

**Procedures for Data Gathering, Quality Control and Quality Assurance for the  
Standardized Baseline**

**“Emission factors for the electricity grid systems in the Gambia”**

Ver. 01.0

05/11/2014

1. Background

The electricity network of Gambia consists of one Central Grid and six regional grids which are not interconnected. The plants in the regional grids are owned and operated by NAWEC (National Water and Electricity Company). In the Central Grid, in addition to NAWEC operated power plants, there are also Independent Power Producers (IPP).

All data required for the completion of the standardized baseline for the electricity grid system in The Gambia is collected and processed by NAWEC and IPPs and submitted to the DNA of The Gambia for data review and aggregation.

2. Data delivery protocol

The DNA of The Gambia sends every year a request to NAWEC and IPPs for providing the data required for the grid emission factor calculations for all grids in the country. Whenever an IPP does not provide the data required, the data are requested from NAWEC in its capacity of a transmission and distribution network operator. As part of the first submission, a three-year data vintage (2010 – 2012) was collected simultaneously in 2013. No data for fuel consumption and electricity generation is required for the regional grids. The data request constitutes on its own a data delivery protocol, as described in Appendix 1 of “Guideline: Quality assurance and quality control of data used in the establishment of standardized baselines”. The data are collected according to a specified data format (see Attachment 1), thus, for each generation facility, the generators should provide the amount of electricity used, fuel consumption per type of fuel, installed capacity and year of commissioning. Data on NCV and Emission Factors are not locally available, so this is not included in the data request. The data request also contains information on the units in which the data should be reported, as well as the data vintage. Further instructions concerning the collection of the raw data and its processing are generally not provided, as generators already have in place internal QC/QA procedures as described below.

All raw data is provided by the individual power plants. The data collection process for each parameter is described below:

- ✓ Electricity generation is measured using calibrated and certified meters located at the exit point of each plant (i.e. the point of connection with the grid). The meters are used for metering the electricity supplied to the grid and the readings are the basis for the payment that each generation plant receives from NAWEC. The installed meters should have a minimum accuracy class 0.5 and are calibrated at least every five years or replaced.
- ✓ Fuel consumption data are measured using scales. The annual consumption is established by taking inventory at the beginning and end of each year and the fuel purchase data through the year.

The raw data for all parameters are reviewed by the DNA and aggregated on an annual basis. The annual review preparation involves a thorough review of the entire data set for consistency and accuracy.

The data received from NAWEC and IPPs is screened by the Gambian DNA and its technical experts. The data are compared against data from previous years. In case, in the process of review, any inconsistencies are identified, e.g. typos, too high or too low efficiency of electricity generation, etc., further clarifications are requested from the generation companies. Once the data set is confirmed, it is sent back to generation companies for final review and clearance, based on which the data is formally approved for use in the preparation of the standardized baseline.

### 3. Quality Control Process

#### 3.1 Please describe how the credibility of the data sources was checked

The data sources are NAWEC and the IPPs which possesses full, complete, accurate and traceable information of their operations.

#### 3.2 Please specify how the accuracy of the data was checked.

The accuracy of the data is checked at two steps. Firstly, NAWEC checks the data received from the individual plants for consistency and accuracy. The same internal procedure is performed by IPPs against their internal records. It has to be noted that the level of accuracy for fuel consumption and electricity generation data is high, as these data are used as a basis for commercial transactions and are confirmed by invoices.

At the second step, the data is checked again by the experts of the Gambian DNA, especially against data from previous years and clarifications are sought in case there are any issues identified with the data accuracy.

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

The data for each year are gathered in exactly the same format and is subject to the same reporting requirements as specified in the original data request by the DNA to NAWEC and the IPPs (the data delivery protocol). This allows the data to be updated at regular intervals (annually), so that it can be traced and can be comparable over time.

The data is reported on an annual basis (January 1 – December 31) for each year, which allows the required data vintage provisions to be met. The data are usually released with a six-month to one-year delay due to the need of processing and checking for consistency of all the data from individual power plants.

3.4 Please specify how completeness was achieved.

The data delivery protocol requires NAWEC and IPPs to report on all existing grid connected power plants. In this way, the potential risk of not reporting, omitting any of the generation facilities is minimized.

3.5 Please specify how the transparency is achieved.

The data is publicly available and the DNA has attracted experts and stakeholders on a regular

basis to provide their feedback of the data gathering process, as well as calculation of the grid emission factors.

3.6 Please specify issues and major uncertainties identified during the data gathering process.

The data for NAWEC operated plants comes from one source and the level of uncertainty is extremely low. There is medium uncertainty for the data from IPPs, but this is managed by double-checking the data records against data from previous years, or if necessary, against electricity purchase data from NAWEC.

3.7 Please specify the major corrective actions taken during the QC procedures.

No specific corrective actions were required.

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

The QC approach is conservative as it insures the quality of data collection both at the pre-submission and the post submission period. Measuring equipment is calibrated as per Gambian Standards or when not feasible, replaced. In the data delivery protocol, the following requirements are further clearly stated:

- **purpose of the data collection:** calculation of the grid emission factor and establishment of a standardized baseline;
- **data types:** templates, units and formats are clearly specified;
- **data acquisition procedures:** as there are already existing data acquisition procedures within NAWEC and IPPs that generate high quality data sets in line with the monitoring requirements of the Tool and the AMS-I.F., the DNA specified only that the existing procedures should be strictly followed without making any additional requirements;
- **traceability:** NAWEC and IPPs are required to provide references in case data not directly acquired from the individual plants is used;
- **delivery requirements:** the data for each specific year is delivered to DNA within the shortest possible period after NAWEC and IPPs finish the internal data processing for a

particular year;

- **confidentiality:** the received raw data is publicly available.

Upon the data receipt, it is checked whether:

- all generation facilities are included (checked against publicly available lists of operating power plants);
- the reported data is for the specific vintage period;
- whether all data sources are documented accurately;
- whether reference materials are available for traceability;
- how the data source quality has been assessed (the data for electricity sales to the grid and fuel purchases are based on commercial transactions);
- whether the level of aggregation is appropriate and consistent with the data acquisition procedures specified in the delivery protocol.

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

No major findings were identified as part of the quality control procedure. However, the procedure will be improved in line with any changes in the procedures and requirements for establishment of standardized baselines.