

THE EMISSIONS & GENERATION RESOURCE INTEGRATED DATABASE  
FOR 2010

**(eGRID2010) TECHNICAL SUPPORT DOCUMENT**

Prepared for:

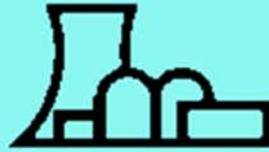
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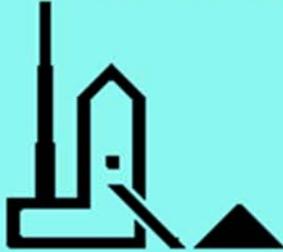
December 2010

Contract No. EP-D-06-001  
Work Assignment No. 1-04  
Pechan Rpt. No. 11.02.001/A319108104

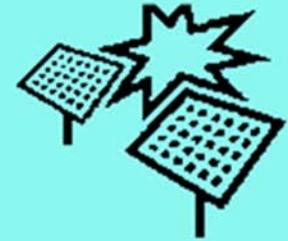


# Technical Support Document

## Emissions & Generation Resource Integrated Database



# eGRID



Data Year 2007

U. S. Environmental Protection Agency Office of Atmospheric Programs  
Prepared by E.H. Pechan & Associates, Inc.



eGRID2010 Version 1.0

December 2010



## **NOTICES**

This document has been reviewed by the Clean Air Markets Division (CAMD), Office of Atmospheric Programs (OAP), U.S. Environmental Protection Agency (EPA), and approved for distribution.

This document is available to the public through the EPA eGRID website at <http://www.epa.gov/egrid>.

## **ACKNOWLEDGMENTS**

This edition of eGRID was developed under the leadership of EPA's Mr. Art Diem, Clean Air Markets Division (CAMD), and E. H. Pechan & Associates (Pechan)'s Electric Power Team Manager, Dr. Susy Rothschild, who also prepared all the earlier editions of eGRID. Ms. Cristina Quiroz, Pechan Team member and Environmental Engineer at Pechan, provided valuable analysis and support. The eGRID system was conceived of by Mr. Rick Morgan, former EPA Senior Energy Analyst in the Office of Atmospheric Programs. The cover graphics were supplied by the National Renewable Energy Laboratory.

# CONTENTS

	<u>Page</u>
ACKNOWLEDGMENTS .....	i
ABBREVIATIONS AND ACRONYMS .....	v
SECTION I. INTRODUCTION .....	1
SECTION II. SUMMARY OF eGRID2010 DATA.....	3
A.    eGRID FILES .....	3
B.    eGRID SOURCES .....	4
C.    WHAT'S NEW IN eGRID2010 .....	5
D.    USES AND USERS OF eGRID .....	7
SECTION III. eGRID METHODOLOGY .....	9
A.    ESTIMATION OF EMISSIONS .....	9
1.    Unadjusted Emission Estimates for Year 2007 .....	9
2.    Annual Emission Estimates for CO <sub>2</sub> , SO <sub>2</sub> , and NO <sub>x</sub> .....	10
3.    Annual Emission Estimates for CH <sub>4</sub> and N <sub>2</sub> O .....	11
4.    Annual Emission Estimates for Mercury (Hg) .....	11
5.    Ozone Season Emission Estimates for NO <sub>x</sub> .....	12
6.    Adjusted Emission Estimates.....	12
7.    Adjustments for Biomass.....	12
8.    Adjustments for CHP.....	14
9.    Emission Rate Estimates.....	15
B.    TREATMENT OF PLANT OWNERSHIP .....	19
C.    DETERMINATION OF PLANT PRIMARY FUEL .....	19
D.    ESTIMATION OF RESOURCE MIX .....	21
E.    DETERMINATION OF PLANT AGGREGATION LINKS.....	22
1.    NERC Region .....	22
2.    eGRID Subregion .....	23
3.    Power Control Area .....	24
F.    TREATMENT OF AGGREGATION LEVELS .....	30
SECTION IV. SPECIFIC eGRID IDENTIFIER CODES, NAME CHANGES AND ASSOCIATIONS	31
A.    PLANT LEVEL.....	31
B.    EGC, COMPANY LEVEL.....	31
C.    PARENT COMPANY LEVEL .....	32
SECTION V. DESCRIPTION OF DATA ELEMENTS .....	33
A.    THE BLR (BOILER) FILE .....	33
B.    THE GEN (GENERATOR) FILE .....	39
C.    THE PLNT (PLANT) FILE.....	42
D.    THE ST (STATE) FILE .....	57
E.    THE EGCL AND EGCO (EGC) FILES .....	63
F.    THE PRCL AND PRCO (PARENT COMPANY) FILES .....	64
G.    THE PCAL (PCA) FILE.....	65
H.    THE SRL (eGRID SUBREGION) FILE .....	66

I.	THE NRL (NERC REGION) FILE.....	67
J.	THE US (U.S.) FILE .....	68
K.	THE STIE04 (YEAR 2004 STATE IMPORT-EXPORT) FILE .....	69
L.	THE STIE05 (YEAR 2005 STATE IMPORT-EXPORT) FILE .....	71
M.	THE STIE07 (YEAR 2007 STATE IMPORT-EXPORT) FILE .....	72
N.	THE USGC (U.S. GENERATION AND CONSUMPTION) FILE.....	73
SECTION VI. REFERENCES .....		75
APPENDIX A. eGRID2010 FILE STRUCTURE - VARIABLE DESCRIPTIONS FOR 2007 DATA YEAR.....		A-1
APPENDIX B. eGRID2010 eGRID SUBREGION AND NERC REGION REPRESENTATIONAL MAPS.....		B-1

## TABLES

	<u>Page</u>	
Table III-1	Comparison of 100-Year GWPs .....	11
Table III-2	Municipal Solid Waste MSB and MSF Splits .....	13
Table III-3	Floors for Power to Heat Ratio and ELCALLOC.....	15
Table III-4	eGRID2010 Year 2007 Gross Grid Loss Factors .....	17
Table III-5	Plant Primary Fuel .....	20
Table III-6	Plant Primary Fuel Generation Category .....	21
Table III-7	NERC Region Acronym and Names for eGRID .....	23
Table III-8	eGRID Subregion Acronym and Names for eGRID .....	24
Table III-9	PCA-NERC Region Relationship.....	25
Table III-10	PCA-eGRID Subregion – NERC Region Relationship.....	28
Table A-1	eGRID2010 Version 1.0 File Structure .....	A-1

## FIGURES

	<u>Page</u>	
Figure III-1	Examples of Plant Through NERC Linkages .....	22
Figure B-1	eGRID2010 eGRID Subregion Representational Map.....	B-1
Figure B-2	eGRID2010 NERC Region Representational Map.....	B-2

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## ABBREVIATIONS AND ACRONYMS

AB 32	Assembly Bill 32 - California Global Warming Solutions Act
AR4	Fourth Intergovernmental Panel on Climate Change Assessment
BACT	Best Available Control Technology
BBtu	Billion Btu
Btu	British thermal unit
CAMD	Clean Air Markets Division
CEM	Continuous Emissions Monitoring
CHP	Combined heat and power (cogeneration)
CH <sub>4</sub>	Methane
CO <sub>2</sub>	Carbon dioxide
CO <sub>2</sub> e	Carbon dioxide equivalent
DOE	U.S. Department of Energy
EEA	Energy and Environmental Analysis, an ICF International Company
eGRID	Emissions & Generation Resource Integrated Database
eGRID96	Emissions & Generation Resource Integrated Database for the year 1996 (1995 data)
eGRID97	Emissions & Generation Resource Integrated Database for the year 1997 (1995-1996 data)
eGRID2000	Emissions & Generation Resource Integrated Database for the year 2000 (1996-1998 data)
eGRID2002	Emissions & Generation Resource Integrated Database for the year 2002 (1996-2000 data)
eGRID2006	Emissions & Generation Resource Integrated Database for the year 2006 (2004 data)
eGRID2007	Emissions & Generation Resource Integrated Database for the year 2007 (2004 and 2005 data)
eGRID2010	Emissions & Generation Resource Integrated Database for the year 2010 (2007 data)
EGC	Electric generating company
EIA	Energy Information Administration
EPA	U.S. Environmental Protection Agency
ERG	Eastern Research Group
ETS	Emissions Tracking System
FERC	Federal Energy Regulatory Commission
FIPS	Federal Information Processing Standards
GATS	Generation Attribute Tracking System
GHG	Greenhouse gas
GIS	Geographic Information System
GWh	Gigawatt-hour
GWP	Global warming potential
Hg	Mercury
ICE	Information Collection Effort (by EPA for 1999 mercury data)
ICF	International Company
ID	Identifier
IPCC	Intergovernmental Panel on Climate Change
IPM	Integrated Planning Model (developed by ICF Incorporated)
kWh	Kilowatt-hour
LAER	Lowest Achievable Emission Rate

lb	Pound
MMBtu	Million Btu
MMcf	Million cubic feet
MSW	Municipal Solid Waste
MW	Megawatt
MWC	Municipal Waste Combustor
MWh	Megawatt-hour
NATCARB	Distributed National Carbon Sequestration Database and Geographic Information System
NERC	North American Electric Reliability Corporation
NESCAUM	Northeast States for Coordinated Air Use Management
NETL	National Energy Technology Laboratory
NGO	Nongovernmental Organization
NIST	National Institute of Standards and Technology
NO <sub>x</sub>	Nitrogen oxides
NREL	National Renewable Energy Laboratory
N <sub>2</sub> O	Nitrous oxide
OAP	Office of Atmospheric Programs
OMEGA JV	Ohio Municipal Electric Generation Agency Joint Ventures
ORIS	Office of the Regulatory Information System
ORISPL	Office of the Regulatory Information System PLant code
ORNL	Oak Ridge National Laboratory
OTC	Ozone Transport Commission
OTR	Ozone Transport Region
PCA	Power control area
Pechan	E.H. Pechan & Associates, Inc.
RACT	Reasonably Available Control Technology
RECS	Renewable Energy Credits
RGGI	Regional Greenhouse Gas Initiative
RPS	Renewable Portfolio Standards
SAR	Second Intergovernmental Panel on Climate Change Assessment
SAS	Statistical Analysis System
SO <sub>2</sub>	Sulfur dioxide
TAR	Third Intergovernmental Panel on Climate Change Assessment
USBIA	U.S. Bureau of Indian Affairs
USBR	U.S. Bureau of Reclamation
USCE	U.S. Army Corps of Engineers

## SECTION I. INTRODUCTION

The Emissions & Generation Resource Integrated Database (eGRID) is a comprehensive inventory of environmental attributes of electric power. The preeminent source of emissions data for the electric power sector, eGRID is based on available plant-specific data for all U.S. electricity generating plants that provide power to the electric grid and report data to the U.S. government. Data reported include generation in megawatt-hour (MWh); resource mix (for renewable and nonrenewable generation); emissions in tons for carbon dioxide (CO<sub>2</sub>), nitrogen oxides (NO<sub>x</sub>), and sulfur dioxide (SO<sub>2</sub>); emissions in pounds for methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O) and mercury (Hg); emission rates for CO<sub>2</sub>, NO<sub>x</sub>, and SO<sub>2</sub> (in both pounds per megawatt-hour [lb/MWh]) and pounds per million British thermal unit [lb/MMBtu]) and for CH<sub>4</sub>, N<sub>2</sub>O, and Hg (in pounds per gigawatt-hour [lb/GWh] and pounds per billion Btu [lb/BBtu]); heat input in MMBtu; and nameplate capacity in megawatts (MW). eGRID reports this information on an annual basis (as well as by ozone season for NO<sub>x</sub> emissions and emission rates, net generation and resource mix, and heat input) at different levels of aggregation (plant, companies, and grid regions of the country).

The newest and seventh edition of eGRID, eGRID2010 Version 1.0, released in February 2011, includes three Excel workbooks with year 2007 data. Data for years 2004 and 2005 are the same as those included in eGRID2007. The three workbooks consist of 12 year 2007 data files – boiler, generator, plant, state, EGC location (operator)- and owner-based, parent company location (operator)- and owner-based, power control area, eGRID subregion, and NERC region – as well as the state Import-Export files for years 2004, 2005, and 2007; and a U.S. generation and consumption file for years 2004, 2005, and 2007.

Previous releases of eGRID include the following: The 1996 eGRID (eGRID96) was first released in December 1998; the 1997 eGRID (eGRID97) with 1996 and 1997 data, was first released in December 1999; and the 2000 eGRID (eGRID2000), with 1996 and 1997 data as in eGRID97, and 1998 data, was released in March and September 2001. The 2002 eGRID (eGRID2002), with preliminary 2000 data, was first released as Version 1.0 in December 2002 and with 1996-2000 data as Version 2.0 in April 2003 and Version 2.01 in May 2003. eGRID2006 Version 1.0, with the year 2004 plant spreadsheet file, was first released in December 2006; Version 2.0, which includes one Excel workbook with an updated plant file, as well as the boiler and generator files for year 2004, was released in early April 2007; and Version 2.1, with the complete set of files – boiler, generator, plant, state, EGC location (operator)- and owner-based, parent company location (operator)- and owner-based, power control area, eGRID subregion, and North American Electric Reliability Corporation (NERC) region – was released in late April 2007 and updated for typos in May 2007. eGRID2007 Version 1.1, was released by EPA on January 28, 2009 and includes two Excel workbooks with year 2005 data (plant and aggregation) and one Excel workbook with years 2004 and 2005 data (ImportExport).

eGRIDweb version 1.0, a web-based eGRID user friendly application with years 2005 and 2004 eGRID2007 data, was released on April 27, 2009 by the U.S. EPA. For further information about this application, which allows the user to select, view, print, and download eGRID data; read the eGRIDweb Users Manual (Pechan, 2009) that can be downloaded from the eGRID website or the Help tab on the application, which can be accessed either at <http://cfpub.epa.gov/egridweb/index.cfm> or through the eGRID website, <http://www.epa.gov/egrid>. This web-based application supplants an earlier one that was downloaded onto a user's PC and displayed data years 1996-2000 for eGRID2002; see that Users Manual for details (Pechan,2003b).

Two papers have been written to clarify issues and respond to questions about eGRID. The first, earlier, one, “Total, Non-baseload, eGRID Subregion, State? Guidance on the Use of eGRID Output Emission Rates” (Rothschild, S. and A. Diem, 2009), can be obtained from the EPA website, <http://www.epa.gov/ttn/chief/conference/ei18/session5/rothschild.pdf>, or downloaded from the eGRIDweb Reports tab; the more recent one, “The Value of eGRID and eGRIDweb to GHG Inventories” (Rothschild, S., A. Diem, C. Quiroz, and M. Salhotra, 2010), is available for download from the eGRID website at [http://www.epa.gov/cleanenergy/documents/egridzips/The\\_Value\\_of\\_eGRID\\_Dec\\_2009.pdf](http://www.epa.gov/cleanenergy/documents/egridzips/The_Value_of_eGRID_Dec_2009.pdf).

eGRID2010’s date in the name represents the year to which the industry data are adjusted. eGRID2010’s year 2007 data have been reconfigured to reflect the industry’s current structure as was known by December 31, 2010, including plant ownership and operators, parent company affiliations, company mergers, and grid configurations.

Although eGRID is based on more than existing Federal data sources, its development required substantial attention to quality control. Accurate matching of entities from different databases required great care, even where identification codes were available. Inconsistencies between data sources, missing data, and ambiguous data necessitated adjustments to values of individual data elements, especially identification data. In general, however, questionable data have not been altered, except with regard to the relationship of plants to the power grid.

This document provides a description of the eGRID2010 data elements in the 12 Excel spreadsheet files for each level of aggregation as well as the three state Import-Export files. Section II provides a summary of the database; Section III is the Methodology Section and presents the methodology for emissions estimations, including adjustments for biomass and combined heat and power (CHP), among other issues; Section IV includes discussion of eGRID specific identification codes, name changes and associations; and Section V describes the data elements in detail. There is a set of Reference citations in Section VI and two Appendices – Appendix A, which includes the file structure, and Appendix B, which includes the eGRID subregion and NERC region representational maps.

## SECTION II. SUMMARY OF eGRID2010 DATA

### A. eGRID FILES

eGRID2010 contains electric power data at different levels of aggregation. As the database name implies, the focus of the data files is on two areas: generation and emissions. Generation is expressed in both MWh and as a percentage (called “resource mix” – generation of a certain fuel or resource type divided by total generation). CO<sub>2</sub>, NO<sub>x</sub>, and SO<sub>2</sub> emissions are expressed in tons and CH<sub>4</sub>, N<sub>2</sub>O, and Hg emissions are expressed in pounds. Emission rates are expressed in lb/MWh, lb/MMBtu for CO<sub>2</sub>, NO<sub>x</sub>, and SO<sub>2</sub> and are expressed in lb/GWh and lb/BBtu for CH<sub>4</sub>, N<sub>2</sub>O, and Hg. The measurement units are United States units, not metric units.

Data users should take note that eGRID’s emissions and emission rates are calculated at the generation source level, as they are derived for individual power plants. If eGRID’s output emission rates (in lb per M[G]Wh) are applied at the retail source level (i.e., by assigning emissions to usage by retail customers), emissions should generally be revised upwards by an appropriate factor to reflect transmission and distribution line losses. Aggregated eGRID data only accounts for U.S. generation that takes place within the aggregated area and does not account for any electricity that is imported from or exported to other areas.

eGRID2010’s year 2007 data have been reconfigured to reflect the industry’s current structure as was known by December 31, 2010; including plant ownership and operators, parent company affiliations, company mergers, and grid configurations. eGRID2010 also includes the year 2004 data from eGRID2006, which were configured to reflect the industry’s structure as was known by October 1, 2006; and the year 2005 data from eGRID2007, which were configured to reflect the industry’s structure as was known by December 21, 2008. Only certain eGRID files can be linked from year 2007 to years 2005 and 2004. The files that can be linked include the NERC region (by NERC acronym), eGRID subregion (by eGRID subregion acronym), state (by postal state abbreviation), plant (by eGRID plant sequence number), and U.S.

The eGRID year 2007 plant data are linked to the year 2005 plant data with the inclusion of the year 2005 plant file’s SEQPLT05 variable in the year 2007 plant file; and linked to the year 2004 plant data with the inclusion of the year 2004 plant file’s SEQPLT04 variable – when the plants match. (Although most plants will match on ORISPL, there are some exceptions, so it is completely accurate to match from year 2007 to 2005 and 2004 using SEQPLT05 and SEQPLT04 respectively).

The year 2007 data are displayed in three workbooks. Two of the workbooks include the aggregation files. The boiler, generator, and plant data are included in the first workbook, the plant workbook. The location (operator)-based spreadsheets for state, electric generating company, parent company, power control area, eGRID subregion, NERC region, and U.S. are included in the second workbook, the aggregation workbook. The owner-based spreadsheet for electric generating company and parent company are also included in the second workbook. State Import-Export data are contained in the third workbook, the ImportExport workbook. The spreadsheets can be downloaded from the EPA eGRID web site, <http://www.epa.gov/egrid>, along with Summary Tables and this document. The data were originally processed on the EPA IBM mainframe using SAS, the Statistical Analysis System software.

The 12 eGRID2010 aggregation files are:

- BLR (boiler), with 3,615 year 2007 records;
- GEN (generator), with 16,938 year 2007 records;

- PLNT (plant), with 5,172 year 2007 records with non-zero generation and/or unadjusted heat input;
- ST (state), with 51 year 2007 records;
- EGCL and EGCO (electric generating company), with 1,641 year 2007 records for the location (operator)-based file and 1,839 year 2007 records for the owner-based file, respectively;
- PRCL and PRCO (parent company), with 100 year 2007 records in the location (operator)-based file and 106 year 2007 records in the owner-based file, respectively;
- PCAL (power control area), with 119 year 2007 records in the location (operator)-based file;
- SRL (eGRID subregion), with 26 eGRID subregion year 2007 records in the location (operator)-based file;
- NRL (NERC region), with 10 NERC region year 2007 records in the location (operator)-based file; and
- US, with 1 year 2007 U.S. totals record.

The number of variables in each of the 12 aggregation files varies, with 34 in BLR, 15 in GEN, 162 in PLNT, 111 in ST, 114 in EGCL and EGCO, 111 in PRCL and PRCO, 111 in PCAL, 112 in SRL, 111 in NRL, and 109 in US. The first variable in each file is a unique sequence number for that file. The boiler file is sorted by state postal code abbreviation, plant name, plant code, and boiler ID. The generator file is sorted by state postal code abbreviation, plant name, plant code, and generator ID. The plant file is sorted by state postal code abbreviation, plant name, and plant code. The state file is sorted by state postal code abbreviation. The two electric generating company files are sorted by electric generating company name, the two parent company files are sorted by parent company name, the power control area file is sorted by power control area name, the eGRID subregion file is sorted by eGRID subregion name, and the NERC region file is sorted by NERC region acronym.

Import-Export Files for years 2004, 2005, and 2007 and the Generation and Consumption file for the U.S. have been included in the third workbook. The state Import-Export data are sorted by state postal code abbreviation, just as the state file is; for eGRID2007, the state Import-Export data are sorted differently from previous years' data.

The file structure for all the year 2007 files is included in Appendix A. The file structure also includes a description of the variables and the original data sources. The file structure indicates which variables and/or variable descriptions in year 2007 are new or different from those in year 2005.

## **B. eGRID SOURCES**

eGRID is developed from a variety of data collected by the U.S. Environmental Protection Agency (EPA), and the Energy Information Administration (EIA). Federal data sources include:

- EPA, Clean Air Markets (EPA/CAMD) Annual and Ozone Season Emissions data (EPA, 2010);
- EPA, Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2008;
- EIA, EIA-860: Annual Electric Generator Report (EIA, 2008a);
- EIA, EIA-861: Annual Electric Power Industry Report (EIA, 2008b);
- EIA, EIA-923 Schedule 3B: Power Plant Operations Report, Prime Mover Fuel Consumption (EIA, 2008c);
- EIA, EIA-923 Schedule 2: Power Plant Operations Report, Plant Cost and Quality of Fuel Receipts (EIA, 2008d); and

- EIA, Electric Power Monthly, Plants Sold and Transferred (EIA, 2007-2010).

An additional source of eGRID data, the North American Electric Reliability Corporation (NERC) [formerly the North American Electric Reliability Council] (NERC, 2010), is quasi-governmental since it was certified by FERC in July 2006 as the “electric reliability organization.”

Data displayed in eGRID are derived from the above data sources; EPA does not collect data directly from electric generators for eGRID. Inconsistencies between data sources, missing data, and ambiguous data occasionally necessitate adjustments to values of individual data elements. When necessary, EPA substitutes data from secondary sources or default values. EPA also updates ownership, corporate affiliation, and grid configuration data. In general, however, data are displayed as reported; this may lead to plant file outliers to which users should be alert.

### **C. WHAT’S NEW IN eGRID2010**

eGRID2010 includes several new data element delineated below:

- CO<sub>2</sub> equivalent emissions and total output emission rates at all levels beginning with the plant level (only the state level does not have the CO<sub>2</sub> equivalent total output emission rate).
- Plant primary fuel generation category, the fuel category with the greatest net generation value. The plant primary fuel and the plant primary fossil fuel category variables are based on heat input, different from the primary fuel determination method used for this new variable.
- EGC type to the two EGCs files. This variable will have the value “nonutility” or a specific utility category.
- Unit operating hours (whose data source is the EPA/CAMD emissions data file), which replaced (Boiler) Hours connected to load (whose data source was an EIA survey form), since that information is no longer requested by EIA in their consolidated electric power survey form.

Several modifications have been made to eGRID plant variables:

- The biomass fuel components’ CO<sub>2</sub> emissions are included in the unadjusted CO<sub>2</sub> plant emissions; prior to year 2007, these emissions, if calculated, were zeroed out in both the adjusted and unadjusted CO<sub>2</sub> plant emissions.
- The biomass fuel components’ CO<sub>2</sub> CAMD emissions are excluded (adjusted to zero) by the same biomass fuel component percentage as that in the EIA-923 for the adjusted CO<sub>2</sub> CAMD emissions; prior to year 2007, these emissions, if CAMD-reported, were only zeroed out if the primary fuel was a biomass fuel. These plants are assigned a new value (77) for RMBMFLAG, the biomass flag.
- The coal flag has been modified to indicate not just whether any coal is burned at the plant (as for year 2005 data) but also whether any coal is generated at the plant.

- The plant nominal heat rate estimation has been modified for partially combustible fueled plants so that the combustion net generation is used in the calculation rather than the total plant net generation.
- Utility service territories are assigned to all plants, not just nonutilities, as in previous years.

Some updated terminology has also changed with this edition of eGRID:

- The term “biogas” replaces “renewable methane” as a specific type of biomass.

Several year 2007 data files have been sorted differently in eGRID2010:

- All files sorted by entity name (plant, boiler, generator, EGC, parent company, and PCA) are newly sorted as if the entity names were completely capitalized. Thus, for example, BASF Freeport Works will precede, not follow, Bastrop Energy Center in the plant file.
- The year 2007 state Import-Export files are newly sorted by state postal code abbreviation, just as the year 2007 state file is.

Methodological changes in eGRID2010 for year 2007 data include the following:

- Do include not just Acid Rain Program (ARP)-only units from the EPA/Clean Air Market (CAMD) emissions data, but also those EPA/CAMD NO<sub>x</sub> Budget Program non-ARP or no program units that report 12 months of data, have positive heat input, have a non-steam prime mover, and can be matched to an EIA ORISPL (there are some exceptions).
- Do not include any EIA unit/boiler- or generator-level data because of the data uncertainty at that level of reporting.
- Biomass CO<sub>2</sub> emissions are included in unadjusted CO<sub>2</sub> emissions and excluded from adjusted CO<sub>2</sub> emissions, regardless of whether the CO<sub>2</sub> emissions are estimated or reported from CAMD.
- Updated and rounded emission factors are used for CO<sub>2</sub> calculations.
- Rounded emission factors are used for SO<sub>2</sub> calculations.
- Perform the processing of EIA electric power data somewhat differently since five surveys were consolidated into two already existing surveys, one of which retained its name (the EIA-860).
- There are many updated latitude-longitude coordinates and fewer county centroids.
- There are some updated IDs.
- There are some updated data sources.

Methodological changes are detailed in Section III, the Methodology Section. Year 2005 data included in eGRID2010 are unchanged from the data in eGRID2007. For more information about the year 2005 data,

see the eGRID2007 Technical Support Document (Pechan, 2008). For methodology from previous years, see their Technical Support Documents (Pechan, 2007, 2003a).

## **D. USES AND USERS OF eGRID**

eGRID data support a wide variety of users globally through a wide variety of uses. eGRID is valuable to those in the Federal Government, state and local governments, non-governmental organizations, academia, and provides constructive direction to companies who are generally seeking environmental information from the electric power sector in the United States. eGRID is most often used for the estimation of indirect emissions from electricity purchases, in GHG inventories, for carbon footprinting, and for estimating avoided emissions from programs and projects that would reduce the consumption for grid supplied electricity. eGRID data is cited by emission inventory and registry protocols, by various emission calculation tools and applications, by many academic papers, by many consultants, and is used for many research applications and efforts.

Within EPA, eGRID data are used in the following applications and programs: Power Profiler web application, Climate Leaders protocols, ENERGYSTAR's Portfolio Manager, Waste Wise Office Carbon Footprint Tool, the Personal Greenhouse Gas Emissions Calculator, the Greenhouse Gas Equivalencies Calculator, and the Green Power Equivalency Calculator.

In 2010, Executive Order 13514 was issued, requiring Federal agencies to "measure, report, and reduce their greenhouse gas emissions from direct and indirect activities." The Federal GHG Accounting and Reporting Guidance accompanied this order and recommended using eGRID non-baseload emission rates to estimate the Scope 2 emission reductions from renewable energy.

eGRID is also used by other Federal Government agencies such as Oak Ridge National Laboratory (ORNL) for their Combined Heat and Power Calculator, the National Energy Technology Laboratory (NETL) for their sponsored Distributed National Carbon Sequestration Database and Geographic Information System (NATCARB), and the National Renewable Energy Laboratory (NREL) for their micropower distributed generation optimization model named HOMER.

One of the most popular recent uses of eGRID is to determine the indirect GHG emissions from electricity purchases and avoided GHG emissions from projects and programs that reduce the demand for grid supplied electricity. For example, The Climate Registry, the California Climate Action Registry, and the Greenhouse Gas Protocol Initiative cite eGRID for use in estimating Scope 2 GHG emissions from electricity purchases in the United States. Most carbon footprint calculators that are applicable to the United States use eGRID data.

Tracking Systems for Renewable Energy Credits (RECS), such as ISO-New England's Generation Information System (GIS) and PJM's Generation Attribute Tracking System (GATS) utilize eGRID data.

States and local governments rely on eGRID data for electricity labeling (environmental disclosure programs), emissions inventories, and registries as well as for efforts to analyze air emissions from the electric power sector. Several states have published state specific emissions information from eGRID or have used eGRID to inform policy decisions.

eGRID is additionally used for nongovernmental organizations' (NGOs) tools and analysis. The following is a list of some known users and applications of eGRID data: Northeast States for Coordinated Air Use Management (NESCAUM) analysis, Powerscorecard.org, the Ozone Transport Commission's (OTC) Emission Workbook, the Greenhouse Gas (GHG) Protocol Initiative, the Rocky Mountain

Institute's Community Energy Finder, Leonardo Academy's "Cleaner and Greener Environmental Program," the National Resource Defense Council's Benchmarking Air Emissions, The Berkeley Institute of the Environment, Cool Climate Carbon Footprint Calculator, the Climate and Air Pollution Planning Assistant (CAPPA), Emission Solution's Carbon Footprint Calculator, and the Clean Air software developed by the International Council for Local Environmental Initiatives (ICLEI), The United States Department of Transportation Federal Transit Administration (FTA), The Google PowerMeter, a free energy monitoring to calculate your home's energy consumption online, The National Public Radio – U.S. Electric Grid, The International Code Council (ICC), Energy Star - Target Finder, the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE), and the American Council for an Energy-Efficient Economy (ACEEE), and the World Resource Institute's Carbon Value Analysis Tool (CVAT).

The Center for Global Developments' Carbon Monitoring for Action Database (CARMA) at [carma.org](http://carma.org), which contains information about carbon emissions for power plant and companies in the U.S. as well as other countries, used eGRID year 2005 data as a base, according to the Center's David Wheeler (Wheeler, 2007). eGRID data also underlie the Global Energy Observatory U.S. power plant database.

## SECTION III. eGRID METHODOLOGY

This section describes eGRID development methodologies that are not transparent. Some methods used for eGRID2007 are modified or refined from previous editions of eGRID and are so noted in this section.

### A. ESTIMATION OF EMISSIONS

Emissions (CO<sub>2</sub>, NO<sub>x</sub>, SO<sub>2</sub>, Hg, CH<sub>4</sub>, and N<sub>2</sub>O) in eGRID are estimated using data from a variety of sources from EPA and EIA (see SOURCEM variable in the eGRID plant file). Carbon dioxide (CO<sub>2</sub>) is a product of fossil fuel combustion and is the primary greenhouse gas (GHG) emitted by human activities that is contributing to global climate change; nitrogen oxides (NO<sub>x</sub>) is a product of fossil fuel combustion and is a precursor to the formation of ozone, or smog, and also contributes to acid rain and other environmental and human health impacts; sulfur dioxide (SO<sub>2</sub>) is an air pollutant emitted primarily by power plants burning fossil fuels, especially coal, which is a precursor to acid rain and is associated with other environmental and human health impacts; and mercury (Hg) is a toxic heavy metal that is a byproduct of the combustion of fossil fuels, especially coal. Methane (CH<sub>4</sub>) and nitrous oxide (N<sub>2</sub>O), two other GHG emitted by electric power generators, are included in eGRID for years 2007 and 2005, beginning at the plant level. The emissions data for the three GHG are used as default factors in a variety of climate protocols (including The Climate Registry, The California Climate Action Registry, California's Mandatory GHG emissions reporting program (AB 32), and EPA's Climate Leaders) for indirect emissions estimation calculations.

Although many small units, as well as some nonutilities and cogenerators, are not subject to EPA/CAMD's data reporting, the vast majority of emissions reported in eGRID are from the EPA/CAMD data. Sources that report to EPA/CAMD for year 2007 data are generally utility and nonutility steam units with at least 25 MW capacity, nonsteam units – gas turbines, combined cycles, internal combustion engines – that came on-line after 1990, and independent power producers/cogenerators that sell a specific amount of electricity.

Plant level emissions in eGRID are built by summing its component parts – which could simply be unit level boilers and/or turbines or a combination of boilers and prime movers representing an aggregation of like generating units. In general, eGRID plant level emissions reflect a combination of monitored and estimated data. Emissions and emission rates in eGRID represent emissions and rates at the point(s) of generation. They do account for losses within the generating plants (net generation). However, they do not take into account any power purchases, imports or exports of electricity into a specific state or any other grouping of plants; and they do not account for any transmission and distribution losses between the points of generation and the points of consumption. Also, eGRID does not account for any pre-combustion emissions associated with the extraction, processing and transportation of fuels and other materials used at the plants or any emissions associated with the construction of the plants.

eGRID emissions and heat input that are displayed in the boiler file are unadjusted, while both adjusted and unadjusted emissions and heat input are displayed in the plant file. Adjusted emissions and heat input as well as generation are used in calculating plant emission rates and for all aggregation emission values.

#### 1. Unadjusted Emission Estimates for Year 2007

Emissions that are reported and estimated for eGRID are initially unadjusted, including biomass CO<sub>2</sub> values (new for year 2007 data), and are displayed at the plant (and boiler) level. Adjusted emissions (and heat input) are included in the plant file and all subsequent aggregation files. All emission rates in the plant file and all aggregation files are based on adjusted emissions, net generation, and adjusted heat

input. Depending on the source of data and the emissions type, component emissions are adjusted for biomass and then summed to the plant level before making the CHP adjustment specific to eGRID. Both the source(s) of emissions data and adjustment flags are provided in the plant file.

## 2. Annual Emission Estimates for CO<sub>2</sub>, SO<sub>2</sub>, and NO<sub>x</sub>

Mass emissions in eGRID are estimated using data from a variety of sources. eGRID's primary source for CO<sub>2</sub>, SO<sub>2</sub>, and NO<sub>x</sub>, data is EPA/CAMD's unit level emissions data. CO<sub>2</sub> is a greenhouse gas, while SO<sub>2</sub> and NO<sub>x</sub> are not. SO<sub>2</sub> and NO<sub>x</sub> are acid rain pollutants and have been regulated under the Clean Air Act Amendments for many years. If EPA/CAMD data are not reported, the emissions are generally estimated using fuel consumption – on a boiler-fuel level if the data are in the EIA-923 boiler level (not for year 2007), and/or on a prime mover-fuel level if the data are only in that EIA-923 file.

For estimating CO<sub>2</sub>, the Intergovernmental Panel on Climate Change (IPCC) (IPCC, 2007) greenhouse gas (GHG) methodology using fuel consumption, a fuel-specific carbon coefficient, and the fuel-related fraction of carbon oxidized (beginning with year 2005 data, the IPCC's mandated change to a uniform oxidation fraction of 1 is used for all fossil fuels) is implemented. This method is also used in EPA's Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2008 (EPA, 2010, Annex 2 tables). CO<sub>2</sub> emissions factors for year 2007 are obtained from three sources: EPA's Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2008 (EPA, 2010, Annex 2 tables), The Climate Registry's January 5, 2010 emission factors file (TCR, 2010), and one factor from Table 5 of the Appendix from California's AB 32 (CARB, 2007).

For SO<sub>2</sub>, EPA-approved uncontrolled emission factors (Pechan, 2010), based on EPA's AP-42 emission factors (EPA, 2004), sulfur content, and control efficiencies, if available, are also used in the estimation of these emissions.

The following describes how NO<sub>x</sub> emissions are estimated for cases in which EPA/CAMD emissions data are not reported or cannot be used. For data originating from the EIA-923, the controlled annual emission rate and heat input are used. For data originating from the EIA-923, for steam prime movers, fuel use and EPA-approved uncontrolled emissions factors are used; and for nonsteam prime movers, beginning with year 2004 eGRID data, a better method is used to calculate NO<sub>x</sub> emissions for combined cycles, turbines, and internal combustion engines. NO<sub>x</sub> emission factors were developed based on the prime mover technology, size, and location. The location is important due to the differing stringency of air pollution controls in some areas with severe air quality problems. For larger nonsteam generators, the factors were based on data from the EPA Reasonably Available Control Technology/Best Available Control Technology/Lowest Achievable Emission Rate RACT/BACT/LAER) Clearinghouse (EPA, undated2). The methodology also reviewed current RACT requirements for large generating facilities in regions with stringent limits in areas such as the Ozone Transport Region (OTR), California, and Texas. For smaller nonsteam generators (including small combustion turbines, microturbines and reciprocating engines), the methodology draws from several sources including the EPA CHP Partnership *Catalogue of CHP* (EPA, undated1) and the U.S. Department of Energy (DOE) *Gas-Fired Distributed Energy Resource Technology Characterizations* (DOE, 2003).

Geothermal emissions, albeit minimal, are estimated for CO<sub>2</sub>, SO<sub>2</sub>, and NO<sub>x</sub>. While CO<sub>2</sub> is a gas in the geothermal reservoir, SO<sub>2</sub> and NO<sub>x</sub> result from hydrogen sulfide combustion. The three pollutants' emission factors, obtained from a 2007 Geothermal Energy Association environmental guide (GEA, 2007), are applied to plant net generation, and differ depending on the type of geothermal plant (GEA, 2010, plus updates based on internet research). For a binary or flash/binary geothermal plant, there are no CO<sub>2</sub>, SO<sub>2</sub>, or NO<sub>x</sub> emission factors; for a flash geothermal plant, there are no NO<sub>x</sub> emission factors and small CO<sub>2</sub> and SO<sub>2</sub> emission factors; and for a dry steam geothermal plant, there are small CO<sub>2</sub>, SO<sub>2</sub>, and

NO<sub>x</sub> emission factors. If a plant has operating (i.e., reported non-zero net generation) generators with different geothermal types, then the methodology is modified. In this case, appropriate geothermal type emission factors must be applied to the prime mover net generation for each of the different geothermal types of the plant generators.

### 3. Annual Emission Estimates for CH<sub>4</sub> and N<sub>2</sub>O

In addition to CO<sub>2</sub>, electric power plants also emit some CH<sub>4</sub>, and N<sub>2</sub>O GHG emissions. CH<sub>4</sub> and N<sub>2</sub>O emissions are reported in pounds and are estimated by multiplying the fuel specific heat input in MMBtu by appropriate emissions factors from the latest *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2008* (EPA, 2010, Table A-81) that have been converted to lb/MMBtu units.

Nitrous oxide (N<sub>2</sub>O) is an oxide of nitrogen that is not part of the NO<sub>x</sub> subset of oxides of nitrogen. N<sub>2</sub>O is a greenhouse gas, the emissions of which are contributing toward global climate change; NO<sub>x</sub> is not a GHG. N<sub>2</sub>O should not be confused with NO<sub>x</sub>.

#### a. Global Warming Potential

Global Warming Potential (GWP) is a value assigned to a GHG so that the emissions of different gases can be assessed on an equivalent basis to the emissions of the reference gas, CO<sub>2</sub>, which has a GWP of 1. Traditionally, the 100-year GWPs are used when calculating overall CO<sub>2</sub> equivalent emissions, which is the sum of the products of each GHG emission value and its GWP. Note: be sure when calculating the CO<sub>2</sub> equivalent that each of the GHG emission values has the same measurement units (either all in tons or all in pounds) since in eGRID, CO<sub>2</sub> are expressed in tons while both CH<sub>4</sub> and N<sub>2</sub>O are expressed in pounds. Additionally, in order to compare emissions across previous data years', the GWP for the second (1996) IPCC assessment (SAR), is used, although there have been subsequent third (2001) (TAR) and fourth (2006) (AR4) assessments. A comparison of the three GWP for the three electric power GHG gases is presented in Table III-1 (EPA, 2010, Table A-253).

**Table III-1. Comparison of 100-Year GWPs**

Gas	SAR	TAR	AR4
CO <sub>2</sub>	1	1	1
CH <sub>4</sub>	21	23	25
N <sub>2</sub> O	310	296	298

Beginning with year 2007 data, the CO<sub>2</sub> equivalent emissions (tons) and total output emission rate (in lb/MWh) is calculated (using the SAR GWP) at the plant and aggregation levels.

### 4. Annual Emission Estimates for Mercury (Hg)

No mercury emissions are included for year 2007 data since the estimation methods are likely to produce an overestimate of the emissions for boilers for which we have original 1999/2002 data. It is likely that air pollution control devices that affect Hg emissions have been installed on some of these boilers, but we have no Federal data available to measure their impact. Similarly, there are no available Federal Hg emission factors for estimating mercury emissions for all electric power units. There are results from a recent effort to collect Hg emissions information from utility boilers; these data may be used in future editions of eGRID.

## **5. Ozone Season Emission Estimates for NO<sub>x</sub>**

The ozone season is the five-month period from May through September when excessive levels of ozone, or smog, are most likely to form in the atmosphere due to a chemical reaction of nitrogen oxides with other pollutants in the presence of sunlight. EPA/CAMD provides ozone season NO<sub>x</sub> emissions for many units that do not report annual emissions. Otherwise, for sampled plants with prime movers that report to the EIA-923 and are not covered by EPA/CAMD, monthly fuel quantity is provided so that five-month (May through September) ozone season NO<sub>x</sub> emissions can be estimated; if the plant prime mover reports only annually to the EIA-923, then ozone season estimates are calculated as the annual estimates multiplied by 5/12.

## **6. Adjusted Emission Estimates**

Emissions reported in eGRID represent emissions from fuel utilized only for electricity generation. Thus, for certain plants, there are two possible cases for which eGRID adjusts the emission estimates: if the plant is a CHP facility; and if components of the plant burn biomass, including biogas (such as landfill, methane, and digester [other biomass] gas). A biomass facility's adjusted emissions displayed in eGRID may be different from that reported in other EPA sources such as EPA/CAMD's emissions data. This methodology did not change from eGRID2007's.

There are three EPA Acid Rain Program (ARP) plants whose plant-prime mover EPA/CAMD emissions and heat input are adjusted to zero in eGRID; the unadjusted values are published for reference purposes. The net generation for two of these plant-prime movers is reported as zero even though positive fuel use is reported to the EIA-923. For Robert E Ritchie (ORISPL = 173), the adjusted emissions and heat input for the entire plant are set to zero since the steam prime mover is the only one at the plant. However, for 74<sup>th</sup> Street (ORISPL = 2504), the steam turbine prime mover data (the three unit level EPA reported emissions and heat input) are adjusted to zero, but the gas turbine adjusted emissions and heat input remain positive. A third plant, AES Redondo Beach LLC (ORISPL = 356), has five steam units that report positive emissions to EPA, but research revealed that one unit does not put electricity to the grid; this unit was assigned zero adjusted emissions and heat input.

## **7. Adjustments for Biomass**

eGRID makes adjustments for biogas emissions, for biomass emissions other than biogas, and for solid waste emissions for specified pollutants. Solid waste typically consists of a mixture of biogenic materials – biomass such as wood, paper, and food waste – and “other fossil” materials – fossil-based materials such as plastics and tires. Thus, emissions from the biomass component of solid waste are adjusted exactly as non-biogas biomass emissions are adjusted, while emissions from the fossil component of solid waste are not adjusted.

Solid waste is split into the two components in eGRID so that adjustments can be made as needed. EPA's methodology for splitting MSW into the two components includes different splits for the MSW types. The MSW percentages for the MSW biomass component (called MSB) and the MSW fossil component (called MSF) are described in Table III-2 below (EIA, 2007). The type of MSW is obtained from an EPA data file (EPA, 2002).

**Table III-2. Municipal Solid Waste MSB and MSF Splits**

<b>MSW Type</b>	<b>Variable(s)</b>	<b>MSB Split (%)</b>	<b>MSF Split (%)</b>
Mass Burn	Heat Input, Generation	52.7%	47.3%
Mass Burn	Fuel Consumption	65.4%	34.6%
Refuse Derived Fuel	Heat Input, Generation	52.7%	47.3%
Refuse Derived Fuel	Fuel Consumption	75.1%	24.9%
Unknown	Heat Input, Generation	52.7%	47.3%
Unknown	Fuel Consumption	67.7%	32.3%

As with all biomass generation, CO<sub>2</sub> emissions from the biomass portion of solid waste are adjusted, but emissions from the remaining portion of solid waste are reported based on appropriate emission factors. Generation from supplemental fossil fuels co-fired with solid waste is identified if known and reflected in emission rates. This methodology did not change from eGRID2007's. However, beginning with the year 2007 data, the biomass portion of solid waste combustion is shown in the unadjusted CO<sub>2</sub> emissions.

A flag in the plant file indicates whether there is any biomass adjustment and the type of adjustment. The possible adjustments for CO<sub>2</sub>, NO<sub>x</sub>, SO<sub>2</sub>, CH<sub>4</sub>, and N<sub>2</sub>O emissions (and heat input) are explained below.

**a. CO<sub>2</sub>**

Biomass is a fuel derived from organic matter such as wood and paper products, agricultural waste, or methane (e.g., from landfills). eGRID assumes that these materials are subject to the natural carbon cycle and, therefore, do not contribute to global warming. eGRID assigns zero CO<sub>2</sub> emissions to generation from the combustion of all biomass (including biogas) because these organic materials would otherwise release CO<sub>2</sub> (or other greenhouse gases) to the atmosphere through decomposition.

For those adjusted-for-biomass CO<sub>2</sub> emissions that are estimated, the biomass components are zeroed out in this edition, just as they have been for previous years of eGRID data. However, in this edition of eGRID, the CO<sub>2</sub> emissions from biomass are more comprehensively disclosed in the plant unadjusted emissions. The CO<sub>2</sub> emissions from biomass can be determined at a plant level by comparing the emissions and the unadjusted emissions at plants that have a biomass adjustment flag. If the CHP adjustment flag is also 1, to determine the biomass emissions, first calculate how much of the adjustment is accounted for from CHP using the electric allocation factor (since the CHP plant adjustment is applied last).

For those few EPA/CAMD units that for a given prime mover whose matching EIA-923 prime mover burns some biomass fuel, the biomass fuel components' CO<sub>2</sub> CAMD emissions are adjusted by the same biomass fuel component percentage as reported in the EIA-923; prior to year 2007, these emissions, if CAMD-reported, were only zeroed out if the EPA/CAMD primary fuel was a biomass fuel. These units have a (new) value of 77 for the RMBMFLAG (biomass flag).

**b. NO<sub>x</sub>, SO<sub>2</sub>, CH<sub>4</sub>, and N<sub>2</sub>O**

NO<sub>x</sub>, SO<sub>2</sub>, CH<sub>4</sub>, and N<sub>2</sub>O emissions from generation powered by biogas (landfill gas and digester gas) are also adjusted in eGRID. Landfill gas and digester gas emissions must be flared in most cases if the gas is not consumed as useful energy. Therefore, eGRID assumes that biogas would have been flared if not used to generate electricity, so that eGRID adjusted emissions are the amount of incremental emissions attributable to utilizing biogas to generate electricity. Thus, emissions from these fuels are adjusted by decreasing the uncontrolled emission factors (used to estimate the emissions) by the emission factor represented by a typical flare. This methodology did not change from eGRID2007's.

For NO<sub>x</sub>, the EPA-approved flare emission factor is assumed to be 40 lb per million cubic feet (MMcf) of methane, 20 lb per MMcf of methane for landfill gas, and 26 lb per MMcf of methane for digester gas, and is subtracted from the respective original EPA-approved uncontrolled emission factors before being applied. For SO<sub>2</sub>, CH<sub>4</sub>, and N<sub>2</sub>O, the emission factors are assumed to be the same as the flares', so there are no incremental SO<sub>2</sub>, CH<sub>4</sub>, and N<sub>2</sub>O emissions attributable to utilizing biogas to generate electricity, and values of zero are assigned.

In eGRID, there are no fuel adjustments for NO<sub>x</sub>, SO<sub>2</sub>, CH<sub>4</sub>, and N<sub>2</sub>O emissions for biomass other than biogas.

## 8. Adjustments for CHP

CHP is a type of generating facility that produces electricity and another form of useful thermal energy (such as heat or steam) used for industrial, commercial, heating, or cooling purposes. CHP, also known as cogeneration, converts energy more efficiently than facilities that separately produce heat and electricity. The plants labeled as CHP in eGRID are an EPA designation based on a CHP file developed for DOE. A flag in the plant file indicates if a plant is considered a CHP for purposes of eGRID. Since emissions reported in eGRID represent electricity generation only, emissions associated with useful thermal output – the amount of heat produced in a CHP facility that is used for purposes other than making electricity – are excluded from the adjusted emissions (and a plant's emissions data reported in eGRID may be different from that reported in other EPA sources). As in eGRID2007, the unadjusted emissions are shown only in the plant file.

eGRID's methodology is designed to share CHP's efficiency gains between electricity and useful thermal output. For CHP facilities in the year 2007 data, eGRID allocates emissions between electricity and thermal output using a plant level electric allocation factor that discounts the value of useful thermal output by 25%. (Whereas in eGRID2006 and eGRID2007 there also is a 75/25 split, in eGRID2002 there was a 50/50 split.) If a plant is a CHP and has an electric allocation factor, it is applied to the emissions (and heat input) for the entire plant after any biomass adjustment has been made. Specifically, the adjusted value is the product of the electric allocation factor and the original value.

The methodology for estimating an electric allocation factor is as follows:

The useful thermal output value for year 2007 data can be calculated from EIA-923 data as 0.8 multiplied by (total heat input minus electricity heat input) MMBtu. The electric allocation factor is calculated as the ratio of the electricity heat output to the sum of the electricity and steam heat outputs, where electricity heat output in MMBtu is the net generation MWh multiplied by 3.413 and steam heat output MMBtu is 0.75 multiplied by useful thermal output

If the useful thermal output is unknown, the electric allocation factor (ELCALLOC) is estimated given specific conditions. But, if there are non-zero values for both annual net generation and annual total heat input, an 8,500 Btu per kilowatt-hour (kWh) median plant nominal heat rate is assumed. Since actual heat rate equals (electric allocation factor multiplied by 1000 multiplied by heat input MMBtu) divided by (net generation MWh), then the electric allocation factor for CHP plants without a given useful thermal output is initially calculated as:

$$\text{ELCALLOC} = (8.5 * \text{plant net generation MWh}) / (\text{unadjusted plant heat input MMBtu}).$$

If, however, the plant's CHP prime mover has been designated steam and the heat rate is less than 22,747 Btu/kWh, then the electric allocation factor for the CHP plant is initially calculated as:

$$\text{ELCALLOC} = ((12.68 * \text{plant net generation}) / (\text{unadjusted plant heat input})) - 0.17444.$$

For calculated electric allocation factors that fall below a specified minimum, additional adjustments are made as summarized in Table III-3 below.

**Table III-3. Floors for Power to Heat Ratio and ELCALLOC**

Type of CHP Prime Mover	Minimum ELCALLOC	Minimum Power to Heat Ratio
Coal or MWC Boilers	0.11765	0.10
All Other Boilers	0.06250	0.05
Gas Turbines	0.30556	0.33
Combined Cycles	0.47183	0.67
Internal Combustion Engines	0.40000	0.50

The CHP electric allocation “floors” were derived from an analysis of the theoretical power-to-heat ratio of different CHP technologies and the actual operating characteristics of existing CHP systems. The power-to-heat ratio is largely a function of the CHP prime mover, its efficiency, and the amount and temperature of heat available from the system. In addition, the reported operating characteristics of a large number of CHP facilities as reported in the DOE ORNL CHP database (EEA, 2007) were reviewed. The combination of theoretical and reported characteristics was used to establish the minimum values for the electric allocation factors.

This methodology did not change from eGRID2007’s.

## 9. Emission Rate Estimates

Both output and input emission rates are calculated for eGRID, beginning with the plant level of aggregation. In addition to emission values, annual and ozone season net generation and heat input values (adjusted heat input values if it is a CHP) are required for emission rate calculations.

### a. Generation

Net generation, in MWh, is the amount of electricity produced by the generator and transmitted to the electric grid; it does not include any generation consumed by the plant. If the generation consumed by the plant is greater than the gross generation, negative net generation will occur and be displayed in eGRID; this can further result in negative emission rates.

Plant-fuel-prime mover net generation for all prime mover types can be obtained from the EIA-923; nuclear generator unit level net generation can also be obtained from the EIA-923.

For sampled plants with EIA-923 net generation, generation is reported monthly and annually, so that ozone season generation is calculated by summing up the generation for the five months of May through September. If there are no monthly data, ozone season generation is calculated as 5/12 of the annual generation. Net generation for those plant-prime movers (or entire plants) that did not report data to the EIA-923, but did report emissions to the EPA, is derived from EPA/CAMD data if there also is positive gross load generation in the EPA/CAMD data file.

The following methodology was employed for obtaining year 2007 net generation data:

#### Plant level net generation

To determine plant level net generation, use EIA-923 plant-prime mover annual and ozone season MWh net generation, if available. Ozone season net generation for those plants/generators that report monthly to the EIA-923 is calculated by summing the May through September net generation; for plants/units that report only annually to the EIA-923, the ozone season net generation is calculated as 5/12 of annual net generation.

If plant-prime mover net generation is also needed because there is EPA/CAMD non-zero reported emissions without associated EIA-923 net generation, then use CAMD's annual gross load multiplied by a prime mover-level conversion factor found in Velocity Suite's data (Ventyx, 2007) for the specific unit(s) to estimate annual net generation MWh, aggregated to the plant level by prime mover. For estimating EPA/CAMD ozone season net generation, apply the ratio of the ozone season to the annual heat input to the calculated annual net generation. Otherwise, if net generation for that prime mover is zero, then the associated adjusted emissions is assigned a value of zero.

Generation can be appropriately attributed to fuel type with the EIA-923 data. With the selected CAMD net generation, the fuel code of the plant primary fuel is assigned (see subsections C and D for further information about resource mix).

#### Generator level net generation

To determine generator level net generation for some units, use EIA-923 annual and ozone season net generation MWh for plants with one prime mover at a non-nuclear plant operating in year 2007. Additionally, for nuclear generators, use EIA-923 nuclear unit-level reported annual and ozone season net generation. Most generators will not have a year 2007 value for net generation.

#### ***b. Heat Input***

Heat input, in MMBtu, is the amount of heat energy consumed by a generating unit that combusts fuel. Annual boiler level heat input for eGRID is initially obtained from EPA/CAMD 12 month reported emissions data. Ozone season heat input is also provided with these data. EPA heat input is based on one or more of several values – stack flow, CO<sub>2</sub> or O<sub>2</sub> monitoring, fuel flow, heat content of fuel.

If these EPA data are unavailable, heat input is obtained from the EIA-923 prime mover level data; its value was calculated internally by EIA by multiplying the reported EIA fuel consumption by the reported heat content (the higher heating value). If available, the EIA ozone season heat input is calculated by summing up the data for the five months of May through September; otherwise, the ozone season heat input is calculated as 5/12 of the annual heat input.

If a plant reports heat input or data to calculate heat input for the same prime mover to EIA-923 and/or EPA/CAMD, the EPA/CAMD data are used first. If the sources are different for different components of the plant, then the heat input data are summed for the plant.

**c. Rates**

The units for output emission rates are lb/MWh for SO<sub>2</sub>, NO<sub>x</sub>, and CO<sub>2</sub>, and lb/GWh for Hg, CH<sub>4</sub>, and N<sub>2</sub>O. These rates are calculated as the emissions divided by the net generation and multiplied by a unit conversion factor. For input emission rates, the units are lb/MMBtu for SO<sub>2</sub>, NO<sub>x</sub>, and CO<sub>2</sub>, and lb/BBtu for Hg; CH<sub>4</sub>, and N<sub>2</sub>O; these rates are calculated as the emissions divided by the heat input and multiplied by a unit conversion factor.

eGRID output emission rates do not account for any line losses between the points of consumption and the points of generation. For example, because there are line losses, one kilowatt hour of electricity consumption requires a little more than one kilowatt hour of electricity generation. To account for transmission and distribution line losses when applying eGRID output emission rates to electricity consumption within a certain region, divide the consumption by (one minus the gross grid loss factor as a decimal). In the state import-export file, eGRID publishes gross grid loss factors, which can be used to account for line losses. For the groups of states that generally comprise the three grid regions in the continental U.S., Alaska, and Hawaii, these eGRID gross grid loss factors are based on generation, consumption, and foreign net imports. The eGRID2010 year 2007 gross grid loss factors are displayed in Table III-4.

**Table III-4. eGRID2010 Year 2007 Gross Grid Loss Factors**

<b>Region</b>	<b>Gross Grid Loss Factor (%)</b>
Eastern Grid	6.471
Western Grid	4.837
Texas	6.415
Alaska	1.244
Hawaii	3.204
U.S.	6.156

**i. Fuel-based Emission Rates**

Beginning at the state level, coal, oil, gas, and fossil fuel output and input emission rates are calculated based on plants' fossil fuel category, which in turn is based on the plants' primary fuel (see subsection C). If a plant's primary fuel is in the coal, oil, gas, or other fossil category, then all of its adjusted emissions and heat input, and generation are included in the respective aggregation level for that fuel category. For example, all plants whose primary fuel is in the coal category and who are located in Alabama will have their emissions, heat input, and generation summed and then the appropriate calculations will be applied to determine the fuel-based output and input emission rates for Alabama. See Table III-5 for a list of primary fuels and fuel categories.

**ii. Non-baseload Emission Rates**

Beginning at the state level, there are seven annual non-baseload emission rates which are the annual output emission rates for plants that combust fuel and have capacity factors less than 0.8, weighted by generation and a percent of generation determined by capacity factor. These data values are derived from plant level data and supplement, rather than replace, the fossil fuel output emission rates, which are sometimes used as a rough estimate to determine how much emissions could be avoided if energy efficiency and/or renewable energy displaces fossil fuel generation. These non-baseload output emission rates would somewhat improve this rough estimate by factoring out baseload generation, which is generally unaffected by measures that affect marginal generation.

The plant level capacity factor is used as a surrogate for determining how much non-baseload generation and emissions occur at each facility. Although there are reasons that can influence a particular plant's capacity factor besides dispatch or load order (e.g., repairs, etc.), capacity factor is being used as a surrogate for dispatch-order for this calculation. The non-baseload information is published in eGRID just at the aggregate level (state, PCA, etc.), and not for individual plants.

The following describes the procedure used to generate these non-baseload emission rates. The emission rates are determined starting with plant level data. First, all generation from resources that do not combust fuel is removed from each plant. Plants with 100% hydro, nuclear, wind, solar, and/or geothermal generation are removed from the non-baseload calculation. For any plants that have partial generation from the combustion of fuel, the emissions from the plant are retained and the generation from resources that do not combust fuel is subtracted out for this calculation, and the plant's output emission rate is recalculated. Next, a capacity factor relationship is used to determine the percent of the plant's generation and emissions to be considered non-baseload generation. All generation at plants with low capacity factors (greater than 0.0 and less than 0.2) would be considered non-baseload. No generation at plants with high capacity factors (0.8 and greater) would be considered non-baseload generation. No generation at plants with negative generation from combustion sources would be considered non-baseload generation. A linear relationship would determine the percent generation that is non-baseload at plants with capacity factors between these 0.2 and 0.8. The non-baseload generation of each plant is multiplied by the plant's output emission rate, to determine the non-baseload emissions. Finally, the total non-baseload generation and the total non-baseload emissions are summed up at each level of aggregation (state, EGCs, parent companies, PCA, eGRID subregion, NERC region, and U.S. Total) and are used to calculate the non-baseload output emission rates.

eGRID non-baseload values can be useful when attempting to estimate the emissions benefits of reductions in electricity use. For example, if one is interested in estimating the carbon dioxide emission reductions associated with the installation of energy efficient equipment or products (e.g., an ENERGYSTAR heating, ventilating, and air conditioning (HVAC) system); or the installation of building envelop technologies (e.g., sealing air leaks and insulation improvements), then one could use the eGRID subregion non-baseload CO<sub>2</sub> output emission rate and the expected or actual energy savings resulting from the installation to estimate the CO<sub>2</sub> emission reductions. Non-baseload values may be less appropriate when attempting to determine the emissions benefits of some intermittent resources, such as wind power. Non-baseload values should not be used for assigning an emission value for electricity use in carbon-footprinting exercises or GHG emissions inventory efforts.

eGRID subregion total output emission rates are recommended for Scope 2 emissions and the eGRID subregion non-baseload output emission rates are recommended to estimate emission reductions from renewable energy or energy efficiency projects that reduce consumption of grid supplied electricity.

The methodology used to determine non-baseload emissions rates did not change from eGRID2007's.

### *iii. Combustion Emission Rates*

Combustion output emission rates for all pollutants are estimated, beginning at the plant level. Whereas the generation used in the denominator for calculating the traditional total output emission rate is the total net generation, the denominator used for calculating the combustion output emission rate is the net generation associated with emissions, namely, the combustion generation only. Thus, generation from nuclear, hydro, geothermal, solar, and wind will not be included in the calculation of this rate. This methodology did not change from eGRID2007's.

## **B. TREATMENT OF PLANT OWNERSHIP**

The owner(s) and operator of a plant are tracked for eGRID using daily and bi-weekly trade press releases as well as EIA's Electric Power Monthly's "Plants Sold and Transferred" table (EIA, 2007-2010). This information, through December 31, 2010, overrides and updates any ownership and/or operator information provided in the 2007 EIA-860. Since ownership is reported in eGRID only on the plant level, but in the EIA-860 on the generator level, the generators' owner companies and percentages must be aggregated to the plant level, which is accomplished for each plant by MW-weighting each generator's ownership and then summing to the plant level. This methodology did not change from eGRID2007's.

Unfortunately, there are some plants for which this methodology will result in misleading percentages. For example, if one company owns only one of several generators and that one generator is connected to a "clean" boiler that has emissions whose ratio to the entire plant's emissions is much less than its MW's ratio to the entire plant's MW, that one company will, because of its MW-to-plant MW ratio, have a higher plant ownership percentage attributed to it than its actual emissions plant percentage; thus, that company will be associated with greater emissions and generation than it actually has.

This situation is not typical since most plants do not have "jointly owned" generators or different owners for all the plant's generators. It affects only some plants and companies and some percentage of emissions and generation associations in this situation. One example that does not benefit from this methodology is Ohio's Cardinal plant (ORISPL = 2828), which has three generators and three boilers, associated on a one-to-one basis. Each generator has about the same nameplate capacity. One generator is owned by Ohio Power, and two by Buckeye Power Inc. The Cardinal plant ownership is approximately 33% Ohio Power and 67% Buckeye, so 67% of the plant emissions would be attributable to Buckeye Power using eGRID methodology. However, the SO<sub>2</sub> emissions for the two boilers associated with Buckeye's two generators combined are only about 60% of the Cardinal plant's SO<sub>2</sub> emissions total. Note that these misleading emission proportions for SO<sub>2</sub> are not duplicated for Cardinal's NO<sub>x</sub> or CO<sub>2</sub> emissions.

## **C. DETERMINATION OF PLANT PRIMARY FUEL**

The primary fuel of a plant that consumes any amount of combustible fuel is determined solely by the fuel that has the maximum heat input for year 2007 data. This methodology did not change from eGRID2007's.

For plants that do not consume any combustible fuel, the primary "fuel" is determined by the resource associated with the prime mover (nuclear, solar, wind, geothermal, or hydro/pumped storage) with the maximum generation associated with that prime mover.

The possible original fuel codes and fuel categories for the plant primary fuel data variable (PLPRMFL in the eGRID plant file) are as shown in Table III-5 below.

**Table III-5. Plant Primary Fuel**

<b>Fuel Code</b>	<b>Description</b>	<b>Fuel Category</b>	<b>Fuel Group</b>
AB	agricultural byproduct	biomass	solid fuel
BLQ	black liquor	biomass	solid fuel
DG	digester gas	biomass	gas fuel
LFG	landfill gas	biomass	gas fuel
ME	methane	biomass	gas fuel
MSB	MSW biomass component	biomass	solid fuel
OBL	other biomass liquid	biomass	liquid fuel
OBS	other biomass solid	biomass	solid fuel
PP	paper pellet	biomass	solid fuel
SLW	sludge waste	biomass	solid fuel
WDL	wood (waste) liquid	biomass	liquid fuel
WDS	wood (waste) solid	biomass	solid fuel
BIT	bituminous coal	coal	solid fuel
LIG	lignite coal	coal	solid fuel
SC	syncoal	coal	solid fuel
SUB	subbituminous coal	coal	solid fuel
WC	waste coal	coal	solid fuel
NG	natural gas	gas	gaseous fuel
PG	propane gas/LPG	gas	gaseous fuel
DFO	distillate/diesel oil	oil	liquid fuel
JF	jet fuel	oil	liquid fuel
KER	kerosene	oil	liquid fuel
OOL	other oil	oil	liquid fuel
PC	petroleum coke	oil	solid fuel
RFO	residual oil	oil	liquid fuel
RG	refinery gas	oil	gaseous fuel
WO	waste oil	oil	liquid fuel
BFG	blast furnace gas	other fossil	gaseous fuel
COG	coke oven gas	other fossil	gaseous fuel
HY	hydrogen	other fossil	gaseous fuel
LB	liquid byproduct	other fossil	liquid fuel
MH	methanol	other fossil	liquid fuel
MSF	MSW other fossil part	other fossil	solid fuel
OG	other gas	other fossil	gaseous fuel
PRG	process gas	other fossil	gaseous fuel
TDF	tire-derived fuel	other fossil	solid fuel

Note that since solid waste plants are broken down into biomass and fossil components, a solid waste plant will have “MSB” as the primary fuel.

Since the plant primary fuel variable is based solely on heat input, a partially combustible fueled plant, i.e., one that burns some combustible fuel but is mainly a nuclear, hydro, or solar plant, the plant primary fuel designation can be misleading. Thus, a new variable, plant primary fuel generation category, was developed for the plant file, beginning with year 2007 data. This new variable is based on the maximum net generation fuel category and can be one of eleven values (the same as the number of plant annual net generation fuel categories) as shown in Table III-6.

**Table III-6. Plant Primary Fuel Generation Category**

<b>Fuel Category</b>	<b>Description</b>
CL	Coal
OL	Oil
GS	Gas
NC	Nuclear
HY	Hydro
BM	Biomass
WI	Wind
SO	Solar
GT	Geothermal
OF	Other Fossil
OP	Other Unknown/Purchased/Waste Heat

#### **D. ESTIMATION OF RESOURCE MIX**

Resource mix is a collection of nonrenewable and renewable resources that are used to generate electricity. Nonrenewable resources include fossil fuels (e.g., coal, oil, gas, and other fossil) and nuclear energy source; renewable energy resources include biomass, solar, wind, geothermal, and hydro. A percentage is assigned to each resource or group of resources. Resource mix is displayed in eGRID and expressed in both MWh and generation percent.

For cases in which there is only one fuel and its generation is negative, that fuel's generation percent is assigned 100%. For cases in which there are fuels with both negative and positive net generation, the generation percents only include the positive generation in both the denominator and numerator. For cases in which there are only two fuels and both net generations are negative, both fuels' generation percents are assigned 0%.

For the three grouped aggregate categories – total net generation from nonrenewable, total net generation from all renewables, and total net generation from renewables minus hydro, the sum of the total net generation from renewables and from all nonrenewables equals the total net generation. In cases for which there is both positive and negative fuel generation in the nonrenewables category (it is unlikely to happen in the renewables category), the category percentages may be misleading since only the positive generation components are considered in calculating the generation percents for total renewables and nonrenewables. Similarly, for the two grouped aggregated categories of combustion net generation and noncombustion net generation, their sum equals the total net generation. For cases in which there is more than one negative nonrenewables (or combustion) net generation value and there is no renewables (or noncombustion) net generation, the total nonrenewables (or combustion) resource mix is assigned 100 %.

The methodology for the determination of resource mix did not change from eGRID2007's.

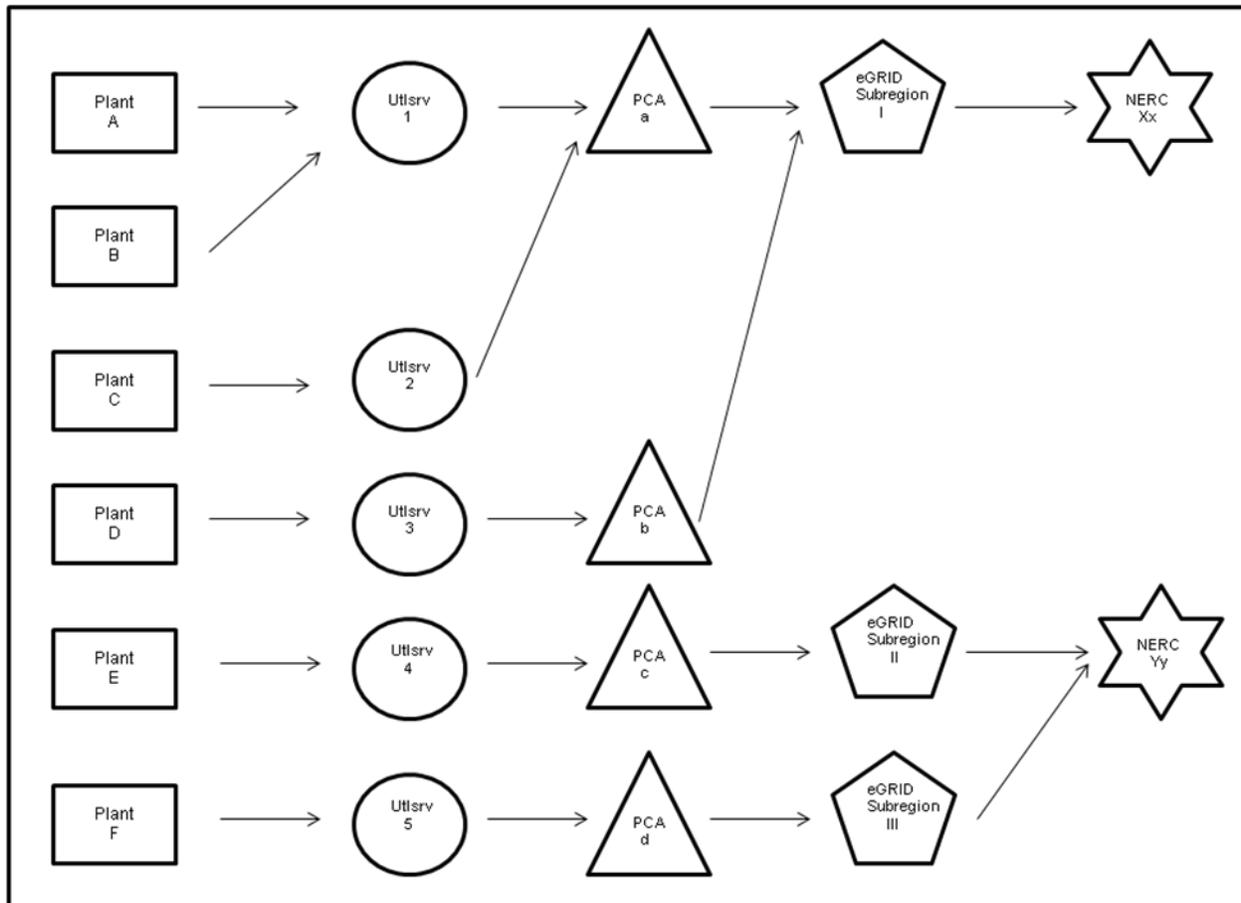
eGRID plant resource mix and net generation are derived from the EIA-923, which provides the information on a plant-prime mover-fuel level. However, there are some cases for which only the EPA/CAMD-based net generation is available for use in eGRID. In these cases, the plant's primary fuel (based on the maximum heat input value) is assigned 100% of the generation for the resource mix.

## E. DETERMINATION OF PLANT AGGREGATION LINKS

The plant's state, operator, and owner(s), as well as the utility service territory EGCs are already associated with each plant, based on EIA data that have been updated to correct known errors and to reflect 2010 industry configuration.

A graphic representation of examples of relationships among plants, utility service territories, PCAs, eGRID subregions, and NERC regions is depicted below in Figure III-1.

**Figure III-1. Examples of Plant Through NERC Linkages**



### 1. NERC Region

NERC region refers to a region designated by the North American Electric Reliability Corporation. Each NERC region listed in eGRID represents one of ten regional portions of the North American electricity transmission grid: eight in the contiguous United States, plus Alaska and Hawaii (which are not part of the formal NERC regions, but are considered so in eGRID). The NERC regions themselves have not changed from those in eGRID2007; the Electric Reliability Council of Texas (ERCOT) NERC region did change its name to the Texas Reliability Entity (TRE) between eGRID years 2006 and 2007 data. Note, however, that some plants operating in each NERC region do change from year to year. The ten NERC region names and their acronyms for eGRID are displayed in Table III-7.

**Table III-7. NERC Region Acronym and Names for eGRID**

<b>NERC Region</b>	<b>NERC Name</b>
ASCC	Alaska Systems Coordinating Council
FRCC	Florida Reliability Coordinating Council
HICC	Hawaiian Islands Coordinating Council
MRO	Midwest Reliability Organization
NPCC	Northeast Power Coordinating Council
RFC	Reliability First Corporation
SERC	SERC Reliability Corporation
SPP	Southwest Power Pool
TRE	Texas Regional Entity
WECC	Western Electricity Coordinating Council

Although some NERC regions include portions of Canada and/or Mexico that are integrated with U.S. grids, eGRID data are limited to generation within the United States.

A representation of the NERC region map used for eGRID2010 is included in Appendix B. This map, which is a *representational* one, shows approximate boundaries because they are based on companies, not on strictly geographical boundaries. Since NERC regions are based not on location but on companies, the linkage is between a plant and its transmission/distribution/utility service territory, which in turn is linked to a PCA, which is associated with a NERC region.

## **2. eGRID Subregion**

eGRID subregions are developed as subsets of NERC regions. In eGRID2002 and earlier, these grid regions were similar to EPA's IPM subregions (except for the New York and California areas). Many of these older subregions no longer exist since their NERC regions no longer exist. At this juncture, NERC has only defined subregions for the WECC NERC region. Thus, for the WECC NERC region and for those other NERC regions that did not change configuration, the newer eGRID subregions will remain in effect. Definitions of the eGRID subregions were made by EPA after consultation with NERC staff.

A representation of the eGRID subregion map used for eGRID2010 is included in Appendix B. This map, which is a *representational* one, shows approximate boundaries because they are based on companies, not on strictly geographical boundaries. Since plant-associated eGRID subregions are based on companies, the linkage is between a plant and its transmission/distribution/utility service territory, not the plant location. Thus, there is no shape file or subregion layer available for eGRID subregions.

eGRID subregions are identified and defined by EPA – using the NERC regions and PCAs as a guide. An eGRID subregion is often, but not always, equivalent to an Integrated Planning Model (IPM) subregion. The 26 eGRID subregions are subsets of the NERC regions as configured on December 2010. The plant's associated PCA determines the plant's associated eGRID subregion, which is defined as a subset of the NERC region, and is composed of entire PCAs – with the exception of PJM Interconnection and New York Independent System Operator PCAs, which are each associated with three eGRID subregions. The eGRID subregions themselves have not changed since eGRID2002 year 2000 data. Note, however, that some plants operating in each eGRID subregion do change from year to year. The 26 eGRID subregion names and their acronyms are displayed in Table III-8.

**Table III-8. eGRID Subregion Acronym and Names for eGRID**

eGRID Subregion	eGRID Subregion Name
AKMS	ASCC Miscellaneous
AKGD	ASCC Alaska Grid
ERCT	ERCOT All
FRCC	FRCC All
HIMS	HICC Miscellaneous
HIOA	HICC Oahu
MORE	MRO East
MROW	MRO West
NYLI	NPCC Long Island
NYCW	NPCC NYC/Westchester
NEWE	NPCC New England
NYUP	NPCC Upstate NY
RFCE	RFC East
RFCM	RFC Michigan
RFCW	RFC West
SRMW	SERC Midwest
SRMV	SERC Mississippi Valley
SRSO	SERC South
SRTV	SERC Tennessee Valley
SRVC	SERC Virginia/Carolina
SPNO	SPP North
SPSO	SPP South
CAMX	WECC California
NWPP	WECC Northwest
RMPA	WECC Rockies
AZNM	WECC Southwest

### 3. Power Control Area

A Power Control Area (PCA) (or Balancing Authority, as NERC terms it) is a portion of an integrated power grid for which a single dispatcher has operational control of all electric generators. PCAs range in size from small municipal utilities such as Columbia MO City of, to large power pools such as PJM Interconnection. There have been some changes to PCAs from eGRID2007 to eGRID2010.

In Alaska, isolated electric utility systems, which are not part of an integrated power grid, have been grouped into a nominal PCA called “Alaska Misc.” In Hawaii, isolated electric utility systems, which are not part of an integrated power grid, have been grouped into a nominal PCA called “Hawaii Misc.” These two PCAs have dummy (negative) codes since there are none available from EIA: -1 for Alaska Misc, and -2 for Hawaii Misc. Otherwise, PCA IDs are assigned based on the EIA-861 (EIA, 2008b) if possible; if the name is essentially the same as an EGC’s, then the EIA EGC code from the EIA-860 is used (EIA, 2008a).

In eGRID, a PCA associated with a plant is determined by the transmission lines connecting the PCA and the plant through a utility entity (previously thought of/known as a utility service area) and now reported to EIA as “the owner of the transmission or distribution facilities to which the plant is interconnected” (EIA, 2008a) and that eGRID terms a utility service territory.

PCAs are assigned according to the utility service territory in which the plant is physically located.

The PCA associated with a plant is determined by the owner of the transmission/distribution utility/regulated EGC (not parent company) associated with the plant. At present, there is not one Federal file that can be used to link 2007 utility EGCs with their PCAs. There is an association between utility EGCs and PCAs reported in the 2007 EIA-861 data (EIA, 2008b), but the relationship and entities involved reflect year 2007 industry configurations, and is, thus, only partially useful for eGRID2010, whose plants' owners and operator have been updated to reflect December 31, 2010 industry configuration. Additionally, the eGRID PCAs have been updated and reported by NERC, too, to reflect a December 31, 2010 configuration.

The PCA link to the NERC region has been determined by NERC. The plant's associated PCA determines the plant's associated NERC region, except for the PJM Interconnection PCA, which has plants in two NERC regions. NERC provides the linkage used in eGRID between PCAs and NERC regions by publishing the currently registered balancing authorities (PCAs) in the NERC Compliance Registry (NERC, 2009). The NERC acronyms are also assigned by NERC. The possible relationships between the 120 PCAs and 10 NERC regions as of December 31, 2010 are displayed below in Table III-9.

**Table III-9. PCA-NERC Region Relationship**

<b>PCA Name</b>	<b>NERC Region</b>	<b>NERC Name</b>
Alaska Misc	ASCC	Alaska Systems Coordinating Council
Anchorage Municipality of	ASCC	Alaska Systems Coordinating Council
Chugach Electric Assn Inc	ASCC	Alaska Systems Coordinating Council
Golden Valley Elec Assn Inc	ASCC	Alaska Systems Coordinating Council
Florida Municipal Power Pool	FRCC	Florida Reliability Coordinating Council
Florida Power & Light Co	FRCC	Florida Reliability Coordinating Council
Gainesville Regional Utilities	FRCC	Florida Reliability Coordinating Council
JEA	FRCC	Florida Reliability Coordinating Council
New Smyrna Beach Utilities Commission of	FRCC	Florida Reliability Coordinating Council
Progress Energy Florida	FRCC	Florida Reliability Coordinating Council
Seminole Electric Cooperative	FRCC	Florida Reliability Coordinating Council
Tallahassee City of	FRCC	Florida Reliability Coordinating Council
Tampa Electric Company	FRCC	Florida Reliability Coordinating Council
Hawaii Electric Light Co Inc	HICC	Hawaiian Islands Coordinating Council
Hawaii Misc	HICC	Hawaiian Islands Coordinating Council
Hawaiian Electric Co Inc	HICC	Hawaiian Islands Coordinating Council
Alliant - East	MRO	Midwest Reliability Organization
Alliant - West	MRO	Midwest Reliability Organization
Dairyland Power Cooperative	MRO	Midwest Reliability Organization
Great River Energy	MRO	Midwest Reliability Organization
Lincoln Electric System	MRO	Midwest Reliability Organization
Madison Gas and Electric Company	MRO	Midwest Reliability Organization
MidAmerican Energy Company	MRO	Midwest Reliability Organization
Minnesota Power	MRO	Midwest Reliability Organization
Muscatine Power and Water	MRO	Midwest Reliability Organization
Nebraska Public Power District	MRO	Midwest Reliability Organization
Northern States Power	MRO	Midwest Reliability Organization
Omaha Public Power District	MRO	Midwest Reliability Organization
Otter Tail Power Company	MRO	Midwest Reliability Organization
Southern Minnesota Municipal Power Agcy	MRO	Midwest Reliability Organization
Upper Peninsula Power Company	MRO	Midwest Reliability Organization

<b>PCA Name</b>	<b>NERC Region</b>	<b>NERC Name</b>
WAPA - Upper Great Plains East	MRO	Midwest Reliability Organization
Wisconsin Public Service Corporation	MRO	Midwest Reliability Organization
New Brunswick System Operator	NPCC	Northeast Power Coordinating Council
New England ISO	NPCC	Northeast Power Coordinating Council
New York ISO	NPCC	Northeast Power Coordinating Council
American Transmission Systems	RFC	Reliability First Corporation
Consumers Energy Company	RFC	Reliability First Corporation
Detroit Edison Company	RFC	Reliability First Corporation
Duke Energy Corporation	RFC	Reliability First Corporation
Hoosier Energy REC	RFC	Reliability First Corporation
Indianapolis Power & Light Company	RFC	Reliability First Corporation
Michigan Electric Coordinated Systems	RFC	Reliability First Corporation
Northern Indiana Public Service Company	RFC	Reliability First Corporation
Ohio Valley Electric Corporation	RFC	Reliability First Corporation
PJM Interconnection	RFC	Reliability First Corporation
Southern Indiana Gas & Electric Co	RFC	Reliability First Corporation
Wisconsin Energy Corporation	RFC	Reliability First Corporation
Alcoa Power - Yadkin Division	SERC	SERC Reliability Corporation
Ameren - Illinois	SERC	SERC Reliability Corporation
Ameren - Missouri	SERC	SERC Reliability Corporation
Associated Electric Cooperative Inc	SERC	SERC Reliability Corporation
Big Rivers Electric Corporation	SERC	SERC Reliability Corporation
Columbia MO City of	SERC	SERC Reliability Corporation
Duke Energy Carolinas	SERC	SERC Reliability Corporation
East Kentucky Power Cooperative	SERC	SERC Reliability Corporation
Entergy	SERC	SERC Reliability Corporation
EON-US	SERC	SERC Reliability Corporation
Louisiana Generating	SERC	SERC Reliability Corporation
North Little Rock AR City of	SERC	SERC Reliability Corporation
PJM Interconnection	SERC	SERC Reliability Corporation
PowerSouth Energy Cooperative	SERC	SERC Reliability Corporation
Progress Energy Carolinas	SERC	SERC Reliability Corporation
South Carolina Electric & Gas Company	SERC	SERC Reliability Corporation
South Carolina Public Service Authority	SERC	SERC Reliability Corporation
South Mississippi Electric Power Assn	SERC	SERC Reliability Corporation
Southeastern Power Administration	SERC	SERC Reliability Corporation
Southern Company Services	SERC	SERC Reliability Corporation
Southern Illinois Power Cooperative	SERC	SERC Reliability Corporation
Springfield IL - CWLP City of	SERC	SERC Reliability Corporation
Tennessee Valley Authority	SERC	SERC Reliability Corporation
Union Power Partners	SERC	SERC Reliability Corporation
AEP - PSO/SWEPCO	SPP	Southwest Power Pool
Cleco Corporation	SPP	Southwest Power Pool
Empire District Electric Company	SPP	Southwest Power Pool
Grand River Dam Authority	SPP	Southwest Power Pool
Independence MO City of	SPP	Southwest Power Pool
Kansas City Board of Public Utilities	SPP	Southwest Power Pool
Kansas City Power & Light Co-GMO	SPP	Southwest Power Pool
Kansas City Power & Light Company	SPP	Southwest Power Pool
Lafayette Utilities System	SPP	Southwest Power Pool
Louisiana Energy & Power Authority	SPP	Southwest Power Pool
Oklahoma Gas and Electric	SPP	Southwest Power Pool

<b>PCA Name</b>	<b>NERC Region</b>	<b>NERC Name</b>
Southwestern Power Administration	SPP	Southwest Power Pool
Southwestern Public Service Co	SPP	Southwest Power Pool
Sunflower Electric Power Corporation	SPP	Southwest Power Pool
Westar Energy	SPP	Southwest Power Pool
Western Farmers Electric Cooperative	SPP	Southwest Power Pool
ERCOT ISO	TRE	Texas Regional Entity
Arizona Public Service Company	WECC	Western Electricity Coordinating Council
Avista Corporation	WECC	Western Electricity Coordinating Council
Bonneville Power Administration	WECC	Western Electricity Coordinating Council
California ISO	WECC	Western Electricity Coordinating Council
Dynegy Arlington Valley LLC	WECC	Western Electricity Coordinating Council
El Paso Electric Company	WECC	Western Electricity Coordinating Council
Gila River Power	WECC	Western Electricity Coordinating Council
Griffith Energy	WECC	Western Electricity Coordinating Council
Idaho Power Company	WECC	Western Electricity Coordinating Council
Imperial Irrigation District	WECC	Western Electricity Coordinating Council
Los Angeles Department of Water and Power	WECC	Western Electricity Coordinating Council
Nevada Power Company	WECC	Western Electricity Coordinating Council
New Harquahala Generating Company	WECC	Western Electricity Coordinating Council
NorthWestern Corporation	WECC	Western Electricity Coordinating Council
PacifiCorp	WECC	Western Electricity Coordinating Council
Portland General Electric	WECC	Western Electricity Coordinating Council
Public Service Company of Colorado	WECC	Western Electricity Coordinating Council
Public Service Company of New Mexico	WECC	Western Electricity Coordinating Council
PUD No. 1 of Chelan County	WECC	Western Electricity Coordinating Council
PUD No. 1 of Douglas County	WECC	Western Electricity Coordinating Council
PUD No. 2 of Grant County	WECC	Western Electricity Coordinating Council
Puget Sound Energy	WECC	Western Electricity Coordinating Council
Sacramento Municipal Utility District	WECC	Western Electricity Coordinating Council
Salt River Project	WECC	Western Electricity Coordinating Council
Seattle City Light	WECC	Western Electricity Coordinating Council
Sierra Pacific Power Company	WECC	Western Electricity Coordinating Council
Tacoma Power	WECC	Western Electricity Coordinating Council
Tucson Electric Power	WECC	Western Electricity Coordinating Council
Turlock Irrigation District	WECC	Western Electricity Coordinating Council
WAPA - Desert Southwest Region	WECC	Western Electricity Coordinating Council
WAPA - Rocky Mountain Region	WECC	Western Electricity Coordinating Council

The 2007 EIA-860 (EIA, 2008a) specifies each plant’s owner of the transmission/distribution utility/regulated EGC (also called utility service territory), but there appear to be many that are incorrect. Pechan has used a WECC document, “Existing Generation and Significant Additions and Changes to System Facilities Data as of January 1, 2007” (WECC, 2007), to provide PCAs and eGRID subregions (then the WECC plants’ utility service territories were updated as needed). The other nine NERC regions’ utility service territories were also reviewed and updated as needed, as were the PCAs, eGRID subregions, and NERC regions.

Since PCAs are not strictly geographically based, there are no shape files available for mapping them. Several years ago, the NERC website, [www.nerc.com](http://www.nerc.com), had a PCA “bubble map” available to show the relationship between the PCAs and their approximate relationship to NERC regions, but it was simply an approximation. A recent PCA bubble map does not seem to be available from NERC

The relationship among PCAs, eGRID subregions, and NERC regions, as of December 31, 2010, is depicted in Table III-10 below.

**Table III-10. PCA-eGRID Subregion – NERC Region Relationship**

<b>PCA Name</b>	<b>eGRID Subregion Name</b>	<b>NERC Region</b>
AEP - PSO/SWEPCO	SPSO	SPP
Alaska Misc	AKMS	ASCC
Alcoa Power - Yadkin Division	SRVC	SERC
Alliant - East	MROE	MRO
Alliant - West	MROW	MRO
Ameren - Illinois	SRMW	SERC
Ameren - Missouri	SRMW	SERC
American Transmission Systems	RFCW	RFC
Anchorage Municipality of	AKGD	ASCC
Arizona Public Service Company	AZNM	WECC
Associated Electric Cooperative Inc	SRMW	SERC
Avista Corporation	NWPP	WECC
Big Rivers Electric Corporation	SRTV	SERC
Bonneville Power Administration	NWPP	WECC
California ISO	CAMX	WECC
Chugach Electric Assn Inc	AKGD	ASCC
Cleco Corporation	SPSO	SPP
Columbia MO City of	SRMW	SERC
Consumers Energy Company	RFCM	RFC
Dairyland Power Cooperative	MROW	MRO
Detroit Edison Company	RFCM	RFC
Duke Energy Carolinas	SRVC	SERC
Duke Energy Corporation	RFCW	RFC
Dynegy Arlington Valley LLC	AZNM	WECC
East Kentucky Power Cooperative	SRTV	SERC
El Paso Electric Company	AZNM	WECC
Empire District Electric Company	SPNO	SPP
Entergy	SRMV	SERC
EON-US	SRTV	SERC
ERCOT ISO	ERCT	TRE
Florida Municipal Power Pool	FRCC	FRCC
Florida Power & Light Co	FRCC	FRCC
Gainesville Regional Utilities	FRCC	FRCC
Gila River Power	AZNM	WECC
Golden Valley Elec Assn Inc	AKGD	ASCC
Grand River Dam Authority	SPSO	SPP
Great River Energy	MROW	MRO
Griffith Energy	AZNM	WECC
Hawaii Electric Light Co Inc	HIMS	HICC
Hawaii Misc	HIMS	HICC
Hawaiian Electric Co Inc	HIOA	HICC
Hoosier Energy REC	RFCW	RFC
Idaho Power Company	NWPP	WECC
Imperial Irrigation District	AZNM	WECC
Independence MO City of	SPNO	SPP
Indianapolis Power & Light Company	RFCW	RFC
JEA	FRCC	FRCC

<b>PCA Name</b>	<b>eGRID Subregion Name</b>	<b>NERC Region</b>
Kansas City Board of Public Utilities	SPNO	SPP
Kansas City Power & Light Co-GMO	SPNO	SPP
Kansas City Power & Light Company	SPNO	SPP
Lafayette Utilities System	SPSO	SPP
Lincoln Electric System	MROW	MRO
Los Angeles Department of Water and Power	CAMX	WECC
Louisiana Energy & Power Authority	SPSO	SPP
Louisiana Generating	SRMV	SERC
Madison Gas and Electric Company	MROE	MRO
Michigan Electric Coordinated Systems	RFCM	RFC
MidAmerican Energy Company	MROW	MRO
Minnesota Power	MROW	MRO
Muscatine Power and Water	MROW	MRO
Nebraska Public Power District	MROW	MRO
Nevada Power Company	AZNM	WECC
New Brunswick System Operator	NEWE	NPCC
New England ISO	NEWE	NPCC
New Harquahala Generating Company	AZNM	WECC
New Smyrna Beach Utilities Commission of	FRCC	FRCC
New York ISO	NYCW	NPCC
New York ISO	NYLI	NPCC
New York ISO	NYUP	NPCC
North Little Rock AR City of	SRMV	SERC
Northern Indiana Public Service Company	RFCW	RFC
Northern States Power	MROW	MRO
NorthWestern Corporation	NWPP	WECC
Ohio Valley Electric Corporation	RFCW	RFC
Oklahoma Gas and Electric	SPSO	SPP
Omaha Public Power District	MROW	MRO
Otter Tail Power Company	MROW	MRO
PacifiCorp	NWPP	WECC
PJM Interconnection	RFCE	RFC
PJM Interconnection	RFCW	RFC
PJM Interconnection	SRVC	SERC
Portland General Electric	NWPP	WECC
PowerSouth Energy Cooperative	SRSO	SERC
Progress Energy Carolinas	SRVC	SERC
Progress Energy Florida	FRCC	FRCC
Public Service Company of Colorado	RMPA	WECC
Public Service Company of New Mexico	AZNM	WECC
PUD No. 1 of Chelan County	NWPP	WECC
PUD No. 1 of Douglas County	NWPP	WECC
PUD No. 2 of Grant County	NWPP	WECC
Puget Sound Energy	NWPP	WECC
Sacramento Municipal Utility District	CAMX	WECC
Salt River Project	AZNM	WECC
Seattle City Light	NWPP	WECC
Seminole Electric Cooperative	FRCC	FRCC
Sierra Pacific Power Company	NWPP	WECC
South Carolina Electric & Gas Company	SRVC	SERC
South Carolina Public Service Authority	SRVC	SERC
South Mississippi Electric Power Assn	SRSO	SERC

PCA Name	eGRID Subregion Name	NERC Region
Southeastern Power Administration	SRSO	SERC
Southern Company Services	SRSO	SERC
Southern Illinois Power Cooperative	SRMW	SERC
Southern Indiana Gas & Electric Co	RFCW	RFC
Southern Minnesota Municipal Power Agcy	MROW	MRO
Southwestern Power Administration	SPSO	SPP
Southwestern Public Service Co	SPSO	SPP
Springfield IL - CWLP City of	SRMW	SERC
Sunflower Electric Power Corporation	SPNO	SPP
Tacoma Power	NWPP	WECC
Tallahassee City of	FRCC	FRCC
Tampa Electric Company	FRCC	FRCC
Tennessee Valley Authority	SRTV	SERC
Tucson Electric Power	AZNM	WECC
Turlock Irrigation District	CAMX	WECC
Union Power Partners	SRMV	SERC
Upper Peninsula Power Company	MROE	MRO
WAPA - Desert Southwest Region	AZNM	WECC
WAPA - Rocky Mountain Region	RMPA	WECC
WAPA - Upper Great Plains East	MROW	MRO
Westar Energy	SPNO	SPP
Western Farmers Electric Cooperative	SPSO	SPP
Wisconsin Energy Corporation	RFCW	RFC
Wisconsin Public Service Corporation	MROE	MRO

## F. TREATMENT OF AGGREGATION LEVELS

All aggregation levels are based on the plant file. The state file data are developed by summing up the plant data (adjusted heat input, adjusted emissions, adjusted fuel-based emissions, net generation, fuel-based net generation, nameplate capacity, and the plant data values needed to calculate non-baseload emission rates), based on the state in which the plant is located. The EGC (and parent company) location (operator)-based files are developed by summing up the plant data, based on the operator EGC (parent company, if it exists, of the operator EGC) of the plant. The PCA, eGRID subregion, and NERC region aggregations are done similarly, based on the plant data. This methodology did not change from eGRID2007's.

The EGC (and parent company) owner-based files are developed a bit differently from the location (operator)-based files, but using the same principles. If the owner EGC does not own 100% of the plant, it is not attributed with 100% of the plant's data. In particular, each of the owner EGCs (and parent company, if it exists, of the owner EGC) are attributed its ownership percent of each data element that is aggregated.

The totals from the plant, state, two EGC, PCA, eGRID subregion, NERC region, and U.S. files' adjusted heat input, adjusted emissions, adjusted fuel-based emissions, net generation, fuel-based net generation, and nameplate capacity data should be the same, after accounting for rounding. Some variables' totals in the EGC owner-based file may appear to differ from those in the other files because of ownership percent and rounding.

The totals from the two parent company files will be different from each other and different from the other eight files' since a plant is not necessarily associated with a parent company of a location (operator) and/or owner.

## **SECTION IV. SPECIFIC eGRID IDENTIFIER CODES, NAME CHANGES AND ASSOCIATIONS**

eGRID2010 generally uses identifier (ID) codes (for plants, companies, etc.) assigned by EIA. However, identifiers (IDs) and certain corresponding names have been changed in eGRID2010 in order to minimize confusion. If needed, entities that do not have an EIA designated ID are assigned values in eGRID. The specifics are delineated below.

### **A. PLANT LEVEL**

One plant, Laramie River Station (ORISPL = 6204) in Wyoming, has three boilers and generators that supply power to two different power grids. Consequently, the first boiler (1) has become a separate plant in eGRID2010 with a dummy ORISPL = 6204.1 because it is operated within a PCA that is in the Eastern grid; while the second and third boilers have become a separate plant with a dummy ORISPL = 6204.2 because they are operated within a PCA that is in the Western grid. This plant representation occurs in all editions of eGRID.

### **B. EGC, COMPANY LEVEL**

EGCs, for purposes of eGRID files, are operators and owners (and utility service territories) of power plants for the given year. Each EGC has a unique code assigned by EIA or by EPA for eGRID as described below.

Many eGRID EGCs, or companies, do not have a known ID code assigned by EIA, perhaps because they recently purchased or just began to operate/own a plant. Thus, companies with unknown EIA EGC IDs are assigned a dummy negative three-digit EGC ID code beginning with -101. In subsequent data years, once the companies are assigned codes by EIA, the dummy codes are replaced by the “real” EIA codes. These dummy code assignments and replacements are tracked.

Nonutility, or unregulated, companies that represent the same EGC are called nufronts (NonUtility FRONT companies) in eGRID. They are grouped together under a nufront name and are given a dummy negative four-digit EGC ID code beginning with -1001. This practice began with the first edition of eGRID because there were so many individual companies that represented the same EGC but had a slightly different name or spelling of a name, and/or many different codes; thus, aggregation to the EGC level would have been meaningless if these separate EGCs were not related. Some nufronts are also parent company subsidiaries.

Additionally, some Ohio utility plants have more owners than they are able to report on the EIA-860, so eGRID has adopted their Ohio Municipal Electric Generation Agency (OMEGA) Joint Ventures categories that group these individual owners into OMEGA JV1, OMEGA JV2, OMEGA JV5, and OMEGA JV6 and uses these OMEGAJV names as single owners. These relationships did not change for year 2007 data (AMP-Ohio, 2008).

Several other companies were broken up and given dummy IDs because the company operates in more than one power control area. These include:

- Basin Electric Power Coop EGC (ID = -7304), which is broken up into two divisions: Basin Electric Power Coop-East EGC (ID = 1307.1) and Basin Electric Power Coop-West EGC (ID = 1307.2);

- PacifiCorp EGC (ID = 14354), which is broken up into two divisions: PacifiCorp-Rocky Mtn EGC (ID = 14354.1) and PacifiCorp-Pacific EGC (ID = 14354.2); and
- Texas-New Mexico Power Co EGC (ID = 40051), which was broken up into Texas-New Mexico Power Co-NM EGC (ID = 40051.1) and Texas-New Mexico Power Co-TX EGC (ID = 40051.2). For this edition of eGRID, only Texas-New Mexico Power Co-TX exists (as a utility service territory).

## **C. PARENT COMPANY LEVEL**

Parent company refers to a company (such as a holding company) that owns one or more operating subsidiaries or divisions that generate electricity; it is not a legal definition. Data for parent companies are found in separate parent company spreadsheets, rather than in the company (EGC) spreadsheets. If eGRID breaks up an EGC (such as PacifiCorp or Basin Electric) that operates in more than one PCA, the entire EGC is then also reunited and reported as a parent company. Federal entities (such as USBIA, USBR, and USCE) that consist of several EGCs are also treated as parent companies by eGRID. More detailed information about parent companies follows.

No parent company in eGRID has an assigned EIA ID, so eGRID assigns IDs of the form -7xxx.

The following EGCs, or companies (including some government agencies), which are divided at the company level, have been grouped as a single parent company at the parent company level and for eGRID purposes, are considered subsidiaries of parent companies:

- Basin Electric Power Coop (ID = -7304), which includes two Basin Electric Power Coop EGC divisions (ID = 1307.1 and ID = 1307.2);
- PacifiCorp (ID = 14354), which includes two PacifiCorp EGC divisions (ID = 14354.1 and ID = 14354.2) absorbed by MidAmerican Energy Holdings Co parent company (ID = -7034);
- U.S. Army Corp of Engineers (USCE), (ID = -7059), which includes 14 EGCs that are divisions of the Corps of Engineers;
- U.S. Bureau of Indian Affairs (USBIA), (ID = -7060), which includes three EGCs that are divisions of the Bureau of Indian Affairs;
- U.S. Bureau of Reclamation (USBR) (ID = -7061), which includes five EGCs that are divisions of the Bureau of Reclamation; and
- Northwestern Corp (ID = -7110), which includes Northwestern Energy (SD) EGC, EGC ID = 13809 and Northwestern Energy (MT) EGC, EGC ID = 13902. These EGC IDs were both assigned to the same company name, but because of the different company headquarters, eGRID kept the EGCs separate.

## SECTION V. DESCRIPTION OF DATA ELEMENTS

For year 2007 data, eGRID2010 has 12 aggregation files named BLR (boiler), GEN (generator), PLNT (plant), ST (state), EGCL (location (operator)-based EGC), EGCO (owner-based EGC), PRCL (location (operator)-based parent company), PRCO (owner-based parent company), PCAL (PCA), SRL (eGRID subregion), NRL (NERC region), and US (United States total). Appendix A provides the file structure for the eGRID2010 2007 data year, which include variable descriptions and original data sources.

Definitions for like variables are not repeated after the description in the plant file. For example, in the plant file, the net generation in MWh is defined at the plant level for the data element PLNGENAN. For each subsequent file, the net generation, nnNGENAN (where nn is ST, EG, PR, PC, SR, or NR) is not described in Appendix A; it is simply the sum of PLNGENAN attributed to the aggregation entity.

Descriptions of the 13<sup>th</sup> – 16<sup>th</sup> eGRID2010 files, the 2004, 2005, and 2007 Import-Export files and the U.S. Generation and Consumption file, are also included in this section.

### A. THE BLR (BOILER) FILE

There are 34 variables in the first file, BLR, which contains unit level data. Note that summing the boiler unadjusted emissions to the plant level may not result in the same values as the plant unadjusted emissions since additional emissions from prime movers not covered by the EPA/CAMD boiler level data may be included in the plant emissions values.

- 1. eGRID2010 year 2007 File Boiler Sequence Number (SEQBLR07) –**  
The boiler records in this year 2007 data file are sorted by state postal code abbreviation, plant name, plant code, and boiler ID, and are assigned a unique sequential number beginning with 1. This sequence number is unlikely to be the same as the sequence number in the year 2005 eGRID file for the same entity.  
This is a new field in eGRID2010.
- 2. Plant State Abbreviation (PSTATABB) –**  
This field contains the two character postal code abbreviation of the state in which the plant is located.  
Source: EIA-860
- 3. Plant Name (PNAME) –**  
This field is the name associated with each plant.  
Source: EIA-860 + updates
- 4. DOE/EIA ORIS Plant or Facility Code (ORISPL) –**  
This plant code corresponds to PNAME and was originally developed for power plants by the Office of the Regulatory Information System (ORIS), which was a part of the Federal Power Commission. It is now assigned by EIA and is used as a unique plant identification code for many EPA electric power databases, too. One plant code, that for Laramie River, has been altered. See Section IV for details.  
Source: EIA-860 + updates
- 5. Boiler ID (BLRID) –**  
This field identifies the unit ID for the unit that produces the emissions. The unit may be a steam boiler, combustion turbine, or engine.  
Sources: EPA/CAMD

## THE BLR FILE

- 6. Acid Rain Program Flag (ARPFLAG) –**  
This field indicates if the unit reports EPA/CAMD emissions data annually under Title IV of the Clean Air Act Amendments of 1990 as part of the Acid Rain Program (1=Yes).  
Source: EPA/CAMD
- 7. NO<sub>x</sub> Budget Program Flag (NBPFLAG) –**  
This field indicates if the unit reports EPA/CAMD emissions data as part of the NO<sub>x</sub> Budget Program (1=Yes).  
Source: EPA/CAMD
- 8. Boiler Bottom and Firing Type (BOTFIRTY) –**  
This field displays the boiler bottom type followed by the firing type.  
Possible values are:

**For bottom type:**

= Blank  
Dry = Dry bottom  
Wet = Wet bottom

**For firing type:**

= Blank  
ARCH = Arch firing  
CELL = Cell  
CYCL = Cyclone firing  
DUCT = Duct burner  
FLUIDI = Fluidized bed firing  
STOKER = Stoker  
TANG = Tangential firing  
TURBO = Turbo  
VERT = Vertical firing  
WALL = Wall firing

Source: EPA/CAMD

- 9. Number of Associated Generators (NUMGEN) –**  
This field provides the number of generators associated with each EIA-860 boiler in the file. This field is N/A for year 2007 data because the EIA data file is not used.
- 10. Boiler Primary Fuel (FUELB1) –**  
This field specifies the primary fuel determined from EIA-923 boiler reported data or the primary fuel reported to EPA/CAMD.  
Possible values are:

AB = Agricultural byproduct  
BFG = Blast furnace gas  
BIT = Bituminous coal  
BLQ = Black liquor  
COG = Coke oven gas  
DFO = Distillate fuel oil, light fuel oil, FO2, diesel oil  
DG = Digester gas (other biomass gas)  
HY = Hydrogen  
JF = Jet fuel  
KER = Kerosene

## THE BLR FILE

LFG	= Landfill gas
LIG	= Lignite coal
MSB	= Municipal solid waste biomass component
NG	= Natural gas
OBS	= Other biomass solid
OG	= Other gas
OOL	= Other oil
PC	= Petroleum coke
PRG	= Process gas
RFO	= Residual fuel oil, heavy fuel oil, petroleum
RG	= Refinery gas
SC	= Synthetic coal (syncoal)
SLW	= Sludge waste
SUB	= Subbituminous coal
TDF	= Tire-derived fuel
WC	= Waste coal
WDL	= Wood, wood waste liquid
WDS	= Wood, wood waste solid
WO	= Waste oil

Source: EPA/CAMD

- 11. Unit Operating Hours (HRSOP) –**  
This field is the number of hours that an EPA/CAMD unit reported operating during the year.  
This is a new field in eGRID2010.  
Source: EPA/CAMD
- 12. Boiler Unadjusted Annual EPA/CAMD Heat Input (HTIEAN) –**  
This field, in MMBtu, is the unit's unadjusted annual total heat input assigned by EPA/CAMD, based on the values reported to EPA/CAMD. When not available, it is zero.  
Source: EPA/CAMD
- 13. Boiler Unadjusted Ozone Season EPA/CAMD Heat Input (HTIEOZ) –**  
This field, in MMBtu, is the unit's unadjusted ozone season (May through September) heat input, based on the values reported to EPA/CAMD. When not available, it is zero.  
Source: EPA/CAMD
- 14. Boiler Unadjusted Annual Total EIA-Based Calculated Heat Input (HTIFAN) –**  
This field, in MMBtu, provides the boiler's unadjusted annual total heat input, calculated using EIA-923 boiler data, when available. When not available, it is zero.
- 15. Boiler Unadjusted Ozone Season EIA-Based Calculated Heat Input (HTIFOZ) –**  
This field, in MMBtu, provides the boiler's unadjusted ozone season (May through September) heat input, calculated using EIA-923 boiler data, when available. If EIA-923 boiler ozone season data are not available, but EIA-923 boiler annual data are, then the value in this field is calculated as 5/12 of the annual value. Otherwise, the value is zero.

## THE BLR FILE

- 16. Boiler Unadjusted Annual EPA/CAMD NO<sub>x</sub> Emissions (NOXEAN) –**  
This field, in tons, is the unit's unadjusted NO<sub>x</sub> emissions assigned by EPA/CAMD based on the values reported to EPA/CAMD. When not available, it is zero.  
Source: EPA/CAMD
- 17. Boiler Unadjusted Ozone Season EPA/CAMD NO<sub>x</sub> Emissions (NOXEOZ) –**  
This field, in tons, is the unit's unadjusted ozone season (May through September) NO<sub>x</sub> emissions based on values reported to EPA/CAMD. When not available, it is zero.  
Source: EPA/CAMD
- 18. Boiler Unadjusted Annual EIA-Based Calculated NO<sub>x</sub> Emissions (NOXFAN) –**  
This field, in tons, is the boiler's unadjusted annual NO<sub>x</sub> emissions calculated using EIA-923 boiler reported data, when available, and the EPA-approved emission factors. When not available, it is zero.
- 19. Boiler Unadjusted Ozone Season EIA-Based Calculated NO<sub>x</sub> Emissions (NOXFOZ) –**  
This field, in tons, is the boiler's unadjusted ozone season (May through September) NO<sub>x</sub> emissions calculated from EIA-923 boiler reported data and EPA-approved emission factors. If EIA-923 boiler ozone season data are not available, but EIA-923 annual data are, then the value in this field is calculated as 5/12 of the annual value. Otherwise, the value is zero.
- 20. Boiler Unadjusted Annual EPA/CAMD SO<sub>2</sub> Emissions (SO2EAN) –**  
This field, in tons, is the unit's unadjusted annual SO<sub>2</sub> emissions assigned by EPA/CAMD and based on the values reported to EPA/CAMD. When not available, it is zero. Units that are NBP and not ARP do not report annual SO<sub>2</sub> emissions, so the emissions were estimated using fuel quantity (back calculated from reported EPA/CAMD heat input and average hear content) and the appropriate EPA-approved emission factor.  
Source: EPA/CAMD
- 21. Boiler Unadjusted Annual EIA-Based Calculated SO<sub>2</sub> Emissions (SO2FAN) –**  
This field, in tons, is the boiler's unadjusted annual SO<sub>2</sub> emissions calculated using EIA-923 boiler reported data, when available, and the EPA-approved emission factors. When not available, it is zero.
- 22. Boiler Unadjusted Annual EPA/CAMD CO<sub>2</sub> Emissions (CO2EAN) –**  
This field, in tons, is the unit's unadjusted annual CO<sub>2</sub> emissions assigned by EPA/CAMD based on the values reported to EPA/CAMD. Units that are NBP and not ARP do not report annual CO<sub>2</sub> emissions, so the emissions were estimated using reported EPA/CAMD heat input and the appropriate IPCC GHG carbon coefficient. When not available, it is zero. If the fuel for this boiler is biomass, the CO<sub>2</sub> emissions are assigned a zero value (see the Methodology Section for the rationale for biomass adjustments for CO<sub>2</sub>).  
Source: EPA/CAMD
- 23. Boiler Unadjusted Annual EIA-Based Calculated CO<sub>2</sub> Emissions (CO2FAN) –**  
This field, in tons, is the boiler's unadjusted annual CO<sub>2</sub> emissions calculated using EIA-923 boiler reported data, when available, and IPCC GHG carbon coefficients. When not available, it is zero. If the fuel for this boiler is biomass, the CO<sub>2</sub> emissions are assigned a zero value (see the Methodology Section).

## THE BLR FILE

- 24. Source of “Best” Data from EPA/CAMD or EIA-923 Boiler level (SRCBEST) –**  
This field describes the one source of the “best” variables (HTIBAN, NOXBAN, SO2BAN, CO2BAN, HTIBOZ, NOXBOZ) – either EPA CAMD or EIA-923 boiler level.
- 25. Boiler Unadjusted Annual Best Heat Input (HTIBAN) –**  
This field, in MMBtu, contains the “best” unadjusted annual heat input value by taking HTIEAN as its value, if it exists; otherwise, HTIFAN’s value is used.
- 26. Boiler Unadjusted Ozone Season Best Heat Input (HTIBOZ) –**  
This field, in MMBtu, contains the “best” unadjusted ozone season (May through September) heat input value by taking HTIEOZ as its value, if it exists; otherwise, HTIFOZ’s value is used.
- 27. Boiler Unadjusted Annual Best NO<sub>x</sub> Emissions (NOXBAN) –**  
This field, in tons, contains the “best” unadjusted annual NO<sub>x</sub> value by taking NOXEAN as its value, if it exists; otherwise NOXFAN’s value is used.
- 28. Boiler Unadjusted Ozone Season Best NO<sub>x</sub> Emissions (NOXBOZ) –**  
This field, in tons, contains the “best” unadjusted ozone season (May through September) NO<sub>x</sub> value by taking NOXEOZ as its value, if it exists; otherwise NOXFOZ’s value is used.
- 29. Boiler Unadjusted Annual Best SO<sub>2</sub> Emissions (SO2BAN) –**  
This field, in tons, contains the “best” unadjusted annual SO<sub>2</sub> value by taking SO2EAN as its value, if it exists; otherwise SO2FAN’s value is used.
- 30. Boiler Unadjusted Annual Best CO<sub>2</sub> Emissions (CO2BAN) –**  
This field, in tons, contains the “best” unadjusted annual CO<sub>2</sub> value by taking CO2EAN as its value, if it exists; otherwise CO2FAN’s value is used.
- 31. Boiler SO<sub>2</sub> (Scrubber) First Control Device (SO2CTLDV) –**  
This field contains the first reported SO<sub>2</sub> control device. Values may be combined and separated by commas.  
Possible values are:

	= Blank
AA	= Advanced overfire air
BF	= Biased firing
CF	= Fluidized bed combustor
CM	= Combustion modification/fuel reburning
DLNB	= Dry low NO <sub>x</sub> premixed technology
FR	= Flue gas recirculation
FU	= Fuel reburning
H2O	= Water injection
LA	= Low excess air
LNB or LN	= Low NO <sub>x</sub> burner
LNBO	= Low NO <sub>x</sub> burner with overfire air
LNC1	= Low NO <sub>x</sub> burner technology with close-coupled overfire air
LNC2	= Low NO <sub>x</sub> burner technology with separated OFA

## THE BLR FILE

LNC3	= Low NO <sub>x</sub> burner technology with close-coupled and separated overfire air
LNCB	= Low NO <sub>x</sub> burner technology for cell burners
NH3	= Ammonia injection
OT	= Other
OFA or OV	= Overfire air
SC	= Slagging
SCR or SR	= Selective catalytic reduction
SNCR or SN	= Selective noncatalytic reduction
STM	= Steam injection

Sources: EPA/CAMD

### 32. **Boiler NO<sub>x</sub> First Control Device (NOXCTLDV) –**

This field contains the first reported NO<sub>x</sub> control device. Values may be combined and separated by commas.

Possible values are:

	= Blank
AA	= Advanced overfire air
BF	= Biased firing
CF	= Fluidized bed combustor
CM	= Combustion modification/fuel reburning
DLNB	= Dry low NO <sub>x</sub> premixed technology
FR	= Flue gas recirculation
FU	= Fuel reburning
H2O	= Water injection
LA	= Low excess air
LNB or LN	= Low NO <sub>x</sub> burner
LNBO	= Low NO <sub>x</sub> burner with overfire air
LNC1	= Low NO <sub>x</sub> burner technology with close-coupled overfire air
LNC2	= Low NO <sub>x</sub> burner technology with separated OFA
LNC3	= Low NO <sub>x</sub> burner technology with close-coupled and separated overfire air
LNCB	= Low NO <sub>x</sub> burner technology for cell burners
NH3	= Ammonia injection
OT	= Other
OFA or OV	= Overfire air
SC	= Slagging
SCR or SR	= Selective catalytic reduction
SNCR or SN	= Selective noncatalytic reduction
STM	= Steam injection

Sources: EPA/CAMD

### 33. **Boiler Hg Activated Carbon Injected System Flag (HGCTLDV) –**

This field contains an activated carbon injection mercury control flag (1=Yes), based on EIA data.

### 34. **Boiler Year On-Line (BLRYRONL) –**

The field provides the four digit boiler year on-line.

Source: EPA/CAMD

## THE GEN FILE

### B. THE GEN (GENERATOR) FILE

There are 15 variables in the second file, GEN, which contains generator level data. Note that summing the generator generation to the plant level may not result in the same values as the plant generation. This file includes generation from nuclear units in the EIA-923 and from those plant-prime movers in the EIA-923 that have only one generator in the EIA-860.

1. **eGRID2010 year 2007 File Generator Sequence Number (SEQGEN07)** –  
The generator records in this year 2007 data file are sorted by state postal code abbreviation, plant name, plant code, and generator ID, and are assigned a unique sequential number beginning with 1. This sequence number is unlikely to be the same as the sequence number in the year 2005 eGRID file for the same entity.  
This is a new field in eGRID2010.
2. **Plant State Abbreviation (PSTATABB)** –  
This field contains the two character postal code abbreviation of the state in which the plant is located.  
Source: EIA-860
3. **Plant Name (PNAME)** –  
This field is the name associated with each plant.  
Source: EIA-860 + updates
4. **DOE/EIA ORIS Plant or Facility Code (ORISPL)** –  
This plant code corresponds to PNAME and was originally developed for power plants by the Office of the Regulatory Information System (ORIS), which was a part of the Federal Power Commission. It is now assigned by EIA and is used as a unique plant identification code for many EPA electric power databases, too. One plant code, that for Laramie River, has been altered. See Section IV for details.  
Source: EIA-860 + updates
5. **Generator ID (GENID)** –  
This field identifies the electrical generation unit (generator). In the majority of cases, there is a 1-to-1 correspondence with the boiler ID if it is a steam generator.  
Sources: EIA-860
6. **Number of Associated Boilers (NUMBLR)** –  
This field provides the number of EIA-860 boilers associated with each generator in the file. This field is N/A for year 2007 data because the EIA data file is not used.
7. **Generator Status (GENSTAT)** –  
This field indicates the reported generator status at the end of the given year.  
Possible values are:
  - BU = Cold storage, back-up
  - OA = Out of service
  - OP = Operating
  - OS = In commercial operation, but out of service
  - RE = Retired
  - SB = Cold stand-by (long-term storage)

## THE GEN FILE

TS = Testing  
V = More than 50% constructed

Generators with one of these above generator status values are considered potentially operating generators (including generators with status = 'RE', if the retirement date is the data year or later).

Source: EIA-860

### 8. Generator Prime Mover Type (PRMVR) –

This field indicates the reported generator's electric generator type.

Possible values are:

BT = Binary cycle turbine  
CA = Combined cycle steam turbine  
CC = Combined cycle - total unit  
CE = Compressed air energy storage  
CS = Combined cycle - single shaft  
CT = Combined cycle combustion turbine  
FC = Fuel cell  
GT = Combustion (gas) turbine  
HY = Hydraulic turbine  
IC = Internal combustion (diesel)  
OT = Other turbine  
PS = Hydraulic turbine - reversible (pumped storage)  
PV = Photovoltaic  
ST = Steam turbine (boiler, nuclear, geothermal)  
WT = Wind turbine

Source: EIA-860

### 9. Generator Primary Fuel (FUELG1) –

This field indicates the potential primary fuel reported for the generator.

Possible values are:

AB = Agricultural byproduct  
BFG = Blast furnace gas  
BIT = Bituminous coal  
BLQ = Black liquor  
DFO = Distillate fuel oil, light fuel oil, FO2, diesel oil  
DG = Digester gas (other biomass gas)  
GEO = Geothermal  
JF = Jet fuel  
KER = Kerosene  
LFG = Landfill gas  
LIG = Lignite coal  
MSB = Municipal solid waste biomass component  
NG = Natural gas  
NUC = Nuclear materiel  
OBL = Other biomass liquid  
OBS = Other biomass solid  
OG = Other gas  
OTH = Other unknown  
PC = Petroleum coke  
PUR = Purchased steam

## THE GEN FILE

RFO	= Residual fuel oil, heavy fuel oil, petroleum
SC	= Synthetic coal (syncoal)
SUB	= Subbituminous coal
SUN	= Solar
TDF	= Tire-derived fuel
WAT	= Water
WC	= Waste coal
WDL	= Wood, Wood waste liquid
WDS	= Wood, Wood waste solid
WH	= Waste heat
WND	= Wind
WO	= Waste oil

Source: EIA-860

- 10. Generator Nameplate Capacity (NAMEPCAP) –**  
This field indicates the nameplate capacity, in MW, of the generator.  
Source: EIA-860
- 11. Generator Capacity Factor (CFACT) –**  
This field is calculated at the generator level:  
 $CFACT = (GENNTAN) / (NAMEPCAP * 8760)$ .  
The value should be between 0 and 1 exclusive. However, there are outliers.
- 12. Generator Annual Net Generation (GENNTAN) –**  
This field is the reported net generation in MWh. Note that summing the net generation of the generators in a plant may not provide a value that is the same as the plant generation value, PLNGENAN, since the data sources are often different.  
Sources: EIA-923
- 13. Generator Ozone Season Net Generation (GENNTOZ) –**  
This field is the generator five month ozone season (May through September) net generation in MWh. For plants that reported monthly data, it is based on monthly generator generation data. Otherwise, it is calculated as 5/12 of the annual value.  
Sources: EIA-923
- 14. Generation Data Source (GENERSRC) –**  
This field describes the data source of the generator net generation data. The values are as follows:
- |         |  |
|---------|--|
| 860     | = EIA-860 generator level,                           |
| 923NK   | = EIA-923 nuclear unit                               |
| 923NONK | = EIA-923 only generator at that plant's prime mover |
- 15. Generator Year On-Line (GENYRONL) –**  
This field provides the four digit generator year on-line.  
Source: EIA-860

## THE PLNT FILE

### C. THE PLNT (PLANT) FILE

There are 162 variables in PLNT. Some data may be outliers and should be viewed with caution.

1. **eGRID2010 year 2007 File Plant Sequence Number (SEQPLT07) –**  
The plant records in this year 2007 data file are sorted by state postal code abbreviation, plant name, and boiler ID, and are assigned a unique sequential number beginning with 1. This sequence number is unlikely to be the same as the sequence number in the year 2005 eGRID2007 file for the same entity.  
This is a new field in eGRID2010.
2. **Plant State Abbreviation (PSTATABB) –**  
This field contains the two character postal code abbreviation of the state in which the plant is located.  
Source: EIA-860
3. **Plant Name (PNAME) –**  
This field is the name associated with each plant.  
Source: EIA-860 + updates
4. **DOE/EIA ORIS Plant or Facility Code (ORISPL) –**  
This plant code corresponds to PNAME and was originally developed for power plants by the Office of the Regulatory Information System (ORIS), which was a part of the Federal Power Commission. It is now assigned by EIA and is used as a unique plant identification code for many EPA electric power databases, too. One plant code, that for Laramie River, has been altered. See Section IV for details.  
Source: EIA-860 + updates
5. **Plant EPA Facility Registry System FRS Identification Code (FRSID) –**  
This field is the EPA Facility Registry System (FRS) code associated with the ORISPL. This field is blank for year 2007 data because of data inconsistencies.  
Source: EPA FRS
6. **Plant Operator Name (OPRNAME) –**  
The name associated with each operating company (EGC) is contained in this field.  
Source: EIA-860 + updates
7. **Plant Operator ID (OPRCODE) –**  
This field contains the operating company ID. Each operating company has a unique company code assigned by EIA, with some exceptions. Some operator names do not have associated codes assigned by EIA and are EPA-assigned negative IDs beginning with -101; and some nonutility EGCs are grouped together, called nufronts, and are EPA-assigned negative IDs beginning with -1001. See Section IV for details.  
Source: EIA-860 + updates

## THE PLNT FILE

- 8. Utility Service Territory Name (UTLSRVNM) –**  
This field contains the name of the owner of the transmission/distribution company/EGC, also known as the utility service territory (a utility company or EGC) [and previously known as the utility service area] in which the plant is located. See Section IV for further details.  
Source: EIA-860, EIA + updates
- 9. Utility Service Territory ID (UTLSRVID) –**  
This field contains the unique ID code associated with the utility service territory name.  
Source: EIA-860, EIA + updates
- 10. ID of the Operator’s Parent Company (OPPRNUM) –**  
This field contains the ID of the plant’s operator’s parent company, if it exists. It is zero otherwise. EIA did not assign IDs for most parent companies; thus, EPA assigned unique negative integer IDs beginning with -7001 as parent company IDs.
- 11. Name of the Operator’s Parent Company (OPPRNAME) –**  
This field contains the name of the plant’s operator’s parent company, if it exists. It is blank otherwise. See the Methodology Section and Section IV for further information about parent companies.
- 12. Power Control Area Name (PCANAME) –**  
This field contains the name of the power control area for the plant. The PCA is associated with the plant’s eGRID subregion and NERC region. See the Methodology Section for further information about PCAs.  
Sources: NERC, EIA-861 + updates
- 13. Power Control Area ID (PCAID) –**  
This field contains the ID of the power control area for the plant. See the Methodology Section for further information about PCAs.  
Sources: NERC, EIA-861 + updates
- 14. NERC Region Acronym (NERC) –**  
This field contains the acronym for the NERC region in which the plant is located. The NERC region is associated with the plant’s PCA and eGRID subregion. See the Methodology Section for further information about NERC regions. A representation of the eGRID2010 NERC region map is included in Appendix B.  
Source: NERC
- 15. eGRID Subregion Acronym (SUBRGN) –**  
This field contains the acronym for the eGRID subregion in which the plant is located. The eGRID subregion is associated with the plant’s PCA and NERC region. See the Methodology Section for further information about eGRID subregions. A representation of the eGRID2010 eGRID subregion map is included in Appendix B.  
Source: EPA
- 16. eGRID Subregion Name (SRNAME) –**  
This field contains the name of the eGRID subregion in which the plant is located. See the Methodology Section for further information about eGRID subregions.  
Source: EPA

## THE PLNT FILE

- 17. Plant FIPS State Code (FIPSSST) –**  
This field contains the two digit Federal Information Processing Standards (FIPS) state character code of the state in which the plant is located.  
Source: NIST based
- 18. Plant FIPS County Code (FIPSCNTY) –**  
This field contains the three digit FIPS county character code of the county in which the plant is located.  
Source: NIST based
- 19. Plant County Name (CNTYNAME) –**  
This field corresponds to FIPSSST and contains the name of the county in which the plant is located.  
Source: EIA-860, EPA/CAMD
- 20. Plant Latitude (LAT) –**  
This field contains the latitude, in degrees to four decimal places, associated with the plant. When not available, the plant's county centroid's y-coordinate is used.  
Source: EPA/CAMD, EIA + updates
- 21. Plant Longitude (LON) –**  
This field contains the longitude, in degrees to four decimal places, associated with the plant. When not available, the plant's county centroid's x-coordinate is used.  
Source: EPA/CAMD, EIA + updates
- 22. Country Centroid flag (CCFLAG) –**  
This field indicates if the plant's latitude and longitude (fields # 20 and # 21) are based on the county centroid (1= county centroid used).
- 23. Number of Boilers (NUMBLR) –**  
This field contains the number of operating boilers or turbines within a plant. Note that the meaning and sources of these data are different from the data element of the same name in the generator file.  
Source: EPA/CAMD, EIA-860 calculated
- 24. Number of Generators (NUMGEN) –**  
This field contains the number of potentially operating generators within a plant. Note that the meaning and source of these data are different from the data element of the same name in the boiler file.  
Source: EIA-860 calculated
- 25. Plant combustion status (COMBUST) –**  
This field contains the plant combustion status: Possible values are: 1= Combusts, 0 = No combustion, 0.5 = Partial combustion.
- 26. Plant Emissions Source(s) (SOURCEM) –**  
This field describes the source(s) of emissions data for the plant. There may be multiple sources that are displayed in the order listed below and separated by commas and blanks (to indicate that there are some unused sources).  
Possible values are:

## THE PLNT FILE

- EPA = NO<sub>x</sub>, SO<sub>2</sub>, and CO<sub>2</sub> emissions reported to EPA's Emissions tracking System/Continuous Emissions Monitoring System (EPA/CAMD); CH<sub>4</sub> and N<sub>2</sub>O emission estimated by applying EPA-approved emission factors to EPA/CAMD data in year 2007
- EIA923 = NO<sub>x</sub>, SO<sub>2</sub>, CO<sub>2</sub>, CH<sub>4</sub>, and N<sub>2</sub>O emissions estimated by applying EPA-approved emission factors to EIA-923 data for year 2007

### 27. **Plant Primary Fuel (PLPRMFL) –**

This field contains the plant's primary fuel based on maximum heat input if the plant combusts any fuel or assignment if the plant does not combust any fuel. Possible values are:

- AB = Agricultural byproduct  
BFG = Blast furnace gas  
BIT = Bituminous coal  
BLQ = Black liquor  
COG = Coke oven gas  
DFO = Distillate fuel oil, light fuel oil, FO2, diesel oil  
DG = Digester gas (other biomass gas)  
GEO = Geothermal steam  
HY = Hydrogen  
JF = Jet fuel  
KER = Kerosene  
LFG = Landfill gas  
LIG = Lignite coal  
MSB = Municipal solid waste biomass component  
NG = Natural gas  
NUC = Nuclear materiel  
OBL = Other biomass liquid  
OBS = Other biomass solid  
OG = Other gas  
OOL = Other oil  
OTH = Other (unknown)  
PC = Petroleum coke  
PG = Propane gas/LPG  
PRG = Process gas  
PUR = Purchased fuel (unknown)  
RFO = Residual fuel oil, heavy fuel oil, petroleum  
RG = Refinery gas  
SC = Synthetic coal (syncoal)  
SLW = Sludge waste  
SUB = Subbituminous coal  
SUN = Sun  
TDF = Tire-derived fuel  
WAT = Water  
WC = Waste coal  
WDL = Wood, wood waste liquid  
WDS = Wood, wood waste solid  
WND = Wind  
WO = Waste oil

## THE PLNT FILE

- 28. Plant Primary Coal/Oil/Gas/Other Fossil Fuel Category (PLFUELCT) –**  
The value of this field is “COAL” if PLPRMFL is derived from coal, “OIL” if it is derived from oil, “GAS” if it is derived from gas, or “OFSL” if it is other fossil. Fossil fuel refers to any naturally occurring organic fuel, such as petroleum, coal, and natural gas. See the Methodology Section for a complete list of fuel codes and categories.
- 29. Plant Primary Fuel Generation Category (PLPFGNCT) –**  
This field contains the plant’s primary fuel based on maximum net generation if the plant generates. Possible values are the same 11 that are used for resource mix: CL (Coal), OL (Oil), GS (Gas), NC (Nuclear), HY (Hydro), BM (Biomass), WI (Wind), SO (Solar), GT (Geothermal), OF (Other Fossil), and OP (Other Unknown/Purchased/Waste Heat). This is a new field in eGRID2010.
- 30. Flag indicating if the plant burned or generated any amount of coal (COALFLAG) –**  
This field contains a flag to indicate if the plant burned or generated any amount of coal (1= Yes).  
This field’s definition has been modified for eGRID2010.
- 31. Plant Capacity Factor (CAPFAC) –**  
This field contains the plant capacity factor, expressed with four decimal places. It is calculated as follows:  
$$\text{CAPFAC} = (\text{PLNGENAN} / (\text{NAMEPCAP} * 8760))$$
  
Although the value should be between 0 and 1 inclusive, there are outliers.
- 32. Plant Nameplate Capacity (NAMEPCAP) –**  
This field contains the nameplate capacity of the plant, in MW.  
Source: EIA-860 summed
- 33. Biogas/Biomass Plant Adjustment Flag (RMBMFLAG) –**  
This field contains the biogas (landfill gas, digester gas)/biomass adjustment flag. A biomass facility’s emissions reported in eGRID may be different from that reported in other EPA sources such as EPA/CAMD’s emissions data. Possible values are:  
0 = No biomass, 1= Biogas included, 100 = Other biomass included, and 77 = Special plant CO<sub>2</sub> biomass. For details, see the Methodology Section.
- 34. Combined Heat and Power (CHP) Plant Adjustment Flag (CHPFLAG) –**  
This field contains a flag to indicate if the plant is a CHP facility (1=Yes). A CHP facility’s emissions and heat input reported in eGRID may be different from that reported in other EPA sources such as EPA/CAMD’s emissions data. For details, see the Methodology Section.  
Source: eGRID CHP list
- 35. CHP Plant Useful Thermal Output (USETHRMO) –**  
This field, in MMBtu, contains the useful thermal output estimated for a CHP facility.  
Source: EIA-923 calculated

## THE PLNT FILE

- 36. CHP Plant Power to Heat Ratio (PWRTOHT) –**  
This field contains the power to heat ratio for a CHP facility, which is the ratio of the heat value of electricity generated (3413 \* kWh output) to the facility's useful thermal output. There are outliers.
- 37. CHP Plant Electric Allocation Factor (ELCALLOC) –**  
This field contains the CHP plant's decimal fraction of the emissions that is attributed to electricity. It is derived as the ratio of the electric heat output to the sum of the electric and steam heat outputs, where the steam output is 75% of the useful thermal output. The electric allocation factor is used to allocate emissions from a CHP facility to both electricity generation and useful thermal output. For non-CHP plants, eGRID uses an electric allocation factor of 1.0. See the Methodology Section for further information.
- 38. Plant Pumped Storage Flag (PSFLAG) –**  
This field indicates if the plant has at least one pumped storage generator (1= Yes).  
Source: EIA-860
- 39. Plant Annual Heat Input (PLHTIAN) –**  
This field is the total annual heat input, in MMBtu, for the plant. For CHP plants, the value is adjusted by the electric allocation factor. See the Methodology Section for details.
- 40. Plant Ozone Season Heat Input (PLHTIOZ) –**  
This field is the five month ozone season (May through September) heat input, in MWh, for the plant. For CHP plants, the value is adjusted by the electric allocation factor. See the Methodology Section for details.
- 41. Plant Annual Net Generation (PLNGENAN) –**  
This field is the total reported annual net generation, in MWh, for the plant.  
Sources: EIA-923, EPA/CAMD calculated
- 42. Plant Ozone Season Net Generation (PLNGENOZ) –**  
This field, in MWh, is the five month ozone season (May through September) net generation for the plant.  
Sources: EIA-923, EPA/CAMD calculated
- 43. Plant Annual NO<sub>x</sub> Emissions (PLNOXAN) –**  
This field, in tons, is the total annual NO<sub>x</sub> emissions for the plant. Biogas components are adjusted. For CHP plants, the value is adjusted by the electric allocation factor. See the Methodology Section for details.
- This adjusted emissions field is estimated by first making the biogas adjustment (if it exists) and then applying the electric allocation factor (if the plant is a CHP). See the Methodology Section for details.
- 44. Plant Ozone Season NO<sub>x</sub> Emissions (PLNOXOZ) –**  
This field, in tons, is the five month ozone season (May through September) NO<sub>x</sub> emissions for the plant. Biogas components are adjusted. For CHP plants, the value is adjusted by the electric allocation factor. See the Methodology Section for details.

## THE PLNT FILE

This adjusted emissions field is estimated by first making the biogas adjustment (if it exists) and then applying the electric allocation factor (if the plant is a CHP). See the Methodology Section for details.

**45. Plant Annual SO<sub>2</sub> Emissions (PLSO2AN) –**

This field, in tons, is the total annual SO<sub>2</sub> emissions for the plant. Biogas components are adjusted. For CHP plants, the value is adjusted by the electric allocation factor. See the Methodology Section for details.

This adjusted emissions field is estimated by first making the biogas adjustment (if it exists) and then applying the electric allocation factor (if the plant is a CHP). See the Methodology Section for details.

**46. Plant Annual CO<sub>2</sub> Emissions (PLCO2AN) –**

This field, in tons, is the total annual CO<sub>2</sub> emissions for the plant. All estimated CO<sub>2</sub> emissions from biomass fuels are adjusted to zero. The biomass fuel components' CO<sub>2</sub> CAMD emissions are excluded (adjusted to zero) by the same biomass fuel component percentage as that in the EIA-923 for the adjusted CO<sub>2</sub> CAMD emissions; prior to year 2007, these emissions, if CAMD-reported, were only zeroed out if the primary fuel was a biomass fuel. For CHP plants, the value is adjusted by the electric allocation factor.

This adjusted emissions field is estimated by first making the biomass adjustment (if it exists) and then applying the electric allocation factor (if the plant is a CHP). See the Methodology Section for details.

**47. Plant Annual CH<sub>4</sub> Emissions (PLCH4AN) –**

This field, in lbs, is the total annual CH<sub>4</sub> emissions for the plant. Biogas biomass components are adjusted. For CHP plants, the value is adjusted by the electric allocation factor. See the Methodology Section for details.

This adjusted emissions field is estimated by first making the biomass adjustment (if it exists) and then applying the electric allocation factor (if the plant is a CHP). See the Methodology Section for details.

**48. Plant Annual N<sub>2</sub>O Emissions (PLN2OAN) –**

This field, in lbs, is the total annual N<sub>2</sub>O emissions for the plant. Biogas biomass components are adjusted. For CHP plants, the value is adjusted by the electric allocation factor. See the Methodology Section for details.

This adjusted emissions field is estimated by first making the biomass adjustment (if it exists) and then applying the electric allocation factor (if the plant is a CHP). See the Methodology Section for details.

**49. Plant Annual CO<sub>2</sub> Equivalent Emissions (PLCO2EQA) –**

This field, in U.S. tons, is the annual CO<sub>2</sub> equivalent emissions for the plant. This value is a universal standard of measurement. The GWPs from the second IPCC assessment are used per EPA for the calculation; the formula used is as follows:

$$PLCO2EQA = ((1 * PLCO2AN) + (21 * PLCH4AN / 2000) + (310 * PLN2OAN / 2000)).$$

## THE PLNT FILE

This value can be converted to metric tonnes by dividing by 1.1023. See the Methodology Section for details.

This is a new field in eGRID2010.

- 50. Plant Annual Hg Emissions (PLHGAN) –**  
This field, in lbs, is the total annual Hg emissions for the plant. For CHP plants, the value is adjusted by the electric allocation factor. See the Methodology Section for details.
- 51. Plant Annual NO<sub>x</sub> Total Output Emission Rate (PLNOXRTA) –**  
This field, in lb/MWh, is calculated as follows:  
 $PLNOXRTA = 2000 * (PLNOXAN / PLNGENAN)$ .
- 52. Plant Ozone Season NO<sub>x</sub> Total Output Emission Rate (PLNOXRTO) –**  
This field, in lb/MWh, is calculated as follows:  
 $PLNOXRTO = 2000 * (PLNOXOZ / PLNGENOZ)$ .
- 53. Plant Annual SO<sub>2</sub> Total Output Emission Rate (PLSO2RTA) –**  
This field, in lb/MWh, is calculated as follows:  
 $PLSO2RTA = 2000 * (PLSO2AN / PLNGENAN)$ .
- 54. Plant Annual CO<sub>2</sub> Total Output Emission Rate (PLCO2RTA) –**  
This field, in lb/MWh, is calculated as follows:  
 $PLCO2RTA = 2000 * (PLCO2AN / PLNGENAN)$ .
- 55. Plant Annual CH<sub>4</sub> Total Output Emission Rate (PLCH4RTA) –**  
This field, in lb/GWh, is calculated as follows:  
 $PLCH4RTA = PLCH4AN / (PLNGENAN / 1000)$ .
- 56. Plant Annual N<sub>2</sub>O Total Output Emission Rate (PLN2ORTA) –**  
This field, in lb/GWh, is calculated as follows:  
 $PLN2ORTA = PLN2OAN / (PLNGENAN / 1000)$ .
- 57. Plant Annual CO<sub>2</sub> Equivalent Total Output Emission Rate (PLC2ERTA) –**  
This field, in lb/MWh, is calculated as follows:  
 $PLC2ERTA = 2000 * (PLCO2EQA / PLNGENAN)$ .  
This is a new field in eGRID2010.
- 58. Plant Annual Hg Total Output Emission Rate (PLHGRTA) –**  
This field, in lb/GWh, is calculated as follows:  
 $PLHGRTA = PLHGAN / (PLNGENAN / 1000)$ .
- 59. Plant Annual NO<sub>x</sub> Input Emission Rate (PLNOXRRA) –**  
This field, in lb/MMBtu, is calculated as follows:  
 $PLNOXRRA = 2000 * (PLNOXAN / PLHTIAN)$ .
- 60. Plant Ozone Season NO<sub>x</sub> Input Emission Rate (PLNOXRRO) –**  
This field, in lb/MMBtu, is calculated as follows:  
 $PLNOXRRO = 2000 * (PLNOXOZ / PLHTIOZ)$ .

## THE PLNT FILE

- 61. Plant Annual SO<sub>2</sub> Input Emission Rate (PLSO2RA) –**  
This field, in lb/MMBtu, is calculated as follows:  
 $PLSO2RA = 2000 * (PLSO2AN / PLHTIAN)$ .
- 62. Plant Annual CO<sub>2</sub> Input Emission Rate (PLCO2RA) –**  
This field, in lb/MMBtu, is calculated as follows:  
 $PLCO2RA = (2000 * (PLCO2AN / PLHTIAN))$ .
- 63. Plant Annual Hg Input Emission Rate (PLHGRA) –**  
This field, in lb/BBtu, is calculated as follows:  
 $PLHGRA = PLHGAN / (PLHTIAN / 1000)$ .
- 64. Plant Annual NO<sub>x</sub> Combustion Output Emission Rate (PLNOXCRT) –**  
This field, in lb/MWh, is calculated as follows:  
 $PLNOXCRT = 2000 * (PLNOXAN / PLGENACY)$ .
- 65. Plant Ozone Season NO<sub>x</sub> Combustion Output Emission Rate (PLNOXCRO) –**  
This field, in lb/MWh, is calculated as follows:  
 $PLNOXCRO = 2000 * (PLNOXOZ / (( PLGENACY * PLNGENOZ) / PLNGENAN))$ .
- 66. Plant Annual SO<sub>2</sub> Combustion Output Emission Rate (PLSO2CRT) –**  
This field, in lb/MWh, is calculated as follows:  
 $PLSO2CRT = 2000 * (PLSO2AN / PLGENACY)$ .
- 67. Plant Annual CO<sub>2</sub> Combustion Output Emission Rate (PLCO2CRT) –**  
This field, in lb/MWh, is calculated as follows:  
 $PLCO2CRT = 2000 * (PLCO2AN / PLGENACY)$ .
- 68. Plant Annual CH<sub>4</sub> Combustion Output Emission Rate (PLCH4CRT) –**  
This field, in lb/GWh, is calculated as follows:  
 $PLCH4CRT = PLCH4AN / (PLGENACY / 1000)$ .
- 69. Plant Annual N<sub>2</sub>O Combustion Output Emission Rate (PLN2OCRT) –**  
This field, in lb/GWh, is calculated as follows:  
 $PLN2OCRT = PLN2OAN / (PLGENACY / 1000)$ .
- 70. Plant Annual Hg Combustion Output Emission Rate (PLHGCRT) –**  
This field, in lb/GWh, is calculated as follows:  
 $PLHGCRT = PLHGAN / (PLGENACY / 1000)$ .
- 71. Plant Unadjusted Annual NO<sub>x</sub> Emissions (UNNOX) –**  
This field, in tons, is the total plant level unadjusted annual NO<sub>x</sub> emissions. See the Methodology Section for details.
- 72. Plant Unadjusted Ozone Season NO<sub>x</sub> Emissions (UNNOXOZ) –**  
This field, in tons, is the unadjusted five month ozone season (May through September) NO<sub>x</sub> emissions for the plant. See the Methodology Section for details.

## THE PLNT FILE

- 73. Plant Unadjusted Annual SO<sub>2</sub> Emissions (UNSO2) –**  
This field, in tons, is the total plant level unadjusted annual SO<sub>2</sub> emissions. See the Methodology Section for details.
- 74. Plant Unadjusted Annual CO<sub>2</sub> Emissions (UNCO2) –**  
This field, in tons, is the total plant level unadjusted annual CO<sub>2</sub> emissions. Beginning in year 2007, the biomass fuel components' CO<sub>2</sub> emissions will be included in the unadjusted CO<sub>2</sub> plant emissions. See the Methodology Section for details.
- 75. Plant Unadjusted Annual CH<sub>4</sub> Emissions (UNCH4) –**  
This field, in lbs, is the total plant level unadjusted annual CH<sub>4</sub> emissions. See the Methodology Section for details.
- 76. Plant Unadjusted Annual N<sub>2</sub>O Emissions (UNN2O) –**  
This field, in lbs, is the total plant level unadjusted annual N<sub>2</sub>O emissions. See the Methodology Section for details.
- 77. Plant Unadjusted Annual Hg Emissions (UNHG) –**  
This field, in lbs, is the total plant level unadjusted annual Hg emissions. Mercury emissions are reported for year 2002 for coal plants and for year 2000 for large municipal waste combustors, and for eGRID, are estimated for year 2005. See the Methodology Section for details.
- 78. Plant Unadjusted Annual Heat Input (UNHTI) –**  
This field, in MMBtu, is the total plant level unadjusted annual heat input. See the Methodology Section for details.  
Sources: EPA/CAMD, EIA-923
- 79. Plant Unadjusted Ozone Season Heat Input (UNHTIOZ) –**  
This field, in MMBtu, is the five month ozone season (May through September) heat input for the plant. See the Methodology Section for details.  
Sources: EPA/CAMD, EIA-923
- 80. Plant Nominal Heat Rate (PLHTRT) –**  
This field, in Btu/kWh, contains the plant nominal heat rate for at least partially combusted plants. It is calculated as follows:  
PLHTRT = 1000 \* (PLHTIAN / PLNGENAN) for combustion plants; and  
PLHTRT = 1000 \* (PLHTIAN / PLGENACY) for partial combustion plants.  
For CHP plants, the value is, in effect, adjusted by the electric allocation factor, since the heat input has been adjusted.  
This field's definition has been modified for eGRID2010.
- 81. Plant Annual Coal Net Generation (PLGENACL) –**  
This field, in MWh, contains the plant annual net generation for coal. Fuel codes that are included in coal are BIT, SUB, LIG, WC, and SC.
- 82. Plant Annual Oil Net Generation (PLGENAOL) –**  
This field, in MWh, contains the plant annual net generation for oil. Fuel codes included in oil are DFO, JF, KER, OOL, PC, RFO, RG, and WO.

## THE PLNT FILE

- 83. Plant Annual Gas Net Generation (PLGENAGS) –**  
This field, in MWh, contains the plant annual net generation for natural gas. Fuel codes included in gas are NG and PG.
- 84. Plant Annual Nuclear Net Generation (PLGENANC) –**  
This field, in MWh, contains the plant annual net generation for nuclear if the fuel code is NUC. Note that one plant, North Anna, has both nuclear and hydro prime movers, but the greater generation is associated with nuclear
- 85. Plant Annual Hydro Net Generation (PLGENAHY) –**  
This field, in MWh, contains the plant annual net generation for hydro if the fuel code is WAT.
- 86. Plant Annual Biomass Net Generation (PLGENABM) –**  
This field, in MWh, contains the plant annual net generation for biomass. Biomass is a fuel derived from organic matter such as wood and paper products, agricultural waste, or methane (e.g., from landfills). The renewable portion of solid waste, fuel code MSB, is included as biomass, as are AB, BLQ, DG, LFG, ME, OBL, OBS, PP, SLW, WDL, and WDS. See the Methodology Section for more information.
- 87. Plant Annual Wind Net Generation (PLGENAWI) –**  
This field, in MWh, contains the plant annual net generation for wind if the fuel code is WND.
- 88. Plant Annual Solar Net Generation (PLGENASO) –**  
This field, in MWh, contains the plant annual net generation for solar if the fuel code is SUN.
- 89. Plant Annual Geothermal Net Generation (PLGENAGT) –**  
This field, in MWh, contains the plant annual net generation for geothermal if the fuel code is GEO.
- 90. Plant Annual Other Fossil Net Generation (PLGENAOF) –**  
This field, in MWh, contains the plant annual net generation for other fossil fuel that cannot be categorized as coal, oil, or gas. Other fossil fuel codes include BFG, COG, HY, LB, MH, MSF, OG, PRG, and TDF.
- 91. Plant Annual Other Unknown/ Purchased Fuel Net Generation (PLGENAOP) –**  
This field, in MWh, contains the plant annual net generation for other unknown/purchased if the fuel code is OTH or PUR or WH.
- 92. Plant Annual Total Nonrenewables Net Generation (PLGENATN) –**  
This field, in MWh, contains the annual total nonrenewables net generation for the plant. Nonrenewables are exhaustible energy resources such as coal, oil, gas, other fossil, nuclear power, and other unknown/purchased fuel. This field is the sum of PLGENACL, PLGENAOL, PLGENAGS, PLGENAOF, PLGENANC, and PLGENAOP.
- 93. Plant Annual Total Renewables Net Generation (PLGENATR) –**  
This field, in MWh, contains the annual total renewables net generation for the plant. Renewables are inexhaustible energy resources such as biomass, wind, solar, geothermal,

## THE PLNT FILE

and hydro. This field is the sum of PLGENABM, PLGENAWI, PLGENASO, PLGENAGT, and PLGENAHY.

- 94. Plant Annual Total Nonhydro Renewables Net Generation (PLGENATH) –**  
This field, in MWh, contains the annual total nonhydro renewables net generation for the plant. This field is the sum of PLGENABM, PLGENAWI, PLGENASO, and PLGENAGT.
- 95. Plant Annual Total Combustion Net Generation (PLGENACY) –**  
This field, in MWh, contains the annual total combustion net generation for the plant. This field is the sum of PLGENACL, PLGENAOL, PLGENAGS, PLGENAOF, PLGENABM, and PLGENAOP.
- 96. Plant Annual Total Noncombustion Net Generation (PLGENACN) –**  
This field, in MWh, contains the annual total noncombustion net generation for the plant. This field is the sum of PLGENANC, PLGENAHY, PLGENAWI, PLGENASO, and PLGENAGT.
- 97. Plant Coal Generation Percent (PLCLPR) –**  
This field, the coal resource mix expressed as a percent of plant annual net generation, is calculated as follows:  
$$PLCLPR = 100 * (PLGENACL / PLNGENAN).$$
- 98. Plant Oil Generation Percent (PLOLPR) –**  
This field, the oil resource mix expressed as a percent of plant annual net generation, is calculated as follows:  
$$PLOLPR = 100 * (PLGENAOL / PLNGENAN).$$
- 99. Plant Gas Generation Percent (PLGSPR) –**  
This field, the gas resource mix expressed as a percent of plant annual net generation, is calculated as follows:  
$$PLGSPR = 100 * (PLGENAGS / PLNGENAN).$$
- 100. Plant Nuclear Generation Percent (PLNCPR) –**  
This field, the nuclear resource mix expressed as a percent of plant annual net generation, is calculated as follows:  
$$PLNCPR = 100 * (PLGENANC / PLNGENAN).$$
- 101. Plant Hydro Generation Percent (PLHYPR) –**  
This field, the hydro resource mix expressed as a percent of plant annual net generation, is calculated as follows:  
$$PLHYPR = 100 * (PLGENAHY / PLNGENAN).$$
- 102. Plant Biomass Generation Percent (PLBMPR) –**  
This field, the biomass resource mix expressed as a percent of plant annual net generation, is calculated as follows:  
$$PLBMPR = 100 * (PLGENABM / PLNGENAN).$$

## THE PLNT FILE

- 103. Plant Wind Generation Percent (PLWIPR) –**  
This field, the wind resource mix expressed as a percent of plant annual net generation, is calculated as follows:  
$$\text{PLWIPR} = 100 * (\text{PLGENAWI} / \text{PLNGENAN}).$$
- 104. Plant Solar Generation Percent (PLSOPR) –**  
This field, the solar resource mix expressed as a percent of plant annual net generation, is calculated as follows:  
$$\text{PLSOPR} = 100 * (\text{PLGENASO} / \text{PLNGENAN}).$$
- 105. Plant Geothermal Generation Percent (PLGTPR) –**  
This field, the geothermal resource mix expressed as a percent of plant annual net generation, is calculated as follows:  
$$\text{PLGTPR} = 100 * (\text{PLGENAGT} / \text{PLNGENAN}).$$
- 106. Plant Other Fossil Generation Percent (PLOFPR) –**  
This field, the other fossil resource mix expressed as a percent of plant annual net generation, is calculated as follows:  
$$\text{PLOFPR} = 100 * (\text{PLGENAOF} / \text{PLNGENAN}).$$
- 107. Plant Other Unknown/Purchased Fuel Generation Percent (PLOPPR) –**  
This field, the other unknown/purchased fuel/waste heat resource mix expressed as a percent of plant annual net generation, is calculated as follows:  
$$\text{PLOPPR} = 100 * (\text{PLGENAOP} / \text{PLNGENAN}).$$
- 108. Plant Total Nonrenewables Generation Percent (PLTNPR) –**  
This field, the total nonrenewables resource mix expressed as a percent of plant annual net generation, is calculated as follows:  
$$\text{PLTNPR} = 100 * (\text{PLGENATN} / \text{PLNGENAN}).$$
- 109. Plant Total Renewables Generation Percent (PLTRPR) –**  
This field, the total renewables resource mix expressed as a percent of plant annual net generation, is calculated as follows:  
$$\text{PLTRPR} = 100 * (\text{PLGENATR} / \text{PLNGENAN}).$$
- 110. Plant Total Nonhydro Renewables Generation Percent (PLTHPR) –**  
This field, the total nonhydro renewables resource mix expressed as a percent of plant annual net generation, is calculated as follows:  
$$\text{PLTHPR} = 100 * (\text{PLGENATH} / \text{PLNGENAN}).$$
- 111. Plant Total Combustion Generation Percent (PLCYPR) –**  
This field, the total combustion resource mix expressed as a percent of plant annual net generation, is calculated as follows:  
$$\text{PLCYPR} = 100 * (\text{PLGENACY} / \text{PLNGENAN}).$$
- 112. Plant Total Noncombustion Generation Percent (PLCNPR) –**  
This field, the total noncombustion resource mix expressed as a percent of plant annual net generation, is calculated as follows:  
$$\text{PLCNPR} = 100 * (\text{PLGENACN} / \text{PLNGENAN}).$$

## THE PLNT FILE

- 113. Plant Owner Name (First) (OWNRNM01) –**  
This field contains the name of the first plant owner, a company or EGC.  
Sources: EIA-860 + updates
- 114. Plant Owner Code (First) (OWNRUC01) –**  
This field contains the unique company code associated with OWNRNM01 and assigned by EIA, with some exceptions. Some owner names do not have associated codes assigned by EIA and are EPA-assigned negative IDs beginning with -101; and some nonutility EGCs are grouped together, called nufronts, and are EPA-assigned negative IDs beginning with -1001. If no information on ownership is provided, then it is assumed that the operator has 100% ownership. See the Methodology Section and Section IV for details.  
Source: EIA-860 + updates
- 115. Plant Owner Percent (First) (OWNRPR01) –**  
This field contains the percent of the plant that is owned by OWNRNM01. It is calculated based on reported generator ownership data. If no information on ownership is provided, then it is assumed that the operator has 100% ownership. See the Methodology Section and Section IV for details.  
Source: EIA-860 + updates
- 116. Plant Owner Name (Second) (OWNRNM02) –**  
This field contains the name of the second plant owner.  
Source: EIA-860 + updates
- 117. Plant Owner Code (Second) (OWNRUC02) –**  
This field contains the unique EIA-assigned number associated with OWNRNM02. Some owner names do not have associated codes assigned by EIA and are EPA-assigned negative IDs beginning with -101; and some nonutility EGCs are grouped together, called nufronts, and are EPA-assigned negative IDs beginning with -1001. If no information on ownership is provided, then it is assumed that the operator has 100% ownership. See the Methodology Section and Section IV for details.  
Source: EIA-860 + updates.
- 118. Plant Owner Percent (Second) (OWNRPR02) –**  
This field contains the percent of the plant that is owned by OWNRNM02. It is calculated based on reported generator ownership data. Some owner names do not have associated codes assigned by EIA and are EPA-assigned negative IDs beginning with -101; and some nonutility EGCs are grouped together, called nufronts, and are EPA-assigned negative IDs beginning with -1001. If no information on ownership is provided, then it is assumed that the operator has 100% ownership. See the Methodology Section and Section IV for details.  
Source: EIA-860 + updates.
- 119. – Plant Owner Name, Plant Owner Code, and Plant Owner Percent (Third -**  
**160. Sixteenth) –**  
The description of these fields contains the information for the third through sixteenth plant owners. See the descriptions in fields #113 through #115 above.  
Source: EIA-860 + updates

## THE PLNT FILE

- 161. eGRID2006 year 2004 File Plant Sequence Number (SEQPLT04) –**  
This field contains the sequence number of the plant in the year 2004 data, if one exists.  
This sequence number is unlikely to be the same as the sequence number in the year 2005 eGRID2007 file for the same plant.
- 162. eGRID2007 year 2005 File Plant Sequence Number (SEQPLT05) –**  
This field contains the sequence number of the plant in the year 2005 data, if one exists.  
This sequence number is unlikely to be the same as the sequence number in the year 2007 eGRID2010 file for the same plant.

## THE ST FILE

### D. THE ST (STATE) FILE

There are 111 variables in the fourth file, ST, which contains state level data. All size, heat input, generation, and emission values are derived by aggregating from the plant level based on the state in which the plant is located. Variables that are either identical to those in the plant file or different from those in the plant file by the first two letters of their names (e.g., SHTIAN instead of PLHTIAN) are not re-described. Aggregated variable names generally begin with “ST.”

1. **eGRID2010 year 2007 File State Sequence Number (SEQST07) –**  
The state records in this year 2007 data file are sorted by state postal code abbreviation and are assigned a unique sequential number beginning with 1. This sequence number is unlikely to be the same as the sequence number in the year 2005 eGRID2007 file for the same entity.  
This is a new field in eGRID2010.
2. **State Abbreviation (PSTATABB) –**
3. **FIPS State Code (FIPSST) –**
4. **State Nameplate Capacity (NAMEPCAP) –**
5. **State Annual Heat Input (SHTIAN) –**
6. **State Ozone Season Heat Input (SHTIOZ) –**
7. **State Annual Net Generation (STNGENAN) –**
8. **State Ozone Season Net Generation (STNGENOZ) –**
9. **State Annual NO<sub>x</sub> Emissions (STNOXAN) –**
10. **State Ozone Season NO<sub>x</sub> Emissions (STNOXOZ) –**
11. **State Annual SO<sub>2</sub> Emissions (STSO2AN) –**
12. **State Annual CO<sub>2</sub> Emissions (STCO2AN) –**
13. **State Annual CH<sub>4</sub> Emissions (STCH4AN) –**
14. **State Annual N<sub>2</sub>O Emissions (STN2OAN) –**
15. **State Annual CO<sub>2</sub> Equivalent Emissions (STCO2EQA) –**  
This field, in tons, is the sum of each state’s plants’ PLCO2EQA.  
This is a new field in eGRID2010.
16. **State Annual Hg Emissions (STHGAN) –**
17. **State Annual NO<sub>x</sub> Total Output Emission Rate (STNOXRTA) –**  
This field, in lb/MWh, is calculated as follows:  
 $STNOXRTA = 2000 * (STNOXAN / STNGENAN)$ .

## THE ST FILE

18. **State Ozone Season NO<sub>x</sub> Total Output Emission Rate (STNOXRTO) –**  
This field, in lb/MWh, is calculated as follows:  
 $STNOXRTO = 2000 * (STNOXOZ / STNGENOZ).$
19. **State Annual SO<sub>2</sub> Total Output Emission Rate (STSO2RTA) –**  
This field, in lb/MWh, is calculated as follows:  
 $STSO2RTA = 2000 * (STSO2AN / STNGENAN).$
20. **State Annual CO<sub>2</sub> Total Output Emission Rate (STCO2RTA) –**  
This field, in lb/MWh, is calculated as follows:  
 $STCO2RTA = 2000 * (STCO2AN / STNGENAN).$
21. **State Annual CH<sub>4</sub> Total Output Emission Rate (STCH4RTA) –**  
This field, in lb/GWh, is calculated as follows:  
 $STHCH4RTA = STCH4AN / (STNGENAN / 1000).$
22. **State Annual N<sub>2</sub>O Total Output Emission Rate (STN2ORTA) –**  
This field, in lb/GWh, is calculated as follows:  
 $STN2ORTA = STN2OAN / (STNGENAN / 1000).$
23. **State Annual CO<sub>2</sub> Equivalent Total Output Emission Rate (STC2ERTA) –**  
This field, in lb/MWh, is calculated as follows:  
 $STC2ERTA = 2000 * (STCO2EQA / STNGENAN).$   
This is a new field in eGRID2010.
24. **State Annual Hg Total Output Emission Rate (STHGRTA) –**  
This field, in lb/GWh, is calculated as follows:  
 $STHGRTA = STHGAN / (STNGENAN / 1000).$
25. **State Annual NO<sub>x</sub> Input Emission Rate (STNOXRRA) –**  
This field, in lb/MMBtu, is calculated as follows:  
 $STNOXRRA = 2000 * (STNOXAN / STHTIAN).$
26. **State Ozone Season NO<sub>x</sub> Input Emission Rate (STNOXRO) –**  
This field, in lb/MMBtu, is calculated as follows:  
 $STNOXRO = 2000 * (STNOXOZ / STHTIOZ).$
27. **State Annual SO<sub>2</sub> Input Emission Rate (STSO2RA) –**  
This field, in lb/MMBtu, is calculated as follows:  
 $STSO2RA = 2000 * (STSO2AN / STHTIAN).$
28. **State Annual CO<sub>2</sub> Input Emission Rate (STCO2RA) –**  
This field, in lb/MMBtu, is calculated as follows:  
 $STCO2RA = 2000 * (STCO2AN / STHTIAN).$
29. **State Annual Hg Input Emission Rate (STHGRA) –**  
This field, in lb/BBtu, is calculated as follows:  
 $STHGRA = STHGAN / (STHTIAN / 1000).$

## THE ST FILE

- 30. State Annual NO<sub>x</sub> Combustion Output Emission Rate (STNOXCRT) –**  
This field, in lb/MMBtu, is calculated as follows:  
 $STNOXCRT = 2000 * (STNOXAN / STGENACY).$
- 31. State Ozone Season NO<sub>x</sub> Combustion Output Emission Rate (STNOXCRO) –**  
This field, in lb/MMBtu, is calculated as follows:  
 $STNOXCRO = 2000 * (STNOXOZ / ((STGENACY * STNGENOZ) / STNGENAN)).$
- 32. State Annual SO<sub>2</sub> Combustion Output Emission Rate (STSO2CRT) –**  
This field, in lb/MMBtu, is calculated as follows:  
 $STSO2CRT = 2000 * (STSO2AN / STGENACY).$
- 33. State Annual CO<sub>2</sub> Combustion Output Emission Rate (STCO2CRT) –**  
This field, in lb/MMBtu, is calculated as follows:  
 $STCO2CRT = 2000 * (STCO2AN / STGENACY).$
- 34. State Annual CH<sub>4</sub> Combustion Output Emission Rate (STCH4CRT) –**  
This field, in lb/BBtu, is calculated as follows:  
 $STCH4CRT = STCH4AN / (STGENACY / 1000).$
- 35. State Annual N<sub>2</sub>O Combustion Output Emission Rate (STN2OCRT) –**  
This field, in lb/BBtu, is calculated as follows:  
 $STN2OCRT = STN2OAN / (STGENACY / 1000).$
- 36. State Annual Hg Combustion Output Emission Rate (STHG CRT) –**  
This field, in lb/BBtu, is calculated as follows:  
 $STHG CRT = STHGAN / (STGENACY / 1000).$
- 37. State Annual NO<sub>x</sub> Coal Output Emission Rate (STCNOXRT) –**  
This field, in lb/MWh, is calculated as the sum of the annual NO<sub>x</sub> emissions from all plants in the state that have coal as its primary fuel (PLPRMFL) divided by the sum of the net generation from the same set of plants, and multiplied by a unit conversion factor. It is calculated in the same manner as is any output emission rate.
- 38. State Annual NO<sub>x</sub> Oil Output Emission Rate (STONOXRT) –**  
This field, in lb/MWh, is calculated as the sum of the annual NO<sub>x</sub> emissions from all plants in the state that have oil as its primary fuel (PLPRMFL) divided by the sum of the net generation from the same set of plants, and multiplied by a unit conversion factor. It is calculated in the same manner as is any output emission rate.
- 39. State Annual NO<sub>x</sub> Gas Output Emission Rate (STGNOXRT) –**  
This field, in lb/MWh, is calculated as the sum of the annual NO<sub>x</sub> emissions from all plants in the state that have natural gas as its primary fuel (PLPRMFL) divided by the sum of the net generation from the same set of plants, and multiplied by a unit conversion factor. It is calculated in the same manner as is any output emission rate.
- 40. State Annual NO<sub>x</sub> Fossil Fuel Output Emission Rate (STFSNXRT) –**  
This field, in lb/MWh, is calculated as the sum of the annual NO<sub>x</sub> emissions from all plants in the state that have a fossil fuel (coal, oil, gas, or other fossil) as its primary fuel (PLPRMFL) divided by the sum of the net generation from the same set of plants, and

## THE ST FILE

multiplied by a unit conversion factor. It is calculated in the same manner as is any output emission rate.

- 41. - State Ozone Season NO<sub>x</sub> Coal, Oil, Gas, and Fossil Fuel Output Emission Rates –**  
**44.** The descriptions of these fields, in lb/MWh, contain the same information for ozone season NO<sub>x</sub> as fields #37 through #40, respectively, do for annual NO<sub>x</sub>.
- 45. - State Annual SO<sub>2</sub> Coal, Oil, Gas, and Fossil Fuel Output Emission Rates –**  
**48.** The descriptions of these fields, in lb/MWh, contain the same information for annual SO<sub>2</sub> as fields #37 through #40, respectively, do for annual NO<sub>x</sub>.
- 49. - State Annual CO<sub>2</sub> Coal, Oil, Gas, and Fossil Fuel Output Emission Rates –**  
**52.** The descriptions of these fields, in lb/MWh, contain the same information for annual CO<sub>2</sub> as fields #37 through #40, respectively, do for annual NO<sub>x</sub>.
- 53. - State Annual Hg Coal and Fossil Fuel Output Emission Rates –**  
**54.** The descriptions of these fields, in lb/GWh, contain the same information for annual Hg as fields #37 and #40, respectively, do for annual NO<sub>x</sub>.
- 55. - State Annual NO<sub>x</sub>, Ozone Season NO<sub>x</sub>, Annual SO<sub>2</sub>, Annual CO<sub>2</sub> Coal, Oil, Gas, and Fossil Fuel Input Emission Rates; and Annual Hg Coal and Fossil Fuel Input Emission Rates –**  
**72.** The description of these fields, primary fuel-specific input emission rates, contains the same information that fields #37 through #54 do for primary fuel-specific output emission rates – except that the calculations include heat input, rather than net generation. Note that for Hg input emission rates, the units are lb/BBtu, not lb/MMBtu. These values are calculated in the same manner as are any input emission rates.
- 73. State Annual NO<sub>x</sub> Non-baseload Output Emission Rate (STNBNOX) –**  
This field, in lb/MWh, is the sum of the annual non-baseload NO<sub>x</sub> emissions divided by the sum of annual non-baseload net generation in the state and then multiplied by a unit conversion factor. This field is intended to provide a more refined estimate of avoided emissions than the fossil-fuel average output emission rate. The non-baseload emissions and generation include only emissions and generation from combustion sources and exclude emissions and generation from plants that have high capacity factors. The remaining emissions and generation are weighted by a factor which is a function of capacity factor. For more information, see the Methodology Section.
- 74. State Ozone Season NO<sub>x</sub> Non-baseload Output Emission Rate (STNBNXO) –**  
The description of this field, in lb/MWh, contains the same information as field #73 does, but for the ozone season.
- 75. State Annual SO<sub>2</sub> Non-baseload Output Emission Rate (STNBSO2) –**  
The description of this field, as well as fields #76 through #79, in lb/MWh, contain the same information as field #73 does, but for the appropriate pollutant.
- 76. State Annual CO<sub>2</sub> Non-baseload Output Emission Rate (STNBCO2) –**
- 77. State Annual CH<sub>4</sub> Non-baseload Output Emission Rate (STNBCH4) –**

## THE ST FILE

78. State Annual N<sub>2</sub>O Non-baseload Output Emission Rate (STNBN2O) –
79. State Annual Hg Non-baseload Output Emission Rate (STNBHG) –
80. State Annual Coal Net Generation (STGENACL) –
81. State Annual Oil Net Generation (STGENAOL) –
82. State Annual Gas Net Generation (STGENAGS) –
83. State Annual Nuclear Net Generation (STGENANC) –
84. State Annual Hydro Net Generation (STGENAHY) –
85. State Annual Biomass Net Generation (STGENABM) –
86. State Annual Wind Net Generation (STGENAWI) –
87. State Annual Solar Net Generation (STGENASO) –
88. State Annual Geothermal Net Generation (STGENAGT) –
89. State Annual Other Fossil Net Generation (STGENAOF) –
90. State Annual Other Unknown/Purchased Fuel Net Generation (STGENAOP) –
91. State Annual Total Nonrenewables Net Generation (STGENATN) –
92. State Annual Total Renewables Net Generation (STGENATR) –
93. State Annual Total Nonhydro Renewables Net Generation (STGENATH) –
94. State Annual Total Combustion Net Generation (STGENACY) –
95. State Annual Total Noncombustion Net Generation (STGENACN) –
96. State Coal Generation Percent (STCLPR) –
97. State Oil Generation Percent (STOLPR) –
98. State Gas Generation Percent (STGSPR) –
99. State Nuclear Generation Percent (STNCPR) –
100. State Hydro Generation Percent (STHYPR) –
101. State Biomass Generation Percent (STBMPR) –
102. State Wind Generation Percent (STWIPR) –

## **THE ST FILE**

- 103. State Solar Generation Percent (STSOPR) –**
- 104. State Geothermal Generation Percent (STGTPR) –**
- 105. State Other Fossil Generation Percent (STOFPR) –**
- 106. State Other Unknown/Purchased Fuel Generation Percent (STOPPR) –**
- 107. State Total Nonrenewables Generation Percent (STTNPR) –**
- 108. State Total Renewables Generation Percent (STTRPR) –**
- 109. State Total Nonhydro Renewables Generation Percent (STTHPR) –**
- 110. State Total Combustion Generation Percent (STCYPR) –**
- 111. State Total Noncombustion Generation Percent (STCNPR) –**

## THE EGCL AND EGCO FILES

### E. THE EGCL AND EGCO (EGC) FILES

There are 114 variables in the fifth, EGCL, which contains location (operator)-based EGC data, and sixth, EGCO, which contains owner-based EGC data, files. All generation and emission values are derived by aggregating from the plant level based on the EGC's plant operator, or ownership and ownership percentage. Even if an EGC is owned by a parent (holding) company, all data are reported in these files for individual EGCs.

There is one variable that has not been described in previous file variable descriptions.

#### 4. EGC Type (EGCTYPE) –

This variable describes the type of EGC. If the EGC is a utility, the possible values are: U-Coop (Cooperative), U-Fed (Federal), U-IO (Investor Owned), U-Muni (Municipal), U-MMA (Municipal Marketing Authority), U-PolSub (Political Subdivision), and U-State (State). If the EGC is a nonutility, its value is NU.

This is a new field in eGRID2010.

The other new variables added to each of these files are the eGRID2010 year 2007 EGC location (operator)-based and owner-based sequence numbers (SEQEGL07 AND SEQEGO07), EGC annual CO<sub>2</sub> equivalent emissions (EGCO2EQA), and the EGC annual CO<sub>2</sub> equivalent total output emission rate (EGC2ERTA).

All other variables from this file have been described in previous file variable descriptions. Aggregated variable names generally begin with "EG."

## THE PRCL AND PRCO FILES

### F. THE PRCL AND PRCO (PARENT COMPANY) FILES

There are 111 variables in the seventh and eighth files, which contain company data organized by parent company for individual generating companies that are subsidiaries or divisions of a larger parent (holding) company. For PRCL/PRCO, all generation and emissions are derived by aggregating from the location (operator)/owner-based EGC level based on the EGC subsidiaries in the parent company. The totals for data in these files will not be the same as for the plant, state, and EGC files since these files are a subset of the others and do not include all aggregated emissions and generation. The PRCL/PRCO files will also not have the same number of records or data totals since there are different numbers of parent companies with EGCs that own/operate eGRID plants.

The new variables added to each of these files in eGRID2010 are the eGRID2010 year 2007 parent company location (operator)-based and owner-based sequence numbers (SEQPRL07 and SEQPRO07), parent company annual CO<sub>2</sub> equivalent emissions (PRCO2EQA), and the parent company annual CO<sub>2</sub> equivalent total output emission rate (PRC2ERTA).

There are no variables that have not been described in previous file variable descriptions. Aggregated variable names generally begin with “PR.”

## **THE PCAL FILE**

### **G. THE PCAL (PCA) FILE**

There are 111 variables in the ninth file, PCAL, which contains location (operator)-based power control area (PCA) data. All generation and emission values are derived by aggregating from the plant level based on the associated PCA.

The new variables added to this file in eGRID2010 are the eGRID2010 year 2007 PCA sequence number (SEQPCL07) PCA annual CO<sub>2</sub> equivalent emissions (PCCO2EQA) and the PCA annual CO<sub>2</sub> equivalent total output emission rate (PCC2ERTA).

There are no variables that have not been described in previous file variable descriptions. Aggregated variable names generally begin with “PC.”

## **THE SRL FILE**

### **H. THE SRL (eGRID SUBREGION) FILE**

There are 112 variables in the tenth file, SRL, which contains location (operator)-based eGRID subregions. All generation and emission values are derived by aggregating from the plant level based on the associated eGRID subregion.

The new variables added to this file in eGRID2010 are the eGRID2010 year 2007 eGRID subregion sequence number (SEQSRL07), eGRID subregion annual CO<sub>2</sub> equivalent emissions (SRCO2EQA), and the eGRID subregion annual CO<sub>2</sub> equivalent total output emission rate (SRC2ERTA).

There are no variables that have not been described in previous file variable descriptions. Aggregated variable names generally begin with “SR.”

## **THE NRL FILE**

### **I. THE NRL (NERC REGION) FILE**

There are 111 variables in the eleventh file, NRL, which contains location (operator)-based NERC region data. All generation and emission values are derived by aggregating from the plant level based on the associated NERC region.

The only variable in this file that has not been described in a previous file variable description is NERCNAME, the NERC region name associated with the NERC region acronym (see subsection E.1. of the Methodology Section). Aggregated variable names generally begin with “NR.”

The new variables added to this file in eGRID2010 are the eGRID2010 year 2007 NERC region sequence number (SEQNRL07), NERC region annual CO<sub>2</sub> equivalent emissions (NRCO2EQA), and the NERC region annual CO<sub>2</sub> equivalent total output emission rate (NC2ERTA).

## **THE US FILE**

### **J. THE US (U.S.) FILE**

There are 109 variables in the twelfth file, US, which contains data for the entire United States. All generation and emission values are derived by aggregating from the plant level.

The new variables added to this file in eGRID2010 are the eGRID2010 year 2007 U.S. sequence number, U.S. annual CO<sub>2</sub> equivalent emissions (USCO2EQA), and the U.S. annual CO<sub>2</sub> equivalent total output emission rate (US2ERTA).

There are no variables that have not been described in previous file variable descriptions. Aggregated variable names generally begin with “US.”

## THE STIE04 FILE

### K. THE STIE04 (YEAR 2004 STATE IMPORT-EXPORT) FILE

There are 13 variables in STIE04, which contains state import-export data for year 2004.

1. **eGRID2006 year 2004 State File Sequence Number (SEQST04)** –  
This field contains the year 2004 state file sequence number and is the same as the one in eGRID2006's ST; it can be used to link data for the same state.
2. **State Postal Code Abbreviation (PSTATABB)** –  
This field contains the two character postal code abbreviation of the state.
3. **Grid Region (GRIDRGN)** –  
This field contains the grid region in which the state is located. There are five distinct grid regions comprising one or more whole states:
  - E = Eastern grid (36 Eastern states plus DC)
  - W = Western grid (11 Western states)
  - AK = Alaska
  - HI = Hawaii
  - TX = Texas
4. **Year 2004 State Total Net Generation (STNGEN04)** –  
This field contains the year 2004 total net generation, in GWh, for the given state, as reported by EIA.  
Source: EIA's *Electric Power Annual*, data table (generation\_state.xls)
5. **Year 2004 State Sales to Ultimate Customers (STSLCN04)** –  
This field contains the year 2004 sales to ultimate consumers, in GWh, for the given state, as reported by EIA.  
Source: EIA Electric Sales, Revenue, and Average Price data table (sales\_state.xls)
6. **Year 2004 State Energy Consumed by Respondent Without Charge (STCNEL04)** –  
This field contains the year 2004 energy consumed by the respondent without charge, in GWh, for the given state, as reported to EIA.  
Source: EIA-861
7. **Year 2004 State Energy Furnished Without Charge (STCNFR04)** –  
This field contains the year 2004 energy furnished without charge, in GWh, for the given state, as reported to EIA.  
Source: EIA-861
8. **Year 2004 State Total Consumption (STCON04)** –  
This field contains the year 2004 total consumption, in GWh, for the given state. It is the sum of STSLCN04, STCNEL04, and STCNFR04.
9. **Year 2004 Grid Gross Loss Factor Percent (GRDLSF04)** –  
This field contains the year 2004 grid gross loss factor percent, as a decimal with five places to the right of the decimal for the grid region which the given state is associated. The grid loss factor percent represents the percent difference, expressed as a decimal,

## THE STIE04 FILE

between total generation (including net foreign imports) and total consumption. The grid gross loss factor percent is calculated separately for each grid region.

- 10. Year 2004 State Adjusted Total Net Generation (STADJG04) –**  
This field contains the year 2004 adjusted total net generation, in GWh, for the given state. The algorithm is as follows:  $STADJG04 = ((1 - GRDLSF04) * STNGEN04)$ .
- 11. Year 2004 State Estimated Net Imports (STESTI04) –**  
This field contains the year 2004 estimated net imports, in GWh, for the given state. Positive values denote net imports; negative values denote net exports. The algorithm is as follows:  $STESTI04 = (STCON04 - STADJG04)$ .
- 12. Year 2004 State Estimated Net Imports as a Percent of Total Consumption (STPRI04) –**  
This field contains the year 2004 estimated net imports as a percent of the total consumption, for the given state. The algorithm is as follows:  
 $STPRI04 = (100 * (STESTI04 / STCON04))$ .  
Only positive values are displayed; Negative values are not meaningful.
- 13. Year 2004 State Estimated Net Exports as a Percent of Total Net Generation (STPRE04) –**  
This field contains the year 2004 estimate net imports as a percent of total net generation, for the given state. The algorithm is as follows:  
 $STPRE04 = (100 * (-STESTI04 / STNGEN04))$ .  
Only positive values are displayed; Negative values are not meaningful.

## **THE STIE05 FILE**

### **L. THE STIE05 (YEAR 2005 STATE IMPORT-EXPORT) FILE**

There are 13 variables in STIE05, which contains state import-export data for year 2005. There are no variables in this file that have not been previously described in the previous file, STIE04.

## **THE STIE07 FILE**

### **M. THE STIE07 (YEAR 2007 STATE IMPORT-EXPORT) FILE**

There are 13 variables in STIE05, which contains state import-export data for year 2007. There are no variables in this file that have not been previously described in the previous file, STIE04.

## THE USGC FILE

### N. THE USGC (U.S. GENERATION AND CONSUMPTION) FILE

There are 9 variables in USGC, which contains generation and consumption as well as net foreign import data for the United States for years 2004, 2005, and 2007.

1. **Year 2004 U.S. Total Net Generation (USTNGN04)** –  
This field contains the U.S. total net generation for year 2004, in GWh.
2. **Year 2004 U.S. Total Consumption, (USTCON04)** –  
This field contains the U.S. total consumption for year 2004, in GWh.
3. **Year 2004 U.S. Total Net Foreign Imports (USTNFI04)** –  
This field contains the total net foreign (Canadian and Mexican) imports for year 2004, in GWh. These data are reported at the state level, are displayed in an internal EIA database, and are summed to the U.S. level.
4. **Year 2005 U.S. Total Net Generation (USTNGN05)** –  
This field contains the U.S. total net generation for year 2005, in GWh.
5. **Year 2005 U.S. Total Consumption (USTCON05)** –  
This field contains the U.S. total consumption for year 2005, in GWh.
6. **Year 2005 U.S. Total Net Foreign Imports (USTNFI05)** –  
This field contains the total net foreign (Canadian and Mexican) imports for year 2005, in GWh. These data are reported at the state level, are displayed in an internal EIA database, and are summed to the U.S. level.
7. **Year 2007 U.S. Total Net Generation (USTNGN07)** –  
This field contains the U.S. total net generation for year 2007, in GWh.  
This is a new field in eGRID2010.
8. **Year 2007 U.S. Total Consumption (USTCON07)** –  
This field contains the U.S. total consumption for year 2007, in GWh.  
This is a new field in eGRID2010.
9. **Year 2007 U.S. Net Foreign Imports (USTNFI07)** –  
This field contains the total net foreign (Canadian and Mexican) imports for year 2007, in GWh. These data are reported at the state level, are displayed in an internal EIA database, and are summed to the U.S. level.  
This is a new field in eGRID2010.

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## APPENDIX A. eGRID2010 FILE STRUCTURE - VARIABLE DESCRIPTIONS FOR 2007 DATA YEAR

The year 2007 data for eGRID2010 are initially in database format and are then transformed into Excel spreadsheets. The structure of the 12 aggregation, three state Import-Export, and one U.S. Generation and Consumption database files – including descriptions of the variables, *unit of measurement*, and original source(s) of data – are delineated below in the file structure. NOTE: *Italics indicates new field*; **bold indicates methodological change**.

**Table A-1  
eGRID2010 Version 1.0 File Structure  
Year 2007 BLR Boiler File\***

Field	Name	Description	Unit	Source(s)
1	SEQBLR07	<i>eGRID2010 year 2007 file boiler sequence number</i>		
2	PSTATABB	Plant state abbreviation		EIA-860
3	PNAME	Plant name		EIA-860 + updates
4	ORISPL	DOE/EIA ORIS plant or facility code		EIA-860 + updates
5	BLRID	Boiler ID		EPA/CAMD
6	ARPFLAG	Acid Rain Program flag: 1 = Yes		EPA/CAMD
7	NBPFLAG	NO <sub>x</sub> Budget Program flag: 1 = Yes		EPA/CAMD
8	BOTFIRTY	Boiler bottom and firing type		EPA/CAMD
9	NUMGEN	Number of associated generators		
10	FUELB1	Boiler primary fuel		EPA/CAMD
11	<i>HRSOP</i>	<i>Unit operating hours</i>	<i>hours</i>	<i>EPA/CAMD</i>
12	HTIEAN	Boiler unadjusted annual EPA/CAMD heat input	MMBtu	EPA/CAMD
13	HTIEOZ	Boiler unadjusted ozone season EPA/CAMD heat input	MMBtu	EPA/CAMD
14	HTIFAN	Boiler unadjusted annual total EIA-based calculated heat input	MMBtu	
15	HTIFOZ	Boiler unadjusted ozone season EIA-based calculated heat input	MMBtu	
16	NOXEAN	Boiler unadjusted annual EPA/CAMD NO <sub>x</sub> emissions	tons	EPA/CAMD
17	NOXEOZ	Boiler unadjusted ozone season EPA/CAMD NO <sub>x</sub> emissions	tons	EPA/CAMD
18	NOXFAN	Boiler unadjusted annual EIA-based calculated NO <sub>x</sub> emissions	tons	
19	NOXFOZ	Boiler unadjusted ozone season EIA-based calculated NO <sub>x</sub> emissions	tons	
20	SO2EAN	Boiler unadjusted annual EPA/CAMD SO <sub>2</sub> emissions	tons	EPA/CAMD
21	SO2FAN	Boiler unadjusted annual EIA-based calculated SO <sub>2</sub> emissions	tons	
22	CO2EAN	Boiler unadjusted annual EPA/CAMD CO <sub>2</sub> emissions	tons	EPA/CAMD
23	CO2FAN	Boiler unadjusted annual EIA-based calculated CO <sub>2</sub> emissions	tons	
24	SRCBEST	Source of "best" data from EPA/CAMD or EIA-923 boiler level		
25	HTIBAN	Boiler unadjusted annual best heat input	MMBtu	
26	HTIBOZ	Boiler unadjusted ozone season best heat input	MMBtu	
27	NOXBAN	Boiler unadjusted annual best NO <sub>x</sub> emissions	tons	
28	NOXBOZ	Boiler unadjusted ozone season best NO <sub>x</sub> emissions	tons	
29	SO2BAN	Boiler unadjusted annual best SO <sub>2</sub> emissions	tons	
30	CO2BAN	Boiler unadjusted annual best CO <sub>2</sub> emissions	tons	
31	SO2CTLDV	Boiler SO <sub>2</sub> (scrubber) first control device		EPA/CAMD
32	NOXCTLDV	Boiler NO <sub>x</sub> first control device		EPA/CAMD
33	HGCTLDV	Boiler Hg activated carbon injection system flag: 1 = Yes		
34	BLRYRONL	Boiler year on-line		EPA/CAMD

\*Note that summing the boiler unadjusted emissions to the plant level may not result in the same values as the plant unadjusted emissions since additional emissions from prime movers not covered by the EPA/CAMD boiler level data may be included in the plant emissions values.

**Table A-1**  
**eGRID2010 Version 1.0 File Structure**  
**Year 2007 GEN Generator File\*\***

Field	Name	Description	Unit	Source(s)
1	SEQGEN07	eGRID2010 year 2007 file generator sequence number		
2	PSTATABB	Plant state abbreviation		EIA-860
3	PNAME	Plant name		EIA-860 + updates
4	ORISPL	DOE/EIA ORIS plant or facility code		EIA-860 + updates
5	GENID	Generator ID		EIA-860
6	NUMBLR	Number of associated boilers		
7	GENSTAT	Generator status		EIA-860
8	PRMVR	Generator prime mover type		EIA-860
9	FUELG1	Generator primary fuel		EIA-860
10	NAMEPCAP	Generator nameplate capacity	MW	EIA-860
11	CFACT	Generator capacity factor		
12	GENNTAN	Generator annual net generation	MWh	EIA-923
13	GENNTOZ	Generator ozone season net generation	MWh	EIA-923
14	GENERSRC	Generation data source		
15	GENYRONL	Generator year on-line		EIA-860

\*\*Note that summing the generator generation to the plant level may not result in the same values as the plant generation. This file only includes generation from nuclear units in the EIA-923 and from those plant-prime movers in the EIA-923 that have only one generator in the EIA-860.

**Table A-1**  
**eGRID2010 Version 1.0 File Structure**  
**Year 2007 PLNT Plant File**

Field	Name	Description	Unit	Source(s)
1	SEQPLT07	eGRID2010 year 2007 file plant sequence number		
2	PSTATABB	Plant state abbreviation		EIA-860
3	PNAME	Plant name		EIA-860 + updates
4	ORISPL	DOE/EIA ORIS plant or facility code		EIA-860 + updates
5	FRSID	Plant EPA Facility Registry System (FRS) identification code		EPA FRS
6	OPRNAME	Plant operator name		EIA-860 + updates
7	OPRCODE	Plant operator ID		EIA-860 + updates
8	UTLSRVNM	Utility service <b>territory</b> name		EIA-860, EIA + updates
9	UTLSRVID	Utility service <b>territory</b> ID		EIA-860, EIA + updates
10	OPPRNUM	ID of the operator's parent company		
11	OPPRNAME	Name of the operator's parent company		
12	PCANAME	Power control area name		NERC, EIA-861 + updates
13	PCAID	Power control area ID		NERC, EIA-861 + updates
14	NERC	NERC region acronym		NERC
15	SUBRGN	eGRID subregion acronym		EPA
16	SRNAME	eGRID subregion name		EPA
17	FIPSSST	Plant FIPS state code		NIST based
18	FIPSCNTY	Plant FIPS county code		NIST based
19	CNTYNAME	Plant county name		EIA-860, EPA/CAMD
20	LAT	Plant latitude		EPA/CAMD, EIA + updates
21	LON	Plant longitude		EPA/CAMD, EIA + updates
22	CCFLAG	County centroid flag: 1 = County centroid used		
23	NUMBLR	Number of boilers		EPA/CAMD, EIA-860 calculated
24	NUMGEN	Number of generators		EIA-860 calculated
25	COMBUST	Plant combustion status: 1 = Combusts, 0 = No combustion, 0.5 = Partial combustion		
26	SOURCEM	Plant emissions source(s): EPA or EIA-923		
27	PLPRMFL	Plant primary fuel		
28	PLFUELCT	Plant primary coal/oil/gas/other fossil fuel category		
29	PLPFGNCT	Plant primary fuel generation category		
30	COALFLAG	Flag indicating if the plant burned or generated any amount of coal: 1 = Yes		
31	CAPFAC	Plant capacity factor		
32	NAMEPCAP	Plant nameplate capacity	MW	EIA-860 summed
33	RMBMFLAG	Biogas/biomass plant adjustment flag: 0 = No biomass; 1 = Biogas included; 100 = Other biomass included; 77 = Special plant CO <sub>2</sub> biomass		
34	CHPFLAG	Combined heat and power (CHP) plant adjustment flag: 1 = Yes		eGRID CHP List
35	USETHRMO	CHP plant useful thermal output	MMBtu	EIA-923 calculated
36	PWRTOHT	CHP plant power to heat ratio		
37	ELCALLOC	CHP plant electric allocation factor		
38	PSFLAG	Plant pumped storage flag: 1 = Yes		EIA-860
39	PLHTIAN	Plant annual heat input	MMBtu	
40	PLHTIOZ	Plant ozone season heat input	MMBtu	
41	PLNGENAN	Plant annual net generation	MWh	EIA-923, EPA/CAMD calculated
42	PLNGENOZ	Plant ozone season net generation	MWh	EIA-923, EPA/CAMD calculated
43	PLNOXAN	Plant annual NO <sub>x</sub> emissions	tons	
44	PLNOXOZ	Plant ozone season NO <sub>x</sub> emissions	tons	
45	PLSO2AN	Plant annual SO <sub>2</sub> emissions	tons	
46	PLCO2AN	Plant annual CO <sub>2</sub> emissions	tons	
47	PLCH4AN	Plant annual CH <sub>4</sub> emissions	lbs	
48	PLN2OAN	Plant annual N <sub>2</sub> O emissions	lbs	
49	PLCO2EQA	Plant annual CO <sub>2</sub> equivalent emissions $((1 * PLCO2AN) + (21 * PLCH4AN/2000) + (310 * PLN2OAN/2000))$	tons	

**Table A-1**  
**eGRID2010 Version 1.0 File Structure**  
**Year 2007 PLNT Plant File (continued).**

Field	Name	Description	Unit	Source(s)
50	PLHGAN	Plant annual Hg emissions	lbs	
51	PLNOXRTA	Plant annual NO <sub>x</sub> total output emission rate	lb/MWh	
52	PLNOXRTO	Plant ozone season NO <sub>x</sub> total output emission rate	lb/MWh	
53	PLSO2RTA	Plant annual SO <sub>2</sub> total output emission rate	lb/MWh	
54	PLCO2RTA	Plant annual CO <sub>2</sub> total output emission rate	lb/MWh	
55	PLCH4RTA	Plant annual CH <sub>4</sub> total output emission rate	lb/GWh	
56	PLN2ORTA	Plant annual N <sub>2</sub> O total output emission rate	lb/GWh	
57	PLC2ERTA	<i>Plant annual CO<sub>2</sub> equivalent total output emission rate</i>	<i>lb/MWh</i>	
58	PLHGRTA	Plant annual Hg total output emission rate	lb/GWh	
59	PLNOXRA	Plant annual NO <sub>x</sub> input emission rate	lb/MMBtu	
60	PLNOXRO	Plant ozone season NO <sub>x</sub> input emission rate	lb/MMBtu	
61	PLSO2RA	Plant annual SO <sub>2</sub> input emission rate	lb/MMBtu	
62	PLCO2RA	Plant annual CO <sub>2</sub> input emission rate	lb/MMBtu	
63	PLHGRTA	Plant annual Hg input emission rate	lb/BBtu	
64	PLNOXCRT	Plant annual NO <sub>x</sub> combustion output emission rate	lb/MWh	
65	PLNOXCRO	Plant ozone season NO <sub>x</sub> combustion output emission rate	lb/MWh	
66	PLSO2CRT	Plant annual SO <sub>2</sub> combustion output emission rate	lb/MWh	
67	PLCO2CRT	Plant annual CO <sub>2</sub> combustion output emission rate	lb/MWh	
68	PLCH4CRT	Plant annual CH <sub>4</sub> combustion output emission rate	lb/GWh	
69	PLN2OCRT	Plant annual N <sub>2</sub> O combustion output emission rate	lb/GWh	
70	PLHGCRT	Plant annual Hg combustion output emission rate	lb/GWh	
71	UNNOX	Plant unadjusted annual NO <sub>x</sub> emissions	tons	
72	UNNOXOZ	Plant unadjusted ozone season NO <sub>x</sub> emissions	tons	
73	UNSO2	Plant unadjusted annual SO <sub>2</sub> emissions	tons	
74	<b>UNCO2</b>	Plant unadjusted annual CO <sub>2</sub> emissions	tons	
75	UNCH4	Plant unadjusted annual CH <sub>4</sub> emissions	lbs	
76	UNN2O	Plant unadjusted annual N <sub>2</sub> O emissions	lbs	
77	UNHG	Plant unadjusted annual Hg emissions	lbs	
78	UNHTI	Plant unadjusted annual heat input	MMBtu	EPA/CAMD, EIA-923
79	UNHTIOZ	Plant unadjusted ozone season heat input	MMBtu	EPA/CAMD, EIA-923
80	<b>PLHTRT</b>	Plant nominal heat rate	Btu/kWh	
81	PLGENACL	Plant annual coal net generation	MWh	
82	PLGENAOL	Plant annual oil net generation	MWh	
83	PLGENAGS	Plant annual gas net generation	MWh	
84	PLGENANC	Plant annual nuclear net generation	MWh	
85	PLGENAHY	Plant annual hydro net generation	MWh	
86	PLGENABM	Plant annual biomass net generation	MWh	
87	PLGENAWI	Plant annual wind net generation	MWh	
88	PLGENASO	Plant annual solar net generation	MWh	
89	PLGENAGT	Plant annual geothermal net generation	MWh	
90	PLGENAOF	Plant annual other fossil net generation	MWh	
91	PLGENAOP	Plant annual other unknown/purchased fuel net generation	MWh	
92	PLGENATN	Plant annual total nonrenewables net generation	MWh	
93	PLGENATR	Plant annual total renewables net generation	MWh	
94	PLGENATH	Plant annual total nonhydro renewables net generation	MWh	
95	PLGENACY	Plant annual total combustion net generation	MWh	
96	PLGENACN	Plant annual total noncombustion net generation	MWh	
97	PLCLPR	Plant coal generation percent (resource mix)		
98	PLLOLPR	Plant oil generation percent (resource mix)		
99	PLGSPR	Plant gas generation percent (resource mix)		
100	PLNCPR	Plant nuclear generation percent (resource mix)		
101	PLHYPR	Plant hydro generation percent (resource mix)		
102	PLBMPR	Plant biomass generation percent (resource mix)		

**Table A-1**  
**eGRID2010 Version 1.0 File Structure**  
**Year 2007 PLNT Plant File (continued).**

Field	Name	Description	Unit	Source(s)
103	PLWIPR	Plant wind generation percent (resource mix)		
104	PLSOPR	Plant solar generation percent (resource mix)		
105	PLGTPR	Plant geothermal generation percent (resource mix)		
106	PLOFPR	Plant other fossil generation percent (resource mix)		
107	PLOPPR	Plant other unknown/purchased fuel generation percent (resource mix)		
108	PLTNPR	Plant total nonrenewables generation percent (resource mix)		
109	PLTRPR	Plant total renewables generation percent (resource mix)		
110	PLTHPR	Plant total nonhydro renewables generation percent (resource mix)		
111	PLCYPR	Plant total combustion generation percent (resource mix)		
112	PLCNPR	Plant total noncombustion generation percent (resource mix)		
113	OWNRNM01	Plant owner name (first)		EIA-860 + updates
114	OWNRUC01	Plant owner code (first)		EIA-860 + updates
115	OWNRPR01	Plant owner percent (first)		EIA-860 + updates
116	OWNRNM02	Plant owner name (second)		EIA-860 + updates
117	OWNRUC02	Plant owner code (second)		EIA-860 + updates
118	OWNRPR02	Plant owner percent (second)		EIA-860 + updates
119	OWNRNM03	Plant owner name (third)		EIA-860 + updates
120	OWNRUC03	Plant owner code (third)		EIA-860 + updates
121	OWNRPR03	Plant owner percent (third)		EIA-860 + updates
122	OWNRNM04	Plant owner name (fourth)		EIA-860 + updates
123	OWNRUC04	Plant owner code (fourth)		EIA-860 + updates
124	OWNRPR04	Plant owner percent (fourth)		EIA-860 + updates
125	OWNRNM05	Plant owner name (fifth)		EIA-860 + updates
126	OWNRUC05	Plant owner code (fifth)		EIA-860 + updates
127	OWNRPR05	Plant owner percent (fifth)		EIA-860 + updates
128	OWNRNM06	Plant owner name (sixth)		EIA-860 + updates
129	OWNRUC06	Plant owner code (sixth)		EIA-860 + updates
130	OWNRPR06	Plant owner percent (sixth)		EIA-860 + updates
132	OWNRNM07	Plant owner name (seventh)		EIA-860 + updates
131	OWNRUC07	Plant owner code (seventh)		EIA-860 + updates
133	OWNRPR07	Plant owner percent (seventh)		EIA-860 + updates
134	OWNRNM08	Plant owner name (eighth)		EIA-860 + updates
135	OWNRUC08	Plant owner code (eighth)		EIA-860 + updates
136	OWNRPR08	Plant owner percent (eighth)		EIA-860 + updates
137	OWNRNM09	Plant owner name (ninth)		EIA-860 + updates
138	OWNRUC09	Plant owner code (ninth)		EIA-860 + updates
139	OWNRPR09	Plant owner percent (ninth)		EIA-860 + updates
140	OWNRNM10	Plant owner name (tenth)		EIA-860 + updates
141	OWNRUC10	Plant owner code (tenth)		EIA-860 + updates
142	OWNRPR10	Plant owner percent (tenth)		EIA-860 + updates
143	OWNRNM11	Plant owner name (eleventh)		EIA-860 + updates
144	OWNRUC11	Plant owner code (eleventh)		EIA-860 + updates
145	OWNRPR11	Plant owner percent (eleventh)		EIA-860 + updates
146	OWNRNM12	Plant owner name (twelfth)		EIA-860 + updates
147	OWNRUC12	Plant owner code (twelfth)		EIA-860 + updates
148	OWNRPR12	Plant owner percent (twelfth)		EIA-860 + updates
149	OWNRNM13	Plant owner name (thirteenth)		EIA-860 + updates
150	OWNRUC13	Plant owner code (thirteenth)		EIA-860 + updates
151	OWNRPR13	Plant owner percent (thirteenth)		EIA-860 + updates
152	OWNRNM14	Plant owner name (fourteenth)		EIA-860 + updates
153	OWNRUC14	Plant owner code (fourteenth)		EIA-860 + updates
154	OWNRPR14	Plant owner percent (fourteenth)		EIA-860 + updates
155	OWNRNM15	Plant owner name (fifteenth)		EIA-860 + updates
156	OWNRUC15	Plant owner code (fifteenth)		EIA-860 + updates

**Table A-1**  
**eGRID2010 Version 1.0 File Structure**  
**Year 2007 PLNT Plant File (continued).**

<b>Field</b>	<b>Name</b>	<b>Description</b>	<b>Unit</b>	<b>Source(s)</b>
157	OWNRPR15	Plant owner percent (fifteenth)		EIA-860 + updates
158	OWNRNM16	Plant owner name (sixteenth)		EIA-860 + updates
159	OWNRUC16	Plant owner code (sixteenth)		EIA-860 + updates
160	OWNRPR16	Plant owner percent (sixteenth)		EIA-860 + updates
161	SEQPLT04	eGRID2006 year 2004 file plant sequence number		
162	SEQPLT05	eGRID2007 year 2005 file plant sequence number		

**Table A-1**  
**eGRID2010 Version 1.0 File Structure**  
**Year 2007 ST State File**

Field	Name	Description	Unit
1	SEQST07	eGRID2010 year 2007 file state sequence number	
2	PSTATABB	State abbreviation	
3	FIPSST	FIPS state code	
4	NAMEPCAP	State nameplate capacity	MW
5	STHTIAN	State annual heat input	MMBtu
6	STHTIOZ	State ozone season heat input	MMBtu
7	STNGENAN	State annual net generation	MWh
8	STNGENOZ	State ozone season net generation	MWh
9	STNOXAN	State annual NO <sub>x</sub> emissions	tons
10	STNOXOZ	State ozone season NO <sub>x</sub> emissions	tons
11	STSO2AN	State annual SO <sub>2</sub> emissions	tons
12	STCO2AN	State annual CO <sub>2</sub> emissions	tons
13	STCH4AN	State annual CH <sub>4</sub> emissions	lbs
14	STN2OAN	State annual N <sub>2</sub> O emissions	lbs
15	STCO2EQA	State annual CO <sub>2</sub> equivalent emissions	tons
16	STHGAN	State annual Hg emissions	lbs
17	STNOXRTA	State annual NO <sub>x</sub> total output emission rate	lb/MWh
18	STNOXRTO	State ozone season NO <sub>x</sub> total output emission rate	lb/MWh
19	STSO2RTA	State annual SO <sub>2</sub> total output emission rate	lb/MWh
20	STCO2RTA	State annual CO <sub>2</sub> total output emission rate	lb/MWh
21	STCH4RTA	State annual CH <sub>4</sub> total output emission rate	lb/GWh
22	STN2ORTA	State annual N <sub>2</sub> O total output emission rate	lb/GWh
23	STC2ERTA	State annual CO <sub>2</sub> equivalent total output emission rate	lb/MWh
24	STHGRTA	State annual Hg total output emission rate	lb/GWh
25	STNOXRRA	State annual NO <sub>x</sub> input emission rate	lb/MMBtu
26	STNOXRO	State ozone season NO <sub>x</sub> input emission rate	lb/MMBtu
27	STSO2RA	State annual SO <sub>2</sub> input emission rate	lb/MMBtu
28	STCO2RA	State annual CO <sub>2</sub> input emission rate	lb/MMBtu
29	STHGRTA	State annual Hg input emission rate	lb/BBtu
30	STNOXCRT	State annual NO <sub>x</sub> combustion output emission rate	lb/MWh
31	STNOXCRO	State ozone season NO <sub>x</sub> combustion output emission rate	lb/MWh
32	STSO2CRT	State annual SO <sub>2</sub> combustion output emission rate	lb/MWh
33	STCO2CRT	State annual CO <sub>2</sub> combustion output emission rate	lb/MWh
34	STCH4CRT	State annual CH <sub>4</sub> combustion output emission rate	lb/GWh
35	STN2OCRT	State annual N <sub>2</sub> O combustion output emission rate	lb/GWh
36	STHGCRRT	State annual Hg combustion output emission rate	lb/GWh
37	STCNOXRT	State annual NO <sub>x</sub> coal output emission rate	lb/MWh
38	STONOXRT	State annual NO <sub>x</sub> oil output emission rate	lb/MWh
39	STGNOXRT	State annual NO <sub>x</sub> gas output emission rate	lb/MWh
40	STFNSXRT	State annual NO <sub>x</sub> fossil fuel output emission rate	lb/MWh
41	STCNXORT	State ozone season NO <sub>x</sub> coal output emission rate	lb/MWh
42	STONXORT	State ozone season NO <sub>x</sub> oil output emission rate	lb/MWh
43	STGNXORT	State ozone season NO <sub>x</sub> gas output emission rate	lb/MWh
44	STFNSORT	State ozone season NO <sub>x</sub> fossil fuel output emission rate	lb/MWh
45	STCSO2RT	State annual SO <sub>2</sub> coal output emission rate	lb/MWh
46	STOSO2RT	State annual SO <sub>2</sub> oil output emission rate	lb/MWh
47	STGSO2RT	State annual SO <sub>2</sub> gas output emission rate	lb/MWh
48	STFSS2RT	State annual SO <sub>2</sub> fossil fuel output emission rate	lb/MWh
49	STCCO2RT	State annual CO <sub>2</sub> coal output emission rate	lb/MWh

**Table A-1  
eGRID2010 Version 1.0 File Structure  
Year 2007 ST State File (continued).**

Field	Name	Description	Unit
50	STOCO2RT	State annual CO <sub>2</sub> oil output emission rate	lb/MWh
51	STGCO2RT	State annual CO <sub>2</sub> gas output emission rate	lb/MWh
52	STFSC2RT	State annual CO <sub>2</sub> fossil fuel output emission rate	lb/MWh
53	STCHGRT	State annual Hg coal output emission rate	lb/GWh
54	STFSHGRT	State annual Hg fossil fuel output emission rate	lb/GWh
55	STCNOXR	State annual NO <sub>x</sub> coal input emission rate	lb/MMBtu
56	STONOXR	State annual NO <sub>x</sub> oil input emission rate	lb/MMBtu
57	STGNOXR	State annual NO <sub>x</sub> gas input emission rate	lb/MMBtu
58	STFSNXR	State annual NO <sub>x</sub> fossil fuel input emission rate	lb/MMBtu
59	STCNXOR	State ozone season NO <sub>x</sub> coal input emission rate	lb/MMBtu
60	STONXOR	State ozone season NO <sub>x</sub> oil input emission rate	lb/MMBtu
61	STGNXOR	State ozone season NO <sub>x</sub> gas input emission rate	lb/MMBtu
62	STFSNOR	State ozone season NO <sub>x</sub> fossil fuel input emission rate	lb/MMBtu
63	STCSO2R	State annual SO <sub>2</sub> coal input emission rate	lb/MMBtu
64	STOSO2R	State annual SO <sub>2</sub> oil input emission rate	lb/MMBtu
65	STGSO2R	State annual SO <sub>2</sub> gas input emission rate	lb/MMBtu
66	STFSS2R	State annual SO <sub>2</sub> fossil fuel input emission rate	lb/MMBtu
67	STCCO2R	State annual CO <sub>2</sub> coal input emission rate	lb/MMBtu
68	STOCO2R	State annual CO <sub>2</sub> oil input emission rate	lb/MMBtu
69	STGCO2R	State annual CO <sub>2</sub> gas input emission rate	lb/MMBtu
70	STFSC2R	State annual CO <sub>2</sub> fossil fuel input emission rate	lb/MMBtu
71	STCHGR	State annual Hg coal input emission rate	lb/BBtu
72	STFSHGR	State annual Hg fossil fuel input emission rate	lb/BBtu
73	STNBNOX	State annual NO <sub>x</sub> non-baseload output emission rate	lb/MWh
74	STNBXO	State ozone season NO <sub>x</sub> non-baseload output emission rate	lb/MWh
75	STNBSO2	State annual SO <sub>2</sub> non-baseload output emission rate	lb/MWh
76	STNBCO2	State annual CO <sub>2</sub> non-baseload output emission rate	lb/MWh
77	STNBCH4	State annual CH <sub>4</sub> non-baseload output emission rate	lb/GWh
78	STNBN2O	State annual N <sub>2</sub> O non-baseload output emission rate	lb/GWh
79	STNBHG	State annual Hg non-baseload output emission rate	lb/GWh
80	STGENACL	State annual coal net generation	MWh
81	STGENAOL	State annual oil net generation	MWh
82	STGENAGS	State annual gas net generation	MWh
83	STGENANC	State annual nuclear net generation	MWh
84	STGENAHY	State annual hydro net generation	MWh
85	STGENABM	State annual biomass net generation	MWh
86	STGENAWI	State annual wind net generation	MWh
87	STGENASO	State annual solar net generation	MWh
88	STGENAGT	State annual geothermal net generation	MWh
89	STGENAOF	State annual other fossil net generation	MWh
90	STGENAOP	State annual other unknown/purchased fuel net generation	MWh
91	STGENATN	State annual total nonrenewables net generation	MWh
92	STGENATR	State annual total renewables net generation	MWh
93	STGENATH	State annual total nonhydro renewables net generation	MWh
94	STGENACY	State annual total combustion net generation	MWh
95	STGENACN	State annual total noncombustion net generation	MWh
96	STCLPR	State coal generation percent (resource mix)	
97	STOLPR	State oil generation percent (resource mix)	
98	STGSPR	State gas generation percent (resource mix)	

**Table A-1**  
**eGRID2010 Version 1.0 File Structure**  
**Year 2007 ST State File (continued).**

<b>Field</b>	<b>Name</b>	<b>Description</b>	<b>Unit</b>
99	STNCPR	State nuclear generation percent (resource mix)	
100	STHYPR	State hydro generation percent (resource mix)	
101	STBMPR	State biomass generation percent (resource mix)	
102	STWIPR	State wind generation percent (resource mix)	
103	STSOPR	State solar generation percent (resource mix)	
104	STGTPR	State geothermal generation percent (resource mix)	
105	STOFPR	State other fossil generation percent (resource mix)	
106	STOPPR	State other unknown/purchased fuel generation percent (resource mix)	
107	STTNPR	State total nonrenewables generation percent (resource mix)	
108	STTRPR	State total renewables generation percent (resource mix)	
109	STTHPR	State total nonhydro renewables generation percent (resource mix)	
110	STCYPR	State total combustion generation percent (resource mix)	
111	STCNPR	State total noncombustion generation percent (resource mix)	

**Table A-1**  
**eGRID2010 Version 1.0 File Structure**  
**Year 2007 EGCL and EGCO Files**  
**Electric Generating Company Location (Operator)-based and Owner-based Files**

Field	Name	Description	Unit
1	SEQEGL07, SEQEGO07	eGRID2010 year 2007 file EGC location (operator)-based, owner-based sequence number	
2	EGCNAME	EGC name	
3	EGCCODE	EGC ID	
4	EGCTYPE	EGC type (nonutility or utility; if utility, specific utility category)	
5	PRNUM	ID of the EGC's parent company	
6	PRNAME	Name of the EGC's parent company	
7	NAMEPCAP	EGC nameplate capacity	MW
8	EGHTIAN	EGC annual heat input	MMBtu
9	EGHTIOZ	EGC ozone season heat input	MMBtu
10	EGNGENAN	EGC annual net generation	MWh
11	EGNGENOA	EGC ozone season net generation	MWh
12	EGNOXAN	EGC annual NO <sub>x</sub> emissions	tons
13	EGNOXOA	EGC ozone season NO <sub>x</sub> emissions	tons
14	EGSO2AN	EGC annual SO <sub>2</sub> emissions	tons
15	EGCO2AN	EGC annual CO <sub>2</sub> emissions	tons
16	EGCH4AN	EGC annual CH <sub>4</sub> emissions	lbs
17	EGN2OAN	EGC annual N <sub>2</sub> O emissions	lbs
18	EGCO2EQA	EGC annual CO <sub>2</sub> equivalent emissions	tons
19	EGHGAN	EGC annual Hg emissions	lbs
20	EGNOXRTA	EGC annual NO <sub>x</sub> total output emission rate	lb/MWh
21	EGNOXRTO	EGC ozone season NO <sub>x</sub> total output emission rate	lb/MWh
22	EGSO2RTA	EGC annual SO <sub>2</sub> total output emission rate	lb/MWh
23	EGCO2RTA	EGC annual CO <sub>2</sub> total output emission rate	lb/MWh
24	EGCH4RTA	EGC annual CH <sub>4</sub> total output emission rate	lb/GWh
25	EGN2ORTA	EGC annual N <sub>2</sub> O total output emission rate	lb/GWh
26	EGC2ERTA	EGC annual CO <sub>2</sub> equivalent total output emission rate	lb/MWh
27	EGHGRTA	EGC annual Hg total output emission rate	lb/GWh
28	EGNOXRRA	EGC annual NO <sub>x</sub> input emission rate	lb/MMBtu
29	EGNOXRRO	EGC ozone season NO <sub>x</sub> input emission rate	lb/MMBtu
30	EGSO2RA	EGC annual SO <sub>2</sub> input emission rate	lb/MMBtu
31	EGCO2RA	EGC annual CO <sub>2</sub> input emission rate	lb/MMBtu
32	EGHGRA	EGC annual Hg input emission rate	lb/BBtu
33	EGNOXCRT	EGC annual NO <sub>x</sub> combustion output emission rate	lb/MWh
34	EGNOXCRO	EGC ozone season NO <sub>x</sub> combustion output emission rate	lb/MWh
35	EGSO2CRT	EGC annual SO <sub>2</sub> combustion output emission rate	lb/MWh
36	EGCO2CRT	EGC annual CO <sub>2</sub> combustion output emission rate	lb/MWh
37	EGCH4CRT	EGC annual CH <sub>4</sub> combustion output emission rate	lb/GWh
38	EGN2OCRT	EGC annual N <sub>2</sub> O combustion output emission rate	lb/GWh
39	EGHGCRT	EGC annual Hg combustion output emission rate	lb/GWh
40	EGCNOXRRT	EGC annual NO <sub>x</sub> coal output emission rate	lb/MWh
41	EGONOXRT	EGC annual NO <sub>x</sub> oil output emission rate	lb/MWh
42	EGGNOXRRT	EGC annual NO <sub>x</sub> gas output emission rate	lb/MWh
43	EGFSNXRT	EGC annual NO <sub>x</sub> fossil fuel output emission rate	lb/MWh
44	EGCNXORT	EGC ozone season NO <sub>x</sub> coal output emission rate	lb/MWh
45	EGONXORT	EGC ozone season NO <sub>x</sub> oil output emission rate	lb/MWh
46	EGGNXORT	EGC ozone season NO <sub>x</sub> gas output emission rate	lb/MWh

**Table A-1**  
**eGRID2010 Version 1.0 File Structure**  
**Year 2007 EGCL and EGC0 Files (continued).**  
**Electric Generating Company Location (Operator)-based and Owner-based Files**

Field	Name	Description	Unit
47	EGFSNORT	EGC ozone season NO <sub>x</sub> fossil fuel output emission rate	lb/MWh
48	EGCSO2RT	EGC annual SO <sub>2</sub> coal output emission rate	lb/MWh
49	EGOSO2RT	EGC annual SO <sub>2</sub> oil output emission rate	lb/MWh
50	EGGSO2RT	EGC annual SO <sub>2</sub> gas output emission rate	lb/MWh
51	EGFSS2RT	EGC annual SO <sub>2</sub> fossil fuel output emission rate	lb/MWh
52	EGCCO2RT	EGC annual CO <sub>2</sub> coal output emission rate	lb/MWh
53	EGOCO2RT	EGC annual CO <sub>2</sub> oil output emission rate	lb/MWh
54	EGGCO2RT	EGC annual CO <sub>2</sub> gas output emission rate	lb/MWh
55	EGFSC2RT	EGC annual CO <sub>2</sub> fossil fuel output emission rate	lb/MWh
56	EGCHGRT	EGC annual Hg coal output emission rate	lb/GWh
57	EGFSHGRT	EGC annual Hg fossil fuel output emission rate	lb/GWh
58	EGCNOXR	EGC annual NO <sub>x</sub> coal input emission rate	lb/MMBtu
59	EGONOXR	EGC annual NO <sub>x</sub> oil input emission rate	lb/MMBtu
60	EGGNOXR	EGC annual NO <sub>x</sub> gas input emission rate	lb/MMBtu
61	EGFSNXR	EGC annual NO <sub>x</sub> fossil fuel input emission rate	lb/MMBtu
62	EGCNXOR	EGC ozone season NO <sub>x</sub> coal input emission rate	lb/MMBtu
63	EGONXOR	EGC ozone season NO <sub>x</sub> oil input emission rate	lb/MMBtu
64	EGGNXOR	EGC ozone season NO <sub>x</sub> gas input emission rate	lb/MMBtu
65	EGFSNOR	EGC ozone season NO <sub>x</sub> fossil fuel input emission rate	lb/MMBtu
66	EGCSO2R	EGC annual SO <sub>2</sub> coal input emission rate	lb/MMBtu
67	EGOSO2R	EGC annual SO <sub>2</sub> oil input emission rate	lb/MMBtu
68	EGGSO2R	EGC annual SO <sub>2</sub> gas input emission rate	lb/MMBtu
69	EGFSS2R	EGC annual SO <sub>2</sub> fossil fuel input emission rate	lb/MMBtu
70	EGCCO2R	EGC annual CO <sub>2</sub> coal input emission rate	lb/MMBtu
71	EGOCO2R	EGC annual CO <sub>2</sub> oil input emission rate	lb/MMBtu
72	EGGCO2R	EGC annual CO <sub>2</sub> gas input emission rate	lb/MMBtu
73	EGFSC2R	EGC annual CO <sub>2</sub> fossil fuel input emission rate	lb/MMBtu
74	EGCHGR	EGC annual Hg coal input emission rate	lb/BBtu
75	EGFSHGR	EGC annual Hg fossil fuel input emission rate	lb/BBtu
76	EGNBNOX	EGC annual NO <sub>x</sub> non-baseload output emission rate	lb/MWh
77	EGNBNXO	EGC ozone season NO <sub>x</sub> non-baseload output emission rate	lb/MWh
78	EGNBSO2	EGC annual SO <sub>2</sub> non-baseload output emission rate	lb/MWh
79	EGNBCO2	EGC annual CO <sub>2</sub> non-baseload output emission rate	lb/MWh
80	EGNBCH4	EGC annual CH <sub>4</sub> non-baseload output emission rate	lb/GWh
81	EGNBN2O	EGC annual N <sub>2</sub> O non-baseload output emission rate	lb/GWh
82	EGNBHG	EGC annual Hg non-baseload output emission rate	lb/GWh
83	EGGENACL	EGC annual coal net generation	MWh
84	EGGENAOL	EGC annual oil net generation	MWh
85	EGGENAGS	EGC annual gas net generation	MWh
86	EGGENANC	EGC annual nuclear net generation	MWh
87	EGGENAHY	EGC annual hydro net generation	MWh
88	EGGENABM	EGC annual biomass net generation	MWh
89	EGGENAWI	EGC annual wind net generation	MWh
90	EGGENASO	EGC annual solar net generation	MWh
91	EGGENAGT	EGC annual geothermal net generation	MWh
92	EGGENAOF	EGC annual other fossil net generation	MWh
93	EGGENAOP	EGC annual other unknown/purchased fuel net generation	MWh

**Table A-1**  
**eGRID2010 Version 1.0 File Structure**  
**Year 2007 EGCL and EGO Files (continued).**  
**Electric Generating Company Location (Operator)-based and Owner-based Files**

<b>Field</b>	<b>Name</b>	<b>Description</b>	<b>Unit</b>
94	EGGENATN	EGC annual total nonrenewables net generation	MWh
95	EGGENATR	EGC annual total renewables net generation	MWh
96	EGGENATH	EGC annual total nonhydro renewables net generation	MWh
97	EGGENACY	EGC annual total combustion net generation	MWh
98	EGGENACN	EGC annual total noncombustion net generation	MWh
99	EGCLPR	EGC coal generation percent (resource mix)	
100	EGOLPR	EGC oil generation percent (resource mix)	
101	EGGSPR	EGC gas generation percent (resource mix)	
102	EGNCPR	EGC nuclear generation percent (resource mix)	
103	EGHYPR	EGC hydro generation percent (resource mix)	
104	EGBMPR	EGC biomass generation percent (resource mix)	
105	EGWIPR	EGC wind generation percent (resource mix)	
106	EGSOPR	EGC solar generation percent (resource mix)	
107	EGGTPR	EGC geothermal generation percent (resource mix)	
108	EGOFPR	EGC other fossil generation percent (resource mix)	
109	EGOPPR	EGC other unknown/purchased fuel generation percent (resource mix)	
110	EGTNPR	EGC total nonrenewables generation percent (resource mix)	
111	EGTRPR	EGC total renewables generation percent (resource mix)	
112	EGTHPR	EGC total nonhydro renewables generation percent (resource mix)	
113	EGCYPR	EGC total combustion generation percent (resource mix)	
114	EGCNPR	EGC total noncombustion generation percent (resource mix)	

**Table A-1**  
**eGRID2010 Version 1.0 File Structure**  
**Year 2007 PRCL and PRCO Files (continued).**  
**Parent Company Location (Operator)-based and Owner-based Files**

Field	Name	Description	Unit
1	SEQPRL07, SEQPRO07	eGRID2010 year 2007 file parent company location (operator)-based, owner-based sequence number	
2	PRNUM	ID of the parent company	
3	PRNAME	Name of the parent company	
4	NAMEPCAP	Parent company nameplate capacity	MW
5	PRHTIAN	Parent company annual heat input	MMBtu
6	PRHTIOZ	Parent company ozone season heat input	MMBtu
7	PRNGENAN	Parent company annual net generation	MWh
8	PRNGENOZ	Parent company ozone season net generation	MWh
9	PRNOXAN	Parent company annual NO <sub>x</sub> emissions	tons
10	PRNOXOZ	Parent company ozone season NO <sub>x</sub> emissions	tons
11	PRSO2AN	Parent company annual SO <sub>2</sub> emissions	tons
12	PRCO2AN	Parent company annual CO <sub>2</sub> emissions	tons
13	PRCH4AN	Parent company annual CH <sub>4</sub> emissions	lbs
14	PRN2OAN	Parent company annual N <sub>2</sub> O emissions	lbs
15	PRCO2EQA	Parent company annual CO <sub>2</sub> equivalent emissions	tons
16	PRHGAN	Parent company annual Hg emissions	lbs
17	PRNOXRTA	Parent company annual NO <sub>x</sub> total output emission rate	lb/MWh
18	PRNOXRTO	Parent company ozone season NO <sub>x</sub> total output emission rate	lb/MWh
19	PRSO2RTA	Parent company annual SO <sub>2</sub> total output emission rate	lb/MWh
20	PRCO2RTA	Parent company annual CO <sub>2</sub> total output emission rate	lb/MWh
21	PRCH4RTA	Parent company annual CH <sub>4</sub> total output emission rate	lb/GWh
22	PRN2ORTA	Parent company annual N <sub>2</sub> O total output emission rate	lb/GWh
23	PRC2ERTA	Parent company annual CO <sub>2</sub> equivalent total output emission rate	lb/MWh
24	PRHGRTA	Parent company annual Hg total output emission rate	lb/GWh
25	PRNOXRA	Parent company annual NO <sub>x</sub> input emission rate	lb/MMBtu
26	PRNOXRO	Parent company ozone season NO <sub>x</sub> input emission rate	lb/MMBtu
27	PRSO2RA	Parent company annual SO <sub>2</sub> input emission rate	lb/MMBtu
28	PRCO2RA	Parent company annual CO <sub>2</sub> input emission rate	lb/MMBtu
29	PRHGRA	Parent company annual Hg input emission rate	lb/BBtu
30	PRNOXCRT	Parent company annual NO <sub>x</sub> combustion output emission rate	lb/MWh
31	PRNOXCRO	Parent company ozone season NO <sub>x</sub> combustion output emission rate	lb/MWh
32	PRSO2CRT	Parent company annual SO <sub>2</sub> combustion output emission rate	lb/MWh
33	PRCO2CRT	Parent company annual CO <sub>2</sub> combustion output emission rate	lb/MWh
34	PRCH4CRT	Parent company annual CH <sub>4</sub> combustion output emission rate	lb/GWh
35	PRN2OCRT	Parent company annual N <sub>2</sub> O combustion output emission rate	lb/GWh
36	PRHGCRT	Parent company annual Hg combustion output emission rate	lb/GWh
37	PRCNOXRT	Parent company annual NO <sub>x</sub> coal output emission rate	lb/MWh
38	PRONOXRT	Parent company annual NO <sub>x</sub> oil output emission rate	lb/MWh
39	PRGNOXRT	Parent company annual NO <sub>x</sub> gas output emission rate	lb/MWh
40	PRFSNXRT	Parent company annual NO <sub>x</sub> fossil fuel output emission rate	lb/MWh
41	PRCNXORT	Parent company ozone season NO <sub>x</sub> coal output emission rate	lb/MWh
42	PRONXORT	Parent company ozone season NO <sub>x</sub> oil output emission rate	lb/MWh
43	PRGNXORT	Parent company ozone season NO <sub>x</sub> gas output emission rate	lb/MWh
44	PRFSNORT	Parent company ozone season NO <sub>x</sub> fossil fuel output emission rate	lb/MWh
45	PRCSO2RT	Parent company annual SO <sub>2</sub> coal output emission rate	lb/MWh
46	PROSO2RT	Parent company annual SO <sub>2</sub> oil output emission rate	lb/MWh
47	PRGSO2RT	Parent company annual SO <sub>2</sub> gas output emission rate	lb/MWh

**Table A-1**  
**eGRID2010 Version 1.0 File Structure**  
**Year 2007 PRCL and PRCO Files (continued).**  
**Parent Company Location (Operator)-based and Owner-based Files**

Field	Name	Description	Unit
48	PRFSS2RT	Parent company annual SO <sub>2</sub> fossil fuel output emission rate	lb/MWh
49	PRCCO2RT	Parent company annual CO <sub>2</sub> coal output emission rate	lb/MWh
50	PROCO2RT	Parent company annual CO <sub>2</sub> oil output emission rate	lb/MWh
51	PRGCO2RT	Parent company annual CO <sub>2</sub> gas output emission rate	lb/MWh
52	PRFSC2RT	Parent company annual CO <sub>2</sub> fossil fuel output emission rate	lb/MWh
53	PRCHGRT	Parent company annual Hg coal output emission rate	lb/GWh
54	PRFSHGRT	Parent company annual Hg fossil fuel output emission rate	lb/GWh
55	PRCNOXR	Parent company annual NO <sub>x</sub> coal input emission rate	lb/MMBtu
56	PRONOXR	Parent company annual NO <sub>x</sub> oil input emission rate	lb/MMBtu
57	PRGNOXR	Parent company annual NO <sub>x</sub> gas input emission rate	lb/MMBtu
58	PRFSNXR	Parent company annual NO <sub>x</sub> fossil fuel input emission rate	lb/MMBtu
59	PRCNXOR	Parent company ozone season NO <sub>x</sub> coal input emission rate	lb/MMBtu
60	PRONXOR	Parent company ozone season NO <sub>x</sub> oil input emission rate	lb/MMBtu
61	PRGNXOR	Parent company ozone season NO <sub>x</sub> gas input emission rate	lb/MMBtu
62	PRFSNOR	Parent company ozone season NO <sub>x</sub> fossil fuel input emission rate	lb/MMBtu
63	PRCSO2R	Parent company annual SO <sub>2</sub> coal input emission rate	lb/MMBtu
64	PROSO2R	Parent company annual SO <sub>2</sub> oil input emission rate	lb/MMBtu
65	PRGSO2R	Parent company annual SO <sub>2</sub> gas input emission rate	lb/MMBtu
66	PRFSS2R	Parent company annual SO <sub>2</sub> fossil fuel input emission rate	lb/MMBtu
67	PRCCO2R	Parent company annual CO <sub>2</sub> coal input emission rate	lb/MMBtu
68	PROCO2R	Parent company annual CO <sub>2</sub> oil input emission rate	lb/MMBtu
69	PRGCO2R	Parent company annual CO <sub>2</sub> gas input emission rate	lb/MMBtu
70	PRFSC2R	Parent company annual CO <sub>2</sub> fossil fuel input emission rate	lb/MMBtu
71	PRCHGR	Parent company annual Hg coal input emission rate	lb/BBtu
72	PRFSHGR	Parent company annual Hg fossil fuel input emission rate	lb/BBtu
73	PRNBNOX	Parent company annual NO <sub>x</sub> non-baseload output emission rate	lb/MWh
74	PRNBXO	Parent company ozone season NO <sub>x</sub> non-baseload output emission rate	lb/MWh
75	PRNBSO2	Parent company annual SO <sub>2</sub> non-baseload output emission rate	lb/MWh
76	PRNBCO2	Parent company annual CO <sub>2</sub> non-baseload output emission rate	lb/MWh
77	PRNBCH4	Parent company annual CH <sub>4</sub> non-baseload output emission rate	lb/GWh
78	PRNBN2O	Parent company annual N <sub>2</sub> O non-baseload output emission rate	lb/GWh
79	PRNBHG	Parent company annual Hg non-baseload output emission rate	lb/GWh
80	PRGENACL	Parent company annual coal net generation	MWh
81	PRGENAOL	Parent company annual oil net generation	MWh
82	PRGENAGS	Parent company annual gas net generation	MWh
83	PRGENANC	Parent company annual nuclear net generation	MWh
84	PRGENAHY	Parent company annual hydro net generation	MWh
85	PRGENABM	Parent company annual biomass net generation	MWh
86	PRGENAWI	Parent company annual wind net generation	MWh
87	PRGENASO	Parent company annual solar net generation	MWh
88	PRGENAGT	Parent company annual geothermal net generation	MWh
89	PRGENAOF	Parent company annual other fossil net generation	MWh
90	PRGENAOP	Parent company annual other unknown/purchased fuel net generation	MWh
91	PRGENATN	Parent company annual total nonrenewables net generation	MWh
92	PRGENATR	Parent company annual total renewables net generation	MWh
93	PRGENATH	Parent company annual total nonhydro renewables net generation	MWh
94	PRGENACY	Parent company annual total combustion net generation	MWh
95	PRGENACN	Parent company annual total noncombustion net generation	MWh

**Table A-1**  
**eGRID2010 Version 1.0 File Structure**  
**Year 2007 PRCL and PRCO Files (continued).**  
**Parent Company Location (Operator)-based and Owner-based Files**

<b>Field</b>	<b>Name</b>	<b>Description</b>	<b>Unit</b>
96	PRCLPR	Parent company coal generation percent (resource mix)	
97	PROLPR	Parent company oil generation percent (resource mix)	
98	PRGSPR	Parent company gas generation percent (resource mix)	
99	PRNCPR	Parent company nuclear generation percent (resource mix)	
100	PRHYPR	Parent company hydro generation percent (resource mix)	
101	PRBMPR	Parent company biomass generation percent (resource mix)	
102	PRWIPR	Parent company wind generation percent (resource mix)	
103	PRSOPR	Parent company solar generation percent (resource mix)	
104	PRGTPR	Parent company geothermal generation percent (resource mix)	
105	PROFPR	Parent company other fossil generation percent (resource mix)	
106	PROPPR	Parent company other unknown/purchased fuel generation percent (resource mix)	
107	PRTNPR	Parent company total nonrenewables generation percent (resource mix)	
108	PRTRPR	Parent company total renewables generation percent (resource mix)	
109	PRTHPR	Parent company total nonhydro renewables generation percent (resource mix)	
110	PRCYPR	Parent company total combustion generation percent (resource mix)	
111	PRCNPR	Parent company total noncombustion generation percent (resource mix)	

**Table A-1**  
**eGRID2010 Version 1.0 File Structure**  
**Year 2007 PCAL File**  
**Power Control Area (PCA) File**

Field	Name	Description	Unit
1	SEQPCL07	<i>eGRID2010 year 2007 file PCA sequence number</i>	
2	PCAIID	PCA ID	
3	PCANAME	PCA name	
4	NAMEPCAP	PCA nameplate capacity	MW
5	PCHTIAN	PCA annual heat input	MMBtu
6	PCHTIOZ	PCA ozone season heat input	MMBtu
7	PCNGENAN	PCA annual net generation	MWh
8	PCNGENOZ	PCA ozone season net generation	MWh
9	PCNOXAN	PCA annual NO <sub>x</sub> emissions	tons
10	PCNOXOZ	PCA ozone season NO <sub>x</sub> emissions	tons
11	PCSO2AN	PCA annual SO <sub>2</sub> emissions	tons
12	PCCO2AN	PCA annual CO <sub>2</sub> emissions	tons
13	PCCH4AN	PCA annual CH <sub>4</sub> emissions	lbs
14	PCN2OAN	PCA annual N <sub>2</sub> O emissions	lbs
15	PCCO2EQA	<i>PCA annual CO<sub>2</sub> equivalent emissions</i>	tons
16	PCHGAN	PCA annual Hg emissions	lbs
17	PCNOXRTA	PCA annual NO <sub>x</sub> total output emission rate	lb/MWh
18	PCNOXRTO	PCA ozone season NO <sub>x</sub> total output emission rate	lb/MWh
19	PCSO2RTA	PCA annual SO <sub>2</sub> total output emission rate	lb/MWh
20	PCCO2RTA	PCA annual CO <sub>2</sub> total output emission rate	lb/MWh
21	PCCH4RTA	PCA annual CH <sub>4</sub> total output emission rate	lb/GWh
22	PCN2ORTA	PCA annual N <sub>2</sub> O total output emission rate	lb/GWh
23	PCC2ERTA	<i>PCA annual CO<sub>2</sub> equivalent total output emission rate</i>	lb/MWh
24	PCHGRTA	PCA annual Hg total output emission rate	lb/GWh
25	PCNOXRRA	PCA annual NO <sub>x</sub> input emission rate	lb/MMBtu
26	PCNOXRRO	PCA ozone season NO <sub>x</sub> input emission rate	lb/MMBtu
27	PCSO2RA	PCA annual SO <sub>2</sub> input emission rate	lb/MMBtu
28	PCCO2RA	PCA annual CO <sub>2</sub> input emission rate	lb/MMBtu
29	PCHGRA	PCA annual Hg input emission rate	lb/Btu
30	PCNOXCRT	PCA annual NO <sub>x</sub> combustion output emission rate	lb/MWh
31	PCNOXCRO	PCA ozone season NO <sub>x</sub> combustion output emission rate	lb/MWh
32	PCSO2CRT	PCA annual SO <sub>2</sub> combustion output emission rate	lb/MWh
33	PCCO2CRT	PCA annual CO <sub>2</sub> combustion output emission rate	lb/MWh
34	PCCH4CRT	PCA annual CH <sub>4</sub> combustion output emission rate	lb/GWh
35	PCN2OCRT	PCA annual N <sub>2</sub> O combustion output emission rate	lb/GWh
36	PCHGCRT	PCA annual Hg combustion output emission rate	lb/GWh
37	PCCNOXRRT	PCA annual NO <sub>x</sub> coal output emission rate	lb/MWh
38	PCONOXRT	PCA annual NO <sub>x</sub> oil output emission rate	lb/MWh
39	PCGNOXRRT	PCA annual NO <sub>x</sub> gas output emission rate	lb/MWh
40	PCFSNXRT	PCA annual NO <sub>x</sub> fossil fuel output emission rate	lb/MWh
41	PCCNXORT	PCA ozone season NO <sub>x</sub> coal output emission rate	lb/MWh
42	PCONXORT	PCA ozone season NO <sub>x</sub> oil output emission rate	lb/MWh
43	PCGNXORT	PCA ozone season NO <sub>x</sub> gas output emission rate	lb/MWh
44	PCFSNORT	PCA ozone season NO <sub>x</sub> fossil fuel output emission rate	lb/MWh
45	PCCSO2RT	PCA annual SO <sub>2</sub> coal output emission rate	lb/MWh
46	PCOSO2RT	PCA annual SO <sub>2</sub> oil output emission rate	lb/MWh
47	PCGSO2RT	PCA annual SO <sub>2</sub> gas output emission rate	lb/MWh
48	PCFSS2RT	PCA annual SO <sub>2</sub> fossil fuel output emission rate	lb/MWh
49	PCCCO2RT	PCA annual CO <sub>2</sub> coal output emission rate	lb/MWh

**Table A-1**  
**eGRID2010 Version 1.0 File Structure**  
**Year 2007 PCAL File (continued).**  
**Power Control Area (PCA) File**

Field	Name	Description	Unit
50	PCOCO2RT	PCA annual CO <sub>2</sub> oil output emission rate	lb/MWh
51	PCGCO2RT	PCA annual CO <sub>2</sub> gas output emission rate	lb/MWh
52	PCFSC2RT	PCA annual CO <sub>2</sub> fossil fuel output emission rate	lb/MWh
53	PCCHGRT	PCA annual Hg coal output emission rate	lb/GWh
54	PCFSHGRT	PCA annual Hg fossil fuel output emission rate	lb/GWh
55	PCCNOXR	PCA annual NO <sub>x</sub> coal input emission rate	lb/MMBtu
56	PCONOXR	PCA annual NO <sub>x</sub> oil input emission rate	lb/MMBtu
57	PCGNOXR	PCA annual NO <sub>x</sub> gas input emission rate	lb/MMBtu
58	PCFSNXR	PCA annual NO <sub>x</sub> fossil fuel input emission rate	lb/MMBtu
59	PCCNXOR	PCA ozone season NO <sub>x</sub> coal input emission rate	lb/MMBtu
60	PCONXOR	PCA ozone season NO <sub>x</sub> oil input emission rate	lb/MMBtu
61	PCGNXOR	PCA ozone season NO <sub>x</sub> gas input emission rate	lb/MMBtu
62	PCFSNOR	PCA ozone season NO <sub>x</sub> fossil fuel input emission rate	lb/MMBtu
63	PCCSO2R	PCA annual SO <sub>2</sub> coal input emission rate	lb/MMBtu
64	PCOSO2R	PCA annual SO <sub>2</sub> oil input emission rate	lb/MMBtu
65	PCGSO2R	PCA annual SO <sub>2</sub> gas input emission rate	lb/MMBtu
66	PCFSS2R	PCA annual SO <sub>2</sub> fossil fuel input emission rate	lb/MMBtu
67	PCCCO2R	PCA annual CO <sub>2</sub> coal input emission rate	lb/MMBtu
68	PCOCO2R	PCA annual CO <sub>2</sub> oil input emission rate	lb/MMBtu
69	PCGCO2R	PCA annual CO <sub>2</sub> gas input emission rate	lb/MMBtu
70	PCFSC2R	PCA annual CO <sub>2</sub> fossil fuel input emission rate	lb/MMBtu
71	PCCHGR	PCA annual Hg coal input emission rate	lb/BBtu
72	PCFSHGR	PCA annual Hg fossil fuel input emission rate	lb/BBtu
73	PCNBNOX	PCA annual NO <sub>x</sub> non-baseload output emission rate	lb/MWh
74	PCNBNOXO	PCA ozone season NO <sub>x</sub> non-baseload output emission rate	lb/MWh
75	PCNBNO2	PCA annual SO <sub>2</sub> non-baseload output emission rate	lb/MWh
76	PCNBNO2O	PCA annual CO <sub>2</sub> non-baseload output emission rate	lb/MWh
77	PCNBCH4	PCA annual CH <sub>4</sub> non-baseload output emission rate	lb/GWh
78	PCNBNO2O	PCA annual N <sub>2</sub> O non-baseload output emission rate	lb/GWh
79	PCNBHG	PCA annual Hg non-baseload output emission rate	lb/GWh
80	PCGENACL	PCA annual coal net generation	MWh
81	PCGENAOL	PCA annual oil net generation	MWh
82	PCGENAGS	PCA annual gas net generation	MWh
83	PCGENANC	PCA annual nuclear net generation	MWh
84	PCGENAHY	PCA annual hydro net generation	MWh
85	PCGENABM	PCA annual biomass net generation	MWh
86	PCGENAWI	PCA annual wind net generation	MWh
87	PCGENASO	PCA annual solar net generation	MWh
88	PCGENAGT	PCA annual geothermal net generation	MWh
89	PCGENAOF	PCA annual other fossil net generation	MWh
90	PCGENAOP	PCA annual other unknown/purchased fuel net generation	MWh
91	PCGENATN	PCA annual total nonrenewables net generation	MWh
92	PCGENATR	PCA annual total renewables net generation	MWh
93	PCGENATH	PCA annual total nonhydro renewables net generation	MWh
94	PCGENACY	PCA annual total combustion net generation	MWh
95	PCGENACN	PCA annual total noncombustion net generation	MWh
96	PCCLPR	PCA coal generation percent (resource mix)	
97	PCOLPR	PCA oil generation percent (resource mix)	
98	PCGSPR	PCA gas generation percent (resource mix)	

**Table A-1**  
**eGRID2010 Version 1.0 File Structure**  
**Year 2007 PCAL File (continued).**  
**Power Control Area (PCA) File**

<b>Field</b>	<b>Name</b>	<b>Description</b>	<b>Unit</b>
99	PCNCPR	PCA nuclear generation percent (resource mix)	
100	PCHYPR	PCA hydro generation percent (resource mix)	
101	PCBMPR	PCA biomass generation percent (resource mix)	
102	PCWIPR	PCA wind generation percent (resource mix)	
103	PCSOPR	PCA solar generation percent (resource mix)	
104	PCGTPR	PCA geothermal generation percent (resource mix)	
105	PCOFPR	PCA other fossil generation percent (resource mix)	
106	PCOPPR	PCA other unknown/purchased fuel generation percent (resource mix)	
107	PCTNPR	PCA total nonrenewables generation percent (resource mix)	
108	PCTRPR	PCA total renewables generation percent (resource mix)	
109	PCTHPR	PCA total nonhydro renewables generation percent (resource mix)	
110	PCCYPR	PCA total combustion generation percent (resource mix)	
111	PCCNPR	PCA total noncombustion generation percent (resource mix)	

**Table A-1**  
**eGRID2010 Version 1.0 File Structure**  
**Year 2007 SRL File**  
**eGRID Subregion File**

Field	Name	Description	Unit
1	SEQSRL07	eGRID2010 year 2007 file eGRID subregion sequence number	
2	SUBRGN	eGRID subregion acronym	
3	SRNAME	eGRID subregion name	
4	NERC	NERC region acronym associated with the eGRID subregion acronym	
5	NAMEPCAP	eGRID subregion nameplate capacity	MW
6	SRHTIAN	eGRID subregion annual heat input	MMBtu
7	SRHTIOZ	eGRID subregion ozone season heat input	MMBtu
8	SRNGENAN	eGRID subregion annual net generation	MWh
9	SRNGENOZ	eGRID subregion ozone season net generation	MWh
10	SRNOXAN	eGRID subregion annual NO <sub>x</sub> emissions	tons
11	SRNOXOZ	eGRID subregion ozone season NO <sub>x</sub> emissions	tons
12	SRSO2AN	eGRID subregion annual SO <sub>2</sub> emissions	tons
13	SRCO2AN	eGRID subregion annual CO <sub>2</sub> emissions	tons
14	SRCH4AN	eGRID subregion annual CH <sub>4</sub> emissions	lbs
15	SRN2OAN	eGRID subregion annual N <sub>2</sub> O emissions	lbs
16	SRCO2EQA	eGRID subregion annual CO <sub>2</sub> equivalent emissions	tons
17	SRHGAN	eGRID subregion annual Hg emissions	lbs
18	SRNOXRTA	eGRID subregion annual NO <sub>x</sub> total output emission rate	lb/MWh
19	SRNOXRTO	eGRID subregion ozone season NO <sub>x</sub> total output emission rate	lb/MWh
20	SRSO2RTA	eGRID subregion annual SO <sub>2</sub> total output emission rate	lb/MWh
21	SRCO2RTA	eGRID subregion annual CO <sub>2</sub> total output emission rate	lb/MWh
22	SRCH4RTA	eGRID subregion annual CH <sub>4</sub> total output emission rate	lb/GWh
23	SRN2ORTA	eGRID subregion annual N <sub>2</sub> O total output emission rate	lb/GWh
24	SRC2ERTA	eGRID subregion annual CO <sub>2</sub> equivalent total output emission rate	lb/MWh
25	SRHGRTA	eGRID subregion annual Hg total output emission rate	lb/GWh
26	SRNOXRRA	eGRID subregion annual NO <sub>x</sub> input emission rate	lb/MMBtu
27	SRNOXRO	eGRID subregion ozone season NO <sub>x</sub> input emission rate	lb/MMBtu
28	SRSO2RA	eGRID subregion annual SO <sub>2</sub> input emission rate	lb/MMBtu
29	SRCO2RA	eGRID subregion annual CO <sub>2</sub> input emission rate	lb/MMBtu
30	SRHGRA	eGRID subregion annual Hg input emission rate	lb/BBtu
31	SRNOXCRT	eGRID subregion annual NO <sub>x</sub> combustion output emission rate	lb/MWh
32	SRNOXCRO	eGRID subregion ozone season NO <sub>x</sub> combustion output emission rate	lb/MWh
33	SRSO2CRT	eGRID subregion annual SO <sub>2</sub> combustion output emission rate	lb/MWh
34	SRCO2CRT	eGRID subregion annual CO <sub>2</sub> combustion output emission rate	lb/MWh
35	SRCH4CRT	eGRID subregion annual CH <sub>4</sub> combustion output emission rate	lb/GWh
36	SRN2OCRT	eGRID subregion annual N <sub>2</sub> O combustion output emission rate	lb/GWh
37	SRHGCRT	eGRID subregion annual Hg combustion output emission rate	lb/GWh
38	SRCNOXRT	eGRID subregion annual NO <sub>x</sub> coal output emission rate	lb/MWh
39	SRONOXRT	eGRID subregion annual NO <sub>x</sub> oil output emission rate	lb/MWh
40	SRGNOXRT	eGRID subregion annual NO <sub>x</sub> gas output emission rate	lb/MWh
41	SRFSNXRT	eGRID subregion annual NO <sub>x</sub> fossil fuel output emission rate	lb/MWh
42	SRCNXORT	eGRID subregion ozone season NO <sub>x</sub> coal output emission rate	lb/MWh
43	SRONXORT	eGRID subregion ozone season NO <sub>x</sub> oil output emission rate	lb/MWh
44	SRGNXORT	eGRID subregion ozone season NO <sub>x</sub> gas output emission rate	lb/MWh
45	SRFSNORT	eGRID subregion ozone season NO <sub>x</sub> fossil fuel output emission rate	lb/MWh
46	SRCO2RT	eGRID subregion annual SO <sub>2</sub> coal output emission rate	lb/MWh
47	SROSO2RT	eGRID subregion annual SO <sub>2</sub> oil output emission rate	lb/MWh
48	SRGSO2RT	eGRID subregion annual SO <sub>2</sub> gas output emission rate	lb/MWh

**Table A-1**  
**eGRID2010 Version 1.0 File Structure**  
**Year 2007 SRL File (continued).**  
**eGRID Subregion File**

Field	Name	Description	Unit
49	SRFSS2RT	eGRID subregion annual SO <sub>2</sub> fossil fuel output emission rate	lb/MWh
50	SRCCO2RT	eGRID subregion annual CO <sub>2</sub> coal output emission rate	lb/MWh
51	SROCO2RT	eGRID subregion annual CO <sub>2</sub> oil output emission rate	lb/MWh
52	SRGCO2RT	eGRID subregion annual CO <sub>2</sub> gas output emission rate	lb/MWh
53	SRFSC2RT	eGRID subregion annual CO <sub>2</sub> fossil fuel output emission rate	lb/MWh
54	SRCHGRT	eGRID subregion annual Hg coal output emission rate	lb/GWh
55	SRFSHGRT	eGRID subregion annual Hg fossil fuel output emission rate	lb/GWh
56	SRCNOXR	eGRID subregion annual NO <sub>x</sub> coal input emission rate	lb/MMBtu
57	SRONOXR	eGRID subregion annual NO <sub>x</sub> oil input emission rate	lb/MMBtu
58	SRGNOXR	eGRID subregion annual NO <sub>x</sub> gas input emission rate	lb/MMBtu
59	SRFSNXR	eGRID subregion annual NO <sub>x</sub> fossil fuel input emission rate	lb/MMBtu
60	SRCNXOR	eGRID subregion ozone season NO <sub>x</sub> coal input emission rate	lb/MMBtu
61	SRONXOR	eGRID subregion ozone season NO <sub>x</sub> oil input emission rate	lb/MMBtu
62	SRGNXOR	eGRID subregion ozone season NO <sub>x</sub> gas input emission rate	lb/MMBtu
63	SRFSNOR	eGRID subregion ozone season NO <sub>x</sub> fossil fuel input emission rate	lb/MMBtu
64	SRCO2R	eGRID subregion annual SO <sub>2</sub> coal input emission rate	lb/MMBtu
65	SROO2R	eGRID subregion annual SO <sub>2</sub> oil input emission rate	lb/MMBtu
66	SRGO2R	eGRID subregion annual SO <sub>2</sub> gas input emission rate	lb/MMBtu
67	SRFSS2R	eGRID subregion annual SO <sub>2</sub> fossil fuel input emission rate	lb/MMBtu
68	SRCO2R	eGRID subregion annual CO <sub>2</sub> coal input emission rate	lb/MMBtu
69	SROO2R	eGRID subregion annual CO <sub>2</sub> oil input emission rate	lb/MMBtu
70	SRGCO2R	eGRID subregion annual CO <sub>2</sub> gas input emission rate	lb/MMBtu
71	SRFSC2R	eGRID subregion annual CO <sub>2</sub> fossil fuel input emission rate	lb/MMBtu
72	SRCHGR	eGRID subregion annual Hg coal input emission rate	lb/BBtu
73	SRFSHGR	eGRID subregion annual Hg fossil fuel input emission rate	lb/BBtu
74	SRNBNOX	eGRID subregion annual NO <sub>x</sub> non-baseload output emission rate	lb/MWh
75	SRNBXO	eGRID subregion ozone season NO <sub>x</sub> non-baseload output emission rate	lb/MWh
76	SRNBNO2	eGRID subregion annual SO <sub>2</sub> non-baseload output emission rate	lb/MWh
77	SRNBNO2	eGRID subregion annual CO <sub>2</sub> non-baseload output emission rate	lb/MWh
78	SRNBCH4	eGRID subregion annual CH <sub>4</sub> non-baseload output emission rate	lb/GWh
79	SRNBNO2	eGRID subregion annual N <sub>2</sub> O non-baseload output emission rate	lb/GWh
80	SRNBHG	eGRID subregion annual Hg non-baseload output emission rate	lb/GWh
81	SRGENACL	eGRID subregion annual coal net generation	MWh
82	SRGENAOL	eGRID subregion annual oil net generation	MWh
83	SRGENAGS	eGRID subregion annual gas net generation	MWh
84	SRGENANC	eGRID subregion annual nuclear net generation	MWh
85	SRGENAHY	eGRID subregion annual hydro net generation	MWh
86	SRGENABM	eGRID subregion annual biomass net generation	MWh
87	SRGENAWI	eGRID subregion annual wind net generation	MWh
88	SRGENASO	eGRID subregion annual solar net generation	MWh
89	SRGENAGT	eGRID subregion annual geothermal net generation	MWh
90	SRGENAOF	eGRID subregion annual other fossil net generation	MWh
91	SRGENAOP	eGRID subregion annual other unknown/purchased fuel net generation	MWh
92	SRGENATN	eGRID subregion annual total nonrenewables net generation	MWh
93	SRGENATR	eGRID subregion annual total renewables net generation	MWh
94	SRGENATH	eGRID subregion annual total nonhydro renewables net generation	MWh
95	SRGENACY	eGRID subregion annual total combustion net generation	MWh
96	SRGENACN	eGRID subregion annual total noncombustion net generation	MWh

**Table A-1**  
**eGRID2010 Version 1.0 File Structure**  
**Year 2007 SRL File (continued).**  
**eGRID Subregion File**

<b>Field</b>	<b>Name</b>	<b>Description</b>	<b>Unit</b>
97	SRCLPR	eGRID subregion coal generation percent (resource mix)	
98	SROLPR	eGRID subregion oil generation percent (resource mix)	
99	SRGSPR	eGRID subregion gas generation percent (resource mix)	
100	SRNCPR	eGRID subregion nuclear generation percent (resource mix)	
101	SRHYPR	eGRID subregion hydro generation percent (resource mix)	
102	SRBMPR	eGRID subregion biomass generation percent (resource mix)	
103	SRWIPR	eGRID subregion wind generation percent (resource mix)	
104	SRSOPR	eGRID subregion solar generation percent (resource mix)	
105	SRGTPR	eGRID subregion geothermal generation percent (resource mix)	
106	SROFPR	eGRID subregion other fossil generation percent (resource mix)	
107	SROPFR	eGRID subregion other unknown/purchased fuel generation percent (resource mix)	
108	SRTNPR	eGRID subregion total nonrenewables generation percent (resource mix)	
109	SRTRPR	eGRID subregion total renewables generation percent (resource mix)	
110	SRTHPR	eGRID subregion total nonhydro renewables generation percent (resource mix)	
111	SRCYPR	eGRID subregion total combustion generation percent (resource mix)	
112	SRCNPR	eGRID subregion total noncombustion generation percent (resource mix)	

**Table A-1**  
**eGRID2010 Version 1.0 File Structure**  
**Year 2007 NRL File**  
**NERC Region File**

Field	Name	Description	Unit
1	SEQNRL07	<i>eGRID2010 year 2007 file NERC region sequence number</i>	
2	NERC	NERC region acronym	
3	NERCNAME	NERC region name	
4	NAMEPCAP	NERC region nameplate capacity	MW
5	NRHTIAN	NERC region annual heat input	MMBtu
6	NRHTIOZ	NERC region ozone season heat input	MMBtu
7	NRNGENAN	NERC region annual net generation	MWh
8	NRNGENoz	NERC region ozone season net generation	MWh
9	NRNOXAN	NERC region annual NO <sub>x</sub> emissions	tons
10	NRNOXoz	NERC region ozone season NO <sub>x</sub> emissions	tons
11	NRSO2AN	NERC region annual SO <sub>2</sub> emissions	tons
12	NRCO2AN	NERC region annual CO <sub>2</sub> emissions	tons
13	NRCH4AN	NERC region annual CH <sub>4</sub> emissions	lbs
14	NRN2OAN	NERC region annual N <sub>2</sub> O emissions	lbs
15	<i>NRCO2EQA</i>	<i>NERC region annual CO<sub>2</sub> equivalent emissions</i>	<i>tons</i>
16	NRHGAN	NERC region annual Hg emissions	lbs
17	NRNOXRta	NERC region annual NO <sub>x</sub> total output emission rate	lb/MWh
18	NRNOXRto	NERC region ozone season NO <sub>x</sub> total output emission rate	lb/MWh
19	NRSO2Rta	NERC region annual SO <sub>2</sub> total output emission rate	lb/MWh
20	NRCO2Rta	NERC region annual CO <sub>2</sub> total output emission rate	lb/MWh
21	NRCH4Rta	NERC region annual CH <sub>4</sub> total output emission rate	lb/GWh
22	NRN2ORta	NERC region annual N <sub>2</sub> O total output emission rate	lb/GWh
23	<i>NRN2OERTa</i>	<i>NERC region annual CO<sub>2</sub> equivalent total output emission rate</i>	<i>lb/MWh</i>
24	NRHGRta	NERC region annual Hg total output emission rate	lb/GWh
25	NRNOXRa	NERC region annual NO <sub>x</sub> input emission rate	lb/MMBtu
26	NRNOXRo	NERC region ozone season NO <sub>x</sub> input emission rate	lb/MMBtu
27	NRSO2Ra	NERC region annual SO <sub>2</sub> input emission rate	lb/MMBtu
28	NRCO2Ra	NERC region annual CO <sub>2</sub> input emission rate	lb/MMBtu
29	NRHGRa	NERC region annual Hg input emission rate	lb/BBtu
30	NRNOXCRt	NERC region annual NO <sub>x</sub> combustion output emission rate	lb/MWh
31	NRNOXCRO	NERC region ozone season NO <sub>x</sub> combustion output emission rate	lb/MWh
32	NRSO2CRt	NERC region annual SO <sub>2</sub> combustion output emission rate	lb/MWh
33	NRCO2CRt	NERC region annual CO <sub>2</sub> combustion output emission rate	lb/MWh
34	NRCH4CRt	NERC region annual CH <sub>4</sub> combustion output emission rate	lb/GWh
35	NRN2OCRt	NERC region annual N <sub>2</sub> O combustion output emission rate	lb/GWh
36	NRHGCRT	NERC region annual Hg combustion output emission rate	lb/GWh
37	NRCNOXRt	NERC region annual NO <sub>x</sub> coal output emission rate	lb/MWh
38	NRONOXRT	NERC region annual NO <sub>x</sub> oil output emission rate	lb/MWh
39	NRGNOXRt	NERC region annual NO <sub>x</sub> gas output emission rate	lb/MWh
40	NRFSNXRT	NERC region annual NO <sub>x</sub> fossil fuel output emission rate	lb/MWh
41	NRCNXORT	NERC region ozone season NO <sub>x</sub> coal output emission rate	lb/MWh
42	NRONXORT	NERC region ozone season NO <sub>x</sub> oil output emission rate	lb/MWh
43	NRGNXORT	NERC region ozone season NO <sub>x</sub> gas output emission rate	lb/MWh
44	NRFSNORT	NERC region ozone season NO <sub>x</sub> fossil fuel output emission rate	lb/MWh
45	NRCO2Rt	NERC region annual SO <sub>2</sub> coal output emission rate	lb/MWh
46	NRSO2Rt	NERC region annual SO <sub>2</sub> oil output emission rate	lb/MWh
47	NRGSO2Rt	NERC region annual SO <sub>2</sub> gas output emission rate	lb/MWh
48	NRFS2Rt	NERC region annual SO <sub>2</sub> fossil fuel output emission rate	lb/MWh
49	NRCCO2Rt	NERC region annual CO <sub>2</sub> coal output emission rate	lb/MWh

**Table A-1**  
**eGRID2010 Version 1.0 File Structure**  
**Year 2007 NRL File (continued).**  
**NERC Region File**

Field	Name	Description	Unit
50	NROCO2RT	NERC region annual CO <sub>2</sub> oil output emission rate	lb/MWh
51	NRGCO2RT	NERC region annual CO <sub>2</sub> gas output emission rate	lb/MWh
52	NRFSC2RT	NERC region annual CO <sub>2</sub> fossil fuel output emission rate	lb/MWh
53	NRCHGRT	NERC region annual Hg coal output emission rate	lb/GWh
54	NRFSHGRT	NERC region annual Hg fossil fuel output emission rate	lb/GWh
55	NRCNOXR	NERC region annual NO <sub>x</sub> coal input emission rate	lb/MMBtu
56	NRONOXR	NERC region annual NO <sub>x</sub> oil input emission rate	lb/MMBtu
57	NRGNOXR	NERC region annual NO <sub>x</sub> gas input emission rate	lb/MMBtu
58	NRFSNXR	NERC region annual NO <sub>x</sub> fossil fuel input emission rate	lb/MMBtu
59	NRCNXOR	NERC region ozone season NO <sub>x</sub> coal input emission rate	lb/MMBtu
60	NRONXOR	NERC region ozone season NO <sub>x</sub> oil input emission rate	lb/MMBtu
61	NRGNXOR	NERC region ozone season NO <sub>x</sub> gas input emission rate	lb/MMBtu
62	NRFSNOR	NERC region ozone season NO <sub>x</sub> fossil fuel input emission rate	lb/MMBtu
63	NRCO2R	NERC region annual SO <sub>2</sub> coal input emission rate	lb/MMBtu
64	NROSO2R	NERC region annual SO <sub>2</sub> oil input emission rate	lb/MMBtu
65	NRGSO2R	NERC region annual SO <sub>2</sub> gas input emission rate	lb/MMBtu
66	NRFSS2R	NERC region annual SO <sub>2</sub> fossil fuel input emission rate	lb/MMBtu
67	NRCCO2R	NERC region annual CO <sub>2</sub> coal input emission rate	lb/MMBtu
68	NROCO2R	NERC region annual CO <sub>2</sub> oil input emission rate	lb/MMBtu
69	NRGCO2R	NERC region annual CO <sub>2</sub> gas input emission rate	lb/MMBtu
70	NRFSC2R	NERC region annual CO <sub>2</sub> fossil fuel input emission rate	lb/MMBtu
71	NRCHGR	NERC region annual Hg coal input emission rate	lb/BBtu
72	NRFSHGR	NERC region annual Hg fossil fuel input emission rate	lb/BBtu
73	NRNBNOX	NERC region annual NO <sub>x</sub> non-baseload output emission rate	lb/MWh
74	NRNBNOXO	NERC region ozone season NO <sub>x</sub> non-baseload output emission rate	lb/MWh
75	NRNBNO2	NERC region annual SO <sub>2</sub> non-baseload output emission rate	lb/MWh
76	NRNBNO2	NERC region annual CO <sub>2</sub> non-baseload output emission rate	lb/MWh
77	NRNBCH4	NERC region annual CH <sub>4</sub> non-baseload output emission rate	lb/GWh
78	NRNBNO2O	NERC region annual N <sub>2</sub> O non-baseload output emission rate	lb/GWh
79	NRNBHG	NERC region annual Hg non-baseload output emission rate	lb/GWh
80	NRGENACL	NERC region annual coal net generation	MWh
81	NRGENAOL	NERC region annual oil net generation	MWh
82	NRGENAGS	NERC region annual gas net generation	MWh
83	NRGENANC	NERC region annual nuclear net generation	MWh
84	NRGENAHY	NERC region annual hydro net generation	MWh
85	NRGENABM	NERC region annual biomass net generation	MWh
86	NRGENAWI	NERC region annual wind net generation	MWh
87	NRGENASO	NERC region annual solar net generation	MWh
88	NRGENAGT	NERC region annual geothermal net generation	MWh
89	NRGENAOF	NERC region annual other fossil net generation	MWh
90	NRGENAOP	NERC region annual other unknown/purchased fuel net generation	MWh
91	NRGENATN	NERC region annual total nonrenewables net generation	MWh
92	NRGENATR	NERC region annual total renewables net generation	MWh
93	NRGENATH	NERC region annual total nonhydro renewables net generation	MWh
94	NRGENACY	NERC region annual total combustion net generation	MWh
95	NRGENACN	NERC region annual total noncombustion net generation	MWh
96	NRCLPR	NERC region coal generation percent (resource mix)	
97	NROLPR	NERC region oil generation percent (resource mix)	
98	NRGSPR	NERC region gas generation percent (resource mix)	

**Table A-1**  
**eGRID2010 Version 1.0 File Structure**  
**Year 2007 NRL File (continued).**  
**NERC Region File**

<b>Field</b>	<b>Name</b>	<b>Description</b>	<b>Unit</b>
99	NRNCPR	NERC region nuclear generation percent (resource mix)	
100	NRHYPR	NERC region hydro generation percent (resource mix)	
101	NRBMPR	NERC region biomass generation percent (resource mix)	
102	NRWIPR	NERC region wind generation percent (resource mix)	
103	NRSOPR	NERC region solar generation percent (resource mix)	
104	NRGTPR	NERC region geothermal generation percent (resource mix)	
105	NROFPR	NERC region other fossil generation percent (resource mix)	
106	NROPPR	NERC region other unknown/purchased fuel generation percent (resource mix)	
107	NRTNPR	NERC region total nonrenewables generation percent (resource mix)	
108	NRTRPR	NERC region total renewables generation percent (resource mix)	
109	NRTHPR	NERC region total nonhydro renewables generation percent (resource mix)	
110	NRCYPR	NERC region total combustion generation percent (resource mix)	
111	NRCNPR	NERC region total noncombustion generation percent (resource mix)	

**Table A-1**  
**eGRID2010 Version 1.0 File Structure**  
**Year 2007 U.S. File**  
**United States File**

Field	Name	Description	Unit	Source(s)
1	SEQUS07	eGRID2010 year 2007 file U.S. sequence number		
2	NAMEPCAP	U.S. nameplate capacity	MW	
3	USHTIAN	U.S. annual heat input	MMBtu	
4	USHTIOZ	U.S. ozone season heat input	MMBtu	EIA's Electric Power Annual, data table (generation_state.xls)
5	USNGENAN	U.S. annual net generation	MWh	EIA Electric Sales, Revenue, and Average Price data table (sales_state.xls)
6	USNGENOA	U.S. ozone season net generation	MWh	EIA-861
7	USNOXAN	U.S. annual NO <sub>x</sub> emissions	tons	EIA-861
8	USNOXOA	U.S. ozone season NO <sub>x</sub> emissions	tons	
9	USSO2AN	U.S. annual SO <sub>2</sub> emissions	tons	
10	USCO2AN	U.S. annual CO <sub>2</sub> emissions	tons	
11	USCH4AN	U.S. annual CH <sub>4</sub> emissions	lbs	
12	USN2OAN	U.S. annual N <sub>2</sub> O emissions	lbs	
13	USCO2EQA	U.S. annual CO <sub>2</sub> equivalent emissions	tons	
14	USHGAN	U.S. annual Hg emissions	lbs	
15	USNOXRTA	U.S. annual NO <sub>x</sub> total output emission rate	lb/MWh	
16	USNOXRTO	U.S. ozone season NO <sub>x</sub> total output emission rate	lb/MWh	
17	USSO2RTA	U.S. annual SO <sub>2</sub> total output emission rate	lb/MWh	
18	USCO2RTA	U.S. annual CO <sub>2</sub> total output emission rate	lb/MWh	
19	USCH4RTA	U.S. annual CH <sub>4</sub> total output emission rate	lb/GWh	
20	USN2ORTA	U.S. annual N <sub>2</sub> O total output emission rate	lb/GWh	
21	USC2ERTA	U.S. annual CO <sub>2</sub> equivalent total output emission rate	lb/MWh	
22	USHGRTA	U.S. annual Hg total output emission rate	lb/GWh	
23	USNOXRA	U.S. annual NO <sub>x</sub> input emission rate	lb/MMBtu	
24	USNOXRO	U.S. ozone season NO <sub>x</sub> input emission rate	lb/MMBtu	
25	USSO2RA	U.S. annual SO <sub>2</sub> input emission rate	lb/MMBtu	
26	USCO2RA	U.S. annual CO <sub>2</sub> input emission rate	lb/MMBtu	
27	USHGRA	U.S. annual Hg input emission rate	lb/BBtu	
28	USNOXCRT	U.S. annual NO <sub>x</sub> combustion output emission rate	lb/MWh	
29	USNOXCRO	U.S. ozone season NO <sub>x</sub> combustion output emission rate	lb/MWh	
30	USSO2CRT	U.S. annual SO <sub>2</sub> combustion output emission rate	lb/MWh	
31	USCO2CRT	U.S. annual CO <sub>2</sub> combustion output emission rate	lb/MWh	
32	USCH4CRT	U.S. annual CH <sub>4</sub> combustion output emission rate	lb/GWh	
33	USN2OCRT	U.S. annual N <sub>2</sub> O combustion output emission rate	lb/GWh	
34	USHGCRT	U.S. annual Hg combustion output emission rate	lb/GWh	
35	USCNOXRT	U.S. annual NO <sub>x</sub> coal output emission rate	lb/MWh	
36	USONOXRT	U.S. annual NO <sub>x</sub> oil output emission rate	lb/MWh	
37	USGNOXRT	U.S. annual NO <sub>x</sub> gas output emission rate	lb/MWh	
38	USFSNXRT	U.S. annual NO <sub>x</sub> fossil fuel output emission rate	lb/MWh	
39	USCNOXORT	U.S. ozone season NO <sub>x</sub> coal output emission rate	lb/MWh	
40	USONXORT	U.S. ozone season NO <sub>x</sub> oil output emission rate	lb/MWh	
41	USGNXORT	U.S. ozone season NO <sub>x</sub> gas output emission rate	lb/MWh	
42	USFSNORT	U.S. ozone season NO <sub>x</sub> fossil fuel output emission rate	lb/MWh	
43	USCSO2RT	U.S. annual SO <sub>2</sub> coal output emission rate	lb/MWh	
44	USOSO2RT	U.S. annual SO <sub>2</sub> oil output emission rate	lb/MWh	

**Table A-1**  
**eGRID2010 Version 1.0 File Structure**  
**Year 2007 U.S. File (continued).**  
**United States File**

Field	Name	Description	Unit	Source(s)
45	USGSO2RT	U.S. annual SO <sub>2</sub> gas output emission rate	lb/MWh	
46	USFSS2RT	U.S. annual SO <sub>2</sub> fossil fuel output emission rate	lb/MWh	
47	USCCO2RT	U.S. annual CO <sub>2</sub> coal output emission rate	lb/MWh	
48	USOCO2RT	U.S. annual CO <sub>2</sub> oil output emission rate	lb/MWh	
49	USGCO2RT	U.S. annual CO <sub>2</sub> gas output emission rate	lb/MWh	
50	USFSC2RT	U.S. annual CO <sub>2</sub> fossil fuel output emission rate	lb/MWh	
51	USCHGRT	U.S. annual Hg coal output emission rate	lb/GWh	
52	USFSHGRT	U.S. annual Hg fossil fuel output emission rate	lb/GWh	
53	USCNOXR	U.S. annual NO <sub>x</sub> coal input emission rate	lb/MMBtu	
54	USONOXR	U.S. annual NO <sub>x</sub> oil input emission rate	lb/MMBtu	
55	USGNOXR	U.S. annual NO <sub>x</sub> gas input emission rate	lb/MMBtu	
56	USFSNXR	U.S. annual NO <sub>x</sub> fossil fuel input emission rate	lb/MMBtu	
57	USCNXOR	U.S. ozone season NO <sub>x</sub> coal input emission rate	lb/MMBtu	
58	USONXOR	U.S. ozone season NO <sub>x</sub> oil input emission rate	lb/MMBtu	
59	USGNXOR	U.S. ozone season NO <sub>x</sub> gas input emission rate	lb/MMBtu	
60	USFSNOR	U.S. ozone season NO <sub>x</sub> fossil fuel input emission rate	lb/MMBtu	
61	USCSO2R	U.S. annual SO <sub>2</sub> coal input emission rate	lb/MMBtu	
62	USOSO2R	U.S. annual SO <sub>2</sub> oil input emission rate	lb/MMBtu	
63	USGSO2R	U.S. annual SO <sub>2</sub> gas input emission rate	lb/MMBtu	
64	USFSS2R	U.S. annual SO <sub>2</sub> fossil fuel input emission rate	lb/MMBtu	
65	USCCO2R	U.S. annual CO <sub>2</sub> coal input emission rate	lb/MMBtu	
66	USOCO2R	U.S. annual CO <sub>2</sub> oil input emission rate	lb/MMBtu	
67	USGCO2R	U.S. annual CO <sub>2</sub> gas input emission rate	lb/MMBtu	
68	USFSC2R	U.S. annual CO <sub>2</sub> fossil fuel input emission rate	lb/MMBtu	
69	USCHGR	U.S. annual Hg coal input emission rate	lb/BBtu	
70	USFSHGR	U.S. annual Hg fossil fuel input emission rate	lb/BBtu	
71	USNBNOX	U.S. annual NO <sub>x</sub> non-baseload output emission rate	lb/MWh	
72	USNBNOXO	U.S. ozone season NO <sub>x</sub> non-baseload output emission rate	lb/MWh	
73	USNBNO2	U.S. annual SO <sub>2</sub> non-baseload output emission rate	lb/MWh	
74	USNBNO2	U.S. annual CO <sub>2</sub> non-baseload output emission rate	lb/MWh	
75	USNBCH4	U.S. annual CH <sub>4</sub> non-baseload output emission rate	lb/GWh	
76	USNBNO2O	U.S. annual N <sub>2</sub> O non-baseload output emission rate	lb/GWh	
77	USNBHGH	U.S. annual Hg non-baseload output emission rate	lb/GWh	
78	USGENACL	U.S. annual coal net generation	MWh	
79	USGENAOL	U.S. annual oil net generation	MWh	
80	USGENAGS	U.S. annual gas net generation	MWh	
81	USGENANC	U.S. annual nuclear net generation	MWh	
82	USGENAHY	U.S. annual hydro net generation	MWh	
83	USGENABM	U.S. annual biomass net generation	MWh	
84	USGENAWI	U.S. annual wind net generation	MWh	
85	USGENASO	U.S. annual solar net generation	MWh	
86	USGENAGT	U.S. annual geothermal net generation	MWh	
87	USGENAOF	U.S. annual other fossil net generation	MWh	
88	USGENAOP	U.S. annual other unknown/purchased fuel net generation	MWh	
89	USGENATN	U.S. annual total nonrenewables net generation	MWh	
90	USGENATR	U.S. annual total renewables net generation	MWh	
91	USGENATH	U.S. annual total nonhydro renewables net generation	MWh	
92	USGENACY	U.S. annual total combustion net generation	MWh	

**Table A-1**  
**eGRID2010 Version 1.0 File Structure**  
**Year 2007 U.S. File (continued).**  
**United States File**

<b>Field</b>	<b>Name</b>	<b>Description</b>	<b>Unit</b>	<b>Source(s)</b>
93	USGENACN	U.S. annual total noncombustion net generation	MWh	
94	USCLPR	U.S. coal generation percent (resource mix)		
95	USOLPR	U.S. oil generation percent (resource mix)		
96	USGSPR	U.S. gas generation percent (resource mix)		
97	USNCPR	U.S. nuclear generation percent (resource mix)		
98	USHYPR	U.S. hydro generation percent (resource mix)		
99	USBMPR	U.S. biomass generation percent (resource mix)		
100	USWIPR	U.S. wind generation percent (resource mix)		
101	USSOPR	U.S. solar generation percent (resource mix)		
102	USGTPR	U.S. geothermal generation percent (resource mix)		
103	USOFPR	U.S. other fossil generation percent (resource mix)		
104	USOPPR	U.S. other unknown/purchased fuel generation percent (resource mix)		
105	USTNPR	U.S. total nonrenewables generation percent (resource mix)		
106	USTRPR	U.S. total renewables generation percent (resource mix)		
107	USTHPR	U.S. total nonhydro renewables generation percent (resource mix)		
108	USCYPR	U.S. total combustion generation percent (resource mix)		
109	USCNPR	U.S. total noncombustion generation percent (resource mix)		

**Table A-1**  
**eGRID2010 Version 1.0 File Structure**  
**STIE04 File**  
**Year 2004 State Import-Export File**

Field	Name	Description	Unit	Source(s)
1	SEQST04	eGRID2006 year 2004 file state sequence number		
2	PSTATABB	State abbreviation		
3	GRIDRGN	Grid region (E = Eastern grid, W = Western grid, AK = Alaska, HI = Hawaii, TX=Texas)		
4	STNGEN04	Year 2004 state total net generation	GWh	EIA Electric Power Annual, data table (generation_state.xls)
5	STSLCN04	Year 2004 state sales to ultimate customers	GWh	EIA Electric Sales, Revenue, and Average Price data table (sales_state.xls)
6	STCNEL04	Year 2004 state energy consumed by respondent without charge	GWh	EIA-861
7	STCNFR04	Year 2004 state energy furnished without charge	GWh	EIA-861
8	STCON04	Year 2004 state total consumption = (STSLCN04 + STCNEL04 + STCNFR04)	GWh	
9	GRDLSF04	Year 2004 grid gross loss factor percent		
10	STADJG04	Year 2004 state adjusted total net generation = ((1 - GRDLSF04) * STNGEN04)	GWh	
11	STESTI04	Year 2004 state estimated net imports = (STCON04 - STADJG04)	GWh	
12	STPRI04	Year 2004 state estimated net imports as a percent of total consumption = (100 * (STESTI04/STCON04))		
13	STPRE04	Year 2004 state estimated net exports as a percent of total net generation = (100 * (-STESTI04/STNGEN04))		

**Table A-1**  
**eGRID2010 Version 1.0 File Structure**  
**STIE05 File**  
**Year 2005 State Import-Export File**

Field	Name	Description	Unit	Source(s)
1	SEQST05	eGRID2007 year 2005 file state sequence number		
2	PSTATABB	State abbreviation		
3	GRIDRGN	Grid region (E = Eastern grid, W = Western grid, AK = Alaska, HI = Hawaii, TX=Texas)		
4	STNGEN05	Year 2005 state total net generation	GWh	EIA Electric Power Annual, data table (generation_state.xls)
5	STSLCN05	Year 2005 state sales to ultimate customers	GWh	EIA Electric Sales, Revenue, and Average Price data table (sales_state.xls)
6	STCNEL05	Year 2005 state energy consumed by respondent without charge	GWh	EIA-861
7	STCNFR05	Year 2005 state energy furnished without charge	GWh	EIA-861
8	STCON05	Year 2005 state total consumption = (STSLCN05 + STCNEL05 + STCNFR05)	GWh	
9	GRDLSF05	Year 2005 grid gross loss factor percent		
10	STADJG05	Year 2005 state adjusted total net generation = ((1 - GRDLSF05) * STNGEN05)	GWh	
11	STESTI05	Year 2005 state estimated net imports = (STCON05 - STADJG05)	GWh	
12	STPRI05	Year 2005 state estimated net imports as a percent of total consumption = (100 * (STESTI05/STCON05))		
13	STPRE05	Year 2005 state estimated net exports as a percent of total net generation = (100 * (-STESTI05/STNGEN05))		

**Table A-1**  
**eGRID2010 Version 1.0 File Structure**  
**STIE07 File**  
**Year 2007 State Import-Export File**

Field	Name	Description	Unit	Source(s)
1	SEQST07	eGRID2010 year 2007 file state sequence number		
2	PSTATABB	State abbreviation		
3	GRIDRGN	Grid region (E = Eastern grid, W = Western grid, AK = Alaska, HI = Hawaii, TX=Texas)		
4	STNGEN07	Year 2007 state total net generation	GWh	EIA Electric Power Annual, data table (generation_state.xls)
5	STSLCN07	Year 2007 state sales to ultimate customers	GWh	EIA Electric Sales, Revenue, and Average Price data table (sales_state.xls)
6	STCNEL07	Year 2007 state energy consumed by respondent without charge	GWh	EIA-861
7	STCNFR07	Year 2007 state energy furnished without charge	GWh	EIA-861
8	STCON07	Year 2007 state total consumption = (STSLCN07 + STCNEL07 + STCNFR07)	GWh	
9	GRDLSF07	Year 2007 grid gross loss factor percent		
10	STADJG07	Year 2007 state adjusted total net generation = ((1 - GRDLSF07) * STNGEN07)	GWh	
11	STESTI07	Year 2007 state estimated net imports = (STCON07 - STADJG07)	GWh	
12	STPRI07	Year 2007 state estimated net imports as a percent of total consumption = (100 * STESTI07/STCON07)		
13	STPRE07	Year 2007 state estimated net exports as a percent of total net generation = (100 * (-STESTI07/STNGEN07))		

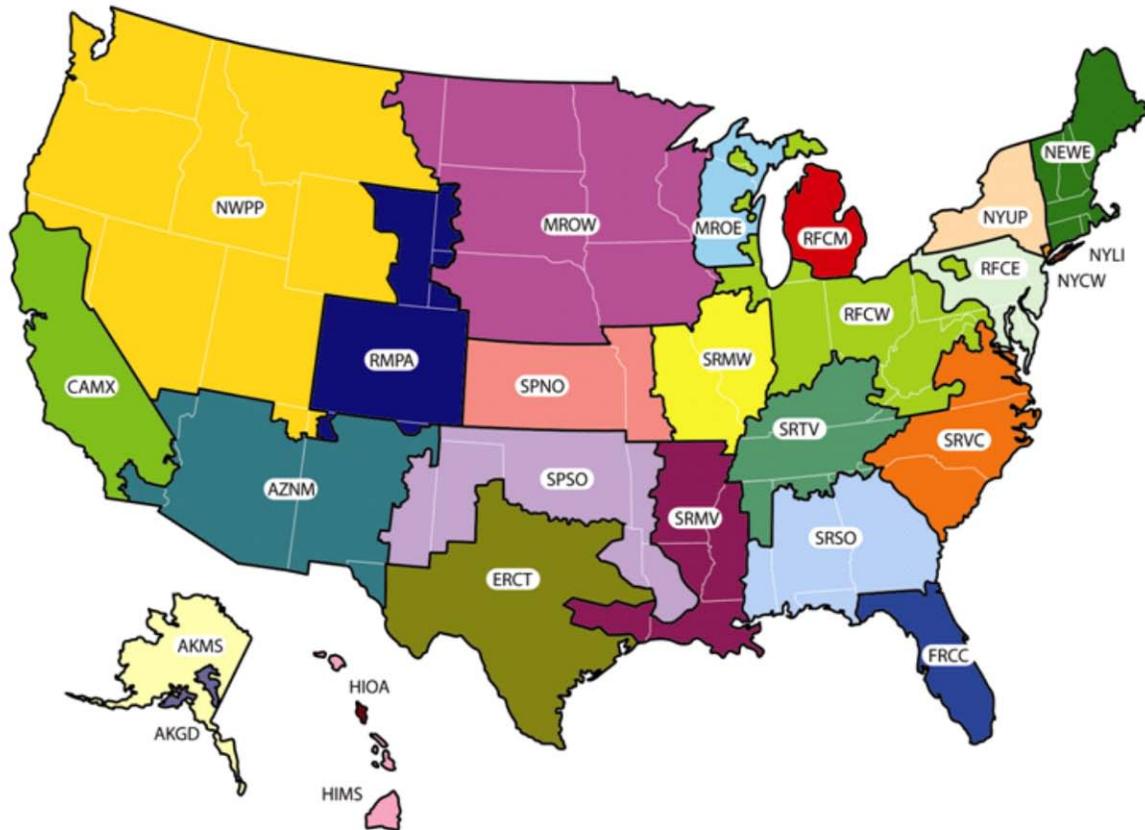
**Table A-1**  
**eGRID2010 Version 1.0 File Structure**  
**USGC File**  
**Years 2004, 2005, and 2007 U.S. Generation and Consumption File**

<b>Field</b>	<b>Name</b>	<b>Description</b>	<b>Unit</b>
1	USTNGN04	Year 2004 U.S. total net generation	GWh
2	USTCON04	Year 2004 U.S. total consumption	GWh
3	USTNFI04	Year 2004 U.S. net foreign imports, based on internal EIA data	GWh
4	USTNGN05	Year 2005 U.S. total net generation	GWh
5	USTCON05	Year 2005 U.S. total consumption	GWh
6	USTNFI05	Year 2005 U.S. net foreign imports, based on internal EIA data	GWh
7	<i>USTNGN07</i>	<i>Year 2007 U.S. total net generation</i>	<i>GWh</i>
8	<i>USTCON07</i>	<i>Year 2007 U.S. total consumption</i>	<i>GWh</i>
9	<i>USTNFI07</i>	<i>Year 2007 U.S. net foreign imports, based on internal EIA data</i>	<i>GWh</i>

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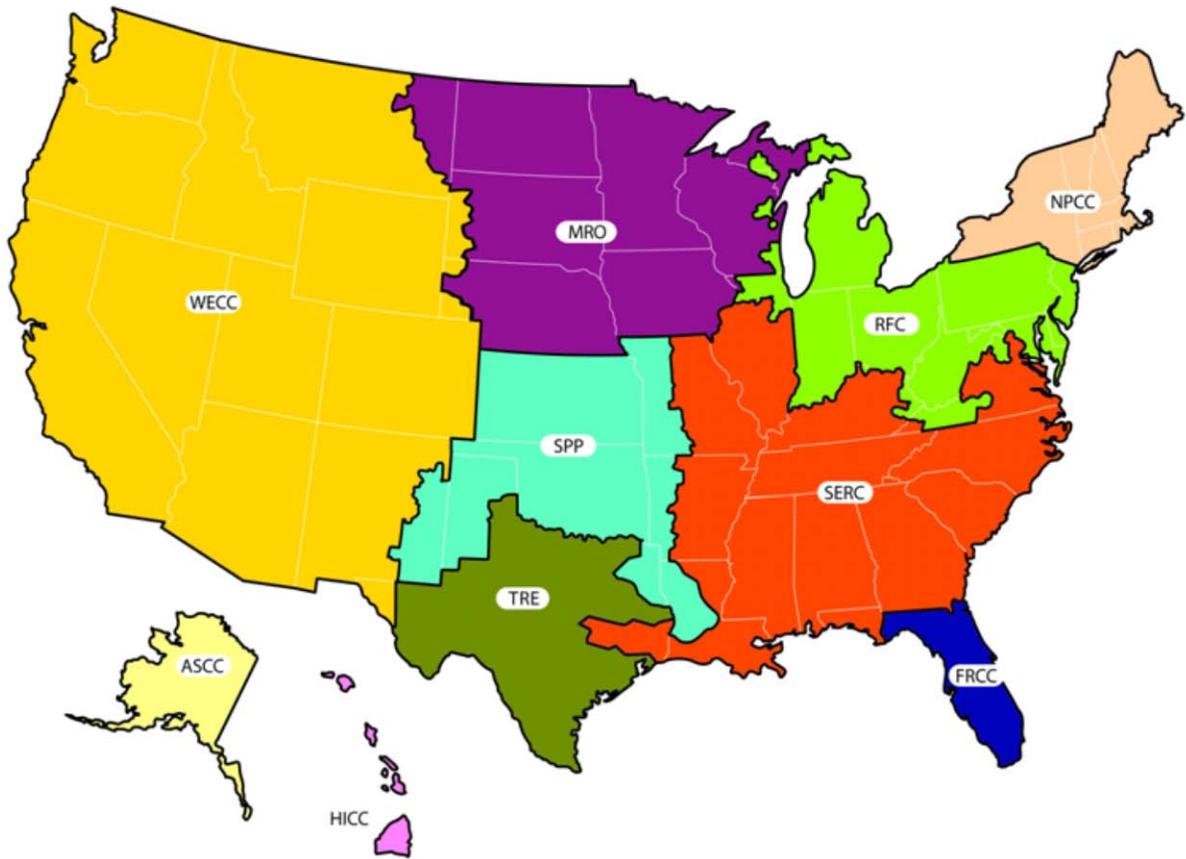
## APPENDIX B. eGRID2010 eGRID SUBREGION AND NERC REGION REPRESENTATIONAL MAPS

Figure B-1. eGRID2010 eGRID Subregion Representational Map



This is a representational map; many of the boundaries shown on this map are approximate because they are based on companies, not on strictly geographical boundaries.

**Figure B-2. eGRID2010 NERC Region Representational Map**



This is a representational map; many of the boundaries shown on this map are approximate because they are based on companies, not on strictly geographical boundaries.