



---

## Response to the request for review of the CDM Executive Board (EB)

Project: "Jradzor Small Hydroelectric CDM project" (1835)

Authorised by : Wim Bartels  
Prepared by : Eric Koudijs

Our contact person for the review process:

Eric Koudijs

Tel: +31 651553429

E-mail: koudijs.eric@kpmg.nl

---

The EB raised the following issues:

1. The DOE should clarify further how it has validated the evidence for the investment barriers.
2. The DOE should clarify the project start date, the evidence of prior consideration of the CDM and the sequence of events leading to the validation of the project activity.
3. The DOE should clarify how AMS-I.D v12 has been determined to be valid for this project activity as the global stakeholder consultation was undertaken with AMS-I.D v9.
4. The DOE should explain how the CARs and CLs are resolved and provide the correct references to the PDD for the corrections made in response to such CARs and CLs.

**Response 1:** The Jradzor Small Hydroelectric CDM project was our third CDM validation project in the hydropower sector in Armenia. Before this project we validated the Yeghegis small-scale hydro project (1332) and the Argichi Small Scale Hydroelectric CDM Project (1459).

The project proponents of the Jradzor Small Hydroelectric CDM project have struggled for a long time to seek finance for the project. This subject was firstly discussed during our site visit in June 2006.

The idea for implementing the Jradzor already existed longer, but due to problems with arranging the financing the implementation never started. The possibility of attracting additional funding through CDM finally changed this situation firstly through the Danish Environmental Protection Agency (DEPA) in 2006 and later through the EBRD/EIB Multilateral Carbon Credit Fund (MCCF).

During the site visit we requested evidence that banks were not prepared to offer a loan at reasonable conditions for these projects. From the Jradzor project we received 2 of such letters from banks: One letter from Cascade Credit offering a loan in USD at an annual interest rate of 23% for a one and a half years term and a letter from ArdShinInvestBank rejecting the request.

After the site visit our client for this validation project the Danish Environmental Protection Agency (DEPA) who was until that time participating in the project development withdrew

|  |                       |
|--|-----------------------|
| Response to the request for review of the CDM Executive Board (EB); 1835 Jradzor Small Hydroelectric CDM project | Ref. no. : 01         |
| KPMG Sustainability  | Date : 27 August 2008 |



from the project. That caused a delay of more than one year in the project realisation, because the DEPA would co-finance the project through advance payment of the CERs.

During 2007 the project proponents finished the negotiations with EBRD/EIB Multilateral Carbon Credit Fund (MCCF) to fund the project through purchasing of the CERs of the project. This contract included an advance payment of the CERs which solved the missing part of the financing of the project. At the request of the project proponents the programme manager of this fund sent us an e-mail stating that the purchase contract is conditional on CDM registration and that they saw the MCCF CER purchase contribution as a necessary condition for the project to be implemented.

The evidence provided during the validation as described above made us conclude that the project is additional because of the financial barriers.

**Response 2:** Karen Arabyan, the consultant working for the project proponent, approached us through our office in Yerevan for a proposal for validation on 12 December 2005. We issued a proposal for validation in January 2006. On 2 June 2006 the proposal was reissued and agreed with DEPA.

The project proponents firstly requested a Letter of Endorsement from the Armenian DNA on 15 December 2005 and acquired this letter on 26 January 2006.

The site visit was performed in the same month. In the week of 12-16 June the project site was visited. In that month the first implementation activities had just started (ground works). This was confirmed by our validator who visited the project location in that week.

The idea for the project is much older. The project got its first licence in 2001 but the project was postponed over and over again because of problems with the financing, which was finally solved in 2006 firstly with DEPA and later with the MCCF.

At the time the decision was taken to start the implementation (May-June 2006) the CDM development of the project had already started and DEPA was involved in project.

This combined with the verbal evidence through the interviews during the site visit made us conclude that CDM was taken into consideration prior to taking the decision to implement the project.

The project is still non-operational (though it was planned to finish construction in one year) due to the delay that was caused by DEPA's withdrawal.

**Response 3:** This subject was raised during the validation. AMS I.D version 9 was no longer valid at the time the PDD was finished. Therefore we requested the project proponents to use the most recent version of AMS I.D. version 12.

We compared AMS I.D version 9 with AMS I.D version 12 and concluded that for this specific project and for the choices made in the baseline setting there are no differences between the two versions. ACM0002 version 6 which was used for the grid connected electricity generation did not change after June 2006 and could still be used for requests for registration until the moment this request was issued on 1 May 2008.

|  |                       |
|--|-----------------------|
| Response to the request for review of the CDM Executive Board (EB); 1835 Jradzor Small Hydroelectric CDM project | Ref. no. : 01         |
| KPMG Sustainability  | Date : 27 August 2008 |



No comments were raised during the international stakeholder consultation process.

This made us conclude that there was no need for a renewed stakeholder consultation process.

**Response 4:** We included in the table below a more detailed description of how the CARs and CLs were resolved by the project proponents.

|  |                       |
|--|-----------------------|
| Response to the request for review of the CDM Executive Board (EB); 1835 Jradzor Small Hydroelectric CDM project | Ref. no. : 01         |
| KPMG Sustainability  | Date : 27 August 2008 |



The table below is the list of CARs and CLs from the validation report with a more detailed description of the response of the project proponents and reference to the final version of the PDD.

On the basis of the validation process and the interviews described in Table 2, the following issues were raised. All issues have been satisfactorily resolved.

Table 7: Correction Action Requests

| Ref. to the final PDD | Corrective Action Requests and Clarification Requests by the validation team on the basis of the draft PDD   | Summary of project owner response   | Validation team conclusion |
|-----------------------|--|---|----------------------------|
| Whole document.       | <p><b>Corrective Action Request 1:</b></p> <p>The English and grammar used in the PDD are weak and can be improved. Please seek assistance to check and where necessary improve the English and grammar.</p>   | The first version of the report was in poor English, but the project proponents considerably improved the English. The final version is clear and well developed and in good English.                 | Closed.                    |
| A.2.                  | <p><b>Corrective Action Request 2:</b></p> <p>In section A.2, the PDD makes reference to indicators for the assessment of the project's contribution to sustainable development stipulated by the Armenian Ministry for Nature Protection. The Armenian government has not published final criteria for the assessment of the contribution of CDM projects to sustainable development in Armenia, but is currently working on producing such criteria. Please explain where the criteria used in the PDD originate and why they are considered applicable.</p> | Chapter A.2 in the final version is comprehensive overview of the social environmental economical and policy criteria. The status of the draft sustainable development indicators has been explained. | Closed.                    |
| B.1                   | <p><b>Corrective Action Request 3:</b></p> <p>In section B.1.1, the project title is provided as a response: "Jradzor Small Hydroelectric CDM Project". The response to this section should be the title of the baseline methodology, not the title of the project. This is partly provided in the next line in the response, namely "Type I: Renewable Energy Projects", however this should also state "Type I.D..-Grid connected renewable electricity generation".</p>   | A correction has been made in the final version of the PDD. Section B.1 adequately describes the methodology used.  | Closed.                    |

|  |                         |
|--|-------------------------|
| Response to the request for review of the CDM Executive Board (EB); 1835 Jradzor Small Hydroelectric CDM project | Ref. no. : 01           |
| KPMG Sustainability B.V.   | Date : 4 September 2008 |



| Ref. to the final PDD | Corrective Action Requests and Clarification Requests by the validation team on the basis of the draft PDD   | Summary of project owner response  | Validation team conclusion |
|-----------------------|--|--|----------------------------|
| B.4; B.7.1            | <p><b>Corrective Action Request 4:</b></p> <p><i>Baseline operating margin</i></p> <p>The “Indicative simplified baseline and monitoring methodologies for selected small-scale CDM project activity categories” (the Methodology) outlines two options for data vintages for calculating the approximate operating margin emission factor and the weighted average emission factor:</p> <ul style="list-style-type: none"> <li>· Option 1:<br/>A 3-year average, based on the most recent statistics available at the time of PDD submission.</li> <li>· Option 2:<br/>The year in which project generation occurs, if emission factor is updated based on ex post monitoring.</li> </ul> <p>Please state explicitly which of these two options is chosen, and please state which year applies to the data for the initial baseline calculation used in the PDD (ie: for which year or year(s) are the specific fuel consumption figures of 380-400geqv/kWhe valid?).</p> | <p>In chapter B4 of the final version the choices made in relation to the baseline has been clearly explained.</p> <p>The project will use ex-post monitoring for determining the emission factors during the crediting period. For this purpose the relevant parameters of the grid have been included in chapter with monitoring parameters (B.7.1).</p> | Closed.                    |

|  |                         |
|--|-------------------------|
| Response to the request for review of the CDM Executive Board (EB); 1835 Jradzor Small Hydroelectric CDM project | Ref. no. : 01           |
| KPMG Sustainability B.V.   | Date : 4 September 2008 |



| Ref. to the final PDD  | Corrective Action Requests and Clarification Requests by the validation team on the basis of the draft PDD   | Summary of project owner response  | Validation team conclusion |
|--|--|--|----------------------------|
| B.6.1  | <p><b>Corrective Action Request 5:</b></p> <p><i>Baseline build margin</i></p> <p>The Methodology states that “The Build Margin emission factor is derived from a sample group which consists of either the five most recently built power plants or the power plant capacity additions in the electricity system that comprise 20% of the system generation and that have been built most recently. From these two options, project proponents are requested to use that sample group that comprises the larger annual generation.”</p> <p>The baseline calculation in the PDD does not show which sample group comprises the larger annual generation, and does not therefore show that sample group that comprises the larger annual generation has been used. Please specifically show this in the baseline.</p> | <p>A detailed description of the Operating Margin and the Build Margin has been included in chapter B.6.1 of the final version of the PDD. This chapter adequately describes the choice of power plants that will be included in the Operating Margin and in the Build Margin.</p>   | Closed.                    |
|  | <p><b>Corrective Action Request 6:</b></p> <p>Was equal to CAR4. and has been removed from the table.</p>  | Not applicable.  | Closed.                    |
| B.6.3  | <p><b>Corrective Action Request 7:</b></p> <p><i>Baseline build margin</i></p> <p>The build margin calculation in the PDD uses emissions intensity data for expected future capacity expansions for the periods 2008-2009/ 2012. If option 2 above is used, please explain the specific approach to updating the emission factor (for the first crediting period based on ex-post monitoring, and for subsequent crediting periods based on ex-ante monitoring) with reference to the expected future capacity expansions used in the calculation of the build margin.</p>   | <p>The final version of the PDD adequately describes how the ex-ante emission factor was calculated for the calculation of the forecasted emission reductions. A spreadsheet was provided to the validator with the actual calculation.</p> <p>The actual emission reductions during the crediting period will be based on the data from the ex-post monitoring of the grid emissions. This concept has been adequately described in the final version of the PDD.</p> | Closed.                    |
| Response to the request for review of the CDM Executive Board (EB); 1835 Jradzor Small Hydroelectric CDM project |  |  | Ref. no. : 01              |
| KPMG Sustainability B.V.   |  |  | Date : 4 September 2008    |



| Ref. to the final PDD | Corrective Action Requests and Clarification Requests by the validation team on the basis of the draft PDD  | Summary of project owner response   | Validation team conclusion |
|-----------------------|---|---|----------------------------|
| B.4; B.6.2; B7        | <p><b>Corrective Action Request 8:</b></p> <p>In section B2, the guidelines for the completion of the SSC PPD state “Please explain the basic assumptions of the baseline methodology in the context of the project activity. Provide the key information and data used to determine the baseline scenario (variables, parameters, data sources etc.) in table form.”</p> <p>Please add this explanation and table to this section.</p>   | <p>In the final version of the PDD in chapter B4 reference is made in table 1 to the data sources that will be used during the monitoring. Chapter B.6.2 describes the data and parameters that were available at validation and in chapter B7 the monitoring parameters have been defined. Therefore the PDD in its final form clearly describes the basic assumptions of the baseline methodology in the context of the project activity.</p> | Closed.                    |
| B.5                   | <p><b>Corrective action request 9:</b></p> <p>The PDD includes statements indicating that the project has had difficulty attracting financing. This is presented in the explanation for additionality in section B.3. of the PDD. Some of these statements are listed below. Please provide more detail to support these statement, including explanations of which other financial institutions (other than the EBRD) have been approached for financing, what the outcome of each of these approaches was.</p> <p>The relevant statements are as follows:</p> <p>“According to Armenian Banks information dept funding is not available for this type of innovative project activities”</p> <p>“It means that the company has to find another source of financing or to increase equity investment which is impossible for such projects considering difficulties with security sharing and lack of equity.”</p> <p>“[Armenian Banks] are not interested in crediting with terms over 2-3 years.”</p> <p>Please also add why the CDM overcomes the difficulty of financing.</p> | <p>The final version of the PDD adequately describes the financial/economical barriers in relation to the project. Supporting evidence was provided supporting the assertions (letters from banks and e-mail from the MCCF programme manager).</p>  | Closed.                    |

|  |                         |
|--|-------------------------|
| Response to the request for review of the CDM Executive Board (EB); 1835 Jradzor Small Hydroelectric CDM project | Ref. no. : 01           |
| KPMG Sustainability B.V.   | Date : 4 September 2008 |



| Ref. to the final PDD | Corrective Action Requests and Clarification Requests by the validation team on the basis of the draft PDD   | Summary of project owner response  | Validation team conclusion |
|-----------------------|--|--|----------------------------|
| B.5                   | <p><b>Corrective action request 10:</b></p> <p>In section B.3., a number of barriers are listed to the project development, for example “The head of the Water Resource Management Agency has too much authority” and “Another barrier is the vague procedure of obtaining property rights for the land”. Please consider the relevance of these barriers to the concept of Additionality. In particular, only include barriers in this section if the presence of the CDM process changes the characteristic of the barrier in such a way that with the CDM, the barrier is overcome.</p>   | <p>Chapter B5 of the final version of the PDD clearly describes the barriers focussing on the financial/economical barriers this specific project faced. Statements that could not be supported with evidence or did not have direct relevance to the additionality of the project have been removed.</p> <p>The text in the PDD was supported with documented evidence in the form of letters from banks.</p> | Closed.                    |
| B.5                   | <p><b>Corrective Action Request 11:</b></p> <p>At the end of section B.3., on the subject of Additionality, a conclusion is presented which includes the following statements:</p> <p>“[The CDM finance] ...will improve the financial attractiveness of the project.”</p> <p>“It will also increase the confidence of the Project’s developers and potential investors.</p> <p>“Without the presence of the CDM and the availability of carbon financing, the project would not overcome the mentioned barriers”</p> <p>Taking into account the corrective actions above, please provide a more detailed and specific explanation of why the project activity would not have occurred anyway due to at least one of the barriers listed in the simplified modalities and procedures for small-scale CDM project activities, for example the barrier of “financial resources”.</p> | <p>A clear description of the barriers and way these barriers impact the implementation of the project has been included in chapter B5 of the final version of the PDD..</p>   | Closed.                    |

|  |                         |
|--|-------------------------|
| Response to the request for review of the CDM Executive Board (EB); 1835 Jradzor Small Hydroelectric CDM project | Ref. no. : 01           |
| KPMG Sustainability B.V.   | Date : 4 September 2008 |





| Ref. to the final PDD | Corrective Action Requests and Clarification Requests by the validation team on the basis of the draft PDD   | Summary of project owner response   | Validation team conclusion |
|-----------------------|--|---|----------------------------|
| B.7.1; B.7.2          | <p><b>Corrective Action Request 12:</b></p> <p>Currently the monitoring plan as it appears in the PDD includes monitoring of the CO2 emission factor for the grid and the CO2 operating margin emission factor of the grid. The CO2 operating margin emission factor appears twice in the monitoring plan.</p>   | This has been corrected in the final version of the PDD.  | Closed.                    |
| B.6                   | <p><b>Clarification Request 1:</b></p> <p><i>Baseline data sources</i></p> <p>The calculation of the baseline includes the following information and data obtained from the Ministry of Energy:</p> <ul style="list-style-type: none"> <li>• “According to information provided by Ministry of Energy of Armenia and Armenian thermal power plants, specific fuel consumption is 380-400geqv/kWhe (380g of coal equivalent) and power plants own consumption (PPOC) is about 7-10% ((i.e. delivered electricity is app. 0,9-0.93 of the total generated electricity).”</li> <li>• “In accordance with Armenian Ministry of Energy the new thermal power plants will be more efficient in comparison with existing and specific fuel consumption will be about 320geqv/kWhe”.</li> <li>• “The thermal power units operating on natural gas have been assessed with a characteristic specific emission intensity of 0.562 t CO2 per MWhe or 562 t CO2/GWhe delivered.”</li> </ul> <p>Please explain the specific source (eg: official report, website or other form of communication) for this information, and include a reference to an official source of information as far as possible.</p> | This information from the first version of the PDD has been replaced with clearly referenced information and data included in the final version of the data and in the supporting spreadsheet provided to the validators. | Closed.                    |

|  |                         |
|--|-------------------------|
| Response to the request for review of the CDM Executive Board (EB); 1835 Jradzor Small Hydroelectric CDM project | Ref. no. : 01           |
| KPMG Sustainability B.V.   | Date : 4 September 2008 |



| Ref. to the final PDD | Corrective Action Requests and Clarification Requests by the validation team on the basis of the draft PDD   | Summary of project owner response   | Validation team conclusion |
|-----------------------|--|---|----------------------------|
| B.6.1; B.7.1          | <p><b>Clarification Request 2:</b></p> <p>In section B.4, it is stated that “as the transmission line reaches the Armenian Electricity Network (AEN), the AEN will also be included in the project’s boundary”. The project boundary encompasses the physical, geographical site of the renewable generation source according to AMS-I.D... Please clarify the statement about the AEN in the PDD, and in particular clarify which part of the Armenian Electricity Network will be included in the project boundary.</p>  | <p>The final version of the PDD clearly defines the baseline system that will be included in the ex-post monitoring by mentioning the specific units included in the system in chapter B.6.1. and by clear definitions of the monitoring parameters in chapter B.7.1.</p> | Closed.                    |
| B.6.1; B.7.1          | <p><b>Clarification Request 3:</b></p> <p><i>Baseline data sources</i></p> <p>The calculation of the baseline includes the following information on future electricity capacity expansions in Armenia:</p> <ul style="list-style-type: none"> <li>• a new 400 MW thermal power unit at Hrazdan TPP will be launched in 2008;</li> <li>• a new 215 MW unit at Yerevan TPP in 2008-2009;</li> <li>• small-scale hydro power plants (total app. 62 MW during 2007-2012);</li> </ul> <p>Please explain the specific source (eg: official report, website or other form of communication) for this information, and include a reference to an official source of information as far as possible.</p> <p>Please also explain the basis for the assumption of the power supply proportion of 62/615 referred to shortly after the above list.</p> | <p>The final version of the PDD clearly defines the baseline system that will be included in the ex-post monitoring by mentioning the specific units included in the system in chapter B.6.1. and by clear definitions of the monitoring parameters in chapter B.7.1.</p> | Closed.                    |

|  |                         |
|--|-------------------------|
| Response to the request for review of the CDM Executive Board (EB); 1835 Jradzor Small Hydroelectric CDM project | Ref. no. : 01           |
| KPMG Sustainability B.V.   | Date : 4 September 2008 |



| Ref. to the final PDD | Corrective Action Requests and Clarification Requests by the validation team on the basis of the draft PDD  | Summary of project owner response  | Validation team conclusion |
|-----------------------|---|--|----------------------------|
| D.1                   | <p><b>Clarification Request 4:</b></p> <p>It is understood that a new Environmental Impact Assessment Report for the Jradzor project will be available after June 2006, from the organisation "Expertise Environnement". Please refer to this and consider this in section F.1.</p> <p>In section F.1, it is also stated "The liquidation of small quantity of bushes (not being of interest) will be compensated by a new planting after the end of construction. The area will acquire its own ecologic indices it used to have in the past, if revegetation requirements of all soils will be carried out. A part of carbon finance will be used for this objective." Please explain this more clearly.</p>  | <p>Compared to the first version of the PDD the final version (chapter D1) describes what the main environmental characteristics more clearly together with the legal approval process followed according to the Armenian Law.</p> | Closed.                    |
| C.1.1; C.2.2.1        | <p><b>Clarification Request 5:</b></p> <p>Please consider whether the dates listed in section C.1.1 and C.2.2.1 are still valid and amend them if necessary.</p>  | <p>The correct dates have been mentioned in the final version of the PDD.</p>  | Closed.                    |
| D.1.                  | <p><b>Clarification Request 6:</b></p> <p>In section F.1, please provide more detail on how the environmental impacts will be addressed, referring to specific findings in the EIA. The PDD states that "These factors are taken into consideration and corresponding measures are envisaged to avoid any environmental issues concerning hydropower plant construction and exploitation."</p> <p>Please explain what measures are envisaged and the specific status of these measures, for example whether there are specific plans to implement them and what the time frame for these plans is. Please consider in particular measures for fish passes (to minimise impact on fish in the river) and measures to maintain minimum flows in the river (please specify the minimum flow that will be maintained, and how this will be achieved).</p> | <p>The final version of the PDD accurately describes the process followed to acquire approval from the Armenian Ministry of Environmental Protection and the measures to be taken.</p>   | Closed.                    |

|  |                         |
|--|-------------------------|
| Response to the request for review of the CDM Executive Board (EB); 1835 Jradzor Small Hydroelectric CDM project | Ref. no. : 01           |
| KPMG Sustainability B.V.   | Date : 4 September 2008 |



| Ref. to the final PDD | Corrective Action Requests and Clarification Requests by the validation team on the basis of the draft PDD   | Summary of project owner response  | Validation team conclusion |
|-----------------------|--|--|----------------------------|
| D.1                   | <p><b>Opportunity for Improvement 1:</b></p> <p>From clarification request 6 above, consider including regular monitoring of the water flow in the river in the monitoring plan to provide a record that a minimum water flow has been maintained for environmental reasons.</p>   | The measures that will be taken by the project proponents to ensure sufficient water to meet the legal requirements have been described in chapter D1 of the final version of the PDD. | Closed.                    |
| D.1                   | <p><b>Opportunity for Improvement 2:</b></p> <p>The monitoring plan includes the electricity generation of the plant measured hourly, which will also indicate when the plant is operating and when it is not. As an additional check, consideration could be given to separate monitoring of the operating time and downtime (eg: for maintenance) of the plant, for cross-checking against the electricity output.</p> | Separate monitoring of downtime will be carried out as part of plant operation.  | Closed.                    |
| D.4.                  | <p><b>Opportunity for Improvement 3:</b></p> <p>The word “qualified” used in section D.4. is not appropriate in this context. Consider using another word.</p> <p><b>Additional Corrective Action Requests</b></p>   | The relevant section was re-written in the revised PDD.  | Closed.                    |
| Annex 1               | <p>PDD Annex I lists contact details for the company "Energocor" Ltd., which does not appear to be an authorized participant in this project. Please provide revised documentation including only authorized participants in this section.</p> <p>Please provide confirmation that the project participants will not commence the crediting period prior to registration.</p>  | The name of Energocor Ltd has been removed from the PDD in the final version.  | Closed.                    |
| C.1; C.2              | The dates in chapter C are not in the right format (DD/MM/YYYY). Please modify this.   | The project proponents confirmed to us in writing that the crediting period will not start prior to registration.  | Closed.                    |
|                       |  | Latest version contains dates in the right format  | Closed                     |

|  |                         |
|--|-------------------------|
| Response to the request for review of the CDM Executive Board (EB); 1835 Jradzor Small Hydroelectric CDM project | Ref. no. : 01           |
| KPMG Sustainability B.V.   | Date : 4 September 2008 |