Entergy Corporation

Verification Statement

2008 Greenhouse Gas Inventory

August 28, 2009

Prepared for
Rick N. Johnson, MS, REM
Manager, Corporate Environmental Operations
Corporate Safety and Environment
Entergy Services, Inc.
639 Loyola Ave (L-ENT-13D)
New Orleans, LA 70113
(504) 576-5246 (office)

Prepared by:
ICF International
14724 Ventura Blvd., Suite 1001
Sherman Oaks, CA 91403
(818) 325-3140

08-000

ICF INTERNATIONAL

Passion. Expertise. Results.

Table of Contents

1. Verification Summary

Based on its review of Entergy's 2008 GHG emissions inventory, ICF International (ICF), in cooperation with Carbon Solutions, Inc., has verified the information submitted by Entergy as being consistent with its emissions methodology and reporting guidance. This guidance is contained in the Entergy Corporation Greenhouse Gas Inventory Management Plan (IMP), dated April 28, 2009. ICF found that the 2008 inventory conforms to generally accepted greenhouse gas (GHG) accounting standards, in particular the WRI/WBCSD GHG Protocol, Corporate Accounting and Reporting Standard (2004). This inventory is thus of a quality sufficient for inclusion in the American Carbon Registry. The emission estimates were calculated in a consistent and transparent manner and were found to be a fair and accurate representation of Entergy Corporation's actual emissions and were free from material misstatement. ICF identified several minor, immaterial discrepancies in Entergy's greenhouse gas inventory, many of which were corrected during the course of the verification. ICF has verified a total of 48,839,777 metric tons of CO_2 equivalent (CO_2e) emissions.

2. Emissions Inventory

Entity Name: Entergy Corporation

Company address: 639 Loyola Avenue, New Orleans, Louisiana 70113

Entity Contact and Inventory Preparer: Rick Johnson

Verification Statement Prepared by: Craig Ebert and Cody Taylor, ICF International; Kevin Johnson, Carbon Solutions, Inc.

This verification statement pertains to the greenhouse gas emissions inventory prepared by Entergy Corporation for calendar year 2008 (January 1st, 2008 – December 31st, 2008). This emissions inventory uses an equity share approach to establishing boundaries and includes the following emissions sources:

Scope 1: Stationary combustion in electric generating units and small sources at company facilities; mobile combustion in company fleet vehicles, fugitive methane from natural gas transmission systems, fugitive SF_6 from electric power transmission and distribution systems, and fugitive HFCs from building HVAC systems, district cooling operations, and vehicle air conditioning systems.

Scope 2: Indirect emissions associated with both contract and spot market purchased electricity.

Scope 3: Purchased electricity for resale to end-users.

Emissions associated with electricity used in Entergy facilities are accounted for within stationary combustion emissions. Emissions associated with line losses in electric power transmission and distribution systems are included within the stationary combustion and purchased electricity emissions.

The inventory includes the following greenhouse gases: CO_2, CH_4, N_2O, SF_6, and HFCs.

All electricity consumed in the operation of generating plants and consumed in Entergy's various administrative and commercial buildings and operations are accounted for in Entergy's direct emissions for stationary combustion. The GHG emissions resulting from the full life cycle of the various fuel sources are not included in the inventory.

3. Greenhouse Gas Management Plan and Inventory Methodology

This verification is based on the Entergy document *Greenhouse Gas Inventory Management Plan (IMP)*, originally developed by Entergy in July 2005 with input and review from EPA Climate Leaders and most recently updated in April 2009.

4. Verification Level of Effort

This is a Tier II verification. A Tier II-level verification is appropriate for basic reporting, and those voluntary efforts and public commitments for which there are no imminent requirements for compliance obligations or emissions trading. It is intended to establish the basis for baseline protection, support claims for credit for early action, and enable assessments of performance of various GHG reduction initiatives by Entergy Corporation towards its voluntary targets. Given the status of Entergy Corporation's GHG emissions inventory and management system, a Tier II-level verification was appropriate for this project.

5. Verification Approach

This Tier II verification effort was completed in accordance with the *Corporate GHG Verification Guideline*. This level of verification attempts to review the logic and procedures used to compile the emission estimates, and to assess the validity of the inventory design itself. It focuses on a review of the procedures in place and identifies gaps in a company's inventory program. Emissions data were reviewed at a high level to detect internal inconsistencies, identify outliers and find potential errors in reporting, and included boundaries' completeness checks. Data in supporting spreadsheets and from the corporate databases were also examined under this Tier II review.

This verification effort also involved a review of calculations and methodologies used to generate the GHG emissions inventory. A detailed technical review of the methodologies, approaches, and calculations used in Entergy Corporation's inventory estimates was conducted in this verification effort. This was combined with a sampling of some of the data sources used during the compilation of the GHG emissions inventory by Entergy. Documentation was examined, including reviews of some disaggregated data, and the audit trail followed below the business entity level to raw data sources for several Entergy power generation units and power purchase agreements.

For Tier II verifications in general, material business units and/or source types which collectively contribute on the order of 40 to 50 percent of the overall GHG emissions inventory are typically reviewed. For this verification, the inventory was reviewed in its entirety and a sample of data was reviewed in greater detail. Generation units were selected for detailed audit trail or desktop reviews based on relative contribution to the corporate inventory, ready access to granular data and supporting documentation, and lack of detailed review in the 2006-2007 GHG inventory verification. The eight (8) generation units selected for this desktop review included the following:

- Baxter Wilson 2
- Big Cajun 2 2B3
- Independence 2
- Lewis Creek 2
- Michoud 3
- Ninemile Point 5

- White Bluff 1
- White Bluff 2

The units above which were reviewed in greater detail represented over 40% of Entergy's total direct CO2 emissions from power generation units, and approximately 30% of Entergy's total corporate GHG emissions, in 2008. They also represented approximately 10% of Entergy's total number of units in its 2008 generation fleet, and about 20% of those units which had significant 2008 operations. The percentage equity shares of those facilities that Entergy owns jointly with other companies which were used to calculate the GHG emissions in the inventory database were crosschecked against the data provided in the IMP, Entergy's annual reports, and Entergy's SEC 10-K reports for 2008.

CEM reports supplied by Entergy were checked against both the GHG emissions data in their GHG inventory spreadsheet database, and the EPA Acid Rain allowance tracking database, for the eight (8) above selected units. Associated CEM system QA/QC supporting documentation was also reviewed for a sample of two (2) generating units to confirm that the reported emissions data and emissions/fuel flow monitoring measurements and monitoring calibrations were accurate and reported correctly in the Entergy GHG inventory.

All the emissions factors, sources, and calculations that Entergy used for its Controllable Power Purchases and Non-Controllable Power Purchases in the 2008 inventory database were checked. Together the data from these two sources correspond to approximately 30% of the total Entergy Corporate GHG emissions in 2008. Also, raw data showing controllable purchased power for 2008 was received from System Planning Operations and was cross checked against the inventory spreadsheet database.

Selected business units', divisions', and/or major facilities' data for Tier II review are generally sampled for at least 10-20% of the total business unit data. However, depending on the level of verification rigor and assurance required, and the various attributes of the inventory database (e.g., total numbers of facilities/sources, degree of homogeneity, type of data management system, etc.), data sampling rates can range from a minimum of 0.5-1% to a maximum of 20-40% of the data. Selection of the data sample is based on the number of data points/facilities within the business unit or organization, degree of data variability and relative uncertainty, degree of estimated or missing data, and use of multiple methodologies. For each of the units sampled, various error checking tests were performed on the sampled data to assess the information collected, including some examples such as record counts, missing data, limits and reasonableness, units of measure (UOM), consistency, re-computation, cross-checks, and input and output matching. For each of the selected units, some aggregation calculation checks, and source type and equity share checks, were made and compared against database outputs/reports.

Statistical-based data sampling plans, detailed statistical analyses, and quantitative uncertainty analyses were not performed under this Tier II effort. Preliminary trends analyses, performance benchmarks, and assessments of internal GHG reduction projects and location-specific energy efficiency initiatives were beyond the scope of this verification effort.

For small stationary combustion units the ICF team verified that the total GHG emissions reported match the sum of all individual small unit emissions. For mobile source combustion emissions the ICF team reviewed calculations used to derive fuel quantities used and resulting emissions.

For fugitive CH_4 emissions from natural gas transmission and distribution operations the ICF team verified calculated total GHG emissions based on the pipeline distances and emissions factors indicated. For fugitive SF_6 emissions from electricity transmission and distribution operations, the ICF team reviewed calculations used to estimate SF_6 leakage from Entergy-owned equipment. For fugitive HFCs the ICF team reviewed calculations of HFC leakage from building HVAC systems, district cooling operations, and vehicle air conditioning systems.

6. Inventory Boundaries & Dates

The boundaries for Entergy Corporation's GHG inventory were developed through an equity share approach, consistent with the EPA Climate Leaders and WRI Protocols. These boundary determinations were executed by Entergy in a manner generally consistent with accepted GHG accounting practices. Reviews of the 2008 corporate annual report and SEC Form 10-K statement indicated that the Entergy Corporation GHG inventory included all material business entities under their financial control, including:

- Entergy Corporation
- Entergy Arkansas, Inc.
- Entergy Gulf States Louisiana, L.L.C.
- Entergy Louisiana, LLC
- Entergy Mississippi, Inc.
- Entergy New Orleans, Inc.
- Entergy Texas, Inc.
- System Energy Resources, Inc.

The inventory review covers year 2008 (January 1, 2008 – December 31, 2008), and was the subject of this verification effort.

7. Baseline and Other Adjustments

The Entergy greenhouse gas inventory management plan (IMP) identifies the need for procedures for handling changes in the corporate boundaries resulting from mergers, acquisitions, and divestitures (MADs), as well as reporting changes. It is recommended that in 2009 this inventory management plan be enhanced with additional discussions included on the details of baseline adjustments associated with MADs (including organic growth, and decline, impacts). These include expanding the existing discussion with some specifics on facility/source identification/labeling, date stamping/reporting time allocation, emissions re-stating impacts (base year and subsequent years), etc. In

addition, additional details should be provided on data or methodology change management procedures (e.g., de minimus change thresholds, “sunset” or look-back time periods, and documentation and recordkeeping requirements). Finally, a discussion of the implementation/accounting of GHG reduction projects and external offsets purchases, and their future incorporation into Entergy Corporation’s overall GHG management system could be added to the 2009 GHG IMP. It is anticipated the Entergy Corporation IMP document will be updated in 2009 as part of Entergy’s 2009 GHG inventory development process.

Going forward, efforts planned by Entergy for the implementation of its formal GHG management plan have the goal of continuous improvement of their GHG data collection and management systems. A follow-on verification activity will be conducted of the 2009 GHG emissions inventory, after 2009 raw data and associated supporting documentation are collected. It will further review and audit that data and the data management processes used for domestic GHG accounting, and determine Entergy’s 2009 GHG emissions performance relative to its year 2000 baseline, as well as to their future target commitments. A verification statement for Entergy’s 2009 GHG emissions inventory will be prepared upon completion of that future effort.

8. Base Year

The 2000 base year and 2008 emissions inventories provide a performance benchmark against which Entergy Corporation will measure year-on-year progress towards its emissions reductions goals.

9. Monitoring, Data Collection, & Methodology

In general, a number of data collection and handling procedures have been evaluated based on findings from the 2008 and previous GHG emissions inventory activities. Manual data collection, transfer, and entry steps should be targets for elimination where feasible. Standardized data collection procedures across facilities, source, and emissions types, and streamlined data collection templates should be implemented. Increasingly automated data collection and handling approaches including web-based data collection and entry tools (e.g., electronic forms/templates); electronic data transfer; and robust data management and accessible database reporting systems are all indicated for Entergy’s going forward GHG management system. Implementation of such an increasingly automated and electronic GHG data transfer effort across the corporation will continue to decrease the occurrence of manual errors, and improve overall GHG inventory data quality and reliability, as well as enhance analytics opportunities and performance tracking activities.

In general, practices followed in collecting, monitoring, storing, and calculating activity data were in accordance with procedures described in Entergy’s *Greenhouse Gas Inventory Management Plan (IMP)* and in accordance with generally accepted GHG accounting principles. The following paragraphs describe parts of the verification and

any issues identified. The ICF team deems the deviations from preferred practices noted below to be acceptable and minor.

For direct emissions from electricity generation units, the ICF verification team performed a series of checks of several different data sources. In one of these checks the verification team reviewed the calculated Entergy share of CO_2 emissions from owned and partially-owned generating units. While the FERC Form 1 submission for Entergy Mississippi shows a 39.37% ownership share of Independence Unit 2, the 2008 Entergy Statistical Report for Investors shows a 39% ownership share and the GHG Inventory shows a 39.4% ownership share. While we recommend recociling these differences in to clarify the correct value for use in future GHG inventory efforts, the value used in the GHG inventory appears to be substantially correct, with any error coming from rounding only. If 39.37% ownership is the correct value then Entergy is over reporting its emissions by approximately 1,785 short tons of CO_2, a value that is not deemed material at this time.

For the Big Cajun 2 unit, we understand that Entergy's calculation of reported GHG emissions departs from the equity share reporting used in the rest of the inventory. We recommend that if Entergy chooses to report emissions for this unit based on actual power delivery rather than strict unit ownership, this departure and the rationale for the departure should be noted in both the GHG inventory spreadsheet and Entergy's *GHG Inventory Management Plan*.

For the eight (8) units identified as targets for audit sampling in Section 5 above, as well as two (2) additional units from the two major organizational boundary change facilities from 2008 (Calcasieu and Ouachita), daily/annual CEMS data from EPA's Clean Air Markets emissions reporting database were reviewed. These results were verified against the direct emissions reported in Entergy's GHG emissions inventory spreadsheets.

In addition to those independent data source and aggregation checks, a re-calculation of the CO_2 emissions at two of the audit data sampled units (Michoud 3 and Ninemile Point 5) was made based on fuel flow data, and showed a total CO_2 output within 2% of the reported value from the CEMS units. This degree of agreement between two alternative emissions quantification methodologies represents an acceptable margin of error, thus requiring no changes on Entergy's part.

For power purchase agreements, the ICF verification team reviewed each individual controllable power purchase agreement GHG emissions estimate included in the Entergy inventory, representing thirty-five (35) total units. Hourly-level granularity power purchase data (i.e., in MW-hr units of measure) were provided by Entergy's System Planning and Operations (SPO) department for all of Entergy's 2008 controllable power purchases. GHG inventory activity data verification against the SPO database query raw outputs, and unit-specific GHG emissions calculation checks, which were performed on the individual power purchase agreement units contained in Entergy's GHG emissions inventory, identified no calculation or methodology material errors or misstatements.

Estimates of all fugitive emissions – CH_4, SF_6, and HFCs – and emissions associated with mobile combustion sources have been deemed to be de minimus, as together they represent less than 1% of Entergy's total GHG emissions. As such, they were calculated in accordance with methodologies outlined in the EPA's Climate Leaders Protocol or

recommended by a Climate Leaders consultant. Emissions from these sources were conservatively calculated in 2004 and the results have been carried forward into Entergy's 2008 inventory. ICF was able to review SF_6 data for SF_6 purchases in 2008, which show a decrease since the 2004 values listed in the 2008 GHG inventory, although the 2004 values have been carried forward to 2008. If Entergy decides to update the calculated SF_6 emissions then it may be valuable to use the EPA SF_6 reduction calculation worksheet and include accounting of the unused heel charge in cylinders returned to the supplier.

The GHG inventory also does not calculate emissions of CH_4 or N_2O from mobile combustion fuels other than gasoline or diesel. However, this is a very minor source and does not constitute a material omission.

10. Reporting, Documentation, Quality Control, and Uncertainties

Basic accounting and reporting principles are described in the 2008 GHG inventory management plan. As part of its GHG inventory development process, Entergy (and their EPA Climate Leaders consultant) also perform a significant array of various data quality control (QC) activities. Some examples of these include consistency checks with prior year's data, and with similar facilities and source types; data normalization checks (including facility-level, year-on-year emissions intensity); and various data "cleansing" reviews with data coordinators and data collection team leaders/data suppliers. However, much of these QC activities, reporting, and documentation procedures followed in this GHG inventory development effort, and the results of Entergy's own internal data validation and QC review checks, are not currently documented in detail in the Entergy IMP document. It is recommended that such an internal QC data checking and validation log of all of Entergy's existing GHG inventory-related QC activities be kept as part of the 2009 GHG emissions inventory development, including results of any issue resolution activities.

Based on this GHG inventory effort, and Entergy's plans for its future development and enhancements, combined with Entergy's voluntary commitment to reducing their entity-wide GHG emissions, a more formal QA/QC program is indicated. Such a plan should include details on provisions for QA/QC procedures and practices in the inventory development process, including written documentation (e.g., a QA/QC plan, problems identified, recommended corrective actions, and issue resolutions implemented, etc.). Such a plan would reduce the potential for the generation of material errors in GHG reporting due to the translation of information from various Entergy data sources into the GHG inventory.

Elements of such a 2009 Entergy GHG inventory QA/QC plan should include detailed specifications for:

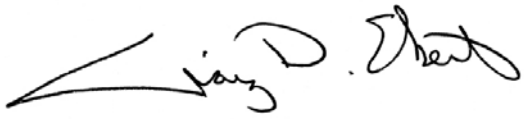
- Defined data quality objectives and indicators;
- Requirements for QA/QC reporting processes and documentation;
- Quality controls on the reporting process and data management systems;

- Procedures and documentation for problems identified, recommended corrective actions, resolutions implemented and associated results, etc.;
- Management approval process for GHG data, including roles and responsibilities, communications, and management review (i.e., a formalization/documentation of what Entergy is already conducting here);
- Internal QC checks on data (see previous Quality Control comment), and internal auditing (as/if indicated);
- Performance tracking and trends analysis (e.g., building on the year-on-year analysis which Entergy already performs);
- Training of GHG data coordinators;
- Change management process, procedures, and documentation (see previous comments on Baseline Adjustments and other associated impacts);
- Recordkeeping/data archival (e.g., a project "master file"), and document retention and control policy requirements; and
- Quantitative assessment of GHG inventory uncertainty (including all activity data, emissions factors, and assumptions/extrapolated estimates) and accuracy.

11. Conclusion

The ICF team identified several minor discrepancies in Entergy's greenhouse gas inventory that were corrected during the course of the verification. ICF believes that Entergy's overall inventory meets Entergy's goal of accurately calculating and reporting its corporate GHG emissions for 2008 in accordance with the WRI/WBCSD GHG Protocol, Corporate Accounting and Reporting Standard (2004).

Prepared by:



Craig Ebert, ICF International

office: 1.818.325.3140
fax: 1.818.325.3137
cell: 1.202.276.2054
cebert@icfi.com
14724 Ventura Blvd., Suite 1001
Sherman Oaks, CA 91403
http://www.icfi.com/greenbusiness