

# Response to the Request for Review for the CDM project activity



UNFCCC Secretariat  
Attn. CDM Executive Board  
Martin-Luther-King-Straße 8  
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Germany

## **Response to the Request for Review for the CDM project activity “Tucuruí-Macapá-Manaus Electrical Interconnected grid” (for simplicity hereafter referred to simply as the “LT-Amazonas Project”) (Ref. no.: 9051)**

2014-07-29

Dear UNFCCC Representative,

The DOE TÜV Rheinland (China) Ltd. was informed on 03 July 2014 that the request for registration of CDM project activity *“Tucuruí-Macapá-Manaus Electrical Interconnected grid” (for simplicity hereafter referred to simply as the “LT-Amazonas Project”)* (Ref. no. 9051), has a Request for Review.

In this submission, we would like to provide our response to the issue raised.

We are confident that the present explanation will demonstrate that all applicable guidelines and regulations were duly applied in the validation of the project activity taking in consideration the issue raised and the conservative approach during the validation audit process.

Yours sincerely

A handwritten signature in black ink, appearing to read "Henri Phan", with a stylized flourish at the end.

Mr. Henri Phan  
DOE Manager  
TÜV Rheinland (China) Ltd.

## **1. Issue raised**

The DOE shall further validate the calculation of grid emission factor for the previously isolated grids (EFisol\_grid,CM) in line with the applied methodology AM104, version 1 and the “Tool to calculate the emission factor for an electricity system version” version 2.2.1, page 17. In particular, the DOE shall explain why the method of simplified combined margin (CM) is considered applicable to the proposed project activity given that the proposed project activity is not located in a LDC or in a country with less than 10 registered CDM projects at the start date of the validation. Please refer to AM104 version 1, Tool to calculate the emission factor for an electricity system version 2.2.1, paragraph 96 - 98 of VVS version 2.0.

### **1.1. Requirements**

#### **1.1.1. Clean development mechanism validation and verification standard (version 02.0)**

7. Algorithms and/or formulae used to determine emission reductions

##### Validation requirements:

Paragraph 96. *The DOE shall determine whether the steps taken and the equations and parameters applied in the PDD to calculate project emissions, baseline emissions, leakage and emission reductions comply with the requirements of the selected methodology including applicable tool(s).*

##### Means of validation:

Paragraph 97. *Where the methodology allows for selection between options for equations or parameters, the DOE shall determine whether adequate justification has been provided (based on the choice of the baseline scenario, context of the proposed project activity and other evidence provided) and that the correct equations and parameters have been used, in accordance with the methodology selected8 including applicable tool(s).*

Paragraph 98. *The DOE shall verify the justification given in the PDD for the choice of data and parameters used in the equations. If data and parameters will not be monitored throughout the crediting period of the proposed project activity but have already been determined and will remain fixed throughout the crediting period, the DOE shall determine whether all data sources and assumptions are appropriate and calculations are correct as applicable to the proposed project activity, and will result in an accurate or otherwise conservative estimate of the emission reductions. If data and parameters will be monitored or estimated on implementation and hence become available only after validation of the project activity, the DOE shall determine whether the estimates provided in the PDD for these data and parameters are reasonable.*

#### **1.1.2. AM0104 “Interconnection of electricity grids in countries with economic merit order dispatch” (version 1.0.0)**

##### Baseline emissions

*Baseline emissions shall be determined based on (i) the net quantity of electricity generated in the main grid and delivered to the previously isolated grid as a result of the project activity, (ii) the quantity of electricity transferred from the previously isolated grid to the grid(s) other than the main grid and (iii) the emission factor of the previously isolated grid, calculated ex ante using the latest version of the “Tool to calculate the emission factor for an electricity system”.*

### **1.1.3. “Tool to calculate the emission factor for an electricity system” (version 2.2.1)**

#### II. Baseline methodology procedure

*Project participants shall apply the following six steps:*

- STEP 1. Identify the relevant electricity systems;*
- STEP 2. Choose whether to include off-grid power plants in the project electricity system (optional);*
- STEP 3. Select a method to determine the operating margin (OM);*
- STEP 4. Calculate the operating margin emission factor according to the selected method;*
- STEP 5. Calculate the build margin (BM) emission factor;*
- STEP 6. Calculate the combined margin (CM) emission factor.*

*Step 6: Calculate the combined margin emissions factor*

*The calculation of the combined margin (CM) emission factor ( $EF_{grid,CM,y}$ ) is based on one of the following methods:*

- (a) Weighted average CM; or*
- (b) Simplified CM.*

*The weighted average CM method (option A) should be used as the preferred option. The simplified CM method (option b) can only be used if:*

- *The project activity is located in a Least Developed Country (LDC) or in a country with less than 10 registered CDM projects at the starting date of validation; and*
- *The data requirements for the application of step 5 above cannot be met.*

### **1.2. Related information in the submitted PDD (version 06.2)**

On section ‘B.6.3. Ex ante calculation of emission reductions’ (page 34) is stated that the baseline emission factor of the isolated system is calculated as the generation weighted average emissions per electricity unit (tCO<sub>2</sub>/MWh) of all generating units (hydro and fossil fuel power thermal plants), considering the energy generation and the fuel consumption in the isolated system using publicly available data by ELECTROBRAS (entity responsible for the Brazilian Isolated Grid Dispatch and Control Center) for the most recent three years. Also it is mentioned that taken into account the Step 6 of the “Tool to calculate the emission factor for an electricity system”, the combined margin emission factor is based on the simplified CM method, since the data requirements for the application of Step 5 (calculate the build margin emission factor) cannot be met for the isolated system due to the lack of public available information in the isolated system.

### **1.3. Related information in the submitted Validation Report (version 03.2)**

On section ‘3.4.4 GHG Emission Reductions’, pages 24 and 25 of the Validation Report, it is stated the steps applied to the calculation of the emission factor of the isolated grid, as follows:

- Step 1: Identify the relevant electricity systems.  
SISO Amazonas – Amapá grid means isolated grid and was used for the calculation using 2008 – 2011 vintage.

- Step 2: Choose whether to include off-grid power plants in the project electricity system (optional)  
Option 1 is selected, only grid power plants are included in the calculation.
- Step 3: Select a method to determine the operating margin (OM)  
The simple OM was selected and applied.
- Step 4: Calculate the operating margin emission factor according to the selected method  
Source of values for the calculation of the simple OM of the isolated grid ex-ante were correctly included in the spreadsheet and links and sources (ELETROBRAS: <http://www.eletrabras.gov.br/ELB/data/Pages/LUMISF81A08D1PTBRIE.htm>.) were traceable (reference /46/).
- Step 5: Calculate the build margin (BM) emission factor  
This section could not be applied as the grid is an isolated one.
- Step 6: Calculate the combined margin (CM) emission factor.  
As the BM is not calculated, the value of  $EF_{isol\_grid,CM} = EF_{isol\_grid,OM}$ .

#### 1.4. TÜV Rheinland's response

1. The project activity has been validated under the approved baseline and monitoring methodology AM0104 (version 01.0.0) which refers to the latest approved versions of the "Tool for the demonstration and assessment of additionality" and "Tool to calculate the emission factor for an electricity system", when in strict terms the "Tool to calculate the emission factor for an electricity system" (version 2.2.1) is developed for connected electricity systems and did not take into account isolated systems.
2. Considering the above and that the purpose of the project activity is the expansion of the Brazilian interconnected grid to isolated systems in the Brazilian states (Pará, Amazonas and Amapá), it was not possible to calculate the build margin emission factor, due to the procedure defined in step 5 could not be adapted to isolated system (project activity case) and mainly because there was no data available to calculate it.
3. According to the Tool, only one condition to apply the Simplified CM calculation method is achieved: *"the data requirements for the application of step 5 above cannot be met"*; therefore, step 6 was also calculated having in mind the above mentioned threshold for the BM calculation. The rationale of the Validation team to accept this approach is that:
  - (i) the combined margin emissions factor depends of the calculations of build margin emission factor and operating margin emission factor and
  - (ii) one of the factors is not possible to calculate (build margin), then the data requirements for the application of step 5 cannot be met, therefore, there is no possible to estimate the  $EF_{grid,BM}$  and  $EF_{grid,CM,y}$  was calculated through the method of Simplified CM (page 19 of the Tool).
4. Project Participants and DOE point out that during PDD writing and audit process, the usage conditions of the Simplified CM stated on the "Tool to calculate the emission factor for an electricity system" (version 2.2.1) is not applicable for isolated grids, therefore PP's information provided for the calculation of the Simplified CM, considers for a flexible approach and could satisfies the usage of the commented tool.
5. The validation team also highlight that after the submission of the project to validation (December 2012), the Public Federal Utility responsible for the operation and planning of the isolated systems (Eletrobras), started to publish information allowing the calculation of weighted average CM emission factors. Nevertheless only information from May 2011 onwards is available<sup>(1)</sup>. Based on interviews to the PP that previously

contacted Eletrobras' Director responsible for the isolated system, it was confirmed that today is mandated by the ANEEL (National Electric Energy Agency) to provide information, however the data before 2011 is not available as was verified by the validation team through the Eletrobras web page<sup>(1)</sup>.

In conclusion, the DOE TÜV Rheinland has the certainty that a conservative approach is reached using the Simplified CM due to the lack of available information to calculate the BM.

*References:*

- (1) *Information related to Isolated Systems for Brazil, Eletrobras web page:*  
<http://www.eletrobras.com/elb/data/Pages/LUMISF81A08D1PTBRIE.htm>

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