Greenhouse Gas Inventory Management Plan and Reporting Document (IMPRD)

Entergy Corporation
New Orleans, LA

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Original Draft: July 2005
Finalized: December 2005
Latest Update: March 2012

QUANTIFICATION STANDARD: ISO 14064-1
Level of Assurance: Limited

Entergy’s GHG Commitment Snapshot
Base Year – 2000

Original Commitment Years – 2001 to 2005
Original Commitment – Stabilize at 2000 levels direct CO$_2$ emissions from power plants
Original Commitment Funding – $25 million ($5 million per year)

Second Commitment Years – 2006 to 2010
Second Commitment – 20% below 2000 levels direct CO$_2$ emissions & cont. purchased power
Second Commitment Funding – $3.25 million ($650K per year)

Third Commitment Years – 2011 to 2020
Third Commitment – 20% below 2000 levels direct CO$_2$ emissions & cont. purchased power
Third Commitment Funding – $10 million ($1 million per year)
**Entergy Corporation Greenhouse Gas Inventory Management Plan and Reporting Document**

**Introduction and Background**

In May 2001, Entergy publicly committed to stabilize CO₂ emissions from its power plants at year 2000 levels through 2005, and dedicated $25 million in supplemental corporate funding to achieve this target over the five-year period. This commitment was focused on CO₂ emissions from fuel combustion at the company’s power plants and requires that Entergy:

- Stabilize CO₂ emissions from its U.S. power plants at year 2000 levels through 2005.
- Establish the $25 Million Environmental Initiatives Fund (EIF) in support of achieving the 2001-2005 stabilization targets.
- Document activities and annual report progress.
- Employ an independent third party organization to verify measurement of Entergy’s CO₂ emissions from U.S. power plants.

Entergy joined EPA’s Climate Leaders Program in 2004 (the program was discontinued in 2010) and began the process of renewing its GHG commitment by developing a detailed inventory of all GHGs resulting from its operations. The inventory development and results were documented in this Inventory Management Plan and Reporting Document (IMPRD). Entergy’s second commitment included:

- Stabilize CO₂ emissions from all Entergy power generation plants plus controllable purchased power at 20% below 2000 levels through 2010.
- Commit funding of $3.25 million in support of achieving the 2005-2010 target.
- Document activities and annually report progress.

In 2011, Entergy once again renewed its commitment to stabilize GHGs with a third commitment:

- Stabilize CO₂ emissions from all Entergy power generation plants plus controllable purchased power at 20% below 2000 levels through 2020.
- Commit funding of $10 million in support of achieving the 2011-2020 target.
• Document activities and annually report progress.

Beginning in 2012, Entergy decided to conduct the third-party verification audit to the International Standards Organization (ISO) standard for GHG development and verification (ISO 14064). As a part of this verification, this document was revised and upgraded in 2012 to include several aspects required by the standard. This IMPRD and Entergy’s 2011 GHG Inventory is verified to ISO 14064-1 at a LIMITED Level of Assurance.

This IMPRD has been created and subsequently revised according to the requirements in the World Resources Institute and the World Business Council for Sustainable Development Greenhouse Gas Protocol, 2004 revised edition, and formatted according to the US EPA Climate Leaders 2004 draft checklist of IMPRD components. Additionally, the document was upgraded in 2012 to the standards contained in ISO 14064-1.

This IMPRD is used to create and document an inventory that was previously reported to the Climate Leaders program and other external parties. However, EPA announced in 2010 that the Climate Leaders program was being discontinued. This IMPRD will continue to be updated and used to document Entergy’s GHG Inventory methodology and results on an annual basis. Entergy has made an estimate of all emissions, including small sources, for reporting externally. Entergy also registers its emissions and offset purchases to the American Carbon Registry (www.americancarbonregistry.org).

The current GHG Inventory (by calendar year) is attached to this document as Attachment 1 and is referenced throughout.
**Reporting Entity Information**

Entergy Corporation (Entergy) is an integrated energy company engaged primarily in electric power production and retail distribution operations. Entergy owns and operates power plants with approximately 30,000 megawatts of electric generating capacity, and it is the second largest nuclear generator in the United States. Entergy delivers electricity to 2.7 million utility customers in Arkansas, Louisiana, Mississippi, and Texas. Entergy has annual revenues of more than $11 billion (2011) and approximately 15,000 employees. Additional company information can be located at [www.entergy.com](http://www.entergy.com).

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Boundary Conditions

Consolidated Approach for Emissions Reporting – Entergy has elected to include all company-owned assets and those under a capital lease, consistent with “equity share” reporting under EPA and WRI reporting protocols. Where partial ownership share of an asset exists, only Entergy’s owned portion of the asset/emissions is included in the inventory. Additionally, Entergy has opted to include those emissions associated with the electricity purchased to support grid operations and meet customer demand, primarily due to an increased reliance on purchased power since 2003. The GHG emissions resulting from the full life cycle of the various fuel sources are not included in the inventory.

Other emission sources (including transportation assets, sulfur hexafluoride [SF$_6$], building air conditioning and refrigeration equipment, losses from natural gas distribution system, etc.) that have emissions estimated to be less than 1% of the total inventory are considered de minimus unless they are anticipated to change dramatically and grow above this threshold. Emissions of each GHG from facilities/assets that are de minimus are estimated and included in the inventory for each gas and/or source. The same data are used for future years unless one of the categories of emissions changes significantly. These estimates will be recalculated approximately every five years (or as updated data becomes available), after major equipment changes, asset acquisition and/or asset divestiture in order to reconfirm de minimus status.

Facilities List – The majority of Entergy’s emissions are from fossil-fueled electricity generation facilities. However, other sources include small sources at other company facilities, a full list of facilities included in the inventory is contained in Attachment 1. This list identifies Entergy’s fossil-fueled electricity generation assets and ownership share. All other GHG emission-producing assets are assumed to be 100% owned by Entergy.

List of GHGs Included – Entergy includes the following from various sources in its inventory and management program:

- Carbon dioxide (CO$_2$)
- Methane (CH$_4$)
- Nitrous Oxide (N\textsubscript{2}O)
- Sulfur Hexafluoride (SF\textsubscript{6})
- Hydrofluorocarbons (HFC)

**Entergy Corporation Emission Sources**

*Process for Identifying Emissions Sources* – The Climate Leaders spreadsheet “General Emission Source Checklist” (Attachment 2), created by Platts/E-source as contractors to EPA’s Climate Leaders program, was originally utilized as an overall roadmap to help identify GHG emission sources at Entergy locations. Within each line item, a determination was made as to the applicability to Entergy’s operations. The findings of this analysis are presented in the section below. Additionally, publicly-available data, previous equipment inventories, internal company data and existing air permit information were utilized to identify GHG sources at company locations. This includes an extensive analysis and estimates of emissions from small combustion sources co-located at electrical power generating facilities or at stand alone facilities. The specific information gathered and its sources are shown in Attachment 1 and 2 and summarized in the sections below. Additionally, this information was further refined and updated based on data submitted to the EPA GHG Reporting Program in 2011. Entergy is confident that this methodology has captured emission estimate information for the majority of small source equipment at its locations.

**Direct Sources**

Entergy’s direct emissions are included in the following categories:

- **Stationary combustion**: Entergy’s direct sources of GHGs include emissions from the direct combustion of fossil-fuels in electrical generation boilers and small sources at company facilities.
- **Mobile Combustion**: Fossil fuels combusted in company fleet vehicles.
- **Fugitive Emissions**: Methane (CH\textsubscript{4}) from natural gas distribution systems, SF\textsubscript{6} from power transmission and distribution equipment, and HFCs from building HVAC systems and district cooling operations.
Company activity data sources including contacts and information for the various emissions from and/or usage of these assets are included in Attachment 2.

**Indirect Sources**

Entergy’s indirect sources of emissions include those from purchased electricity and electrical line transmission/conversion losses. Data sources for the various emissions from and/or usage of these assets are included in Attachment 2. 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. Additionally, line losses for self-generated and purchased electricity are accounted for by the additional generation necessary to make-up for these losses. There are no other indirect sources included in Entergy’s inventory or program.

**Optional Sources**

Entergy is reporting emissions associated with power purchased to meet customer demand and support grid operations. This emission source is not required under EPA and WRI reporting protocols. Entergy has elected to report these emissions because it has decreased its self generation while increasing the amount of power it purchases. Subsequently, trends in the Direct emissions category will not accurately represent the full corporate emissions footprint and trends toward a reduction goal. Including purchased power presents the most accurate representation of the emission footprint required to support grid operations and meet customer demand. Other optional sources such as employee travel and commuting are not included at this time; however, these will be evaluated for inclusion in the future.

**GHG Emissions Quantification**

*Quantification Method and Emission Factors*

The quantification methodologies used in the Entergy inventory are commonly accepted methods for measuring GHG emissions. For inventory years 2000-2004, Entergy used methodologies outlined in the EPA Climate Leaders Protocol, or methodologies proposed by Platts/E-source staff and approved by EPA Climate Leaders staff. In a number of
cases, Entergy has used conservative estimation methodologies for expected *de minimus* emission sources (<1% of corporate total). In all cases, these estimation methodologies have been reviewed and approved by EPA Climate Leaders staff. When emissions are based on these conservative estimates, they are identified as such below.

Emission factors used for the initial inventory were derived from various sources including *USEPA Climate Leaders GHG Protocol* (derived from AP-42), US DOE, and EPA’s eGRID system. The quantification methodologies, emission factors and their sources can be found in the GHG inventory calculation spreadsheets, accessible through Entergy’s internal website, [SENet](#). Entergy remained engaged with the EPA Climate Leaders Program updates and staff until the program was eliminated by the agency. Entergy will monitor WRI protocol and other leading sources for updates in order to stay aware of any changes to quantification methodologies, emission factors, or protocol changes.

These approaches for emission quantifications were chosen because they represent the most accurate and, in most cases, the only data source for such an exercise. Other methods were not chosen due to the fact that other methods simply do not exist.

**Direct Emissions**

Entergy’s direct emissions are either measured directly via a continuous emissions monitoring (CEM) system, calculated using emission factors and fuel throughput or other relevant data, or estimated using equipment capacity factors and maximum fuel throughput data. Direct GHG emissions are quantified separately for each GHG, and then aggregated across Entergy by GHG constituent. The quantification method and data source for each major category of direct GHG sources is detailed below.

**Fossil-Fuel Combustion Boilers and Gas Turbines** – Entergy’s electrical generation equipment is heavily regulated by state and federal agencies and is required to report emissions on a periodic basis. A continuous emission monitoring (CEM) system is used at most plants to directly monitor emissions. CO₂ is directly monitored in these systems and other GHGs, such as CH₄ and
N$_2$O, are calculated based on the data collected by these systems. However, in some cases, CO$_2$ is calculated based on fuel throughput and heat rate data. However the CO$_2$ number is derived, it is reported to the EPA as required under various agency regulatory programs. In 2011, this category represented 68.3% of the corporate total.

Source: This GHG emissions data is reported to the ESP Group by Entergy’s Fossil Environmental Support Group annually (at a minimum).

Small Sources at Company Facilities – This category includes equipment such as emergency generators, house service boilers, natural gas-fired comfort heaters, and other small combustion/emission sources not monitored by CEM systems at company facilities. Inventories for 2000 to 2010 used an available equipment inventory and information contained in facility air permits and real estate personnel, small source emissions were calculated for each plant for which this data was available. This data was compiled in 1994 in the Fossil Operations Equipment Inventory. In 2011, Entergy reported small sources to the EPA GHG Reporting Program. These numbers were used in the 2011 inventory in order to align regulatory reporting with this voluntary inventory. Changes to the overall number were not material. In 2011, this category represented 0.7% of the corporate total.

Transportation Fleet Vehicles – Entergy’s Transportation Group maintains a detailed inventory of vehicles owned and/or leased throughout the company. This group also tracks information regarding the fleet’s fuel usage and miles traveled. Additionally, Entergy’s Aviation Group (part of Human Resources and Administration) maintains fuel usage information for our fleet of corporate aircraft. This information was updated with 2009 data and used to calculate GHG emissions for this equipment category. In 2011, this category represented 0.1% of the corporate total. Entergy decided not to include GHG emissions resulting from employee business travel and employee commuting; however, it may be included
in the future. Fleet emissions were quantified using units of all mobile fossil fuels and default emission factors.

Source: The source of this information is the Manager, Transportation.

**Fugitive Emissions: Methane in Natural Gas Distribution and Storage Facilities** – This category of emissions includes losses of methane from Entergy’s natural gas distribution system and Entergy’s natural gas storage facility. Losses of methane from the distribution system were estimated using the Gas Research Institute’s protocol which USEPA may adopt as its standard methodology for quantifying these emissions. This protocol uses input data such as miles of pipe and number of services (steel, coated, and plastic), number of meters (commercial and residential) and gas vented to estimate methane emissions from these types of distribution systems. The emissions from the storage facility were estimated, using Tier 1 factors for natural gas storage for both vented and fugitive natural gas. In 2011, this category represented 0.3% of the corporate total.

Source: These input data were obtained from the Manager, Gas Distribution Operations and Fossil Operations, Sabine Plant.

**Fugitive Emissions: HFCs** – This category of emissions includes losses of HFCs from HVAC equipment at buildings which Entergy owns or for which it holds a capital lease, from Entergy’s district cooling/thermal operations (chillers), and from Entergy vehicular air conditioning. For the indoor air cooling equipment, square footage of company building space was collected and an emission factor developed by Platts/E-source was applied to this number in order to estimate HFC losses from this equipment. This emission factor is based on national averages of tonnage of equipment per square foot of space and average leakage rates of common air conditioning equipment. An investigation revealed that no HFC-based air or water pre-cooling is performed at any Entergy electric power generation facilities. Conservative estimates were completed for all sources of HFC emissions; this category of emissions was determined to be *de minimus*. In
2011, this category represented less than 0.1% of the corporate total. For the
district cooling operations, information regarding chiller equipment located at
these facilities, along with estimates of equipment leakage rates were used to
derive the initial inventory estimates. The calculations behind all factors used in
estimating HFC emissions can be found in the inventory spreadsheet (Attachment
1).

Source: The source of this information was the Manager, Real Estate Operations and the Director,
Thermal Operations.

**Fugitive Emissions: SF$_6$** – This category of emissions includes unintentional
releases of SF$_6$ used in electricity transmission equipment. Emissions of this gas
are estimated using a protocol similar to the protocol utilized for EPA’s SF$_6$
Emission Reduction Partnership Program. The protocol for derivation of this
emission estimate is primarily a mass balance exercise. In 2011, this category
represented 0.3% of the corporate total.

Source: The source of this information is the Manager, Environmental in Entergy’s Transmission
and Distribution Organization. SF$_6$ emission estimates are reported to ESP at least once per year.

Estimates completed for each fugitive GHG emissions category above resulted in
finding that **aggregated fugitive emissions from all sources across Entergy are
de minimus.** Accordingly, a consistent quantity of emissions is included in the
inventory for each emissions source category and will be carried forward annually
unless a significant change in this category occurs.

**Indirect Emissions**

**Transmission/Distribution System Line Losses** – Line losses associated with
power purchased to support the utility operations are considered required indirect
emissions under EPA and Scope 2 Indirect under WRI reporting requirements.
Emissions from T&D losses of purchased power are calculated by applying
Entergy’s system loss factor to the total amount of power purchased. The custom
loss factor is developed using power data from the 5 utilities’ FERC Form 1s (specific data noted in “purchased power” worksheet in inventory). This custom factor was calculated for 2004 data using 2004 FERC forms. The custom loss factor calculated for 2004 was applied to purchased power amounts of previous years of GHG inventories (2000-2003) rather than recalculating this factor for each prior year. This emission estimate is calculated and presented; however, it is not subtracted from the purchased power emission number described below since the bulk of purchased power is generated from within Entergy’s service area. T&D line losses are already accounted for in the extra generation required to make up for these losses.

Optional Emissions

Purchased Power – This category of emissions includes those from power purchased by Entergy to supplement its own supply in order to meet customer demand and/or support utility operations. In some cases, the source of this power is known (controllable or unit-contingent purchases). The remaining sources of purchased power are either not known (non-controllable or grid purchases) or can not be controlled for some other reason. Under the EPA and WRI protocols, including emissions from power purchased by utilities is optional. Entergy has opted to include all purchased power in its GHG inventory and subsequent tracking since these purchases are required to meet customer demand and in order to fully characterize the GHG footprint of its operations. In 2011, this category represented 30.3% of the corporate total.

Both controllable and non-controllable purchase information (in terms of millions of megawatt-hours) was collected. In the case of non-controllable purchases, the SERC MS Valley emission factors from the eGRID system (2010 version using 2007 data) were used to calculate GHG emissions. In the case of controllable purchases, supplier and unit-specific emission rate information from eGRID, where available, was used to develop a supplier-specific custom GHG emissions
factor. If supplier-specific GHG emission factors were not available, the regional grid factor from eGRID was used as a default.

To avoid double counting, intra-system billing (ISB) purchases were subtracted from the non-controllable purchase total. These purchases are from the Entergy unregulated generation business (Entergy Wholesale Commodities – EWC) and are already accounted for in direct emissions. This results in obtaining the “non-affiliated purchases” from the appropriate data manager.

Source: All data regarding power purchases were obtained and are available from Entergy’s System Planning Group. Primary contact for the data was the Sr. Staff Engineer in the Energy Analysis and Reporting Group. Generation Accounting supplies the TOTAL purchased power number for the entire company.

Impact of Uncertainties
The quantification and estimation methodologies used to generate Entergy’s GHG Inventory have inherent uncertainties associated with them. As described above, these methodologies involve direct measurements of emissions and power generation, various types of activity data and published emission factors. Many of the data parameters described above are captured in accordance with Federal or State laws/regulations or for purposes of billing/invoicing. Accordingly, these data parameters are important to Entergy’s business and are carefully scrutinized and managed.

Entergy makes every effort to ensure its GHG inventory is accurate and complete. Despite these efforts, uncertainty may still have an impact on Entergy’s GHG Inventory efforts. These uncertainties are minimized using the data management tools, quality assurance efforts and validation/verification efforts described in the remainder of this document. Any impact of uncertainties is not expected to have a material impact.
Data Management

Activity Data

In all cases, the best available activity data was used to calculate or estimate emissions from a specific source. All collected data for each source is maintained by the data source identified in the previous section.

The primary source of data related to Entergy’s largest category of emissions (representing 68.2% of total corporate emissions in 2011) is CEM system data. CEM system data from monitored plants is managed by Entergy’s Fossil Environmental Support Group. CEM system data is closely managed and maintains a high level of quality control as required by EPA regulations (40 CFR Part 75). The Director, Fossil Environmental Support is responsible for maintaining these data; the primary contact for these data is the Supervisor, Emission Monitoring and Markets. CEMS data is sourced from the data acquisition and handling system (DAHS), which is the software package used to manage and query CEMS data. A report is generated for the annual CO$_2$ emissions and provided to the Manager, Corporate Environmental Operations (see further description below of how the inventory is generated).

Controllable Power purchase information is managed by the Manager, System Planning using an internally developed software package called TRADES. This system is used by the power buyers to track, validate and eventually invoice individual transactions necessary to support grid operations. Total power purchase data is sourced from the Manager, Generation and Fuels Accounting and is sourced from the General Ledger (GL). ISB feeds data into the GL on a monthly basis; accordingly, the initial source of these data is ISB through the GL. Other data categories are managed as described in the section above.

Data Management

All data required for the inventory is either reported to or collected by the Manager, Corporate Environmental Operations in the ESP Group in the January/February timeframe. This information is maintained in electronic files and calculation spreadsheets. The specific steps of the process are described further below:
• DATA RECEIPT – the data described above are transmitted to ESP in the form of spreadsheet files via email attachment. This transmittal method is secure and reliable. Once received, the spreadsheet files are saved to a shared Directory under the ‘GHG Inventory’ folder.

• DATA REVIEW AND MANIPULATION – spreadsheets are accessed and reviewed for the relevant information. In some cases, the data are sorted, totaled and formatted to facilitate entry into the inventory spreadsheet. The data also is reviewed during this step to evaluate the overall magnitude to identify any obvious errors or omissions.

• DATA ENTRY – data is entered into the draft working version of the GHG inventory. During this step, an additional review for data reasonableness and completeness is performed. Any obvious errors or omissions are addressed directly with the data manager by phone or email, as needed. All of the data sources are either entered directly into the inventory or are used for further calculation of the necessary data points required to develop the overall inventory. All supporting calculations and spreadsheets are housed on the shared directory noted above.

• QA/QC AND TECHNICAL REVIEW – where data entry is required, a double check and a reverse double check is always performed. A double check review is simply another review of the numbers entered into the working draft version of the inventory, while a reverse double check is an evaluation of the data entered against the working draft version of the inventory to ensure all data points are included. Once this review is completed, the draft version is circulated to several technical reviewers within the company; feedback is used to modify the inventory as needed.
Annual inventories and IMPRD updates are published and posted on SENet, Entergy’s intranet portal for all information related to Safety and Environmental issues. Additionally, Entergy posts the total inventory number, along with the verification statement and other information to its registry account with the American Carbon Registry (www.americancarbonregistry.org). Entergy will continue to use and update the inventory template in future years in order to remain as consistent as possible.

Key Performance Indicator Selection and Data Collection

Entergy’s goal is to stabilize GHG emissions at 20% below 2000 levels on an absolute basis through 2020. The goal does not use emissions intensity; however, on an as needed basis, Entergy does calculate and evaluate GHG emission intensities. The primary intensity measure used is tons of emissions per megawatt hour.

Data Collection Process Quality Assurance

The owners of data identified in the previous section are responsible for maintaining data quality assurance. Every effort should be made to ensure that the data reported are accurate and complete. ESP will evaluate the data, once collected, to ensure that it is reasonable and consistent with past years. ESP will also conduct and document QA checks during the production of the inventory.

As part of the process each data manager uses for collecting GHG data, they must define and document any areas of possible error and the QA/QC actions they use to maintain accuracy. CEMS data quality is maintained in accordance with the compliance requirements contained in EPA regulations (40 CFR Part 75). Any departures from these data quality measures (i.e. non-compliance events) should be communicated to ESP. Possible errors in emissions factors and calculations are also documented with the emissions factors and calculations records. Any inconsistencies and large unexpected changes from the previous year’s data should be sufficiently explained when the data is transmitted. The Manager, Corporate Environmental Operations will compare the current year’s data for each source category to the previous year’s data in order to identify any
large, unexpected variations. The data should also be reviewed and all calculations that are required to ensure that the calculations are correct.

Data Collection System Security and Integrated Tools
Data is typically transferred through Entergy’s e-mail system. Security of this system is the responsibility of the IT group. Security of the data once it is collected and consolidated is the responsibility of ESP. Every effort will be made to ensure the security of the inventory information, primarily by saving this information to the shared directory in the ‘GHG Inventory’ folder. Entergy’s SENet and the Entergy’s registry account with the American Carbon Registry (www.americancarbonregistry.org) will serve as the final publication repository for the GHG inventory. SENet is accessible by all employees through any computer connected to the internal network, which is password protected and controlled by IT.

Frequency
Data will be reported to/collected by ESP on an annual basis. This information will be used to produce an updated GHG inventory each year. No later than the end of the 1st quarter of each year, ESP will produce an updated inventory for the previous calendar year. A verification audit will be conducted by an independent third-party. Beginning in 2012, this verification audit will be conducted in accordance with the international standard – ISO 14064. This updated inventory will be used to track progress against the reduction goal discussed above.

Base Year
Adjustment for Structural Changes – The base year (2000) will be adjusted for mergers, acquisitions, and divestitures that occur during the reporting time frame for the goal. Actual yearly emissions the acquisition of each emission-producing entity/asset that existed during the base year will be added to the base year and each year that follows. Emissions from divestitures of assets that existed during the base year will be removed from the base year and every year that follows. Mergers and capital leases on emission-producing assets will be planned in the same manner as the acquisitions to the degree that
it is practical. There are no planned adjustments for outsourcing. Mergers, acquisition, divestitures, and capital leases will be identified by ESP and integrated into the GHG inventory for the calendar year when the deal closes. Additionally, data managers should keep ESP informed of any such changes. Finally, ESP will monitor such changes through the investment approval process, which it participates in on as a subject matter expert.

Since 2000, Entergy has purchased and divested several assets. The table below shows these transactions and describes any adjustments to the base year that were required, along with a justification of such changes.

<table>
<thead>
<tr>
<th>Transaction/Asset</th>
<th>Year of Close</th>
<th>Year of COD</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rhode Island Plant</td>
<td>2011</td>
<td>2002</td>
<td>Did not exist in base year – no adjustment needed</td>
</tr>
<tr>
<td>(acquisition)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Harrison County Plant</td>
<td>2011</td>
<td>2003</td>
<td>Did not exist in base year – no adjustment needed</td>
</tr>
<tr>
<td>(divestiture)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acadia Plant</td>
<td>2011</td>
<td>2002</td>
<td>Did not exist in base year – no adjustment needed</td>
</tr>
<tr>
<td>(acquisition)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ouachita Plant</td>
<td>2008</td>
<td>2002</td>
<td>Did not exist in base year – no adjustment needed</td>
</tr>
<tr>
<td>(acquisition)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Calcasieu Plant – Unit 1</td>
<td>2008</td>
<td>2000</td>
<td>Estimated plant emissions fall well below materiality threshold (1%) – no adjustment needed</td>
</tr>
<tr>
<td>(acquisition)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Calcasieu Plant – Unit 2</td>
<td>2008</td>
<td>2001</td>
<td>Did not exist in base year – no adjustment needed</td>
</tr>
<tr>
<td>(acquisition)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Perryville Plant</td>
<td>2005</td>
<td>2001/2</td>
<td>Did not exist in base year – no adjustment needed</td>
</tr>
<tr>
<td>(acquisition)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spindletop Gas Storage</td>
<td>2004</td>
<td>Pre-2000</td>
<td>Estimated plant emissions fall well below materiality threshold (1%) – no adjustment needed</td>
</tr>
<tr>
<td>(acquisition)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thermal Plant – Houston</td>
<td>2003</td>
<td>Pre-2000</td>
<td>Estimated plant emissions fall well below materiality threshold (1%) – no adjustment needed</td>
</tr>
<tr>
<td>(acquisition)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thermal Plant – NOLA</td>
<td>2000</td>
<td>Pre-2000</td>
<td>Estimated plant emissions fall well below materiality threshold (1%) – no adjustment needed</td>
</tr>
<tr>
<td>(acquisition)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Adjustment for Methodology Changes - Changes will be made to calculations and emissions factors only if justified by regulatory changes, scientific/engineering judgment, or updates to the various protocols employed. The Director, Corporate Environmental Programs will make the final decision as to whether or not make such adjustments. In cases where changes are made, the changes will be made to all years in the inventory,
including the base year, so that all emissions are reported using the same basis for all years.

An **IMPRD Revision Log** is included in this document as Attachment 3 and should be used to document any structural or methodological changes to corporate greenhouse gas inventories or this IMPRD.

**Management Tools**

*Roles and Responsibilities*

The Director, Corporate Environmental Programs is responsible for overall GHG program management and external reporting. This individual is also responsible for compiling the data required to update the GHG inventory on an annual basis before the end of Q1 and for evaluating the reasonableness of the GHG data.

The Vice President, Environmental Strategy and Policy reviews changes to the programs that Entergy participates in and updates the IMPRD as needed. These responsibilities are defined in more detail in specific sections of this IMPRD. ESP then produces and distributes needed reports summarizing the emissions inventory and progress toward the goal.

ESP also provides guidance and feedback to relevant company Managers and Directors on what sources to include in the inventory, what data to use and collect, and what emissions factors are most appropriate.

Various Managers and Directors around the company are responsible for maintaining the data necessary to complete the inventory and subsequent updates. Entergy’s Environmental Leadership Team (ELT) reviews and approves the summary of each year’s data.
Communication
The IMPRD will be communicated upon initial finalization and subsequently on a periodic basis, when major revisions occur or as needed. Opportunities for communication with Data Managers include when training is delivered, when data requests are made and when the IMPRD is revised.

Training
Entergy currently has no training materials available regarding GHG management or inventory. Training will be delivered on an ad hoc basis to employees involved in the process. The Manager, Corporate Environmental Operations will conduct this training as needed.

Document Retention and Control Policy
Entergy’s GHG management program and all relevant records and documentation should be managed in accordance with Entergy's Records Management & Retention Policy. Entergy’s SENet will serve as the final publication repository for the GHG inventory. SENet is accessible by all employees through any computer connected to the internal network. Additionally, the annual inventory, verification statement and IMPRD will be submitted to the American Carbon Registry for posting on Entergy’s registry account. This is accessible to anyone via the ACR website (www.americancarbonregistry.com).

Data verification and documentation is essential for the authenticity of this program. To maintain a high standard, all records verifying the GHG inventories and registry contents will be maintained by ESP for a minimum of three years. Documentation of GHG reduction project expenditures and project close-out reports shall also be maintained for a minimum of three years.
Auditing and Verification

Internal Auditing
Internal auditing of the GHG program will be conducted by ESP staff or designee. Some of the data used to develop emission estimates are also audited through Entergy’s Safety and Environment Audit Program (i.e., CEMS data/processes) administered by ESP. Findings related to the GHG Inventory will be provided to the VP, ESP who will determine the responsible individual for each finding’s corrective action. The audit will include a review of the IMPRD and the latest version of the inventory. A consistency check is also performed against the prior year’s data, especially in the area of direct emissions. Changes to the IMPRD driven by audit results will also be entered into the IMPRD Revision Log (Attachment 3).

External Validation and/or Verification
Entergy is committed to an external third-party audit of the GHG baseline/inventory data, calculations, and records. This third-party verification of the program will be conducted at least every other year, including 2006 and the goal year. Since 2006, Entergy has sought annual, third-party verification of the GHG Inventory. The verification statement and report are made available via the ACR website and SENet.

In 2012, Entergy decided to elevate this third-party verification audit to the ISO standard for GHG Inventory preparation and verification (ISO 14064). This is an expanded verification effort that requires a higher level of scrutiny, additional data review/evaluation. The verification report will include additional details and statements regarding the type of verification, level of assurance and an uncertainty analysis. This IMPRD and Entergy’s 2011 GHG Inventory are verified in accordance with ISO 14064-3 at a LIMITED Level of Assurance.

Management Review
The GHG emissions summary data will be reviewed and approved annually by the ELT. Goal setting, progress toward meeting goals, and any additional action or options necessary to meet the goals will be covered in this management review. The VP, ESP
will verify that the information has been reviewed and found to be substantially compliant with this IMPRD. Additionally, this information will be presented to our Safety and Environmental Executive Forum and to the Audit Committee of the Board of Directors during our annual reporting cycle.

**Corrective Action**
Any findings identified through QA/QC and internal and external reviews related to the greenhouse gas inventory or IMPRD are assigned to the appropriate Manager or Director for action by the VP, ESP. The VP, ESP will maintain a list of identified gaps related to the program, the person that is responsible for closing the gap, and the required timing for gap closure. Changes to the IMPRD driven by this process will also be entered into the IMPRD Revision Log (Attachment 3).

Any findings identified through QA/QC and internal and external audits related to the GHG emission inventory, calculations, or reporting are assigned to the VP, ESP or his designee.
Voluntary Commitment and Reduction Efforts

Voluntary Commitments
In May 2001, Entergy publicly committed to stabilize CO\textsubscript{2} emissions from its power plants at year 2000 levels through 2005, and dedicated $25 million in supplemental corporate funding to achieve this target over the five-year period. This commitment was focused on CO\textsubscript{2} emissions from fuel combustion at the company’s power plants and requires that Entergy:

- Stabilize CO\textsubscript{2} emissions from its U.S. power plants at year 2000 levels through 2005.
- Establish the $25 Million Environmental Initiatives Fund (EIF) in support of achieving the 2001-2005 stabilization targets.
- Document activities and annual report progress.
- Employ an independent third party organization to verify measurement of Entergy’s CO\textsubscript{2} emissions from U.S. power plants.

Entergy completed this first commitment 23 percent below year 2000 levels.

Entergy’s second commitment, made in 2005, included:

- Stabilize CO\textsubscript{2} emissions from all Entergy operations at 20% below 2000 levels through 2010.
- Commit funding of $3.25 million in support of achieving the 2005-2010 target.
- Document activities and annually report progress.

Entergy completed this second commitment more than three percent below the target. On a cumulative basis, Entergy bettered the two commitments by over 14 percent.

In 2011, Entergy once again renewed its commitment to stabilize GHGs with a third commitment:

- Stabilize CO\textsubscript{2} emissions from all Entergy operations at 20% below 2000 levels through 2020.
- Commit funding of $10 million in support of achieving the 2011-2020 target.
- Document activities and annually report progress.

Additional information on these commitments can be viewed on Entergy's website.

**Voluntary Reductions**

Since 2001, Entergy has invested in various types of internal and external emission reduction projects. These projects range from internal plant efficiency improvements, to reforestation projects, to carbon offset purchases. These projects are described annually in the Environmental Section of Entergy’s Sustainability Report.

In addition to the projects described above, Entergy owns several facilities that generate electricity without emission of GHGs. Entergy’s nuclear fleet (10,101 MW), wind farms (80 MW) and hydro plants (74 MW) generate virtually emission free electricity and constitute a major portion of Entergy’s overall generation mix (approximately 36.5% at the end of 2010) [Source – Entergy’s 2010 Statistical Report].
Attachment 1

2011 GHG Inventory – FINAL
## 2011 Entergy Corporate GHG Emissions breakdown by category

All numbers represent CO2 equivalents (CO2e).

### Direct Emission Sources

#### Power generating units
- **Corporate emissions source**: Power generating units (includes emergency and backup generators)
- **Greenhouse gas**: CO2
  - **Total emissions**: 37,442,063 short tons CO2e
  - **Total emissions in metric tons**: 33,966,868 CO2e
  - **percentage of total corporate emissions**: 68.2%
- **Calculation worksheet in inventory document**: Stationary Combustion CEM

- **Greenhouse gas**: CH4
  - **Total emissions**: 11,845 short tons CO2e
  - **Total emissions in metric tons**: 10,745 CO2e
  - **percentage of total corporate emissions**: 0.0%

- **Greenhouse gas**: N2O
  - **Total emissions**: 92,057 short tons CO2e
  - **Total emissions in metric tons**: 83,513 CO2e
  - **percentage of total corporate emissions**: 0.2%

#### Small stationary combustion sources
- **Corporate emissions source**: Small stationary combustion sources (co-located at generation stations and stand-alone units)
- **Greenhouse gas**: CO2
  - **Total emissions**: 363,976 short tons CO2e
  - **Total emissions in metric tons**: 330,194 CO2e
  - **percentage of total corporate emissions**: 0.7%

#### Biomass power generation
- **Corporate emissions source**: Biomass power generation
- **Greenhouse gas**: CO2
  - **Total emissions**: 0 short tons CO2e
  - **Total emissions in metric tons**: 0 CO2e
  - **percentage of total corporate emissions**: 0.0%

#### Mobile Combustion
- **Corporate fleet
  - **Greenhouse gas**: CO2
    - **Total emissions**: 63,781 short tons CO2e
    - **Total emissions in metric tons**: 57,862 CO2e
    - **percentage of total corporate emissions**: 0.1%

- **Corporate fleet
  - **Greenhouse gas**: CH4
    - **Total emissions**: 29 short tons CO2e
    - **Total emissions in metric tons**: 26 CO2e
    - **percentage of total corporate emissions**: 0.0%

- **Corporate fleet
  - **Greenhouse gas**: N2O
    - **Total emissions**: 468 short tons CO2e
    - **Total emissions in metric tons**: 424 CO2e
    - **percentage of total corporate emissions**: 0.0%

#### Biomass fleet
- **Corporate emissions source**: Biomass fleet
- **Greenhouse gas**: CO2
  - **Total emissions**: 0 short tons CO2e
  - **Total emissions in metric tons**: 0 CO2e
  - **percentage of total corporate emissions**: 0.0%

#### Natural gas transmission and distribution
- **Greenhouse gas**: CH4
  - **Total emissions**: 146,669 short tons CO2e
  - **Total emissions in metric tons**: 133,056 CO2e
  - **percentage of total corporate emissions**: 0.3%

#### Electricity transmission and distribution
- **Greenhouse gas**: SF6
  - **Total emissions**: 182,775 short tons CO2e
  - **Total emissions in metric tons**: 165,811 CO2e
  - **percentage of total corporate emissions**: 0.3%

#### Cooling/air-conditioning (building, mobile and nuclear cooling equipment)
- **Greenhouse gas**: HFCs
  - **Total emissions**: 10,089 short tons CO2e
  - **Total emissions in metric tons**: 9,152 CO2e
  - **percentage of total corporate emissions**: 0.0%

#### Process emissions
- **Corporate emissions source**: Process emissions
- **Greenhouse gas**: none applicable
  - **Total emissions**: 0 short tons CO2e
  - **Total emissions in metric tons**: 0 CO2e
  - **percentage of total corporate emissions**: 0.0%

### Total Emissions from Direct Sources
- **Total corporate emissions**: 38,313,752 short tons CO2e
- **Total corporate emissions in metric tons**: 34,757,651 CO2e
- **percentage of total corporate emissions**: 69.7%

### Indirect Emission Sources

#### Purchased Electricity
- **Corporate emissions source**: Power purchased for utility business operations outside Entergy service territory
- **Greenhouse gas**: CO2
  - **Total emissions**: 0 short tons CO2e
  - **Total emissions in metric tons**: 0 CO2e
  - **percentage of total corporate emissions**: 0.0%

#### T&D losses
- **Corporate emissions source**: Entergy purchased power consumed on Entergy T&D system
- **Greenhouse gas**: CO2, CH4, N2O
  - **Total emissions**: 895,395 short tons CO2e
  - **Total emissions in metric tons**: 812,289 CO2e
  - **percentage of total corporate emissions**: Note: these emissions are included within the Optional emissions

### Total Emissions from Indirect Sources
- **Total corporate emissions**: 895,395 short tons CO2e
- **Total corporate emissions in metric tons**: 812,289 CO2e

### Optional Emissions Sources

#### Purchased power (controllable)
- **Corporate emissions source**: Controllable purchased power sold to customers
- **Greenhouse gas**: CO2, CH4, N2O
  - **Total emissions**: 8,331,811 short tons CO2e
  - **Total emissions in metric tons**: 7,558,492 CO2e
  - **percentage of total corporate emissions**: 15.2%

#### Purchased power (uncontrollable)
- **Corporate emissions source**: Uncontrollable purchased power sold to customers
- **Greenhouse gas**: CO2, CH4, N2O
  - **Total emissions**: 8,291,270 short tons CO2e
  - **Total emissions in metric tons**: 7,521,714 CO2e
  - **percentage of total corporate emissions**: 15.1%

### Total Emissions from Optional Sources
- **Total corporate emissions**: 16,623,081 short tons CO2e
- **Total corporate emissions in metric tons**: 15,080,206 CO2e
- **percentage of total corporate emissions**: 30.3%

### GHG Stabilization Commitment Total
- **Corporate emissions source**: (progress toward second GHG commitment)
- **Greenhouse gas**: none applicable
  - **Total emissions**: none applicable
  - **Total emissions in metric tons**: none applicable
  - **percentage of total corporate emissions**: None

### Total Corporate emissions
- **Total corporate emissions**: 54,936,833 short tons CO2e
- **Total corporate emissions in metric tons**: 49,837,857 CO2e
- **percentage of total corporate emissions**: 100.0%
### Direct Emissions from fossil fuel usage at generating facilities using CEM data

#### 2011

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<th>Generating facility and EPA Acid Rain Unit ID</th>
<th>EPA Acid Rain Unit ID (if different)</th>
<th>Max capacity (MW)</th>
<th>State</th>
<th>Primary fuel(s)</th>
<th>Total unit CO2 (short tons)</th>
<th>Entergy share CO2 emissions (short tons)</th>
<th>Entergy share CH4 emissions from generation (short tons)</th>
<th>Entergy share N2O emissions from generation (short tons)</th>
<th>Total Facility CO2e in short tons</th>
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Stationary Combustion CEM

3/12/2012
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<th>EPA Acid Rain Unit ID (Entergy ID if different)</th>
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<th>Primary fuel(s)</th>
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<td>Total Facility CO2e in short tons</td>
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<td></td>
</tr>
<tr>
<td>Willow Glen</td>
<td>3</td>
<td>522 LA</td>
<td>100% Gas/Oil</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Willow Glen</td>
<td>4</td>
<td>568 LA</td>
<td>100% Gas/Oil</td>
<td>626649</td>
<td>626,649</td>
<td>251</td>
<td>376</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Willow Glen</td>
<td>5</td>
<td>559 LA</td>
<td>100% Gas/Oil</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Totals</td>
<td></td>
<td></td>
<td></td>
<td>2045</td>
<td>819,333</td>
<td>328</td>
<td>492</td>
<td></td>
<td></td>
<td>820,152</td>
</tr>
<tr>
<td>Totals</td>
<td></td>
<td></td>
<td></td>
<td>53,452,082</td>
<td>37,442,063</td>
<td>11,845</td>
<td>92,057</td>
<td></td>
<td></td>
<td>37,545,965</td>
</tr>
</tbody>
</table>

(1) CEM data reported to EPA Acid Rain program - can be verified at EPA’s Clean Air Market’s Database located at [http://camdataandmaps.epa.gov/gdm/index.cfm?fuseaction=emissions.wizard&EQW_datasetSelection=](http://camdataandmaps.epa.gov/gdm/index.cfm?fuseaction=emissions.wizard&EQW_datasetSelection=)

(2) Emissions factor derived from CH4 (in CO2e) as percentage of emissions from CO2 for a specific fuel type. See “Emissions and Conversion Factors” for EPA emissions factors for specific fuels; emissions factor for natural gas used for all dual-fuel units as this represents the larger fuel input

(3) Emissions factor derived from N2O (in CO2e) as percentage of emissions from CO2 for a specific fuel type. See “Emissions and Conversion Factors” for EPA emissions factors for specific fuels; emissions factor for natural gas used for all dual-fuel units as this represents the larger fuel input

(4) Emissions from Louisiana Station Plant 1 (Units 1A, 2A, 3A, 4A, 5A) are not included in the inventory; these units exist for the sole use of Exxon under a long term lease agreement.

(5) Emission data for RS Cogen is obtained directly from the EPA's Clean Air Market's Database located at [http://camdataandmaps.epa.gov/gdm/index.cfm?fuseaction=emissions.wizard&EQW_datasetSelection=](http://camdataandmaps.epa.gov/gdm/index.cfm?fuseaction=emissions.wizard&EQW_datasetSelection=)

(6) While Entergy owns 42% of Big Cajun 2 Unit 3, our actual consumption of the MWhs generated from this facility varies from 42% to 45%. CO2 emission number shown is based on actual consumption of MWhs received from Fossil Operations.

(7) Purchased in 2011 - transaction closed on April 29, 2011

(8) Purchased in 2011 - transaction closed on December 21, 2011 - data obtained from EPA CAMD website - calculated 11 days of emissions from Q4 number.
## Small combustion sources at all generation stations

Small stationary combustion sources were initially calculated for all known equipment co-located at generating stations using parameters (such as max energy input/hour) developed in internal emissions compliance documents and assumed equipment capacity factors. These emissions totals were calculated in 2005 and are assumed to be conservative (high) estimates of emissions. These estimates were used in inventories 2000-2010, i.e. new emissions totals have not been calculated for each year.

In 2011, Entergy reported 2010 GHG emissions from small sources co-located at Fossil plants in compliance with the EPA Mandatory Reporting Rule. Where available, these updated values have been substituted for the older, 2005 calculations. Nuclear and Thermal estimates continue to rely on the 2005 calculations.

### Fossil fuel generating stations

<table>
<thead>
<tr>
<th>Plant</th>
<th>Capacity (total MW of all units)</th>
<th>GHG Emissions reported under Mandatory Reporting Rule (short tons of all gases in 2010)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Buras</td>
<td>19</td>
<td>1,524.9</td>
</tr>
<tr>
<td>A.B. Paterson</td>
<td>159</td>
<td>0.0</td>
</tr>
<tr>
<td>Acadia(1)</td>
<td>57</td>
<td>0.0</td>
</tr>
<tr>
<td>Attala</td>
<td>455</td>
<td>0.0</td>
</tr>
<tr>
<td>Baxter Wilson</td>
<td>132</td>
<td>0.0</td>
</tr>
<tr>
<td>Big Cajun(1)</td>
<td>247</td>
<td>154.1</td>
</tr>
<tr>
<td>Calcasieu</td>
<td>310</td>
<td>337.4</td>
</tr>
<tr>
<td>Cecil Lynch</td>
<td>210</td>
<td>18.7</td>
</tr>
<tr>
<td>Delta</td>
<td>207</td>
<td>0.0</td>
</tr>
<tr>
<td>Gerald Andrus</td>
<td>761</td>
<td>11,781.5</td>
</tr>
<tr>
<td>Hamilton Moses</td>
<td>144</td>
<td>0.0</td>
</tr>
<tr>
<td>Harvey Couch</td>
<td>161</td>
<td>0.0</td>
</tr>
<tr>
<td>Independence</td>
<td>804</td>
<td>122.7</td>
</tr>
<tr>
<td>Lake Catherine</td>
<td>756</td>
<td>3,267.1</td>
</tr>
<tr>
<td>Lewis Creek</td>
<td>520</td>
<td>0.0</td>
</tr>
<tr>
<td>Little Gypsy</td>
<td>1250</td>
<td>3,335.7</td>
</tr>
<tr>
<td>Louisiana Station</td>
<td>354</td>
<td>0.0</td>
</tr>
<tr>
<td>Mablevale</td>
<td>56</td>
<td>14,939.8</td>
</tr>
<tr>
<td>Michoud</td>
<td>918</td>
<td>0.0</td>
</tr>
<tr>
<td>Monroe</td>
<td>73</td>
<td>0.0</td>
</tr>
<tr>
<td>Natchez</td>
<td>73</td>
<td>0.0</td>
</tr>
<tr>
<td>Ninemile Point</td>
<td>1827</td>
<td>0.0</td>
</tr>
<tr>
<td>Ouachita</td>
<td>770</td>
<td>16,003.8</td>
</tr>
<tr>
<td>Perryville</td>
<td>691</td>
<td>0.0</td>
</tr>
<tr>
<td>Rex Brown</td>
<td>354</td>
<td>144.2</td>
</tr>
<tr>
<td>RISEC(1)</td>
<td>583</td>
<td>0.0</td>
</tr>
<tr>
<td>Robert Ritchie</td>
<td>900</td>
<td>6.0</td>
</tr>
<tr>
<td>RS Cogen(1)</td>
<td>213</td>
<td>0.0</td>
</tr>
<tr>
<td>RS Nelson</td>
<td>1031</td>
<td>20,554.5</td>
</tr>
<tr>
<td>Sabine</td>
<td>1890</td>
<td>53,952.0</td>
</tr>
<tr>
<td>Sterlington</td>
<td>386</td>
<td>0.0</td>
</tr>
<tr>
<td>Waterford 1&amp;2</td>
<td>822</td>
<td>1,005.2</td>
</tr>
<tr>
<td>White Bluff</td>
<td>946</td>
<td>0.0</td>
</tr>
<tr>
<td>Willow Glen</td>
<td>1752</td>
<td>85,654.5</td>
</tr>
<tr>
<td><strong>Fossil fuel totals</strong></td>
<td><strong>21,544</strong></td>
<td><strong>212,802.0</strong></td>
</tr>
</tbody>
</table>

(1) Data obtained from EPA's GHG Data Publication Tool [http://ghgdata.epa.gov/ghgp/main.do]

### Other small plants

| Plant              | Charity boiler capacity | total MMBtu | total | tight |
|--------------------|-------------------------|-------------|-------|
| 3 boilers         | 52.9                    | 1,390,212   | 81,362|

### All small stat cbn totals

| Plant total small sources CO2 (short tons using 2005 estimate calculations) |
|-----------------------------|-----------------------------|-----------------------------|
| Vermont Yankee              | 510                         | 2,278                       |
| Pilgrim                     | 670                         | 14,818                      |
| James Fitzpatrick           | 825                         | 3,490                       |
| River Bend                  | 966                         | 687                         |
| Indian Point                | 970                         | 18,558                      |
| Indian Point 3              | 980                         | 80                          |
| Waterford 3                 | 1075                        | 7,042                       |
| Grand Gulf                  | 1210                        | 11,131                      |
| Arkansas Nuclear 1&2        | 1694                        | 11,728                      |
| **Nuclear totals**          | **8,900**                   | **69,872**                  |

| **All small source totals** | **30,444** | **363,976** |

All small stat cbn totals | 3/12/2012
# Direct Emissions from fossil fuel usage for company mobile fleet

("Mobile Combustion")

Note: The information below was collected and results calculated based on 2009 data.

<table>
<thead>
<tr>
<th>Fuel Description</th>
<th>Fuel Code</th>
<th>Units consumed (gal)</th>
<th>Assumptions/Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diesel</td>
<td>D</td>
<td>3,294,050</td>
<td></td>
</tr>
<tr>
<td>Gasoline</td>
<td>G</td>
<td>1,864,713</td>
<td></td>
</tr>
<tr>
<td>BiFuel-Gasoline/Ethanol</td>
<td>S</td>
<td>255,855</td>
<td>Bi-fuels are separated below into its constituent fuel type category and emissions calculated.</td>
</tr>
<tr>
<td>BiFuel-Gasoline/CNG</td>
<td>A</td>
<td>32,981</td>
<td></td>
</tr>
<tr>
<td>BiFuel-Gasoline/LPG</td>
<td>B</td>
<td>3,400</td>
<td></td>
</tr>
<tr>
<td>BiFuel-Diesel/Electricity</td>
<td>F</td>
<td>6,129</td>
<td></td>
</tr>
<tr>
<td>Propane</td>
<td>P</td>
<td>55</td>
<td></td>
</tr>
<tr>
<td>CNG</td>
<td>C</td>
<td>121</td>
<td></td>
</tr>
<tr>
<td>LPG</td>
<td>L</td>
<td>100</td>
<td></td>
</tr>
<tr>
<td>BiFuel-Gasoline/Electricity</td>
<td>H</td>
<td>29</td>
<td></td>
</tr>
<tr>
<td>Unknown</td>
<td></td>
<td>- 71,067</td>
<td></td>
</tr>
<tr>
<td>Jet fuel (4 aircraft count)</td>
<td></td>
<td>500,000</td>
<td>Estimated - from Oliver Trowbridge/Roger Burns</td>
</tr>
</tbody>
</table>

Total gallons consumed: 6,028,496

### Direct Emissions from fossil fuel usage for company mobile fleet

("Mobile Combustion")

Note: Emissions from Ethanol are considered "biogenic" emissions and do not contribute to net CO2 additions to the atmosphere. They are included with fossil fuel CO2 because it is de minimus.

#### Total units of each fuel type

<table>
<thead>
<tr>
<th>Fuel</th>
<th>Total units consumed (GALLONS)</th>
<th>conversion to energy content (MMBtu/gallon)</th>
<th>Total MMBtu consumed</th>
<th>Emissions Factor (lbs CO2/MMBtu)</th>
<th>Total CO2 Emissions (short tons)</th>
<th>Emissions Factor (kg CO2/Gallon)</th>
<th>Total CO2 Emissions (short tons)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diesel</td>
<td>3,335,096</td>
<td>0.1387</td>
<td>462,578</td>
<td>159.68</td>
<td>36,393</td>
<td>10.15</td>
<td>37,314</td>
</tr>
<tr>
<td>Gasoline</td>
<td>2,163,288</td>
<td>0.1251</td>
<td>270,627</td>
<td>156.44</td>
<td>21,168</td>
<td>8.81</td>
<td>21,008</td>
</tr>
<tr>
<td>Ethanol (E85)</td>
<td>25,586</td>
<td>0.0843</td>
<td>2,157</td>
<td>149.59</td>
<td>161</td>
<td>5.56</td>
<td>157</td>
</tr>
<tr>
<td>CNG</td>
<td>3,419</td>
<td>0.1251</td>
<td>428</td>
<td>116.41</td>
<td>25</td>
<td>See note 25</td>
<td></td>
</tr>
<tr>
<td>LPG</td>
<td>440</td>
<td>0.092</td>
<td>40</td>
<td>138.76</td>
<td>3</td>
<td>5.79</td>
<td>3</td>
</tr>
<tr>
<td>Propane</td>
<td>55</td>
<td>0.092</td>
<td>5</td>
<td>138.32</td>
<td>0</td>
<td>5.79</td>
<td>0</td>
</tr>
<tr>
<td>Jet fuel</td>
<td>500,000</td>
<td>0.135</td>
<td>67,500</td>
<td>154.72</td>
<td>5,222</td>
<td>9.57</td>
<td>5,274</td>
</tr>
<tr>
<td>Totals</td>
<td>6,027,884</td>
<td>803,335</td>
<td>63,512</td>
<td></td>
<td>63,781</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: Emissions from Ethanol are considered "biogenic" emissions and do not contribute to net CO2 additions to the atmosphere. They are included with fossil fuel CO2 because it is de minimus.

### Direct Emissions of N2O and CH4 from mobile fuel ("Mobile Combustion")

The calculation below uses conservative N2O and CH4 emissions factors to estimate these emissions from mobile sources. The emissions factors are from EPA Climate Leaders Guidance for construction vehicles.

#### N2O from mobile sources

<table>
<thead>
<tr>
<th>N2O from mobile sources</th>
<th>gallons consumed</th>
<th>g N2O/gal fuel</th>
<th>total kg N2O</th>
<th>short tons</th>
<th>CO2e short tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>gasoline</td>
<td>2,163,288</td>
<td>0.22</td>
<td>475.92</td>
<td>0.534</td>
<td>165.66</td>
</tr>
<tr>
<td>diesel</td>
<td>3,335,096</td>
<td>0.26</td>
<td>887.12</td>
<td>0.974</td>
<td>301.87</td>
</tr>
<tr>
<td>total</td>
<td></td>
<td></td>
<td></td>
<td>467.56</td>
<td></td>
</tr>
</tbody>
</table>

#### CH4 from mobile sources

<table>
<thead>
<tr>
<th>CH4 from mobile sources</th>
<th>gallons consumed</th>
<th>g CH4/gal fuel</th>
<th>total kg CH4</th>
<th>short tons</th>
<th>CO2e short tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>gasoline</td>
<td>2,163,288</td>
<td>0.50</td>
<td>1,081.64</td>
<td>1.215</td>
<td>25.51</td>
</tr>
<tr>
<td>diesel</td>
<td>3,335,096</td>
<td>0.04</td>
<td>149.68</td>
<td>0.168</td>
<td>3.53</td>
</tr>
<tr>
<td>total</td>
<td></td>
<td></td>
<td></td>
<td>29.04</td>
<td></td>
</tr>
</tbody>
</table>

### Total N2O and CH4 CO2e

Total Estimated Emissions from Mobile Sources (short tons CO2e): 64,278
The calculation below uses 2004 pipeline type data to estimate emissions from fugitive natural gas, as data for specific pipeline types was readily available. Miles of pipe have been converted to kilometers (km) as GRI provides emissions factors for km.

Data for number of services is from the DOT Natural Gas Distribution Annuals database for 2004. Data for meters is from 2004. Entergy natural gas operations do not include compressor stations; gas venting is minimized and not included in the calculations.

2010 - asked Gas Ops representatives to review these numbers - they indicated there have been no significant changes to the data below.

Note: The information below was collected and results calculated based on 2004 data. As this is a de minimus category, this information is not collected and/or recalculated.

### Pipeline Type Emissions

<table>
<thead>
<tr>
<th>Pipeline Type</th>
<th>Miles of Pipe</th>
<th>Conversion to km</th>
<th>Emissions Factor (metric ton CH4/km/year)</th>
<th>Total Metric Tons CH4</th>
<th>Total Short Tons CH4</th>
<th>Total Short Tons CO2e</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Transmission pipe - ENO</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bare Steel (unprotected mains)</td>
<td>0</td>
<td>0.00</td>
<td>0.0777</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Coated Steel (protected mains)</td>
<td>33</td>
<td>52.80</td>
<td>0.0043</td>
<td>0.22</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td>Plastic</td>
<td>0</td>
<td>0.00</td>
<td>0.0064</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Sub-total</strong></td>
<td>33</td>
<td>52.80</td>
<td></td>
<td>0</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td><strong>Main pipe - ENO</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Steel (protected, coated)</td>
<td>1,026</td>
<td>1,641.60</td>
<td>0.0365</td>
<td>60</td>
<td>66</td>
<td>1,387</td>
</tr>
<tr>
<td>Steel (protected, bare)</td>
<td>0</td>
<td>0.00</td>
<td>0.00365</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Steel (unprotected)</td>
<td>0</td>
<td>0.00</td>
<td>1.3111</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Cast iron</td>
<td>324</td>
<td>518.40</td>
<td>2.8409</td>
<td>1,473</td>
<td>1,623</td>
<td>34,091</td>
</tr>
<tr>
<td>Plastic</td>
<td>145</td>
<td>232.00</td>
<td></td>
<td>45</td>
<td>50</td>
<td>1,049</td>
</tr>
<tr>
<td><strong>Sub-total</strong></td>
<td>1,495</td>
<td>2,392.00</td>
<td></td>
<td>1,578</td>
<td>1,740</td>
<td>36,527</td>
</tr>
<tr>
<td><strong>Main pipe - EGSi</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Steel (protected, coated)</td>
<td>848</td>
<td>1,356.80</td>
<td>0.0365</td>
<td>50</td>
<td>55</td>
<td>1,146</td>
</tr>
<tr>
<td>Steel (protected, bare)</td>
<td>4</td>
<td>4.60</td>
<td>0.00365</td>
<td>0</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td>Steel (unprotected)</td>
<td>0</td>
<td>0.00</td>
<td>1.3111</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Cast iron</td>
<td>723</td>
<td>1,156.80</td>
<td>0.1953</td>
<td>226</td>
<td>249</td>
<td>5,230</td>
</tr>
<tr>
<td>Plastic</td>
<td>43,345</td>
<td>1,156.80</td>
<td></td>
<td>87</td>
<td>92</td>
<td>181</td>
</tr>
<tr>
<td><strong>Sub-total</strong></td>
<td>132,498</td>
<td>2,392.00</td>
<td></td>
<td>3,531</td>
<td>3,892</td>
<td>10,065</td>
</tr>
</tbody>
</table>

### Services Emissions

<table>
<thead>
<tr>
<th>Services</th>
<th># of services</th>
<th>Emissions factor (metric ton CH4/service/year)</th>
<th>Total Metric Tons CH4</th>
<th>Total Short Tons CH4</th>
<th>Total Short Tons CO2e</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cathodically protected (coated steel)</td>
<td>43,585</td>
<td>0.0034</td>
<td>148</td>
<td>163</td>
<td>3,430</td>
</tr>
<tr>
<td>Unprotected (coated steel)</td>
<td>76,733</td>
<td>0.0326</td>
<td>2,499</td>
<td>2,755</td>
<td>57,852</td>
</tr>
<tr>
<td>Plastic</td>
<td>12,180</td>
<td>0.0002</td>
<td>2</td>
<td>2</td>
<td>51</td>
</tr>
<tr>
<td><strong>Sub-total</strong></td>
<td>132,498</td>
<td>0.00</td>
<td>3,531</td>
<td>3,892</td>
<td>10,065</td>
</tr>
</tbody>
</table>

### Customer Meters Emissions

<table>
<thead>
<tr>
<th>Meters</th>
<th># of meters</th>
<th>Emissions factor (metric ton CH4/meter/year)</th>
<th>Total Metric Tons CH4</th>
<th>Total Short Tons CH4</th>
<th>Total Short Tons CO2e</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential meters</td>
<td>138,560</td>
<td>0.00265</td>
<td>367.18</td>
<td>404.75</td>
<td>8,499.69</td>
</tr>
<tr>
<td>Commercial meters (1)</td>
<td>7,463</td>
<td>0.00092</td>
<td>6.87</td>
<td>7.57</td>
<td>158.94</td>
</tr>
<tr>
<td><strong>Residential meters</strong></td>
<td>146,023</td>
<td>0.0036</td>
<td>374.05</td>
<td>412.32</td>
<td>8,658.63</td>
</tr>
<tr>
<td>Commercial meters (1)</td>
<td>4,993</td>
<td>0.00092</td>
<td>4.59</td>
<td>5.06</td>
<td>106.33</td>
</tr>
<tr>
<td><strong>Sub-total</strong></td>
<td>236,573</td>
<td>0.0036</td>
<td>428.64</td>
<td>468.38</td>
<td>9,724.96</td>
</tr>
</tbody>
</table>

### Spindletop Storage

<table>
<thead>
<tr>
<th>Storage facility</th>
<th># of storage facilities</th>
<th>Emissions factor (metric ton CH4/station-yr)</th>
<th>Total Metric Tons CH4</th>
<th>Total Short Tons CH4</th>
<th>Total Short Tons CO2e</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fugitive emissions from storage facilities</td>
<td>1</td>
<td>6.75E+02</td>
<td>675.4</td>
<td>745.0</td>
<td>15,644</td>
</tr>
<tr>
<td>Vented emissions from storage facilities</td>
<td>1</td>
<td>217.3</td>
<td>217.3</td>
<td>239.7</td>
<td>5,033</td>
</tr>
<tr>
<td><strong>Sub-total</strong></td>
<td>20,678</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Total CO2e from pipeline system: 111,976

Total short tons CO2e: 146,669
Direct emissions of escaped SF6 in electricity T&D system ("Fugitive emissions")

Note: The information below was collected and results calculated based on 2009 inventory turnover data. Basically, as Entergy orders SF6, it is assumed that the ordered amount is required to replace SF6 that has been emitted.

The data input below (lbs of fugitive SF6) has been calculated outside of this spreadsheet in a mass balance calculation tool provided by the EPA SF6 reduction program.

<table>
<thead>
<tr>
<th>SF6 Emissions (lbs) (1)</th>
<th>Potential (GWP) (2)</th>
<th>Equivalent Emissions</th>
</tr>
</thead>
<tbody>
<tr>
<td>15,295</td>
<td>23,900</td>
<td>182,775</td>
</tr>
</tbody>
</table>

1) Assumes 115 lbs per cylinder
2) SF6 GWP from the IPCC Third Assessment Report
### Direct Emissions of Fugitive HFCs in all utility cooling and A/C equipment

This sheet contains calculations for all sources of fugitive HFCs. HFCs from all sources are considered de minimus (i.e. insignificant in the Entergy corporate total). The activity data required to provide the highest level of accuracy is difficult and impractical to obtain for such a small source. Instead, emissions factors have been created based on national averages for a number of variables to provide a rough estimate of these emissions. The methodology behind these emissions factors is found below.

These CO2e totals are calculated using data, provided in 2005, that does not change significantly between inventory years. These same data and emissions totals are used each year.

2010 Update - Facilities indicates that there is no significant change to these numbers; therefore, these numbers will continue to be carried forward each year.

#### 2004

<table>
<thead>
<tr>
<th>From all Entergy air-conditioned spaces</th>
<th>Square footage air-conditioned</th>
<th>EF: fugitive HFCs (short tons CO2e/sq ft)</th>
<th>Facility fugitive HFC (short tons CO2e)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Entergy owned space</td>
<td>2,578,000</td>
<td>0.00092</td>
<td>2,372</td>
</tr>
<tr>
<td>Entergy capital lease space</td>
<td>830,000</td>
<td>0.00092</td>
<td>764</td>
</tr>
<tr>
<td>Generation plant space</td>
<td>2,000,000</td>
<td>0.00092</td>
<td>1,840</td>
</tr>
<tr>
<td><strong>Total Fugitive HFCs</strong></td>
<td><strong>5,408,000</strong></td>
<td><strong>0.00092</strong></td>
<td><strong>4,975</strong></td>
</tr>
</tbody>
</table>

* Calculation for estimating fugitive HFC emissions from building space using A/C

<table>
<thead>
<tr>
<th>Facility used in calculating the emissions factor for metric tons of CO2e HFC.</th>
<th>Average cooling capacity of chiller (kWton of cooling capacity)</th>
<th>EF: fugitive HFCs (kg HFC/ton of cooling)</th>
<th>Annual HFC loss factor (percent)</th>
<th>Total Annual HFC losses (MT HFC/1000 ft²)</th>
<th>Total Annual HFC losses (MT CO2e/1000 ft²)</th>
<th>Total Annual HFC losses (MT CO2e)/ft²</th>
</tr>
</thead>
<tbody>
<tr>
<td>NORMC (medical center) centrifugal chiller</td>
<td>14,000</td>
<td>15.00%</td>
<td>1.365</td>
<td>2,664</td>
<td></td>
<td></td>
</tr>
<tr>
<td>USP (Union Station) centrifugal chillers</td>
<td>15,370</td>
<td>15.00%</td>
<td>1,499</td>
<td>2,864</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Total fugitive HFC emissions**

10,089 short tons CO2e

#### From Nuclear facility

<table>
<thead>
<tr>
<th>Is HFC charged to equipment</th>
<th>EF: fugitive HFCs as CO2e (GWP=1300)</th>
<th>Facility fugitive HFC (short tons CO2e)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Entergy nuclear facilities do not use HFCs for cooling.

#### From all Entergy-owned vehicles

<table>
<thead>
<tr>
<th>Total CO2 from all mobile source fuels are included</th>
<th>EF: HFC as % of CO2 emissions **</th>
<th>Facility fugitive HFC (short tons CO2e)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vehicular A/C</td>
<td>64,278</td>
<td>3.50%</td>
</tr>
</tbody>
</table>

Total CO2 from all mobile source fuels are included.

#### From Entergy-owned district cooling operations

<table>
<thead>
<tr>
<th>Total charge of equipment</th>
<th>Conservative loss factor</th>
<th>Fugitive emissions (short tons CO2e)</th>
</tr>
</thead>
<tbody>
<tr>
<td>NORMC (medical center)</td>
<td>14,000</td>
<td>3.90%</td>
</tr>
<tr>
<td>USP (Union Station)</td>
<td>15,370</td>
<td>15.00%</td>
</tr>
</tbody>
</table>

NORMC chillers have 14,000 lbs charge total

USP has 3 chillers rated at 1933 tons each; assumed 2.65 lbs. (1.2 kg) HFCs per ton cooling

Loss factor is conservative; fewer annual fugitive gas is likely

**Total fugitive HFC emissions**

10,089 short tons CO2e

#### Calculation to estimate fugitive HFC emissions from building space using A/C

**Calculation to estimate HFCs from mobile A/C as percentage of CO2 emissions from mobile sources using national averages for equipment leakage and miles/gallon**

<table>
<thead>
<tr>
<th>Vehicle type</th>
<th>Equipment Leakage Rate (percentage)</th>
<th>CO2 Emissions (kg CO2e/yr-wet); GWP=13000</th>
<th>Miles per gallon</th>
<th>CO2 Emissions (kg CO2e/gal)</th>
<th>Emissions Factor (kg CO2e/MJ)</th>
<th>CO2 Emissions (kg CO2e/MJ)</th>
<th>Emissions Factor (kg CO2e/1000 ft²)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Car</td>
<td>20%</td>
<td>208</td>
<td>15,000</td>
<td>8.87</td>
<td>6.55</td>
<td>0.84</td>
<td>0.000084</td>
</tr>
<tr>
<td>Light truck</td>
<td>20%</td>
<td>312</td>
<td>15,000</td>
<td>8.87</td>
<td>6.55</td>
<td>0.84</td>
<td>0.000084</td>
</tr>
</tbody>
</table>

Source: EPA Climate Leaders Guidance, January 2004. Note: This estimate is the source of the greatest uncertainty in the calculation, since the range is ±15%, and the average is probably more like 5%.

This is the emissions factor that is applied to the square footage of air-conditioned space. This EF includes the global warming potential for HFC 134a (1,300).

Source: ASHRAE (http://www.themcdermottgroup.com/News/ASHRAE%20Issues/Rule%20of%20Thumb%20Sizing.htm) Note that this is a conservative estimate - a reasonably designed building should be more like 400.

Source: USGBC (http://www.usgbc.org/LEED/tsac/energy.asp) Source: EPA Climate Leaders Guidance, January 2004. Note: This estimate is the source of the greatest uncertainty in the calculation, since the range is ±15%, and the average is probably more like 5%.

This sheet contains calculations for all sources of fugitive HFCs. HFCs from all sources are considered de minimus (i.e. insignificant in the Entergy corporate total). The activity data required to provide the highest level of accuracy is difficult and impractical to obtain for such a small source. Instead, emissions factors have been created based on national averages for a number of variables to provide a rough estimate of these emissions. The methodology behind these emissions factors is found below.

2010 Update - Facilities indicates that there is no significant change to these numbers; therefore, these numbers will continue to be carried forward each year.
### Power purchased to serve utility customers

#### Controllable power purchases

<table>
<thead>
<tr>
<th>State</th>
<th>Year</th>
<th>Unit-Specific Emission Factor (lbs CO2/MWh)</th>
<th>Total CO2 emissions from power (short tons)</th>
<th>Comments/Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Total Entergy purchased from plant (MWh)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Total DU Power Purchases (from Utility Acctg)</td>
<td>Total CO2e from Controllable Purchases 8,331,811 short tons</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Non-controllable - system power purchases</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Total CO2e from losses from purchased power 895,395 short tons</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>CO2 emissions from T&amp;D losses of purchased power on Entergy system</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>CH4 emissions from T&amp;D losses of purchased power on Entergy system</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>N2O emissions from T&amp;D losses of purchased power on Entergy system</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Total CO2e - losses 8,035,012 short tons</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Loss factor 5.4%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The emissions factors below have been updated from the EPA Climate Leaders GHG inventory Protocol, October 2004.

### Fuel type

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Liquid fossil</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gasoline/petrol</td>
<td>5.020</td>
<td>19.34</td>
<td>0.99</td>
<td>52.9</td>
<td>55.2</td>
<td>204.5</td>
<td>0.030</td>
<td>0.005</td>
<td>1.8</td>
<td>0.87</td>
<td>3.78</td>
<td>0.063</td>
<td>0.028</td>
</tr>
<tr>
<td>Jet Fuel</td>
<td>5.670</td>
<td>19.72</td>
<td>0.99</td>
<td>51.8</td>
<td>54.6</td>
<td>205.8</td>
<td>0.033</td>
<td>0.006</td>
<td>1.6</td>
<td>0.87</td>
<td>3.59</td>
<td>0.057</td>
<td>0.026</td>
</tr>
<tr>
<td>Aviation gasoline</td>
<td>5.040</td>
<td>18.5</td>
<td>0.95</td>
<td>58.5</td>
<td>62.3</td>
<td>245.6</td>
<td>0.123</td>
<td>0.003</td>
<td>1.8</td>
<td>0.87</td>
<td>3.87</td>
<td>0.063</td>
<td>0.028</td>
</tr>
<tr>
<td>Distillate fuel</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>#1, #2, #4, diesel</td>
<td>5.820</td>
<td>19.95</td>
<td>0.99</td>
<td>72.4</td>
<td>22.3</td>
<td>933.1</td>
<td>0.057</td>
<td>0.003</td>
<td>2.7</td>
<td>0.87</td>
<td>3.96</td>
<td>0.071</td>
<td>0.033</td>
</tr>
<tr>
<td>Residual fuel oil</td>
<td>6.287</td>
<td>21.49</td>
<td>0.99</td>
<td>78.01</td>
<td>11.6</td>
<td>490.4</td>
<td>0.123</td>
<td>0.003</td>
<td>2.7</td>
<td>0.87</td>
<td>3.96</td>
<td>0.071</td>
<td>0.033</td>
</tr>
<tr>
<td>LPG</td>
<td>3.861</td>
<td>17.25</td>
<td>0.99</td>
<td>62.62</td>
<td>5.65</td>
<td>237.4</td>
<td>0.030</td>
<td>0.005</td>
<td>1.8</td>
<td>0.87</td>
<td>3.78</td>
<td>0.063</td>
<td>0.028</td>
</tr>
<tr>
<td>Propane</td>
<td>3.824</td>
<td>17.2</td>
<td>0.99</td>
<td>62.44</td>
<td>5.71</td>
<td>239.9</td>
<td>0.030</td>
<td>0.005</td>
<td>1.6</td>
<td>0.87</td>
<td>3.59</td>
<td>0.057</td>
<td>0.026</td>
</tr>
<tr>
<td>Ethane</td>
<td>3.916</td>
<td>16.25</td>
<td>0.99</td>
<td>56.99</td>
<td>4.12</td>
<td>172.9</td>
<td>0.021</td>
<td>0.003</td>
<td>1.6</td>
<td>0.87</td>
<td>3.59</td>
<td>0.057</td>
<td>0.026</td>
</tr>
<tr>
<td>Ethylene</td>
<td>4.326</td>
<td>17.22</td>
<td>0.99</td>
<td>64.32</td>
<td>6.65</td>
<td>279.8</td>
<td>0.044</td>
<td>0.004</td>
<td>1.6</td>
<td>0.87</td>
<td>3.59</td>
<td>0.057</td>
<td>0.026</td>
</tr>
<tr>
<td>Butane</td>
<td>4.650</td>
<td>17.22</td>
<td>0.99</td>
<td>64.43</td>
<td>6.65</td>
<td>269.5</td>
<td>0.044</td>
<td>0.004</td>
<td>1.6</td>
<td>0.87</td>
<td>3.59</td>
<td>0.057</td>
<td>0.026</td>
</tr>
<tr>
<td>NGL</td>
<td>6.004</td>
<td>27.85</td>
<td>0.95</td>
<td>101.10</td>
<td>609.50</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Gaseous fossil</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Natural gas (dry)</td>
<td>1.027</td>
<td>14.47</td>
<td>0.99</td>
<td>52.79</td>
<td>5.643</td>
<td>116.41</td>
<td>0.0116</td>
<td>0.004</td>
<td>1.03</td>
<td>0.0116</td>
<td>2.18</td>
<td>0.030</td>
<td>0.002</td>
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<tr>
<td>Solid fossil</td>
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<td></td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>Anthracite</td>
<td>25.08</td>
<td>28.26</td>
<td>0.99</td>
<td>102.58</td>
<td>2.588</td>
<td>226.20</td>
<td>0.6753</td>
<td>0.003</td>
<td>1.03</td>
<td>0.0116</td>
<td>2.18</td>
<td>0.030</td>
<td>0.002</td>
</tr>
<tr>
<td>Bituminous coal</td>
<td>24.93</td>
<td>25.49</td>
<td>0.99</td>
<td>92.53</td>
<td>2.3067</td>
<td>204.03</td>
<td>0.5063</td>
<td>0.002</td>
<td>1.03</td>
<td>0.0116</td>
<td>2.18</td>
<td>0.030</td>
<td>0.002</td>
</tr>
<tr>
<td>Sub-bituminous coal</td>
<td>17.25</td>
<td>28.48</td>
<td>0.99</td>
<td>98.12</td>
<td>1.6581</td>
<td>211.95</td>
<td>0.3656</td>
<td>0.001</td>
<td>0.99</td>
<td>0.0116</td>
<td>1.90</td>
<td>0.029</td>
<td>0.001</td>
</tr>
<tr>
<td>Lignite</td>
<td>14.21</td>
<td>28.3</td>
<td>0.99</td>
<td>95.47</td>
<td>1.3561</td>
<td>212.51</td>
<td>0.1493</td>
<td>0.001</td>
<td>1.03</td>
<td>0.0116</td>
<td>2.18</td>
<td>0.030</td>
<td>0.001</td>
</tr>
<tr>
<td>Coke</td>
<td>24.80</td>
<td>27.86</td>
<td>0.99</td>
<td>101.16</td>
<td>2.5077</td>
<td>222.92</td>
<td>0.5282</td>
<td>0.002</td>
<td>1.03</td>
<td>0.0116</td>
<td>2.18</td>
<td>0.030</td>
<td>0.002</td>
</tr>
<tr>
<td>Unspecified (res gaz)</td>
<td>23.91</td>
<td>25.95</td>
<td>0.99</td>
<td>94.31</td>
<td>1.3455</td>
<td>257.95</td>
<td>0.4299</td>
<td>0.002</td>
<td>1.03</td>
<td>0.0116</td>
<td>2.18</td>
<td>0.030</td>
<td>0.002</td>
</tr>
<tr>
<td>Unspecified (ind)</td>
<td>23.03</td>
<td>25.75</td>
<td>0.99</td>
<td>93.47</td>
<td>2.1514</td>
<td>208.11</td>
<td>0.4744</td>
<td>0.002</td>
<td>1.03</td>
<td>0.0116</td>
<td>2.18</td>
<td>0.030</td>
<td>0.002</td>
</tr>
<tr>
<td>Wood and wood waste</td>
<td>15.38 MMBtu/short ton</td>
<td>25.6</td>
<td>0.99</td>
<td>92.93</td>
<td>1.42923</td>
<td>204.91</td>
<td>3.1352</td>
<td>0.006</td>
<td>1.03</td>
<td>0.0116</td>
<td>2.18</td>
<td>0.030</td>
<td>0.006</td>
</tr>
<tr>
<td>Landfill gas (50/50)</td>
<td>20.55 MMBtu/short ton</td>
<td>14.2</td>
<td>0.99</td>
<td>51.81</td>
<td>0.9620</td>
<td>114.24</td>
<td>0.3733</td>
<td>0.008</td>
<td>1.03</td>
<td>0.0116</td>
<td>2.18</td>
<td>0.030</td>
<td>0.008</td>
</tr>
<tr>
<td>Redcedd</td>
<td>9.29</td>
<td>14.2</td>
<td>0.99</td>
<td>65.35</td>
<td>5.543</td>
<td>143.99</td>
<td>12.13</td>
<td>0.5966</td>
<td>1.03</td>
<td>0.0116</td>
<td>2.18</td>
<td>0.030</td>
<td>0.006</td>
</tr>
</tbody>
</table>

Note: CH4 and N2O emissions factors for all mobile sources are dependent on many variables; for mobile sources consult the EPA Guidance Protocol. Use the CH4/N2O emissions factors above for all coal types.

Emission Factors 3/12/2012

Note: it is assumed the combustion of biomass and biofuels does not contribute to net CO2 emissions. As a result, CH4/N2O emissions factors are not included in the overall CO2-equivalent emissions corporate inventory.
Conversion Factors used in this inventory

<table>
<thead>
<tr>
<th>Mass</th>
<th>1 pound (lb)</th>
<th>453.6 grams (g)</th>
<th>0.4536 kilograms (kg)</th>
<th>0.0004536 metric tons (tonne)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1 kilogram (kg)</td>
<td>2.205 pounds (lb)</td>
<td>.0011023 short tons</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1 short ton (ton)</td>
<td>2'000 pounds (lb)</td>
<td>907.2 kilograms (kg)</td>
<td>.9072 metric tons</td>
</tr>
<tr>
<td></td>
<td>1 metric ton</td>
<td>2'205 pounds (lb)</td>
<td>1'000 kilograms (kg)</td>
<td>1.1023 short tons (tons)</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>Volume</th>
<th>1 cubic foot (ft $^3$)</th>
<th>7.4805 US gallons (gal)</th>
<th>0.1781 barrel (bbl)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1 cubic foot (ft $^3$)</td>
<td>28.32 liters (L)</td>
<td>0.02832 cubic meters (m $^3$)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1 US gallon (gal)</td>
<td>0.0238 barrel (bbl)</td>
<td>3.785 liters (L)</td>
<td>0.003785 cubic meters (m $^3$)</td>
</tr>
<tr>
<td></td>
<td>1 barrel (bbl)</td>
<td>42 US gallons (gal)</td>
<td>158.99 liters (L)</td>
<td>0.1589 cubic meters (m $^3$)</td>
</tr>
<tr>
<td></td>
<td>1 litre (L)</td>
<td>0.001 cubic meters (m $^3$)</td>
<td>0.2642 US gallons (gal)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1 cubic meter (m $^3$)</td>
<td>6.2897 barrels (bbl)</td>
<td>264.2 US gallons (gal)</td>
<td>1'000 liters (L)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Energy</th>
<th>1 kilowatt hour (kWh)</th>
<th>3'600 kilojoules (KJ)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1 megajoule (MJ)</td>
<td>0.001 gigajoules (GJ)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1 gigajoule (GJ)</td>
<td>0.9478 million Btu (million btu)</td>
<td>277.8 kilowatt hours (kWh)</td>
</tr>
<tr>
<td></td>
<td>1 Btu (btu)</td>
<td>1'055 joules (J)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1 million Btu (million btu)</td>
<td>1.055 gigajoules (GJ)</td>
<td>293 kilowatt hours (kWh)</td>
</tr>
<tr>
<td></td>
<td>1 therm (therm)</td>
<td>100'000 btu</td>
<td>0.1055 gigajoules (GJ)</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Other</th>
<th>kilo</th>
<th>1'000</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>mega</td>
<td>1'000'000</td>
<td></td>
</tr>
<tr>
<td></td>
<td>giga</td>
<td>1'000'000'000</td>
<td></td>
</tr>
<tr>
<td></td>
<td>tera</td>
<td>1'000'000'000'000</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1 psi</td>
<td>14.5037 bar</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1 kgf / cm $^3$ (tech atm)</td>
<td>1.0197 bar</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1 atmosphere (atm)</td>
<td>0.9869 bar</td>
<td>101.325 kilo pascals</td>
</tr>
<tr>
<td></td>
<td>1 mile (statue)</td>
<td>1.609 kilometers</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1 metric ton CH$_4$</td>
<td>21 metric tons CO$_2$ equivalent</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1 metric ton N$_2$O</td>
<td>310 metric tons CO$_2$ equivalent</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1 metric ton carbon</td>
<td>3.664 metric tons CO$_2$</td>
<td></td>
</tr>
<tr>
<td>Greenhouse Gas</td>
<td>Atmospheric Lifetime</td>
<td>Global Warming Potential</td>
<td></td>
</tr>
<tr>
<td>------------------------</td>
<td>----------------------</td>
<td>--------------------------</td>
<td></td>
</tr>
<tr>
<td>Carbon dioxide (CO2)</td>
<td>50-200</td>
<td>1</td>
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</tr>
<tr>
<td>Methane (CH4)</td>
<td>12 +/- 3</td>
<td>21</td>
<td></td>
</tr>
<tr>
<td>Nitrous oxide (N2O)</td>
<td>120</td>
<td>310</td>
<td></td>
</tr>
<tr>
<td>HFC-23</td>
<td>264</td>
<td>11,700</td>
<td></td>
</tr>
<tr>
<td>HFC-125</td>
<td>32.6</td>
<td>2,800</td>
<td></td>
</tr>
<tr>
<td>HFC-134a</td>
<td>14.6</td>
<td>1,300</td>
<td></td>
</tr>
<tr>
<td>HFC-143a</td>
<td>48.3</td>
<td>3,800</td>
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<tr>
<td>HFC-152a</td>
<td>1.5</td>
<td>140</td>
<td></td>
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<tr>
<td>HFC-227ea</td>
<td>36.5</td>
<td>2,900</td>
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</tr>
<tr>
<td>HFC-236fa</td>
<td>209</td>
<td>6,300</td>
<td></td>
</tr>
<tr>
<td>HFC-4310mee</td>
<td>17.1</td>
<td>1,300</td>
<td></td>
</tr>
<tr>
<td>CF4</td>
<td>50,000</td>
<td>6,500</td>
<td></td>
</tr>
<tr>
<td>C2F6</td>
<td>10,000</td>
<td>9,200</td>
<td></td>
</tr>
<tr>
<td>C4F10</td>
<td>2,600</td>
<td>7,000</td>
<td></td>
</tr>
<tr>
<td>C6F14</td>
<td>3,200</td>
<td>7,400</td>
<td></td>
</tr>
<tr>
<td>SF6</td>
<td>3,200</td>
<td>23,900</td>
<td></td>
</tr>
</tbody>
</table>

Source: IPCC 1996; Second Assessment Report (SAR). Although the GWPs have been updated by the IPCC in the Third Assessment Report (TAR), estimates of emissions presented in the US Inventory will continue to use the GWPs from the Second Assessment Report.

a 100 year time horizon
b The methane GWP includes the direct effects and those indirect effects due to the production of tropospheric ozone and stratospheric water vapor.

The indirect effect due to the production of CO2 is not included.
Color key to calculations in the Entergy GHG Inventory

The colored heading cells in each worksheet of this GHG inventory enable inventory managers and users update and understand the role of each step of the calculation process.

**Yellow** Specific fuel or gas calculated  This heading identifies the fuel and emissions being calculated below it.

**Red** Annual activity data input  This is an input cell for company activity or usage data related to this emissions source for a given facility, source or even corporate-wide. Examples of input data are gallons of gasoline, lbs of CO2 (provided as CEM data), or square footage of building space occupied by the company. This activity data is currently identified in the units provided during the completion of PNM’s GHG inventory for years 2001-2003. For some de minimus emissions sources (such as fugitive HFCs from building space.

**Orange** Calculation constant  This cell contain as constant (coefficient) such as a conversion factor or unit measurement and does not to be changed annually unless there is a change to an emissions factor, input units or facility status.

**Green** Calculation conversion subtotal  This figure is calculated automatically and is a subtotal or unit conversion resulting from a spreadsheet calculation such as MMBtu converted from mcf or gallons. This cell contains an emissions or conversion factor in its formula.

**Blue** Emissions source total  This figure is calculated automatically and is a total of CO2e (CO2-equivalent) for a given emissions source (e.g. a facility or equipment type) and the sum of individual sources is carried into the annual corporate emissions table. This cell contains an emissions or conversion factor in its formula.

**123.45** Emissions source total  Bolded cells contain a figure for total emissions in CO2e for that source and are carried to the corporate emissions totals sheet for emissions source comparison.
Attachment 2

Entergy Corporation General Emissions Source Checklist
(completed in 2005 during initial inventory development phase)
# Entergy Corporation General Emission Source Checklist

(completed in 2005 during initial inventory development phase)

<table>
<thead>
<tr>
<th>Emissions source category</th>
<th>GHG</th>
<th>Emissions source</th>
<th>Data Source/Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direct emissions</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Stationary Combustion</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fossil fuels</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CO2</td>
<td></td>
<td>Boilers</td>
<td>CEMS data from Fossil Environmental Support Group</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Emergency/Backup Generation and other Small Sources</td>
<td>An inventory of all potential emission sources at Entergy locations was performed in 1994. The package of information for each Fossil site that includes a summary table of potential emission sources and maximum heat input for each non-boiler combustion source. This information was supplemented by information in air permits.</td>
</tr>
<tr>
<td></td>
<td>CH4</td>
<td>CH4 from stationary combustion</td>
<td>Calculated from CEMS data</td>
</tr>
<tr>
<td></td>
<td>N2O</td>
<td>N2O from stationary combustion</td>
<td>Calculated from CEMS data</td>
</tr>
<tr>
<td>Mobile Combustion</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fossil Fuels</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CO2</td>
<td>employee transportation in company vehicles</td>
<td>See spreadsheet for fuel activity by year, mileage driven by year, number of vehicles by type (car, light truck, heavy trucks, etc.) and by fuel. These data, along with emission factors, were used to estimate emissions from these sources.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>company service vehicles</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CH4</td>
<td>CH4 from mobile combustion</td>
<td>Source is Entergy's Manager of Transportation</td>
<td></td>
</tr>
<tr>
<td></td>
<td>N2O</td>
<td>N2O from mobile combustion</td>
<td></td>
</tr>
<tr>
<td>Fugitive Emissions</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| Gas Distribution System Line Losses | CH4 | Leaks in or venting of gas distribution system in New Orleans and Baton Rouge | Lost and Unaccounted for Gas (LUF) for 2000 - 2004 from the Statistical Report is one source of this data; however, it may not be accurate enough. Subsequently, an alternative equipment-based calculation was used for estimating emissions (see below)
|                           |     |                                                       | Gas Distribution Operations provided these data and they can also be found in the Statistical Report. (Line Losses (LUF)) - Mike Leger - Manager, Gas Distribution Operations Support (8-567-3579) |
|                           |     |                                                       | Basically, these numbers represent the starting inventory + purchases                |
Entergy Corporation General Emission Source Checklist
(completed in 2005 during initial inventory development phase)

<table>
<thead>
<tr>
<th>Category</th>
<th>Emissions Source</th>
<th>Emission Type</th>
<th>Details</th>
</tr>
</thead>
</table>
| **T&D Equipment Gas Loss**      | SF6              | Leakage of SF6 from certain types of T&D equipment | 2003 1605(b) report SF6 Management Program – T&D Environmental Management provided 2004 emissions
1997 - 1082.42 lbs
1998 - 649.62 lbs
1999 - 649.62 lbs
2000 – NO DATA
2001 – NO DATA
2002 - 30,360 lbs
2003 – NO DATA
2004 – 22700 lbs
T&D Environmental Management has developed a protocol to derive these emissions. |
| **Cooling Operations**          | HFC              | Building cooling/air conditioning | Owned square footage: 2,578,000
Capital leased square footage: 830,000
These numbers do not include power plants, estimate 25,000 - 50,000 square feet per power plant
Source is Manager, Real Estate |
| **Mobile air conditioning**     |                  | Derived from vehicle usage information – see item above. Emission factor used to estimate HFC emissions from this source |
| **District Cooling Operations** |                  | Information regarding equipment/coolant ratings and capacities obtained from the Director, Thermal Operations. Emission factors used to estimate emissions. |

**Indirect Emissions**

<table>
<thead>
<tr>
<th>Source</th>
<th>Emission</th>
<th>Details</th>
</tr>
</thead>
</table>
| **Fossil Fuels**                | CO2 purchased electricity     | 2000 – 24.05 million MWh
2001 – 19.32 million MWh
2002 – 27.16 million MWh |
| CH4 purchased electricity       | 2003 – 37.57 million MWh (Controllable = 6.61; balance is UC)
2004 – 38.05 million MWh (Controllable = 9.23; balance is UC) |
| N2O purchased electricity       | Information regarding specific sources of purchased power was not tracked in 2000 - 2002; therefore, unit-specific data required to calculate emissions is not available for this timeframe. However, unit-specific data is available for 2003 and 2004. All of this information obtained from System Planning and Operations |
| **Transmission and Distribution** | CO2 Losses from electricity T&D for purchased power only | USEPA/Climate Leaders is currently developing a protocol to calculate these emissions. Currently, this is not included in Entergy's GHG inventory. |
| Green power                     | Purchased Green Power (non-biomass) | 2000 - 488.922 MWh |
In 2000, Entergy owned and operated 3 hydro facilities totaling 150 MW. Additionally, Entergy purchased power from other hydro assets…this total is shown. This information was obtained from Entergy's 1605(b) report. |
Attachment 3

IMPRD Revision Log
## Entergy GHG IMP and Reporting Document Revision Log

<table>
<thead>
<tr>
<th>Revision No</th>
<th>Revision Date</th>
<th>Reason for Revision</th>
<th>Additional Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>July 2005</td>
<td>Original DRAFT</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>8/16/05</td>
<td>Revised Draft</td>
<td>Editorial/technical comments from Fossil Operations, Nuclear Operations, and T&amp;D included</td>
</tr>
<tr>
<td>3</td>
<td>9/30/05</td>
<td>FINAL DRAFT</td>
<td>Editorial/technical comments from Platts/E-source</td>
</tr>
<tr>
<td>4</td>
<td>12/21/05</td>
<td>FINAL VERSION</td>
<td>Changes made to reflect approved GHG reduction goal – 2nd commitment</td>
</tr>
<tr>
<td>5</td>
<td>10/10/06</td>
<td>Revised based on comments from Climate Leaders and E-source</td>
<td>Clarified various data sources and communication requirements in document</td>
</tr>
<tr>
<td>6</td>
<td>04/28/09</td>
<td>Revised based on findings during verification of 2006 and 2007 GHG Inventories</td>
<td>Various editorial changes; added Thermal facilities and Spindletop to facilities list</td>
</tr>
<tr>
<td>7</td>
<td>08/25/09</td>
<td>Revised based on findings during verification of 2008 GHG Inventory</td>
<td>Revised fugitive emissions methodology for SF₆; other minor editorial changes</td>
</tr>
<tr>
<td>8</td>
<td>04/01/10</td>
<td>Revised based on findings during verification of 2009 GHG Inventory</td>
<td>Various editorial changes; noted need to subtract EAM from total purchases (ISB); updated facility list; enhanced QA/QC discussion</td>
</tr>
<tr>
<td>9</td>
<td>3/10/11</td>
<td>Revised based on findings during verification of 2010 GHG Inventory</td>
<td>Various editorial changes; updated status of EPA Climate Leaders Program; clarified review requirements, QAQC measures and training</td>
</tr>
<tr>
<td>10</td>
<td>03/09/12</td>
<td>Revised to comply with ISO 14064-3:2006 and based on findings during verification audit of 2011 GHG Inventory</td>
<td>Major revision – expanded document to include aspects necessary to comply with ISO standard. Expanded discussions of data management, quantification methods, targets, actions, base year adjustments and uncertainty.</td>
</tr>
</tbody>
</table>