FONINVEMEM.pdf (ref 200) - Termoandes - AES Financial Statements Appendix, 2008.pdf (ref 200) - Diadema – PDD.pdf (ref 200) - Energía del Sur - CT Patagonia - PDDFEB07.pdf (ref 200) - Los Caracoles – PDD.pdf (ref 200)</p>	
<p>Reasoning for not Acceptance or Acceptance and Close Out:</p>	<p>Date: 19/11/2012</p>

- The analysis provided by the PP was reviewed and it is deemed correct by the following reasons:
- It considers the new installed capacity (additions and brand new plants) added to the system, from the crisis time until the project starting date and from the project starting date ahead. The first group analysed is valid for the analysis because are the plants that faced the same conditions that the project. While the second one is only referential because involves the plants implemented after the project.
 - The PP grouped the new installed capacity in:
 - (i) projects that were initiated before the 2001/2002 crisis, and that were finalized after 2002
 - (ii) government additions to installed capacity
 - (iii) power plants that were in operation before 2002, but that were connected to the Argentine grid (SADI) to deliver its electricity generation to the wholesale electricity market after 2002
 - (iv) optimizations carried on to power plants built prior to 2002 (such as authorizations received by suppliers to operate the power plants at higher capacity).
- The groups identified by the PP are deemed correct and realistic. It was validated that the information used by the PP to classify the plants in one of each groups is correct and obtained from the Cammesa, ENARSA, power plants web pages and public information.
- As per the analysis done it was validated that around 97% of the new installed capacity is within one of the four categories defined. The cited categories corresponds a situations where the investment was done prior to the crisis, was done by the government or are related to the optimization of already existent plants, thus they are not comparable with the proposed project activity.
 - It was validated against the technical note N°22 (ref 178) issued by the Ministry of Economy and Public Finance of Argentina that after 2001 crisis the investment in the electric sector was stagnant.
 - The information analyzed led to conclude that even there was new installed capacity from the crisis time until the project starting date, it had essential distinctions that allowed its implementation.

CL 14 was closed.

Acceptance and Close out by Lead Assessor:	Date: 19/11/2012
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Date:	20/01/2012	Raised by:	DaAssessment team		
Type:	CL	Number:	15	Reference:	AU4, B.5.19
Lead Assessor Comment:					
Common Practice					
The common practice analysis is carry out in PDD version 1 (ref 1a) section B.4, within step 4. PDD follows the “Guidelines on common practice” version 1 (ref 25).					
1. PDD version 1 (ref 1a) section B.4 (step 2) identifies the power plants in the range defined in step 1, however does not report the relevant geographical area/system. PP is requested to complete the information.					
2. PDD version 1 (ref 1a) section B.4 (step 3) states that all power plants identified in step 2 are different to the proposed project activity because they were commissioned before December 2001 when a crisis started in Argentina. However as per the guideline Ndiff are the plants that apply a different technology in comparison with the proposed project activity, thus the classification as per the external conditions faced by the plants is not correct. Please revise.					
CL 15 was raised.					
Project Participant Response:				Date: 02/04/2012	
1. The relevant geographical area covers the entire host country, Argentina. This geographical area is compatible with the kind of interconnected system existing in Argentina, which covers the entire country. On the other hand, according to the extended definition of technology in the context of common practice, the investment climate prevailing at the date of investment decisions is only applicable to Argentina.					
2. The classification is correct according to the extended definition of “different technologies” applied to common practice analysis (page 2 of the “Combined tool to identify the baseline scenario and demonstrate additionality”, version 04.0.0).					
Documentation Provided by Project Participant:					
New version of the PDD					
Information Verified by Lead Assessor:					
- Loma de la Lata PDD 02042012 compared to 22122011.doc (ref 1b)					

Reasoning for not Acceptance or Acceptance and Close Out:	Date: 24/04/2012
<p>1. It was validated that PDD version 2 (ref 1b) includes the relevant geographical area. Item closed.</p> <p>2. It was validated that Ndiff was correctly defined as per the Combined tool (ref 3b). Regarding the plants listed in PDD version 2 (table 6), they correspond to the power plants in the relevant range (272.83 – 818.49 MW) commissioned until the date of the project starting (September 2007). Since the list of new power plants published by Cammesa has available the plants commissioned since 2008, the correctness of the information reported in PDD will be assessed once crosschecked the source. Please provide the original source used.</p> <p>Item remains open.</p> <p>CL 15 remains open.</p>	
Acceptance and Close out by Lead Assessor:	Date: 24/04/2012
Project Participant Response:	Date: 16/05/2012
<p>2. Please review the Excel file “Potencia instalada.xlsx”, obtained from Cammesa, where it details all the installed capacity, power plants and type of generation since 1999 to 2011 (appropriate filters can be used to select the power plants by date, type and installed capacity). Prior to that date the information can be seen in the webpage of the Secretariat of Energy: http://energia3.mecon.gov.ar/contenidos/verpagina.php?idpagina=2599. The new version of the PDD was slightly modified accordingly.</p>	
Documentation Provided by Project Participant:	
<p><i>Potencia instalada.xlsx (149 KB)</i> <i>INFO1997.pdf</i> <i>INFO98.pdf</i> <i>INFO99.pdf</i></p>	
Information Verified by Lead Assessor:	
<ul style="list-style-type: none"> - Potencia instalada.xlsx (ref. 152) - INFO1997.pdf (ref. 153) - INFO98.pdf (ref. 154) - INFO99.pdf (ref. 155) 	
Reasoning for not Acceptance or Acceptance and Close Out:	Date: 31/05/2012
<p>It was validated that the plants included in PDD version 3 (ref 1c) common practice are correct against Cammesa records (ref 152), the analysis includes the plants that entered into operations until 2007 (considering that the project starting date is 06/09/2007).</p> <p>As double check it was validated by SGS that the project complies with the common practice conditions even if all the plants in the range implemented after 2007 (Leufú, Termo Andes, Güemes, Belgrano, Timbúes and Pilar) are included. Under this scenario Nall would be 25, Ndiff 24, F=0.04 and Nall – Ndiff =1, thus the project is not common practice.</p> <p>CL 15 was closed.</p>	
Acceptance and Close out by Lead Assessor:	Date: 31/05/2012

Date:	20/01/2012	Raised by:	Assessment team														
Type:	CAR	Number:	16	Reference:	AU4, B.6.1 - 6.2												
Lead Assessor Comment:																	
Ex- ante calculations & data reporting																	
<p>1. The electricity generated by the gas turbines is calculated as $(OC = 368.61) * (T_{MAX} = 8760) * (Load\ factor = 89.9\%)$. Please clarify why 8760 hours are considered, knowing that TMAX has to be calculated as per equation 6 of the methodology.</p> <p>2. $EF_{CO_2,BL}$: the value is calculated following equation 10 of the methodology. It was found that the same value of NCV was used in the calculation, however as per the methodology the yearly value is required. Please include NCV 2008, 2009 and 2010, for $EF_{CO_2,BL}$, $LE_{upstream}$ and $NCV_{NG,i,x}$.</p> <p>3. The equation of $EF_{EL,DD,H}$ (PDD version 1, page 38) is incomplete because does not include the parameter NCV, additionally the $EF_{CO_2,i,y}$ is defined as "CO₂ emission factor of fossil fuel type <i>i</i> in year <i>y</i> (tCO₂/tonne for solid and liquid fuels and tCO₂/dam³ ", however as per the Tool the $EF_{CO_2,i,y}$ has to be expressed as "tCO₂/GJ".</p> <p>4. The EFgrid file provided by the PP (ref 18- 4.2.) does not contain the data enough to validate that in every hour is being compared the 10% and x% to define the power units (n) that are in the top of the dispatch. PP is requested to complete the calculation procedure.</p> <p>5. Please include in PDD the yearly (2008 to 2010) value of the parameter EF_{CO_2} in order validate the maximum and minimum values reported.</p> <p>6. Please report the parameter HMRx for each year (2008 to 2010), currently the same value is applied for all years. Please provide the corresponding supporting evidence.</p> <p>7. Regarding the data availability for ex-ante calculations PDD states that EG,n,h data is available in "Grid Emission Factor 2010.xls". The cited file (ref. 18 - 4.2) does not report the parameter. Please include the parameter information.</p> <p>8. Please provide the supporting evidence (invoices, generation records & authority records) to validate the parameter EG_x (2008, 2009 & 2010).</p>																	
CAR 16 was raised.																	
Project Participant Response:				Date: 02/04/2012													
<p>1. The PDD was modified to include the calculation of EG_{max} and T_{max} as per equations 5 and 6 of methodology, respectively.</p> <p>2. The annual values for $NCV_{NG,x}$ and $EF_{CO_2,min/max}$ were calculated from chromatography data and used in the corresponding equations in the new version of the PDD. The table summarizes the values.</p> <table border="1"> <thead> <tr> <th>Parameter</th><th>2008</th><th>2009</th><th>2010</th></tr> </thead> <tbody> <tr> <td>$NCV_{NG,x}$ (GJ/tonne)</td><td>47.79777</td><td>48.04855</td><td>47.94434</td></tr> <tr> <td>$EF_{CO_2,min/max}$ (tCO₂/GJ)</td><td>0.05555</td><td>0.055398</td><td>0.055461</td></tr> </tbody> </table> <p>3. The equations were corrected, i.e. NCV was included and units were correctly used.</p> <p>4. In order to provide a complete calculation procedure regarding the operating margin, which is used to calculate the grid emission factor, the Project Participant calculated itself based on CAMMESA's information on Argentine power system SADI. A summary of SADI's 2010 operating margin calculation is shown ("PP's Calculation of OM 2010.xlsx") and the complete calculation procedure, day by day during 2010, in other spreadsheet (corrída 2010 - pampa (2).zip).</p> <p>5. $EF_{CO_2,min/max}$ was included in the new version of the PDD.</p> <p>6. The information regarding the parameter HMRx for each year (2008 to 2010) was included in support information for the PDD under 2. Raw Data Archive 2.3 Loma de la Lata Power Plant Availability 1994-2011.xlsx.</p> <p>7. The data is provided in files mentioned in bullet 4.</p> <p>8. Records by CAMMESA regarding the net generation of the units for the years required were available for review during the Validation visit. A summary of the net generation for the plant and copies of the monthly reports from CAMMESA for December 2008, 2009 and 2010 from which this information is taken are included.</p>						Parameter	2008	2009	2010	$NCV_{NG,x}$ (GJ/tonne)	47.79777	48.04855	47.94434	$EF_{CO_2,min/max}$ (tCO ₂ /GJ)	0.05555	0.055398	0.055461
Parameter	2008	2009	2010														
$NCV_{NG,x}$ (GJ/tonne)	47.79777	48.04855	47.94434														
$EF_{CO_2,min/max}$ (tCO ₂ /GJ)	0.05555	0.055398	0.055461														
Documentation Provided by Project Participant:																	

<p>2. NVC and EF.xlsx. 2. YPF Data- Natural Gas Consumption.xlsx 4. Emissions Reductions Calculator: Emissions Reductions 2008-2010.xlsx; 2010 Operating Margin Calculation: PP's Calculation of OM 2010.xlsx; and 2010 Operating Margin Calculation, day by day: corrida 2010 - pampa (2).zip 6. Parameter HMRx for each year (2008 to 2010) are in 2. Raw Data Archive 2.3 Loma de la Lata Power Plant Availability 1994-2011.xlsx. 7. 2010 Operating Margin Calculation: PP's Calculation of OM 2010.xlsx; and 2010 Operating Margin Calculation, day by day: corrida 2010 - pampa (2).zip 8. Electricity Generated 2008-2010 2012-03-16.xls; im0812.zip; im0912.zip; im1012.zip. To review the net generation of Loma for the years indicated, once the files from their Zip form are extracted, open the extracted files and an "Informe Mensual DICIEMBRE 2008-2009-2010" will pop up in a separate window. On the left side of the pop-up screen select the tab <u>MEM</u>, then the sub-tab <u>Informe Detallado</u>, then select the report <u>Generaciones por Tipo y por Central</u>. On the right side of the screen you will find the values associated with the net generation for each month beside the label LOMA DE LA LATA.</p>	
<p>Information Verified by Lead Assessor:</p> <p>2. NVC and EF.xlsx (ref 70) 2. YPF Data- Natural Gas Consumption.xlsx (ref 71) 4. Emissions Reductions Calculator: Emissions Reductions 2008-2010.xlsx (ref 15b) 6. Power Plant Availability 1994-2011.xlsx (ref 72) 7. PP's Calculation of OM 2010.xlsx (ref 76) 8. Electricity Generated 2008-2010 2012-03-16.xls (ref 73) im0812.zip; im0912.zip; im1012.zip (ref 74), net generation - corrida 2010 – pampa-folder (ref 77)</p>	
<p>Reasoning for not Acceptance or Acceptance and Close Out:</p>	<p>Date: 18/04/2012</p>

1. It was validated that PP obtained in the ER calculation file (ref 15b) the Tmax as per equation 6 of the ACM0007 version 5. The same information is reported consistently in PDD version 2 (ref 1b). **Item closed.**
2. The PDD version 2 (ref 1b) and updated calculation file (ref 15b) were reviewed, it was validated that equation 10 of the methodology is correctly calculated using the yearly information of NCV in ref 15b, tab "ER", cell E14.
Regarding the $LE_{upstream}$, it was validated that the formula available in ref 15b, tab "ER", cell F27 is not correct because the yearly values of $FC_{i,x}$ and $NCV_{i,x}$ were not used. Instead the average fuel consumption and NCV2008 were used. Please revise. **Item remains open.**
3. It was validated that in PDD version 2 (ref 1b) the equation to calculate the parameter $EF_{EL,DD,H}$ was corrected. Additionally it was validated that the units of $EF_{CO_2,i,y}$ were corrected. **Item closed.**
4. It was validated as well that the calculation file (ref 77) contains two tabs per each day, one reports the hourly information per power plant (marginal cost, generation, fuel consumed and CO₂ emissions issued). The other contain the aggregated information of each hour. It was validated that EFom is calculated correctly as per the Tool (ref 5) requirement
The EFgrid was calculated using the data 2010, which does not correspond to last the vintage available. Please revise. **Item remains open.**
5. It was validated that PDD version 2 (ref 1b) contains the yearly (2008, 2009 & 2010) values of NCV_{NG} , and $EF_{CO_2,NG}$, however the minimum and maximum value were deleted. Please reintegrate them. **Item remains open.**
6. It was validated that PDD version 2 (ref 1b), section B.6.2. reports the yearly values of HMRx. The amount of hours operated per year (reported in PDD (ref 1b) and the calculation file (ref 15)) was crosschecked with the availability records from the plant (ref 72), the data was found correct. **Item closed.**
7. It was validated that the file "corrida 2010 – pampa.xls" (ref 77) contains all the parameters required by the Tool (ref 5).
The parameters involved were assessed as follow:
 - $EG_{n,h}$: As per PDD the values of the parameter are obtained from Cammesa. Please provide the original files retrieved from Cammesa web site were the data is contained. **Item remains open.**
 - $FC_{i,n,h}$: As per PDD the values of the parameter are obtained from Cammesa. Please provide the original files retrieved from Cammesa web site were the data is contained. **Item remains open.**
 - Marginal cost: Please provide the original files retrieved from Cammesa web site were the data is contained. **Item remains open.**
 - $NCV_{i,y}$: It was validated that the values reported in PDD version 2 (ref 1b) and the file "corrida 2010 – pampa.xls" (ref 77) were crosschecked against the source (2nd national communication, ref 32). The following table summarizes the information:

Fuel	NCV as per PDD (ref 1b) & Excel file (ref 77)	NCV as per 2nd national communication (ref 32)	SGS assessment
Fuel oil (FO)	9,800,000 (kCal/ton)	41.03 (MJ/kg) → 9,800,000 (kCal/ton)	Ok
Natural Gas (GN)	8,400 (kCal/m ³)	48.33 (MJ/m ³) → 8,400 (kCal/ m ³)	Ok
Gas Oil (GO)	10,400,000 (kCal/ton)	42.71 (MJ/kg) → 10,200,000 (kCal/ton)	Please revise.
Mineral coal (CM)	5,400,000 (kCal/ton)	24.7 (MJ/kg) - national → 5,900,000 (kCal/ton) 30.14 (MJ/kg) – imported → 7,200,000 (kCal/ton)	Please revise.

Additionally it was validated that the values used in the "corrida 2010 – pampa.xls" (ref 77) are the same values but reported in other units. Finally it was validated that the values are within the range at 95% confidence level defined by IPCC guidelines 2006.

- $EFCO_{2i,y}$: It was validated that the values reported in PDD version 2 (ref 1b) are correct against the source (2nd national communication, ref 32). Additionally it was validated that the values are within the range at 95% confidence level defined by IPCC guidelines 2006. It was found that in file "corrida 2010 – pampa.xls" (ref 77) tab "Values" lines 1&2, is reported the "CO2 Emission Coefficient", that correspond to the " $NCV_{i,y} \times EFCO_{2i,y}$ ". Please include the $EFCO_{2i,y}$ because using the NCV and EF provided in PDD (ref 1b) is not possible to obtain the values of the "CO2 Emission Coefficient" reported in the excel file (ref 77).

Item remains open.

- Please provide the cited files from Cammesa again, since the ones received during the site visit did not open. Additionally please clarify in the information included in the parameter EG_x considers the energy sold to YPF. **Item remains open.**

CAR 16 remains open.

Acceptance and Close out by Lead Assessor:	Date: 24/04/2012
Project Participant Response:	Date: 16/05/2012

2. The PDD version 3 (ref 1b) was corrected. See new version of the PDD and CER's calculation attached.

4. The EFgrid was upgraded using 2011 data.

5. The NCV_{NG} , and $EF_{CO2,NG}$ minimum and maximum value were included again.

7. It is provided the original files retrieved from Cammesa where the data is contained.

$NCV_{i,y}$: values were modified based on the source (2nd national communication, ref 32)

Fuel	NCV as per PDD (ref 1b) & Excel file (ref 77)	NCV as per 2nd national communication (ref 32)	SGS assessment
Fuel oil (FO)	9,800,000 (kCal/ton)	41.03 (MJ/kg) → 9,800,000 (kCal/ton)	Ok
Natural Gas (GN)	8,400 (kCal/m ³)	48.33 (MJ/m ³) → 8,400 (kCal/ m ³)	Ok
Gas Oil (GO)	10,400,000 (kCal/ton)	42.71 (MJ/kg) → 10,200,000 (kCal/ton)	It was modified.
Mineral coal (CM)	5,400,000 (kCal/ton)	24.7 (MJ/kg) – national → 5,900,000 (kCal/ton) 30.14 (MJ/kg) – imported → 7,200,000 (kCal/ton)	It was modified.

The sheet 'Values' shows the emission factors $EFCO_{2i,y}$ for each fuel. This was modified.

8. It is provided the original files retrieved from Cammesa where the data is contained.

EG_x is the energy informed to Cammesa, and it also considers the energy transported from Loma de la Lata's gas turbine number one (LDLAT01 code according to Cammesa) to MEGA (3MELL01 code according to Cammesa, a company controlled by YPF but it is not YPF).

From the internal measurements reported to Cammesa (SMEG) of Loma de la Lata Gas Turbine Number 1 carried out every fifteen minutes in MWh, and from the SMEG of MEGA, also carried out every fifteen minutes but in KWh, adding both figures for each hour is equivalent for the MWh reported for each hour in the post-operative file of Cammesa. Please refer to the Excel 'Check MEGA Included in Cammesa LomaTG01 Calculation.xlsx' included in the data room for more details. We used the date of 2 April 2012 as an example. Thus, electricity transported to MEGA is included in Cammesa as electricity in the grid.

Documentation Provided by Project Participant:

- New version of the PDD
- 2011 Operating Margin Calculation (OM Folder): PP's Calculation of OM 2011.xlsx and OM 2011 day by day.xls.
- 2011 Building Margin Calculation (BM Folder): 2011 Argentine grid building margin.xlsx, COMB_QUEMADOS_SCOM 01 to 12 Excel files and VALORES_GENERADORES 01 to 12 Excel files
- NCV and EF 15-05-2012.xlsx
- Emissions Reductions 2008-2010 15-05-2012.xlsx
- Post-Operation files from Cammesa (Post Operativos, Cammesa Folder), Microsoft Access file extension
- 3MELL01P.xlsx
- LOLAM21P.xlsx
- Check MEGA Included in Cammesa LomaTG01 Calculation.xlsx
- PO120402.MDB

Information Verified by Lead Assessor:

- Loma de la Lata PDD version 3.pdf (ref 1c)
- Emissions Reductions 2008-2010 15-05-2012.xlsx (ref 15c)
- NCV and EF 15-05-2012.xlsx (ref 70b)
- Cammesa files – folder (ref 163)
- OM – folder (ref. 164)
- BM – folder (ref 165)

Reasoning for not Acceptance or Acceptance and Close Out:

Date: 04/06/2012

2. PDD version 3 (ref 1c) was updated as per last version of the methodology (ACM0007 version 6). It was validated as well that the formula was corrected in PDD (ref 1c) and ER calculation file as well (ref 15c). **Item closed.**
4. It was validated that PP updated the EFgrid using data 2011. **Item closed.**
5. It was validated that all the NCV and EF values are reported in PDD version 3 (ref 1c) and ER calculation file (ref 15c). **Item closed.**
- 7.
- $EG_{n,h}$: the values reported in file "OM 2011 day by day.xls" (ref 164) and Argentine grid building margin.xls" (ref 165) are correct against the source (Cammesa info, ref 163). **Item closed.**
 - $FC_{i,n,h}$: As the values reported in file "OM 2011 day by day.xls" (ref 164) and "2011 Argentine grid building margin.xls" (ref 165) are correct against the source (Cammesa info, ref 163). **Item closed.**
 - Marginal cost: It was validated that it is obtained from Cammesa data, and it is available in the file "OM 2011 day by day.xlsx" (ref 164), tabs "dd-mm Datos", the marginal cost correspond to "plant cost/node price*area price". As per Cammesa confirmation (ref 175) it is done to assess all the plants in equal conditions and avoid the differences by the node prices. The information used by the PP (ref 164) was crosschecked against the Cammesa records (ref 163) and was found correct. **Item closed.**
 - NCV: NCV values of each type of fuel were corrected in PDD version 3 (ref 1c), however they are not reported in the excel calculation file (ref 164), in file "OM 2011 day by day.xls" (ref 164), tab "values", it is only reported the product of $NCV \cdot EF$, it was validated that the results included are correct. It is important to note that for the mineral coal (CM), the Argentinian communication (ref 32) reported the NCV for national and imported coal. The PP used the NCV assigned for the national coal, the criterion is deemed correct because this value is lower (in comparison with imported coal), thus it is conservative. **Item closed.**
 - $EFCO_{2i,y}$: $EFCO_2$ values of each type of fuel were corrected in PDD version 3 (ref 1c), however they are not reported in the excel calculation file (ref 164), in file "OM 2011 day by day.xls" (ref 164), tab "values", it is only reported the product of $NCV \cdot EF$, it was validated that the results included are correct. **Item closed.**

<p>9. Based on the generation records keep by Cammesa (ref 169) and the PP records (ref 166, 167 & 168), it was validated that the energy records linked to TG1 includes the energy sold to YPF (MEGA). Item closed.</p>					
<p>10. It was found that in the EF_{bm} calculations (ref 165) are included plants that are registered as CDM project, please note that as per the Tool to calculate the grid emission factor, page 15, (ref 5), power units registered as CDM projects have to be exclude. Please revise. Item open.</p>					
<p>CAR 16 remains open</p>					
<p>Acceptance and Close out by Lead Assessor:</p>				<p>Date: 11/06/2012</p>	
<p>Project Participant Response:</p>				<p>Date: 19/06/2012</p>	
<p>10. According to the "Tool to calculate the emission factor for an electricity system" (EB 61, Report Annex 12 Version 02.2.0), page 16, the summary diagram for calculating the build margin for an electricity system states that, in case of identifying and ranging all the recent power units excluding CDM, which comprises at least 20% of the system generation, there is at least one power unit older than 10 years in the set, the tool requires the PP to exclude power units older than 10 years and include power units registered in the CDM. If the new set does not comprise at least 20% of generation, the tool requires us to include the power units older than 10 years until the set comprises 20% of generation. That was the case for PP and we follow every step stated in the tool to calculate the build margin.</p>					
<p>Documentation Provided by Project Participant:</p>					
<p>- Tool to calculate the emission factor for an electricity system" (EB 61, Report Annex 12 Version 02.2.0): am-tool-07-v2.2.0.pdf</p>					
<p>Information Verified by Lead Assessor:</p>					
<p>--</p>					
<p>Reasoning for not Acceptance or Acceptance and Close Out:</p>				<p>Date: 20/06/2012</p>	
<p>It was verified that the calculation procedure to obtain EF_{BM} was correctly applied because before including plants older than 10 years, plants registered as CDM were included.</p>					
<p>CAR 16 was closed.</p>					
<p>Acceptance and Close out by Lead Assessor:</p>				<p>Date: 20/06/2012</p>	

Date:	20/01/2012		Raised by:	Assessment team	
Type:	CL	Number:	17	Reference:	AU4, B.6.1 - 6.2
<p>Lead Assessor Comment:</p>					
<p>Supporting evidence for information</p>					
<p>1. In order to validate the natural gas consumption, its NCV and emission factor, please provide all the gas invoices for years 2008, 2009 & 2010.</p>					
<p>2. Please clarify why the parameter Tmax is different in PDD version 1 (ref 1a) page 47 and excel file "4.1 Emissions Reductions 2008-2010.xls" (ref 15a), tab "Technical data", cell E12.</p>					
<p>CL 17 was raised.</p>					
<p>Project Participant Response:</p>				<p>Date: 02/04/2012</p>	
<p>1. Pdf files of the quality and delivery certificates, signed by the fuel supplier and by the Operation Chief of the power plant, for each month of 2008, 2009 and 2010, are provided. They include measurements of all parameters required for the calculations. The original certificates were reviewed during the site visit.</p>					
<p>2. PDD and "4.1. Emissions Reductions 2008-2010.xls" were modified to include the calculation of T_{max} as per equation 6 of methodology.</p>					
<p>Documentation Provided by Project Participant:</p>					
<p>1. 36 pdf files (from 1 2008.PDF to 12 2010.PDF) are included.</p>					
<p>Information Verified by Lead Assessor:</p>					
<p>Gas invoices – folder (ref 69)</p>					
<p>Reasoning for not Acceptance or Acceptance and Close Out:</p>				<p>Date: 24/04/2012</p>	

<p>1.1. Gas Consumption. Based on the acts (ref. 69) that record the gas consumption information, which are signed by an YPF and LLL representative, it was found that the gas consumption recorded in the ER calculation file (ref 15) is wrong. As per the acts (ref 69) in 2008 the plant consumed 585,005,098 (m3), while the ER calculation file (ref 15b) reports 585,005,099 (m3). Please correct. Item remains open.</p> <p>1.2. NCV. The NCV_{NG} reported in PDD version 2 (ref 1b) and excel calculation file (ref 15b) was reviewed; the data for 2010 was crosschecked against the file "2. NCV and EF .xls" (ref 70a), it was found correct and the value is within the range define at 95% confidence level by IPCC 2006. However data 2008 &2009 was not available in the file "2. NCV and EF .xls" (ref 70). Additionally it was noted that the NCV value reported in PDD (ref 1b), calculation file (ref 15b) and EF_NCV file (ref 70a) are not consistent with the values reported in the monthly acts (ref 69) signed by an YPF and LLL representative. Please revise. Item remains open.</p> <p>1.3. EF. The EF_{NG} reported in PDD version 2 (ref 1b) and excel calculation file (ref 15b) was reviewed; the data for 2010 was crosschecked against the file "2. NCV and EF .xls" (ref 70), it was found correct and the value is within the range define at 95% confidence level by IPCC 2006. it was found correct and the value is within the range define at 95% confidence level by IPCC 2006. However data 2008 &2009 was not available in the file "2. NCV and EF .xls" (ref 70a) Item open.</p> <p>Regarding NCV and EF values, it is important to note that the chromatographic results of the gas used of NCV and EF calculation (ref 70a) are not the same than the values reported in the monthly acts (ref 69). This lead to obtain different EF and NCV values. Please revise. Item open.</p> <p>2. It was validated that PP obtained in the ER calculation file (ref 15b) the Tmax as per equation 6 of the ACM0007 version 5. The same information is reported consistently in PDD version 2 (ref 1b). Item closed.</p> <p>CL 17 remains open.</p>	
Acceptance and Close out by Lead Assessor:	Date: 24/04/2012
Project Participant Response:	Date: 16/05/2012
<p>1.1. We modified the gas consumption in the ER calculation file to 585,005,098 (m3), as requested by the DOE.</p> <p>1.2. Data from 2008 and 2009 was included as requested by DOE in the file "2. NCV and EF.xls".</p> <p>1.3. Data from 2008 and 2009 was included as requested by DOE in the file "2. NCV and EF.xls".</p> <p>Regarding the chromatographic results of the gas used for NCV and EF calculations, inferior calorific values were calculated as requested by the methodology, in contrast of YPF Acts, were calculation is arrived from superior calorific value. From the YPF Acts gas composition is taken as input values and then NCV is calculated following ISO 6,976 for molecular masses and Specific calorific values of gas compounds and IPCC default values for comparison of the results obtained.</p>	
Documentation Provided by Project Participant:	
<ul style="list-style-type: none"> - NCV and EF 15-05-2012.xlsx - Emissions Reductions 2008-2010 15-05-2012.xlsx - New version of the PDD 	
Information Verified by Lead Assessor:	
<ul style="list-style-type: none"> - NCV and EF 15-05-2012.xlsx (ref 70b) - Emissions Reductions 2008-2010 15-05-2012.xlsx (ref 15c) - Loma de la Lata PDD version 3.pdf (ref 1c) 	
Reasoning for not Acceptance or Acceptance and Close Out:	Date: 06/06/2012
<p>1.1. The updated ER calculation file was reviewed (ref 15c), it was validated that the gas consumption of the year 2008 was correct. The value reported (ref 15c) is correct against the acts (ref 69). Item closed.</p> <p>1.2 & 1.3</p> <p>It was validated that the monthly values (obtained from the daily measurements) of the gas composition reported in the provider acts (ref 69) are correct against the values included in the excel file (ref 70b) were the NCV and EF of the natural gas used in the plant is obtained. It was validated as well that the NCV obtained in the excel file (ref 70b) is always lower than the values reported in the act because the act reports the higher heating value, thus they correspond to the LHV. Item closed.</p> <p>CL 17 was closed.</p>	
Acceptance and Close out by Lead Assessor:	Date: 06/06/2012

Date:	20/01/2012		Raised by:	Assessment team	
Type:	CAR	Number:	18	Reference:	AU4, B.7.2 – site visit
Lead Assessor Comment:					
<p>Monitoring Plan</p> <p>EG_{PJ,y}</p> <ol style="list-style-type: none"> In PDD section B.7.1, please clarify if measures are every 15 minutes or if recording frequency are every 15 minutes. In PDD section B.7.1, section QA/QC, please include the accuracy of the equipments involved and its calibration frequency. During the site visit it was found that the parameter EG_{PJ,y} is monitored by 5 meters, 1 meter per gas turbine, 1 for the steam turbine and 1 for the energy sold to YPF. Based on the cited meters Cammesa obtains the injection of the plant to the grid, which is later reported in the “post-operative reports” and the “DTEs”. Please include in the monitoring report the description of the number of meters involved and the issue of the energy sold to YPF and its corresponding meter. <p>FCi,y</p> <ol style="list-style-type: none"> In PDD section B.7.1, section QA/QC, clarify why the invoices from the gas provider are not going to be used directly for crosschecking purposes. In PDD section B.7.1, section QA/QC, please include the accuracy of the equipments involved and its calibration frequency. <p>NCVi,y</p> <ol style="list-style-type: none"> In PDD section B.7.1, please include the monitoring frequency of the parameter. <p>EG_{n,h}</p> <ol style="list-style-type: none"> In PDD section B.7.1, please correct the parameter name. <p>EFCO_{2,i,y}</p> <ol style="list-style-type: none"> In PDD section B.7.1, please correct the units of the parameter as per the methodology. In PDD section B.7.1, please note that this parameter has to be monitored yearly. Please correct PDD. <p>NCV_{NG}</p> <ol style="list-style-type: none"> Please provide the procedure to obtain the parameter (test). Please include in PDD a diagram with the monitoring points. <p>CAR 18 was raised.</p>					
Project Participant Response:				Date: 02/04/2012	
<p>EG_{PJ,y}</p> <ol style="list-style-type: none"> The PDD was modified to include the frequency of data to use in monitoring plan. The PDD was modified to include the accuracy equipment involved and calibration frequency. The PDD was modified to include the requirements details. <p>FCi,y</p> <ol style="list-style-type: none"> The PDD was modified to explain whether the use of invoices from the gas providers and other sources are used for crosschecking purposes. The PDD was modified to include the accuracy equipment involved and calibration frequency. <p>NCVi,y</p> <ol style="list-style-type: none"> The PDD was modified to include the monitoring frequency of the parameter. 					

EGn,h

7. The correct parameter name was included in the PDD.

EFCO2,i,y

8. The PDD was modified according to the DOE request.

9. The new version of the PDD includes that this parameter has to be monitored yearly.

NCV_{NG}

10. This parameter is obtained from the natural gas chromatography provided monthly by the fuel supplier. This monthly delivery certificate includes the daily average of natural gas composition from which the monthly average is calculated. From this monthly average the annual value is obtained also as average.

11. The requested diagram with the monitoring points was included in the PDD.

Documentation Provided by Project Participant:

New version of the PDD

Information Verified by Lead Assessor:

- Loma de la Lata PDD 02042012 compared to 22122011.doc (ref 1b)

Reasoning for not Acceptance or Acceptance and Close Out:

Date: 17/04/2012

EG_{PJ,y}

1. It was validated that PDD version 2 (ref 1b) corrected the description of the parameter monitoring. The detail provided complies with the ACM 0007 version 5 requirement. **Item closed.**
2. It was validated that PDD version 2 (ref 1b) included the accuracy of the meters involved in the parameter monitoring and the calibration frequency (1 year). **Item closed.**
3. According to the ACM0003 version 5 the parameter **EG_{PJ,y}** is "Total amount of electricity supplied to the electricity grid by the project power units", thus the energy sold to YPF cannot be accounted in the parameter. Please revise. **Item remains open.**

FCi,y

4. It was validated that PDD version 2 (ref 1b) consider as well the crosscheck against the fuel invoices. **Item closed.**
5. It was validated that PDD version 2 (ref 1b) includes the calibration frequency of the equipments involved in the gas monitoring, however it was not defined the accuracy (intrinsic error of the devices). Please complete. **Item remains open.**

NCVi,y

6. It was validated that PDD version 2 (ref 1b) includes the monitoring frequency of the NCV of the gas as monthly. Please clarify if this frequency correspond to the "monitoring" or the "recording frequency". If the gas is sampled and analysed with different frequency, please revise the PDD. Additionally please consider the national normative (ENARGAS) in this regard. **Item remains open.**

Please note that the same parameter is included twice (page 58 & 62), and in both cases refers to the natural gas consumed in the plant. In page 58 is included as part of the ACM 0007 requirement and on page 62 as per the "Tool to calculate the project emission". Please keep one and in the second case the first one can be referred. Please revise. **Item open.**

EGn,h

7. PDD version 2 was reviewed, and it was found that the name was not corrected. **Item remains open.**

EFCO2,i,y	
8. It was validated that PDD version 2 (ref 1b), includes the units correctly as per the ACM0007 version 5 requirement. Item closed.	
9. It was validated that PDD version 2 (ref 1b), updated the monitoring frequency as per ACM0007 version 5. Item closed.	
NCV_{NG}	
10. The explanation is consistent against the Local requirements defined by ENARGAS (ref 68). Item closed.	
11. It was validated that PDD version 2 (ref 1b) includes in Figure 5 a simplified diagram of the monitoring points, however it has to be reviewed as per the observation of EGPJ,y about the energy sold to YPF. Please revise. Item remains open.	
CAR 18 remains open.	
Acceptance and Close out by Lead Assessor:	Date: 17/04/2012
Project Participant Response:	Date: 16/05/2012
3. EGPJ,y: As explained in CAR 16 Point 8 response, the energy transported to MEGA must be included in the parameter, since Cammesa includes that electricity in the grid.	
5. FCI,y: The PDD was modified to reflect the gas accuracy.	
6. NCVi,y: Frequency reference was corrected in the new version of the PDD.	
7. EGN,h: PDD version 3 was corrected to include net electricity in the parameter name.	
11. NCVNG: Based on CAR 16 Point 8 response, the Figure 5 with a simplified diagram of the monitoring points remains valid.	
Documentation Provided by Project Participant:	
<i>New version of the PDD</i>	
Information Verified by Lead Assessor:	
<i>-Loma de la Lata PDD version 3.pdf (ref 1c)</i>	
Reasoning for not Acceptance or Acceptance and Close Out:	Date: 11/06/2012
3. Based on the generation records keep by Cammesa (ref 169) and the PP records (ref 166, 167 & 168), it was validated that the energy records linked to TG1 includes the energy sold to YPF. It means that it is considered as the energy injected to the grid, which is consistent because if LLL does not supply the electricity to YPF, they would have to consume from the grid. Item closed	
5. It was validated that PDD version 3 (ref 1c) includes the error of the orifice plates. Please provide the supporting evidence. It was validated that the local regulation (ref 68) does not define specific calibration period.	
6. The reporting frequency of NCV was clarified. Please note that parameter NCVi,y is in page 61 and 64, but they present differences in its "description" and "measurement methods". Please revise. Item open. Please include in NCV the calibration frequency of the equipments related with the data measurement. Item open.	
7. It was validated that the parameter name (EGN,h) was corrected in PDD version 3 (ref 1c). Item closed.	
11. It was validated that the diagram included in PDD version 3 (ref 1c), section B.7.2. is valid a represent the structure implemented on site. Item closed.	
12. As per EB 52 annex 60 please provide the supporting evidence to support the calibration frequency of each equipment involved in the monitoring (generation, gas consumption, NCV, EF, diesel consumption, etc.) and includes in PDD its accuracy. Item open.	
CAR 18 remains open.	
Acceptance and Close out by Lead Assessor:	Date: 11/06/2012
Project Participant Response:	Date: 19/06/2012

Based on stated in CAR 7, regarding the schedule and evidence to support the calibration frequency of the following equipment involved in the monitoring of:

- Gas consumption, point No. 81: The calibration frequency described in the monitoring plan and PDD corresponds to a revised version of Protocol on Natural Gas Measurement Transfer Point, which is pending of signature. The calibration frequency is stated in the PDD:
 - o Orifice Plates: annually basis
 - o Computer System: quarterly basis
 - o Chromatograph: monthly basis. **The PDD was modified.**
- Electricity generation, eight SMEC owned by Central Térmica Loma de la Lata and one owned by MEGA: we provide the 'Technical Protocol N° PT-14' of CAMMESA, where said entity determines in page 42, bullet IV, an annual calibration frequency for SMEC equipment. **The PDD was modified.**
- Diesel oil consumption, level meter: we provide an e-mail from the level meter manufacturer IFM, dated on June 14, 2012, stating that 'IFM does not have a recommended calibration schedule for this sensor because it is all subjective based on how it's used and the environment it is exposed to'. Thus, we chose to execute an annual calibration frequency for the level meter. **The PDD was modified.**

Documentation Provided by Project Participant:

- New version of the PDD
- Protocol on Natural Gas Measurement Transfer Point.pdf
- Protocolo medición de gas natural – old version.pdf
- P_14_Protocolo de CAMMESA para SMEC.pdf
- RE LK CALIBRATION.msg

Information Verified by Lead Assessor:

- Ref. 1d - Loma de la Lata PDD version 4 22-06-12 clean.doc (ref 1d)
- Protocol on Natural Gas Measurement Transfer Point.pdf
- P_14_Protocolo de CAMMESA para SMEC.pdf (ref 181)
- RE LK CALIBRATION.msg (ref 180)

Reasoning for not Acceptance or Acceptance and Close Out:

Date: 05/07/2012

6. The parameter (NCVng) description was corrected, regarding information is "measurement methods" remains different, however it is not contradictory, thus it is accepted. **Item closed.**
12.

Parameter	Calibration frequency	Assessment	Accuracy	Assessment
EG _{PJ,y}	Contrast (and calibration if necessary) every 1 year	Ok, complies with local regulation (ref 181)	0.2s for each TG and TV 0.5s for Mega	Ok, it was validated against the verification acts (ref 185)
FC _{i,y} , NCV _{NG,y} , EF _{NG,y}	For both Orifice Plates the calibration frequency is annual	Ok, as per ENARGAS resolution (ref 110), the contrast/calibration frequency has to be agreed by the parts (gas supplier & buyer). The values reported are in compliance with the draft agreement available (ref 97)	Not reported in PDD, it was validated that there is in practice a protocol between regarding gas consumption measurements YPF and LLL (ref 97), which reports the maximum error of the devices and it is a revised version of the protocol signed in 1998 (ref 118), however the revised protocol still has not been signed.	Ok, given that protocol is pending of signature and there is no specific calibration frequency required by the methodology (ACM 0007) for the measurement system implemented this issue (calibration frequency & accuracy) will have to be assessed during verification stage. FAR 1 was raised.
	For the Computer System the calibration frequency is quarterly			
	For the Chromatograph the calibration frequency is monthly			
FC _{ST,DO,y}	Annual	Ok, as per manufacturer there is not recommended frequency (ref 180)	+/- 2%	Ok, it was validated against the technical specification sheet (ref 148)

Item closed

CAR 18 was closed (pending issues remains as FAR 1)

Acceptance and Close out by Lead Assessor:

Date: 05/07/2012

Date:	20/01/2012	Raised by:	Assessment team
Type:	CL	Number:	19
		Reference:	AU4, B.7.2
Lead Assessor Comment:			
CDM responsibilities PDD does not include any description of the main CDM responsibilities. Please identify the responsible authority for registration, monitoring, measurement, calculating, review and reporting of CDM project. CL 19 was raised.			
Project Participant Response:		Date: 02/04/2012	
<i>Description was included in the PDD</i>			
Documentation Provided by Project Participant:			
<i>New version of the PDD</i>			
Information Verified by Lead Assessor:			
- Loma de la Lata PDD 02042012 compared to 22122011.doc (ref 1b) - Ref. 67 - Monitoring process.pdf (ref 67)			
Reasoning for not Acceptance or Acceptance and Close Out:		Date: 12/04/2012	
It was validated that PDD version 2 (ref 1b) identifies properly a responsible person by the CDM project in term of reporting. Similarly the PP provided a procedure in Spanish for the monitoring (ref 67).It was validated that the cited document (ref 67) identifies responsible for the equipments maintenance and calibration, as well for the monitoring, revision and data approval. The procedure will be useful for the monitoring process since it is in Spanish, however the monitoring plan included in the PDD will be the formal requirements that the project has to comply with. CL 19 was closed.			
Acceptance and Close out by Lead Assessor:		Date: 12/04/2012	

Date:	20/01/2012	Raised by:	Assessment team		
Type:	CL	Number:	20	Reference:	AU4, B.7.2
Lead Assessor Comment:					
Stakeholder consultation					
<ol style="list-style-type: none"> 1. In PDD version 1, there is not information available about the date and where it was conducted. PP is requested to complete the information in PDD and clarify if comments included in table 9 correspond to the first public consultation. 2. As reported in PDD the second consultation was done by e-mail (ref 34), in November 2011. Please provide the full list of stakeholders that received the project information. 					
CL 20 was raised.					
Project Participant Response:				Date: 02/04/2012	
<ol style="list-style-type: none"> 1. The first survey was conducted on November 2008. The first two comments included in Table 9 correspond to the second consultation process while the last three to the first one. 2. The full list of stakeholders of the two processes is included in the new version of the PDD. The 2011 survey included the following stakeholders: <ol style="list-style-type: none"> (a) Miguel Ángel Rementería, Comisión Interdisciplinaria de Medio Ambiente (CIMA) (b) Alfredo Barber, Assistant to the CEO, Gas y Petróleo del Neuquén S.A. (c) Graciela Silva, Professor at Univ. Comahue, Environmental Protection and Conservancy 					
Documentation Provided by Project Participant:					
New version of the PDD					
Information Verified by Lead Assessor:					
- Loma de la Lata PDD 02042012 compared to 22122011.doc (ref 1b)					
Reasoning for not Acceptance or Acceptance and Close Out:				Date: 12/04/2012	
<ol style="list-style-type: none"> 1. It was validated that PDD version 2 (ref 1b), section E1. completes the information regarding when the first stakeholder consultation was carried out. Similarly the E.2. identifies which comments correspond to each consultation. Item closed. 2. It was validated that the full list of stakeholders that receive information of the project during the second consultation was included in PDD version 2 (ref 1b). Item closed. <p>Please provide the contact information of the consulted stakeholders to interview some of them telephonically.</p> <p>Item open.</p> <p>CL 20 remains open.</p>					
Acceptance and Close out by Lead Assessor:				Date: 12/04/2012	
Project Participant Response:				Date: 16/05/2012	
<p>The stakeholders who answered during the second consultation were:</p> <ol style="list-style-type: none"> a) Miguel Ángel Rementería, telephone: +54 (232) 4500020 or +54 (232) 4421042 b) Alfredo Barber, telephone: +54 (299) 4432888 					
Documentation Provided by Project Participant:					
-					
Information Verified by Lead Assessor:					
--					
Reasoning for not Acceptance or Acceptance and Close Out:				Date: 15/06/2012	
<p>One stakeholder was interviewed telephonically. It was validated that he was part of stakeholder consultation and answered the survey provided by the PP. The interviewee confirmed that they receive a project description and ratified the project contribution towards the national energy offer.</p> <p>CL 20 was closed.</p>					
Acceptance and Close out by Lead Assessor:				Date: 15/06/2012	

Type:	FAR	Number:	1	Reference:	CARs 7 & 18
Lead Assessor Comment:					
<p>Given that the revised gas protocol between LLL and the gas supplier is pending signature and there is no specific calibration requirement from the methodology (ACM 0007), the calibration frequency & accuracy of equipments related to natural gas (parameters $FC_{i,y}$, $NCV_{NG,y}$, $EF_{NG,y}$) will have to be assessed during verification stage.</p> <p>FAR 1 was raised.</p>					

A.4 Annex 4: Team Members Statements of Competency

Statement of Competence

Name: Alicia Fernandez

Status

- Lead Assessor	x	- Expert	
- Assessor	x	- Financial Expert	
- Local Assessor	Argentina	- Technical Reviewer	x

Scopes of Expertise

1. Energy Industries (renewable / non-renewable)

Technical Area(s):

2. Energy Distribution

Technical Area(s):

3. Energy Demand

Technical Area(s):

4. Manufacturing

Technical Area(s):

5. Chemical Industry

Technical Area(s):

6. Construction

Technical Area(s):

7. Transport

Technical Area(s):

8. Mining/Mineral Production

Technical Area(s):

9. Metal Production

Technical Area(s):

10. Fugitive Emissions from Fuels (solid, oil and gas)

Technical Area(s):

11. Fugitive Emissions from Production and

Consumption of Halocarbons and Sulphur Hexafluoride

Technical Area(s):

12. Solvent Use

Technical Area(s):

13. Waste Handling and Disposal

Technical Area(s):

14. Afforestation and Reforestation

Technical Area(s):

15. Agriculture

Technical Area(s):

Approved Member of Staff by:

Siddharth
Yadav

Date:

25/01/2012

Statement of Competence

Name: David Diaz

Status

- Lead Assessor	<input type="checkbox"/>	- Expert	<input type="checkbox"/>
- Assessor	<input type="checkbox"/>	- Financial Expert	<input checked="" type="checkbox"/>
- Local Assessor	<input type="checkbox"/>	- Technical Reviewer	<input type="checkbox"/>

Scopes of Expertise

1. Energy Industries (renewable / non-renewable)	<input type="checkbox"/>
Technical Area(s):	
2. Energy Distribution	<input type="checkbox"/>
Technical Area(s):	
3. Energy Demand	<input type="checkbox"/>
Technical Area(s):	
4. Manufacturing	<input type="checkbox"/>
Technical Area(s):	
5. Chemical Industry	<input type="checkbox"/>
Technical Area(s):	
6. Construction	<input type="checkbox"/>
Technical Area(s):	
7. Transport	<input type="checkbox"/>
Technical Area(s):	
8. Mining/Mineral Production	<input type="checkbox"/>
Technical Area(s):	
9. Metal Production	<input type="checkbox"/>
Technical Area(s):	
10. Fugitive Emissions from Fuels (solid, oil and gas)	<input type="checkbox"/>
Technical Area(s):	
11. Fugitive Emissions from Production and Consumption of Halocarbons and Sulphur Hexafluoride	<input type="checkbox"/>
Technical Area(s):	
12. Solvent Use	<input type="checkbox"/>
Technical Area(s):	
13. Waste Handling and Disposal	<input type="checkbox"/>
Technical Area(s):	
14. Afforestation and Reforestation	<input type="checkbox"/>
Technical Area(s):	
15. Agriculture	<input type="checkbox"/>
Technical Area(s):	

Approved Member of Staff by: Siddharth Yadav Date: 25/01/2012

Statement of Competence

Name: Francisco Solis

Status

- Lead Assessor	<input type="checkbox"/>	- Expert	<input checked="" type="checkbox"/>
- Assessor	<input type="checkbox"/>	- Financial Expert	<input type="checkbox"/>
- Local Assessor	<input type="checkbox"/>	- Technical Reviewer	<input type="checkbox"/>

Scopes of Expertise

1. Energy Industries (renewable / non-renewable)	<input checked="" type="checkbox"/>
Technical Area(s): <i>TA 1.1 Thermal energy generation from fossil fuels and biomass including thermal electricity from solar</i>	
2. Energy Distribution	<input type="checkbox"/>
Technical Area(s):	
3. Energy Demand	<input type="checkbox"/>
Technical Area(s):	
4. Manufacturing	<input type="checkbox"/>
Technical Area(s):	
5. Chemical Industry	<input type="checkbox"/>
Technical Area(s):	
6. Construction	<input type="checkbox"/>
Technical Area(s):	
7. Transport	<input type="checkbox"/>
Technical Area(s):	
8. Mining/Mineral Production	<input type="checkbox"/>
Technical Area(s):	
9. Metal Production	<input type="checkbox"/>
Technical Area(s):	
10. Fugitive Emissions from Fuels (solid, oil and gas)	<input type="checkbox"/>
Technical Area(s):	
11. Fugitive Emissions from Production and Consumption of Halocarbons and Sulphur Hexafluoride	<input type="checkbox"/>
Technical Area(s):	
12. Solvent Use	<input type="checkbox"/>
Technical Area(s):	
13. Waste Handling and Disposal	<input type="checkbox"/>
Technical Area(s):	
14. Afforestation and Reforestation	<input type="checkbox"/>
Technical Area(s):	
15. Agriculture	<input type="checkbox"/>
Technical Area(s):	

Approved Member of Staff by: Siddharth Yadav Date: 25/01/2012

Statement of Competence

Name: **Joe Sun**

Status

- Lead Assessor	<input type="checkbox"/>	- Expert	<input type="checkbox"/>
- Assessor	<input type="checkbox"/>	- Financial Expert	<input type="checkbox"/>
- Local Assessor	<input type="checkbox"/>	- Technical Reviewer	<input checked="" type="checkbox"/>

Scopes of Expertise

- | | |
|---|--------------------------|
| 1. Energy Industries (renewable / non-renewable) | <input type="checkbox"/> |
| Technical Area(s): | |
| 2. Energy Distribution | <input type="checkbox"/> |
| Technical Area(s): | |
| 3. Energy Demand | <input type="checkbox"/> |
| Technical Area(s): | |
| 4. Manufacturing | <input type="checkbox"/> |
| Technical Area(s): | |
| 5. Chemical Industry | <input type="checkbox"/> |
| Technical Area(s): | |
| 6. Construction | <input type="checkbox"/> |
| Technical Area(s): | |
| 7. Transport | <input type="checkbox"/> |
| Technical Area(s): | |
| 8. Mining/Mineral Production | <input type="checkbox"/> |
| Technical Area(s): | |
| 9. Metal Production | <input type="checkbox"/> |
| Technical Area(s): | |
| 10. Fugitive Emissions from Fuels (solid, oil and gas) | <input type="checkbox"/> |
| Technical Area(s): | |
| 11. Fugitive Emissions from Production and Consumption of Halocarbons and Sulphur Hexafluoride | <input type="checkbox"/> |
| Technical Area(s): | |
| 12. Solvent Use | <input type="checkbox"/> |
| Technical Area(s): | |
| 13. Waste Handling and Disposal | <input type="checkbox"/> |
| Technical Area(s): | |
| 14. Afforestation and Reforestation | <input type="checkbox"/> |
| Technical Area(s): | |
| 15. Agriculture | <input type="checkbox"/> |
| Technical Area(s): | |

Approved Member of Staff by: **Siddharth Yadav** Date: **11/09/2012**

Statement of Competence

Name: Yi Liao

Status

- Lead Assessor	x	- Expert	x
- Assessor	x	- Financial Expert	
- Local Assessor	China	- Technical Reviewer	

Scopes of Expertise

1. Energy Industries (renewable / non-renewable)	x
Technical Area(s): TA 1.1 Thermal energy generation from fossil fuels and biomass including thermal electricity from solar TA 1.2 Energy generation from renewable energy sources	
2. Energy Distribution	
Technical Area(s):	
3. Energy Demand	
Technical Area(s):	
4. Manufacturing	
Technical Area(s):	
5. Chemical Industry	
Technical Area(s):	
6. Construction	
Technical Area(s):	
7. Transport	
Technical Area(s):	
8. Mining/Mineral Production	
Technical Area(s):	
9. Metal Production	
Technical Area(s):	
10. Fugitive Emissions from Fuels (solid, oil and gas)	
Technical Area(s):	
11. Fugitive Emissions from Production and Consumption of Halocarbons and Sulphur Hexafluoride	
Technical Area(s):	
12. Solvent Use	
Technical Area(s):	
13. Waste Handling and Disposal	x
Technical Area(s): TA 13.1: Waste handling and disposal	
14. Afforestation and Reforestation	
Technical Area(s):	
15. Agriculture	
Technical Area(s):	

Approved Member of Staff by:

Siddharth
Yadav

Date:

15/02/2012