Standardised Baseline Grid Emissions Factor for Belize's National Power grid



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The CDM in Belize

- Belize ratified the Convention in 1994 and the Kyoto Protocol nine years later (in 2003).
- Capacity building for CDM facilitated by EU-UNEP Project-\$129,000 USD- implementing agency- UNEP DTU Partnership.
 - Establishment of the DNA in the Ministry of Natural Resources and the Environment
 - Formulate the CDM Legal Framework
 - ➢ Prepare CDM Review process

Background to Belize's electricity sector

- Approximately 60% of electricity is generated from renewable energy sources
- 27.6% of electricity used is imported from Mexico (Federal Electricity Commission of Mexico (CFE)
- About 16% is generated for own use



Belize's electricity sector Cont'd

- The grid is managed by the state-owned Belize Electricity Limited (BEL) which also controls the distribution and transmission of the electricity.
- Several independent power producers (IPP) sell part of their electricity to the grid.
 - ➢ Belize Aquaculture Limited (BAL),
 - Belize Cogeneration Energy Limited (BELCOGEN)
 - ▶ Belize Electric Company Limited (BECOL).
- BAL generates its electricity with a heavy fuel oil powered turbine
- All remaining IPPs generate their electricity by means of renewable resources (hydro or biomass).

Challenges to CDM projects

- Grid Emissions Factor very low when considering energy produced only in Belize
 - ➢ Practically Zero

➢ High share of renewable sources in the electricity generation mix

• Poses great challenges for CDM project proponents whose projects help to reduce the country's GHG emissions.

Demonstrating additionality

Accessing the carbon market for additional revenues

• Serves to significantly discourage investments in CDM

Developing the Standardised baseline

- The DNA of Belize requested the development of a standardised baseline for the joint Grid Emissions Factor by the UNEP DTU in 2011
 - ➤ Using new methodology which produces emissions factor from net electricity imported and electricity produced.
- Led to an increase in the Grid Emissions Factor above zero because of the high amount of electricity coming from Mexico.
- Standardised baseline for the Grid emissions factor- 0.6556 (tCO2/MWh). This was completed in February 2012.

Gaps/Challenges

- The Secretariat found gaps related to the compliance of submitted data with the 'Guidelines for quality assurance and quality control of data used in the establishment of standardized baselines".- September 24th, 2013
- UNFCCC requested that the DNA:
 - Provide complete reference data
 - Provide additional and/or corrected documents if these are needed to provide clarification
 - Update the CO2 emission factor for Belize by using the annual CO 2 emission factors for the Mexican Electricity System
 - Define project electricity system using a delineation of the project electricity system provided by the DNA.

Corrective action taken

- UNEP DTU and RCC St. George's provided technical advice and support
 - Submission of official document stating that the data on electricity generation and fuel consumption is valid.
 - Confirm that the information is factual, and the procedure used to collect it.
 - >Addressed technical issues
- Letter of validation submitted by the CEO of the Ministry of Energy, Science and Technology and Public Utilities.

Updating of standardised baseline for electricity sector

- Update currently being carried out based on figures of electricity generation and fuel consumption in Belize from 2014 to 2018.
 - Data provided on imports from Mexico between 2014 and 2018
 - Grid Emission Factors provided for electricity consumption from Comisión Federal de Electricidad (CFE), Mexico for the timeline 2014 – 2019.
 - Data provided regarding electricity generation, fuel consumption and load curves for 2014 to 2018

Standardised baseline: Transport Sector

- In 2016, a request was made to the CDM Executive Board to develop a Top-Down Standardized Baseline.
 - Needed for development of transport NAMA
 - Funding sourced from Japan-Caribbean Climate Change Partnership (JCCCP) and in-kind support from the Ministry of Fisheries, Forestry, the Environment and Sustainable Development.
- In 2017, approval given by CDM Executive Board under the condition that the UNFCCC will provide technical and procedural support for the DNA.

Standardised baseline: Transport Sector

- Baseline study for public land transportation system carried out to collect:
 - Data on the number of licensed buses and taxis inclusive of inter-city buses and "busitos".
 - Detailed information on buses and taxis imported/registered during the last 5 years.
 - Information on fuel consumption of buses and taxis in miles per gallon.
 - Distances travelled per bus and taxi by year.
 - Number of passengers travelling in the various vehicles used for public transport.
 - Mileage data on various means of public transportation

Challenges and data gaps

- Challenges
 - Data is scattered through 9 different municipalities
 - There is no central database of vehicle registration and licensing
 - Drivers not willing to answer the questionnaire
- Data gaps
 - No information on fuel consumption
 - No odometer readings taken
 - Limited information on manufacturer, model, year, engine size, fuel type from some municipalities
 - Information acquired mostly for populous areas such as Belmopan and Belize City

Current Data collection activities

- Data currently being collected by NCCO regarding:
 - Manufacturer, model, year, engine size, fuel type
- Sources of data:
 - Cities- Belmopan and Belize City
 - Municipalities- Benque Viejo del Carmen, Corozal Town, Dangriga, Orange Walk Town, Punta Gorda, San Ignacio, and San Pedro
- Methodology: CDM Methodology AMS-III.C
 - The SB would be determined based on the specific fuel consumption indicated by the manufacturer of the top-20% taxis, busitos and buses used in Belize this information can be sourced, for example, from the USEPA Fuel Economy database

Conclusion

- Standardized baselines could help lower transaction costs for individual project developers
- Increase the transparency and objectivity of the process to assess additionality.
- Reduce uncertainty for investors and encourage greater participation in the GHG abatement projects
- Increased participation could mean more abatement activity in the country supported by increased financial flows.

Thank You



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