

QUALITY CONTROL (QC) REPORT

Sector	Energy generation, distribution and consumption
Name of DNA	Secretaría de Energía, Recursos Naturales, Ambiente y Minas (SERNA / MiAmbiente)
Primary Person Responsible for QC Procedures	Mr. José Antonio Galdámes Secretary of State Secretaría de Energía, Recursos Naturales, Ambiente y Minas Address: 100 metros al sur del Estadio Nacional Tegucigalpa, Honduras Mail1: despacho@miambiente.gob.hn Mail2: spalacios@miambiente.gob.hn +504 22321828
Contact of the Primary Person Responsible	Mr. Jesús Arturo Mejía Arita (General Manager) Empresa Nacional de Energía Eléctrica, ENEE
Implementation Dates of QC Procedures	From the date of adoption of standardized baseline.
Please describe how your QC procedures were implemented	
<p>Honduras's DNA is represented by the national entity "SERNA"¹ while the energy sector is managed by the national entity Empresa Nacional de Energía Eléctrica (ENEE)².</p> <p>SERNA / MiAmbiente was founded in 1955 and is responsible for the formulation, coordination and evaluation of policies related to the protection and use of water resources and renewable energy sources and everything related to the generation and transmission energy as well as mining and exploration and exploitation of hydrocarbons activity concerning coordination and evaluation of policies related to the environment, ecosystems, national system areas protected natural and national parks and protection of flora and fauna as well as research services and control of pollution in all its forms.</p> <p>ENEE was created on February 20, 1957 as an autonomous body responsible for production, marketing, transmission and distribution of electricity in Honduras, including state owned and private power plants.</p> <p>Interaction between DNA (SERNA) and ENEE - The information on electricity generation and fuel consumption was obtained from ENEE and communicated to the DNA to calculate the emission factor, to comply with the QA/QC requirements. The DNA has reviewed the data used for the grid emission factor calculation and the data management procedures implemented by ENEE in order to secure the traceability, completeness and correctness of the used data (further details are described below). It is important to mention that as part of its annual report, the DNA (SERNA) requests the statistics related to electricity generation, fossil fuel consumption, etc. (this is an existing practice).</p>	

¹ SERNA website <http://www.miambiente.gob.hn/>

² ENEE website <http://www.enee.hn/index.php/>



Table: 1 Key data parameters involved in the grid emission factor calculation

<i>Data</i>	<i>Source</i>	<i>Method of Cross checking</i>
Annual electricity generation per power plant	ENEE – Operation Division	Against historical (e.g. electricity generation, fossil fuel consumption, Plant efficiency) data and official published data
Total annual electricity generation	ENEE – Operation Division	
Total fuel consumption	ENEE – Operation Division	
NCV	IPCC 2006	-
CO ₂ Fuel emission factor	IPCC 2006	-

Electricity generation and fossil fuel consumption monitoring and reporting –

Honduras's national grid includes power plants owned by ENEE and privately owned, which are required to monitor the electricity generation and fuel consumption on daily basis using excel databases.

Table 2: Type of electricity generators connected to the Honduran national grid:

Technology	Type of producer	ENEE's Division responsible to record the electricity and fossil fuel consumption
Thermal	Private and ENEE	Operation Division
Hydroelectric	Private and ENEE	Operation Division
Biomass	Private and ENEE	Operation Division
Wind and Photovoltaic	Private	Operation Division

On monthly and annual basis, the electricity generation and fuel consumption are reported to the Operation Division of ENEE by all the power plants connected to the grid. The data is submitted in excel data bases. ENEE estimates the power plant efficiency and compares the data against the historical data to see the trend. ENEE creates its own data bases using the received data.

Private generators are also required to report in monthly basis the electricity generation and fossil fuel consumption to the National Dispatch Center (which belongs to ENEE and manages the grid operation).

ENEE through the National Dispatch Center, monitors and keeps records of the imported electricity.

Quality control of the reported data -

In conjunction with the National Dispatch Centre, ENEE verifies the validity of the electricity generation data (e.g. in the case of private generators) and the values to be reported are agreed between the ENEE and the private generators (if necessary, ENEE checks the on-site electricity meters to confirm the data provided). For ENEE's power plants, the electricity generation and fossil fuel consumption are available for each of the power plants.



The Operation division reports the electricity generation and fossil fuel consumption to the Contract Division, which reviews this data for commercial purposes. Further, the Planning division also reviews the data before it is sent to the Managers and directors and before it is published in ENEE's website.

Table 3: ENEE data management

Institution/Organization	Functions	Reporting line	Type of data	Recording frequency
Operation Division/ENEE	Receives, generate and validate	Generates and sends the report to the Planning division and other relevant units	Compiles the data related to the electricity generation and fossil fuel consumption.	Monthly / Annual
Contracts Division/ENEE	Verified the data, requests the invoices and informs other involved units	Reports to the Administrative and Finance division	Compiles the data related to the electricity generation and fossil fuel consumption and requests the invoices.	Monthly / Annual
Planning Division / ENEE	Receives and reviews the data from Operation division and Contracts divisions, and publishes the data	Reports to deputy managers, managers and Directors	Compiles the data related to the electricity generation and fossil fuel consumption and requests the invoices.	Monthly / Annual

ENEE processes the generated electricity and fossil fuel consumption data in a transparent and accurate way, since these are used to calculate the power plants efficiencies and to operate adequately the national grid. Further, the amount of reported electricity supplied to the grid has to be accurate for commercial reasons (e.g. for bills payments to private generators).

On annual basis, SERNA (DNA) requests ENEE the data related to the electricity generation and fossil fuel consumption; SERNA then compiles the information to publicly report the offer and demand of electricity. Further, the annual statistics are reported by ENEE to the National Institute of Statistics (INE)³ and to the Central Bank of Honduras.

Data recording and data storage:

All monitored data is kept electronically and is permanently maintained by ENEE.

ENEE keeps records and made publicly available the following data:

³ INE website: <http://www.ine.gob.hn/>

For each power plant connected to the grid:

- Identification/location
- Commissioning dates of power plants (commercial)
- Type of technology
- Type of fuel consumed
- The net amount of electricity generated
- The consumption of each fuel type

The data involved in the grid emission factor is publicly available at ENEE website as part of the National Transparency Law⁴, except for the fossil fuel consumption from the private generators which is considered as confidential, therefore, this information is not published in any website. However, the DNA has accessed to this through ENEE.

ENEE publishes its annual reports per year since 2005. The historical data used for the grid emission factor includes 2012, 2013 and 2014.

The DNA will kept records of the following documents:

- Data used to calculate the grid emission factor
- Grid emission factor calculations
- Quality control report
- DOE validation report
- Standardized baseline submission form (CDM-PSB-FORM)

The DNA will kept the data involved in the grid emission at least during a period of 3 years and in such a way that allow for the reproduction of the calculation of the grid emission factor.

Electricity meters are calibrated in accordance with ANSI-NEMA standards. ENEE has internal procedures to carry out and control the electricity meters calibration.

Please specify how the credibility of the data sources was checked.

All data sources were cross referenced against the official Statistics/annual reports published officially by ENEE.

Private generators and ENEE make their reporting and comparisons to check all aspects of generation, fuel consumption and commercial transactions. In conjunction with the National Dispatch Centre, ENEE verifies the validity of the electricity generation data (e.g. in the case of private generators) and the values to be reported are agreed between the ENEE and the private generators. For ENEE's power plants, all data related to electricity generation and fossil fuel consumption under its control and is available.

The data is considered as credible since it is also reported to other Honduras' entities such as National Statistic Institute (INE) and Honduras's Central Bank.

⁴ National Transparency Law 2006: <http://www.ccit.hn/wp-content/uploads/2013/12/LEY-DE-TRANSPARENCIA-Y-ACCESO-A-LA-INFORMACION1.pdf>



In addition, as part of Honduras's National Transparency Law, annual reports are publicly available after one year of the end of the reporting period. The DNA has confirmed that the latest available data has been applied in the grid emission factor calculation.

A workshop was held in Tegucigalpa, Honduras, on the 27th and 28th of April 2016 by ENEE, SERNA and UNFCCC Regional Collaboration Centre Bogota. Representatives of ENEE, SERNA and private sector attended the workshop, which provided the guidelines to develop the standardized baseline for the electricity sector. Improvement opportunities were identified on the data management system processes and procedures, however, no major concerns were raised.

Please specify how the accuracy of the data was checked.

Accuracy:

Data quality problems, such as relevance, completeness/comprehensiveness, consistency, credibility, correctness, accuracy etc. are more likely to happen with primary data sources. In this calculation, a secondary source of data (from the DNA's point of view) has been used as it is sourced from publicly available in the annual reports published by ENEE.

Relevance:

The key data used for the grid emission factor calculation is relevant. Both electricity generation and fuel consumption data are collected from ENEE. NCV and fuel emission factor are sourced from IPCC's 2006 Guidelines.

Completeness/Comprehensiveness:

DNA assures that the completeness of the data as data available is sufficient for the calculation of the grid emission factor. Generation data for 2012, 2013 and 2014 were accessed; generation data from 2010-2014 were also used to establish low-cost must run plants.

Credibility:

ENEE officially publishes the electricity generation for all power plants, imported electricity and the fossil fuel consumption of ENEE's power plants in its annual reports since 2005 which are available at: <http://www.enee.hn/planificacion/2015/EstadisticasAnuales2014/index.html> (see files Cuadro 6 and Cuadro 35). The DNA has carried out checked the values applied in the grid emission factor with the publicly available data.

Please specify how the consistency was achieved and how the data vintage provision was met.

Consistency:

A consistency check has been done by the DNA by comparing the data dated 2012 to 2014 against previous historical data and it did not find significant changes or unexpected trends.

Correctness:

The DNA has confirmed that the most recent three-year (2012 – 2014) data at the time of calculation were used. The latest data/ report available are for 2015.
(see: <http://www.enee.hn/planificacion/2015/EstadisticasAnuales2014/index.html>)

Please specify how the completeness was achieved.

- Calculations follow the requirements of the approved methodological tool "Tool to calculate the emission factor for an electricity system" (Tool) Version 05.0, which is the latest available version.



- Calculations have been carried out using approved the excel tool "Table to calculate the emission factor for an electricity system (version 03.0.0)" (the latest available).

- Commissioning date for all power plants is available.

- When the fossil fuel consumption of any power plant was not available, the default efficiency and option A2 of the tool has been applied.

-No missing data regarding to electricity generation was found in the published information.

Please specify how the transparency was achieved.

Transparency:

The data used for the grid emission factor calculation, such as electricity generation, imported electricity, fossil fuel consumption (ENEE's plants), type of technology, type of fossil fuel and commission date, is published by ENEE in accordance with the National Transparency Law. The data related to the NCV and CO₂ Fuel Emission factor is sourced from the IPCC 2006 default values.

Traceability:

All data sources are publicly available, so the emission factor calculation can be replicated and can be verified by an external/third party.

Objectivity:

Private generators and ENEE make their reporting and comparisons to check all aspects of generation, fuel consumption and commercial transactions. In conjunction with the National Dispatch Centre, ENEE verifies the validity of the electricity generation data (e.g. in the case of private generators), and the values to be reported are agreed between the ENEE and the private generators. For ENEE's power plants, all data related to electricity generation and fossil fuel consumption are under its control and it is available.

Security:

The only confidential information is the fossil fuel consumption from private generators. This information has been treated in accordance with applicable Honduran data confidentiality laws/regulations.

Please specify major issues and uncertainties identified during the QC procedures.

It is not applicable since the data used in the calculation is quoted from publicly available annual reports from ENEE.

Please specify major corrective actions taken during the QC procedures.

N/A

Please justify the conservativeness of the approaches taken during the QC procedures.

- When the fossil fuel consumption of any power plant was not available, the default efficiency and option A2 of the tool has been applied.
- Imported electricity has been considered as Low-cost/must-run power plants as per the definition provided by the tool.
- Off grid power plants are not included for the grid emission factor
- Where several fuel types are used in the power unit, the fuel type with the lowest CO₂ emission factor for EFCO_{2,m,i,y} has been applied



Please summarize key findings and present a plan to improve the data quality in the future.

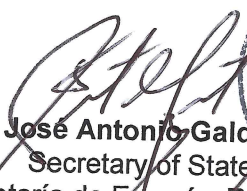
- Improve the communication among ENEE and electricity generators (private and ENEE's-owned)
- Create a friendly user form to collect the data
- Improve the methodology related to management data

The DNA of Honduras hereby confirms that it has followed and ensured compliance with the data quality objectives described in the "Guideline for Quality assurance and quality control of data used in the establishment of standardized baselines" version 2.

Date to finalize this report

08 February 2017

Signature of DNA


Mr. José Antonio Galdames
Secretary of State
Secretaría de Energía, Recursos
Naturales, Ambiente y Minas

