# THE EMISSIONS & GENERATION RESOURCE INTEGRATED DATABASE FOR 2006 (eGRID2006) TECHNICAL SUPPORT DOCUMENT

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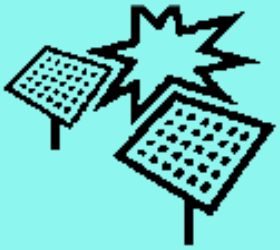
# Technical Support Document

## Emissions & Generation Resource Integrated Database

# eGRID



**Data Year 2004**


**U. S. Environmental Protection Agency Office of Atmospheric Programs**

**Prepared by E.H. Pechan & Associates, Inc.**



**eGRID2006 Version 2.1**
**April 2007**


# NOTICES

This document has been reviewed by the Climate Protection Partnerships Division (CPPD), Office of Atmospheric Programs (OAP), U.S. Environmental Protection Agency (EPA), and approved for distribution.

This document is available to the public through CPPD's website at http://www.epa.gov/cleanenergy/egrid .

# ACKNOWLEDGMENTS

The eGRID system was conceived of by Mr. Rick Morgan, former EPA Senior Energy Analyst in the Office of Atmospheric Programs. This edition of eGRID was developed under the leadership of EPA's Mr. Art Diem, Climate Protection Partnerships Division (CPPD), State & Local Branch, who participated in the data review for eGRID2002, and E. H. Pechan & Associates' Senior Data Analyst, Dr. Susy Rothschild, who also prepared all the earlier editions of eGRID. Eastern Research Group, the prime contractor, and Energy and Environmental Analysis also contributed to this edition of eGRID. The cover graphics were supplied by the National Renewable Energy Laboratory.

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# ABBREVIATIONS AND ACRONYMS

| | |
|---|---|
| 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) |
| $CO_2$ | Carbon dioxide |
| CPPD | Climate Protection Partnerships Division |
| 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) |
| 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 |
| Hg | Mercury |
| ICE | Information Collection Effort (by EPA for 1999 mercury data) |
| 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 |
| MW | Megawatt |
| MWC | Municipal Solid Waste Combustor |
| MWh | Megawatt-hour |
| NATCARB | Distributed National Carbon Sequestration Database and Geographic Information System |
| NERC | North American Electric Reliability Corporation |

# ABBREVIATIONS AND ACRONYMS (continued)

| | |
|---|---|
| NESCAUM | Northeast States for Coordinated Air Use Management |
| NETL | National Energy Technology Laboratory |
| NGO | Nongovernmental Organizations |
| $NO_x$ | Nitrogen oxides |
| NREL | National Renewable Energy Laboratory |
| OAP | Office of Atmospheric Programs |
| OMEGA | Ohio Municipal Electric Generation Agency |
| ORIS | Office of the Regulatory Information System |
| 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 |
| SAS | Statistical Analysis System |
| $SO_2$ | Sulfur dioxide |

# SECTION I. INTRODUCTION

The Emissions & Generation Resource Integrated Database (eGRID) is a comprehensive inventory of environmental attributes of electric power systems. 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 nitrogen oxides ($NO_x$,), sulfur dioxide ($SO_2$), and carbon dioxide ($CO_2$); emissions in pounds for mercury (Hg); emission rates for $CO_2$, $NO_x$, and $SO_2$ (in both pounds per megawatt-hour [lb/MWh]) and pounds per million British thermal unit [lb/MMBtu]) and for mercury (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 $NO_x$ emissions, generation, and heat input) at different levels of aggregation (boiler, generator, plant, companies, and grid regions of the country).

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.

The newest and fifth edition of eGRID, eGRID2006 Version 1.0, which includes 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. eGRID2006 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 NERC region – was released in late April 2007.

eGRID2006's year 2004 data have been reconfigured to reflect the industry's current structure as was known by October 1, 2006, 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 eGRID2006 data elements in the 12 Excel spreadsheet files for each level of aggregation. 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 data element oddities such as eGRID specific ID and name changes and associations; and Section V describes the data elements in detail. There is a set of Reference citations and two Appendices – Appendix A, which includes the file structure, and Appendix B, which includes the eGRID subregion and NERC region representational maps. The eGRID2002 Technical Support Document and Users Manual (Pechan, 2003) also have information that may prove useful.

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# SECTION II. SUMMARY OF eGRID2006 DATA

## A. eGRID FILES

eGRID2006 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). $CO_2$, $NO_x$, and $SO_2$ emissions are expressed in tons and Hg emissions are expressed in pounds. Emission rates are expressed in lb/MWh, lb/MMBtu for $SO_2$, $NO_x$, and $CO_2$ and are expressed in lb/GWh and lb/BBtu for Hg. 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 MWh) 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.

eGRID2006's year 2004 data have been reconfigured to reflect the industry's current structure as was known by October 1, 2006, including plant ownership and operators, parent company affiliations, company mergers, and grid configurations.

The year 2004 data are displayed in two workbooks. The boiler, generator, and plant data are included in one 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 owner-based spreadsheet for electric generating company and parent company are also included in the second workbook. The spreadsheets can be downloaded from the EPA Climate Protection Partnerships Division's (CPPD) Clean Energy eGRID web site, http://www.epa.gov/cleanenergy/egrid, along with a fact sheet and this document. The data were originally processed on the EPA mainframe using SAS, the Statistical Analysis System software.

The 12 eGRID2006 files are:

- EGRDBLR (boiler), with 4,787 year 2004 records;
- EGRDGEN (generator), with 16,056 year 2004 records;
- EGRDPLNT (plant), with 4,841 year 2004 records with non-zero generation and/or heat input;
- EGRDST (State), with 51 year 2004 records;
- EGRDEGCL and EGRDEGCO (electric generating company), with 1,634 year 2004 records for the location (operator)-based file and 1,869 year 2004 records for the owner-based file, respectively;
- EGRDPRL and EGRDPRO (parent company), with 103 year 2004 records in the location (operator)-based file and 108 year 2004 records in the owner-based file, respectively;
- EGRDPCAL (power control area), with 112 year 2004 records in the location (operator)-based file;
- EGRDSRL (eGRID subregion), with 26 eGRID subregion year 2004 records in the location (operator)-based file;
- EGRDNRCL (NERC region), with 10 NERC region year 2004 records in the location (operator)-based file; and
- EGRDUS, with 1 year 2004 U.S. totals record.

The number of variables in each of the 12 aggregation files varies, with 34 in EGRDBLR, 15 in EGRDGEN, 131 in EGRDPLNT, 92 in EGRDST, 94 in EGRDEGCL and EGRDEGCO, 92 in EGRDPRL and EGRDPRO, 92 in EGRDPCAL, 93 in EGRDSRL, 92 in EGRDNRCL, and 90 in

EGRDUS. 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.

The file structure for the files is included in Appendix A. The file structure also includes a description of the variables and the original data sources.

## B. eGRID SOURCES

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

- EPA, Emissions Tracking System/Continuous Emissions Monitoring (ETS/CEM) (EPA, 2005);
- EPA, Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2004;
- EPA, Compilation of Air Pollutant Emission Factors, AP-42 – last significant update September 2004 (EPA, 2004);
- EPA, Electric Utility Steam Generating Units Hazardous Air Pollutant Emission Study: 1999 Mercury Information Collection Request (ICR) Database (EPA, 2001);
- EPA, Large Municipal Waste Combustor Emissions for 2000 (EPA, 2002);
- EIA, EIA-767: Steam-Electric Plant Operation and Design Report (EIA, 2005);
- EIA, EIA-860: Annual Electric Generator Report - Utility (EIA, 2005);
- EIA, EIA-906: Power Plant Report (EIA, 2005);
- EIA, EIA-920: Combined Heat and Power Plant Report (EIA, 2005);
- EIA, EIA-861: Annual Electric Power Industry Report (EIA, 2005);
- EIA, EIA-423: Monthly Cost and Quality of Fuels for Electric Plants Report (unregulated [nonutility]) (EIA, 2005);
- FERC, FERC-423: Monthly Report of Cost and Quality of Fuels for Electric Plants (regulated [utility]) (FERC, 2005); and
- EIA, Electric Power Monthly, Electric Utility Plants That Have Been Sold and Reclassified as Nonutility Plants (EIA, 2004-2006).

An additional source of eGRID data, the North American Electric Reliability Corporation [formerly the North American Electric Reliability Council] (NERC), 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, which leads to plant file outliers to which users should be alert.

## C. WHAT'S NEW IN eGRID

The data sources for year 2004 data for eGRID2006 have changed from eGRID2002's for 1996 through 2000 data since EIA developed new electric power survey data forms that began with the year 2002 data collection. Consequently, the values and/or the methodology may have changed for some eGRID2006 data elements. Methodological changes are detailed in Section III, the Methodology Section.

eGRID2006 includes several new data elements. In the generator file, there is a data element that indicates the source of the generator generation, similar to the boiler file's emission source variable (whose values have changed slightly). The plant file includes additions of unadjusted emissions and heat input, as well as, EPA's Facility Registry System identification code.

Beginning with the State file, there are also five new data elements relating to non-baseload output emission rates. These rates may be used to approximate avoided emissions if energy efficiency and/or renewable energy displaces fossil fuel generation that is mostly not baseload.

Methodological changes in eGRID2006 include both revised designation of CHP plants and revised methodology for estimating the electric allocation factor; a new methodology for estimating $NO_x$ emissions for non-steam units that do not report annual emissions to EPA's Emissions Tracking System/Continuous Emissions Monitoring (ETS/CEM); uniform fuel codes in the boiler, generator, and plant files; and reclassified fuel categories. (See the Methodology Section for a complete list of fuel codes and categories).

There have been many changes to the NERC regions and power control areas, particularly in the middle of the country. Consequently, eGRID subregions for these areas were necessarily redefined. Representational maps of the new NERC regions and eGRID subregions are included in Appendix B.

## D. USERS OF eGRID

eGRID data support tools that are produced such as labeling/environmental disclosure, Renewable Portfolio Standards (RPS) and Renewable Energy Credits (RECS) attributes, and the Regional Greenhouse Gas Initiative (RGGI). The eGRID data are specifically used for other EPA tools and programs such as Power Profiler, Climate Leaders, Portfolio Manager, and Personal Greenhouse Gas Emissions Calculator.

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. RECS Tracking Systems, such as ISO-New England's Generation Information System (GIS) and PJM's Generation Attribute Tracking System (GATS) utilize eGRID data; and States rely on eGRID data for electricity labeling (environmental disclosure programs), emissions inventories, and registries (such as the California Climate Action Registry), and for policy decisions/impacts such as output based standards; many states also publish state specific eGRID data on the web.

eGRID is additionally used for nongovernmental organizations' (NGOs) tools and analysis such as the 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, and Emission Solution's Carbon Footprint Calculator.

eGRID has many academic uses and is often cited in relevant research and analysis papers and lessons prepared by various consulting groups as well as universities such as Stanford, North Carolina University, Texas A&M University, Penn State, Eastern Connecticut University, and Michigan Tech.

# SECTION III. eGRID METHODOLOGY

This section describes eGRID development methodologies that are not transparent. Some methods used for eGRID2006 are modified or refined from previous editions of eGRID and are so noted in this section.

## A. TREATMENT OF ELECTRICITY GENERATION AND EMISSIONS FROM BIOMASS

Biomass and solid waste burning plants are specifically addressed in eGRID as follows:

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 $CO_2$ emissions to generation from the combustion of all biomass because these organic materials would otherwise release $CO_2$ (or other greenhouse gases) to the atmosphere through decomposition.

Emissions from generation powered by renewable methane (landfill gas and digester gas) are also treated as a special case in eGRID with respect to $NO_x$ and $SO_2$. Landfill gas and digester gas emissions must be flared in most cases if the gas is not consumed as useful energy. eGRID determines the amount of incremental $NO_x$ emissions attributable to utilizing renewable methane to generate electricity and eGRID assumes that renewable methane such as landfill gas or digester gas would have been flared if not used to generate electricity. This generation is then assigned the appropriate $NO_x$ emission factor, e.g., for a boiler or internal combustion engine or turbine. These emissions are then offset by the amount of emissions represented by a typical flare. $SO_2$ emissions are assumed to be the same as the flare's emissions and are, therefore, assigned a value of zero.

## B. TREATMENT OF ELECTRICITY GENERATION AND EMISSIONS FROM SOLID WASTE

Solid waste typically consists of a mixture of renewable materials (biomass such as wood, paper, and food waste) and nonrenewable materials (fossil-based materials such as plastics and tires) and, therefore, requires special treatment in eGRID. eGRID uses a standard assumption that 70% of the heat value of the waste stream comes from renewable materials and 30% comes from nonrenewables.[1] Generation from solid waste is assigned to "biomass" and "other fossil" categories according to this ratio. As with all biomass generation, the 70% renewable portion of solid waste is assumed to have zero $CO_2$ emissions, but other emissions 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.

[1] The assumption that 70% of the heat value in the waste stream of solid waste combustion facilities is widely used by industry and government sources. This assumption is further supported by the following three studies that addressed this question and found the renewable percentage of the heat value to be 66.6%, 69.0%, and 71.1%, respectively: Central Maine Power, "Renewable Percentage from Municipal Solid Waste," March 1997; Maine Waste Management Agency, Office of Planning, "State of Maine Waste Management and Recycling Plan," April 1993; Massachusetts Institute of Technology Energy Laboratory, "Alternative Electrical Energy Sources for Maine - Conversion of Solid Wastes," Report No. MIT-El 77-010, December 1977.

# C. ESTIMATION OF EMISSIONS

Emissions ($CO_2$, $NO_x$, $SO_2$, and Hg) 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 ($CO_2$) is a product of fossil fuel combustion and is the primary greenhouse gas emitted by human activities that is contributing to global climate change; nitrogen oxides ($NO_x$) 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 ($SO_2$) 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.

Although many small units, as well as some nonutilities and cogenerators, are not subject to EPA's ETS/CEM data reporting, the vast majority of emissions reported in eGRID are from the ETS/CEM data. Sources that report to ETS/CEM are generally utility and nonutility steam units with at least 25 MW capacity, nonsteam units – gas turbines, 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.

## 1. Unadjusted Emission Estimates for Year 2004

Emissions that are reported and initially estimated for eGRID are unadjusted, except for biomass $CO_2$ values (see below). These unadjusted values are newly displayed at the plant level beginning with this edition of eGRID. 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 adjustments flags are provided in the plant file.

## 2. Annual Emission Estimates for $CO_2$, $SO_2$, and $NO_x$

Emissions in eGRID are estimated in tons, using data from a variety of sources. eGRID's initial source for $SO_2$, $NO_x$, and $CO_2$ data is ETS/CEM unit level annual data. If ETS/CEM data are not reported, the emissions are generally estimated using fuel consumption – on a boiler-fuel level if the data are in the EIA-767, and/or on a prime mover-fuel level if the data are only in the EIA-906/920 file. For $CO_2$, the Intergovernmental Panel on Climate Change (IPCC) greenhouse gas (GHG) methodology using fuel consumption, a fuel-specific carbon coefficient, and the fuel-related fraction of carbon oxidized, is implemented. For $SO_2$, EPA-approved uncontrolled emissions factors, sulfur content, and control efficiencies, if available, are also used in the calculation of the emissions.

For $NO_x$, EPA-approved emissions factors are also used in the calculation of these emissions from steam units. In an effort to improve upon $NO_x$ emissions for nonsteam prime movers, a better method, new to this edition of eGRID, is used to calculate $NO_x$ emissions for combined cycles, turbines, and internal combustion engines. New $NO_x$ 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 sources, the new factors were based on data from the EPA Reasonably Available Control Technology/Best Available Control Technology/Lowest Achievable Emission Rate (RACT/BACT/LAER) Clearinghouse. 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 generators including small combustion turbines, microturbines and reciprocating engines, the methodology draws from several sources including the EPA CHP Partnership *Catalogue of CHP* and the U.S. Department of Energy (DOE) *Gas-Fired Distributed Energy Resource Technology Characterizations*.

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

eGRID2006 estimates mercury emissions based on 1999 and 2000 mercury values, as was done in eGRID2002. The most important mercury electric power sources – coal and municipal solid waste boilers – are represented in eGRID using two EPA-developed data files: one with 2000 Hg emissions for large municipal solid waste combustors and one with 1999 Hg emissions for coal-fired boilers. Mercury emissions for identified coal plants are estimated by multiplying the 1999 emissions by the ratio of the plant's 2004 to 1999 coal tons. In a similar fashion, mercury emissions for identified large municipal solid waste plants are estimated by multiplying the 2000 emissions by the ratio of the plant's 2004 to 2000 solid waste tons.

## 4. Ozone Season Emission Estimates for $NO_x$

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 provides ozone season ETS/CEM $NO_x$ emissions for many units that do not report annual emissions. For purposes of eGRID, the ETS/CEM ozone season data are only included if the annual ETS/CEM $NO_x$ emissions are also available. Otherwise, for those units that report to the EIA-767, as well as sampled plants with prime movers that report to the EIA-906/920 file and are not covered by either ETS/CEM or EIA-767 data, monthly fuel quantity is provided so that five-month (May through September) ozone season $NO_x$ emissions can be estimated in the same way as are emissions for annual EIA-based $NO_x$. For those with no monthly data, the ozone season $NO_x$ estimates are calculated as the annual estimates multiplied by 5/12.

## 5. 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 components of the plant burns biomass, including renewable methane (such as landfill, methane, or digester [other biomass] gas), and if the plant is a CHP facility. A biomass facility's emissions reported in eGRID may be different from that reported in other EPA sources such as EPA/CAMD's ETS/CEM.

## 6. Adjustments for Biomass

eGRID makes adjustments for biomass emissions, for renewable methane biomass emissions, and for solid waste emissions. Solid waste typically consists of a mixture of renewable materials – biomass such as wood, paper, and food waste – and "other fossil" nonrenewable materials – fossil-based materials such as plastics and tires. A flag in the plant file indicates whether there is any biomass adjustment and the type of adjustment. The possible adjustments for $CO_2$, $NO_x$, and $SO_2$ emissions (and heat input) are explained below.

### *a. $CO_2$*

Biomass is a fuel derived from organic matter including, but not limited to, 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. Thus, all biomass $CO_2$ emissions (including those from renewable methane) are assigned a value of zero because these organic materials would otherwise release $CO_2$ (or other greenhouse gases) through decomposition. For estimated biomass plant emissions components, the unadjusted emission values and the adjusted-for-biomass emissions values are the same because there are no carbon coefficients for these fuels. For those units burning biomass and reporting non-zero emissions to the Clean Air Markets Division (CAMD), their $CO_2$ emissions are reported as zero in eGRID.

### *b. $NO_x$ and $SO_2$*

In most cases, emissions from renewable methane from sources such as landfill gas and digester gas must be flared if the gas is not utilized to generate electricity. Therefore, eGRID assumes that renewable methane would not have been flared if used to generate electricity. The amount of incremental $NO_x$ and $SO_2$ emissions attributable to utilizing renewable methane to generate electricity is what is considered for eGRID's emissions. Thus, emissions from these fuels are adjusted by decreasing the uncontrolled emission factors (used to estimate the emissions) by the emissions factor represented by a typical flare.

For $NO_x$, 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 $SO_2$, the emission factor is assumed to be the same as the flare's, so there are no incremental $SO_2$ emissions attributable to utilizing renewable methane to generate electricity, and a value of zero is assigned.

In eGRID, there are no nonrenewable methane (or "other biomass") fuel adjustments for $NO_x$ and $SO_2$ emissions, and there is no biomass adjustment of any kind for Hg.

## 7. 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 (and a plant's emissions data reported in eGRID may be different from that reported in other EPA sources).

For the first time, in the eGRID2006 plant file, both unadjusted and adjusted emissions (tons) are reported in the plant file. However, the plant file emission rates and any subsequent aggregation files only include adjusted emissions, emission rates, and heat input.

eGRID's methodology is designed to share CHP's efficiency gains between electricity and useful thermal output. For eGRID2006, year 2004 electricity emissions for CHP are calculated using a different allocation factor methodology from that used in prior years. For CHP facilities in the 2004 data year,

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%. 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.

The methodology for estimating an electric allocation factor has been refined for each edition of eGRID, and is, therefore, new in eGRID2006. The description follows:

There are two sources of thermal output from EIA, one indirect and the other direct. Useful thermal output value can be calculated from EIA-906/920 data as 0.8 multiplied by (total heat input minus electricity heat input) MMBtu; or as reported to the EIA-767. With these data, 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 3.412 and steam heat output MMBtu is 0.75 multiplied by useful thermal output. If a plant reports (directly or indirectly) useful thermal output to both EIA-906/920 and EIA-767, the EIA-906/920 data are used.

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:

ELCALLOC = (8.5 * plant net generation MWh) / (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:

ELCALLOC = ((12.68 * plant net generation) / (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-1 below.

### Table III-1. 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 were reviewed. The combination of theoretical and reported characteristics was used to establish the minimum values for electric allocation factor.

## 8. 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. Plant-fuel-prime mover annual generation for eGRID is obtained from the EIA-906/920. If there are no EIA-906/920 generation data and the plant reports steam generation data to the EIA-767, then this plant generation is used in eGRID. Note that there are some plants that did not report data to the EIA-906/920, yet did report emissions to either the ETS/CEM (from which generation data are unavailable) and/or the EIA-767 (but did not report any generation data). These zero generation values lead to zero plant output emission rates and heat rates.

For sampled plants with EIA-906/920 net generation or only EIA-767 generator 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 none of these sources provide monthly data, ozone season generation is calculated as 5/12 of the annual generation. If a plant reports generation to both EIA-906/920 and EIA-767, the EIA-906/920 data are used.

### *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 (MMBtu) for eGRID is initially obtained from ETS/CEM reported data. If these data are unavailable, heat input is calculated by multiplying the fuel consumption by the heat content from the EIA-767; otherwise, heat input is obtained directly from the EIA-906/920. The component parts (unit and prime mover levels) are then summed to the plant level.

EPA provides ozone season ETS/CEM heat input for some units that do not report annual heat input or emissions. For purposes of eGRID, the ETS/CEM ozone season data are only included if the annual ETS/CEM heat input are also available. Otherwise, for sampled plants with EIA-906/920 heat input or only EIA-767 boiler calculated heat input, heat input or fuel use/heat content is reported monthly and annually. If available, the ozone season generation is calculated by summing up the data for the five months of May through September. If none of these sources provide monthly data, then 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-906/920 and/or EIA-767 and/or CAMD ETS/CEM, the CAMD ETS/CEM data are used first, the EIA-767 data are used second, and the EIA-906/920 data are used last. 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 $SO_2$, $NO_x$, and $CO_2$, and lb/GWh for Hg; 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 $SO_2$, $NO_x$, and $CO_2$, and lb/BBtu for Hg; these rates are calculated as the emissions divided by the heat input and multiplied by a unit conversion factor.

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. If a plant's primary fuel is in the coal, oil, or gas 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.

### *i. Non-baseload Emission Rates*

Additionally, five new data elements have been introduced in eGRID2006, beginning at the State level. These output emission rates, called annual non-baseload emission rates, are the annual output emission rates for plants that combust fuel and have capacity factors less than 0.8. These new data values are derived from plant level data and supplement, rather than replace, the fossil fuel output emissions 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 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.

## D. TREATMENT OF PLANT OWNERSHIP

The owner(s) and operator of a plant are tracked for eGRID using daily and bi-weekly trade press releases and EIA's Electric Power Monthly's "Plants Sold and Transferred" table. This information, through October 1, 2006, overrides and updates any ownership and/or operator information provided in the 2004 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.

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 $SO_2$ emissions for the two boilers associated with Buckeye's two generators combined are actually only 55% of the Cardinal plant's $SO_2$ emissions total. Note that these misleading emission proportions for $SO_2$ are not duplicated for Cardinal's $NO_x$ or $CO_2$ emissions.

## E. DETERMINATION OF PLANT PRIMARY FUEL

The primary fuel of a plant that consumes any amount of combustible fuel is determined by the fuel which has the maximum heat input, with one exception: if any type of coal is consumed, regardless if it has the maximum heat input, then coal is the plant's primary fuel.

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 element (PLPRMFL in the eGRID plant file) are as shown in Table III-2 below.

**Table III-2. Plant Primary Fuel**

| Fuel Category | Fuel Code | Description | Fuel Group |
|---|---|---|---|
| **Coal** | BIT | bituminous coal | |
| | SUB | subbituminous coal | |
| | LIG | lignite coal | |
| | WC | waste coal | |
| | SC | coal-based syn fuel | |
| **Oil** | DFO | distillate oil | liquid fuel |
| | JF | jet fuel | liquid fuel |
| | KER | kerosene | liquid fuel |
| | RFO | residual oil | liquid fuel |
| | OIL | residual oil | liquid fuel |

**Table III-2 (continued)**

| Fuel Category | Fuel Code | Description | Fuel Group |
|---|---|---|---|
| | WO | waste oil | liquid fuel |
| | OOL | other oil | liquid fuel |
| | PC | petroleum coke | |
| | RG | refinery gas | gaseous fuel |
| **Gas** | NG | natural gas | gaseous fuel |
| | PG | propane gas/LPG | gaseous fuel |
| | BU | butane gas | gaseous fuel |
| **Biomass** | WDS | wood (waste) solids | |
| | WDL | wood (waste) liquids | liquid fuel |
| | PP | paper pellets | |
| | BLQ | black liquor | |
| | AB | agricultural byproducts | |
| | SLW | sludge waste | |
| | ME | methane | |
| | DG | digester gas | N/A |
| | LFG | landfill gas | N/A |
| **Fuel Category** | **Fuel Code** | **Description** | **Fuel Group** |
| | OBS | other biomass solids | |
| | OBL | other biomass liquids | liquid fuel, like WDL |
| | OO | other oil | liquid fuel |
| | TO | tall oil | liquid fuel |
| | SW7 | solid waste – 70% of | |
| **Other Fossil** | LB | liquid byproduct | liquid fuel |
| | MH | Methanol | liquid fuel |
| | OTL | other liquid | liquid fuel |
| | HY | Hydrogen | liquid fuel |
| | OG | other gas | gaseous fuel |
| | PRG | process gas | gaseous fuel |
| | BFG | blast furnace gas | gaseous fuel |
| | COG | coke oven gas | gaseous fuel |
| | TDF | tire-derived fuel | |
| | SW3 | solid waste – 30% of | |
| **Nuclear** | NUC | nuclear materiel | |
| **Hydro** | WAT | water | |
| **Pumped Storage** | WAT | water | |
| **Geothermal** | GEO | geothermal steam | |
| **Solar** | SUN | sun | |
| **Wind** | WND | wind | |

Note that since solid waste plants are broken down into 70% biomass and 30% other fossil, a solid waste plant should have PLPRMFL="SW7."

# F. ESTIMATION OF RESOURCE MIX

Resource mix is a collection of nonrenewable and renewable resources that are used to generate electricity. Nonrenewables resources include fossil fuels (e.g., coal, oil, natural gas, and other fossil) and nuclear energy sources and renewable energy sources (e.g., biomass, solar, wind, geothermal, and hydro). A percentage is assigned to each resource or group of resources. Resource mix is displayed in eGRID 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 nonrenewables, 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 nonrenewable category (it is unlikely to happen in the renewable 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.

# G. DETERMINATION OF PLANT AGGREGATION LINKS

The plant's State, operator, and owner(s), as well as the utility service area EGC for nonutility plants, are already associated with each plant, based on EIA data that have been updated to correct known errors and to reflect 2006 industry configuration.

## 1. 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, ranging in size from small municipal utilities such as New Smyrna Beach (FL), to large power pools such as PJM Interconnection. 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."

For utility plants, a location (operator)-based PCA includes all generating plants operated by electric generating companies whose system is dispatched by that power control area, including portions of generating plants owned by generating companies outside the control area. For nonutility plants, PCAs are generally assigned according to the utility service area in which the nonutility plant is physically located. See Section IV for further information about PCAs.

The PCA associated with a plant is determined by the utility/regulated EGC (not parent company) associated with the plant. At present, there is not one Federal file that can be used to link 2006 utility EGCs with their PCAs. There is an association between utility EGC and PCA reported in the 2004 EIA-861 data, but the relationship and entities involved reflect year 2004 industry configurations, and is, thus, only partially useful for eGRID2006, whose plants' owners and operator have been updated to reflect 2006 industry configuration. Additionally, the eGRID PCAs have been updated and reported by the North American Electric Reliability Corporation (NERC), too, to reflect Fall 2006 configuration.

For eGRID purposes, with a few exceptions (for a list of the eight exceptions, see Section IV), if the plant's operator EGC is a utility, then it is used as the link to the PCA; otherwise, the plant's utility service area, a utility EGC, is used determine the nonutility plant's PCA. (A utility service area is determined by the geographic region within which an electric utility has a franchise to sell electricity subject to regulation by State and/or Federal ratemaking authorities.)

Although the utility service area data provide by EIA has been updated by EPA, in some cases, it is a best guess.

## 2. NERC Region

NERC Region refers to a region designated by the North American Electric Reliability Corporation (NERC). 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 ten NERC region names and their acronyms for eGRID are as follows:

- Alaska Systems Coordinating Council (ASCC),
- Electric Reliability Council of Texas (ERCOT),
- Florida Reliability Coordinating Council (FRCC),
- Hawaiian Islands Coordinating Council (HICC),
- Midwest Reliability Organization (MRO)
- Northeast Power Coordinating Council (NPCC),
- Reliability First Corporation (RFC),
- SERC Reliability Corporation (SERC),
- Southwest Power Pool (SPP), and
- Western Electricity Coordinating Council (WECC).

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. See Section IV for further information about NERC regions.

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. The relationship between PCAs and NERC regions is displayed below in Table III-3.

### Table III-3. PCA-NERC Region Relationship

| PCA Name | NERC Name |
|---|---|
| Alabama Electric Cooperative, Inc. | SERC Reliability Corporation |
| Alaska Misc | Alaska Systems Coordinating Council |
| Alliant Energy - CA - ALTE | Midwest Reliability Organization |
| Alliant Energy - CA - ALTW | Midwest Reliability Organization |
| Ameren Transmission | SERC Reliability Corporation |
| Anchorage, Municipality of | Alaska Systems Coordinating Council |
| Aquila Networks - MPS | Southwest Power Pool |
| Aquila Networks - WPK | Southwest Power Pool |
| Arizona Public Service Company | Western Electricity Coordinating Council |
| Associated Electric Cooperative, Inc. | SERC Reliability Corporation |
| Avista Corp. | Western Electricity Coordinating Council |
| Big Rivers Electric Corp. | SERC Reliability Corporation |
| Board of Public Utilities | Southwest Power Pool |
| Bonneville Power Administration | Western Electricity Coordinating Council |
| California Independent System Operator | Western Electricity Coordinating Council |
| Central Illinois Light Co | SERC Reliability Corporation |
| Central and Southwest | Southwest Power Pool |
| Chugach Electric Assn Inc | Alaska Systems Coordinating Council |
| Cinergy Corporation | Reliability First Corporation |
| City Water Light & Power | Reliability First Corporation |

## Table III-3 (continued)

| PCA Name | NERC Name |
|---|---|
| City of Homestead | Florida Reliability Coordinating Council |
| City of Independence Missouri | Southwest Power Pool |
| City of Lafayette | Southwest Power Pool |
| City of Tallahassee | Florida Reliability Coordinating Council |
| Cleco Corporation, Inc. | Southwest Power Pool |
| Columbia Water & Light | SERC Reliability Corporation |
| Dairyland Power Cooperative | Midwest Reliability Organization |
| Duke Power Company | SERC Reliability Corporation |
| ERCOT ISO | Electric Reliability Council of Texas |
| East Kentucky Power Cooperative, Inc. | SERC Reliability Corporation |
| El Paso Electric Company | Western Electricity Coordinating Council |
| Empire District Electric Co., The | Southwest Power Pool |
| Entergy Services, Inc. | SERC Reliability Corporation |
| First Energy Corp. | Reliability First Corporation |
| Florida Municipal Power Pool | Florida Reliability Coordinating Council |
| Florida Power & Light | Florida Reliability Coordinating Council |
| Florida Power Corporation | Florida Reliability Coordinating Council |
| Gainesville Regional Utilities | Florida Reliability Coordinating Council |
| Golden Valley Elec Assn Inc | Alaska Systems Coordinating Council |
| Grand River Dam Authority | Southwest Power Pool |
| Great River Energy | Midwest Reliability Organization |
| Hawaii Electric Light Co., Inc | Hawaiian Islands Coordinating Council |
| Hawaii Misc | Hawaiian Islands Coordinating Council |
| Hawaiian Electric Co Inc | Hawaiian Islands Coordinating Council |
| Hoosier Energy | Reliability First Corporation |
| ISO New England Inc. | Northeast Power Coordinating Council |
| Idaho Power Company | Western Electricity Coordinating Council |
| Illinois Power Co. | SERC Reliability Corporation |
| Imperial Irrigation District | Western Electricity Coordinating Council |
| Indianapolis Power & Light Company | Reliability First Corporation |
| JEA | Florida Reliability Coordinating Council |
| Kansas City Power & Light, Co | Southwest Power Pool |
| LG&E Energy Transmission Services | SERC Reliability Corporation |
| Lincoln Electric System | Midwest Reliability Organization |
| Los Angeles Department of Water and Power | Western Electricity Coordinating Council |
| Louisiana Energy & Power Authority | Southwest Power Pool |
| Louisiana Generating, LLC | SERC Reliability Corporation |
| Madison Gas and Electric Company | Midwest Reliability Organization |
| Maritime Area | Northeast Power Coordinating Council |
| Michigan Electric Coordinated Systems | Reliability First Corporation |
| MidAmerican Energy Company | Midwest Reliability Organization |
| Minnesota Power, Inc. | Midwest Reliability Organization |
| Muscatine Power and Water | Midwest Reliability Organization |
| Nebraska Public Power District | Midwest Reliability Organization |
| Nevada Power Company | Western Electricity Coordinating Council |
| New York Independent System Operator | Northeast Power Coordinating Council |
| Northern Indiana Public Service Company | Reliability First Corporation |
| Northern States Power Company | Midwest Reliability Organization |
| Ohio Valley Electric Corporation | Reliability First Corporation |

## Table III-3 (continued)

| PCA Name | NERC Name |
|---|---|
| Oklahoma Gas and Electric | Southwest Power Pool |
| Omaha Public Power District | Midwest Reliability Organization |
| Otter Tail Power Company | Midwest Reliability Organization |
| PJM Interconnection | Reliability First Corporation |
| PJM Interconnection | SERC Reliability Corporation |
| PUD No. 1 of Chelan County | Western Electricity Coordinating Council |
| PUD No. 1 of Douglas County | Western Electricity Coordinating Council |
| PUD No. 2 of Grant County | Western Electricity Coordinating Council |
| PacifiCorp-East | Western Electricity Coordinating Council |
| PacifiCorp-West | Western Electricity Coordinating Council |
| Portland General Electric Company | Western Electricity Coordinating Council |
| Progress Energy Carolinas - EAST | SERC Reliability Corporation |
| Public Service Company of Colorado | Western Electricity Coordinating Council |
| Public Service Company of New Mexico | Western Electricity Coordinating Council |
| Puget Sound Energy | Western Electricity Coordinating Council |
| Salt River Project | Western Electricity Coordinating Council |
| Seattle Department of Lighting | Western Electricity Coordinating Council |
| Seminole Electric Cooperative | Florida Reliability Coordinating Council |
| Sierra Pacific Power Company | Western Electricity Coordinating Council |
| South Carolina Electric & Gas Company | SERC Reliability Corporation |
| South Carolina Public Service Authority (Santee Co) | SERC Reliability Corporation |
| South Mississippi Electric Power Association | SERC Reliability Corporation |
| Southeastern Power Administration - Hartwell | SERC Reliability Corporation |
| Southern Company Services, Inc. | SERC Reliability Corporation |
| Southern Illinois Power Cooperative | SERC Reliability Corporation |
| Southern Indiana Gas & Electric Co. | Reliability First Corporation |
| Southern Minnesota Municipal Power Agency | Midwest Reliability Organization |
| Southwestern Power Administration | Southwest Power Pool |
| Southwestern Public Service Company | Southwest Power Pool |
| Sunflower Electric Power Corporation | Southwest Power Pool |
| Tacoma Power | Western Electricity Coordinating Council |
| Tampa Electric Company | Florida Reliability Coordinating Council |
| Tennessee Valley Authority | SERC Reliability Corporation |
| Tucson Electric Power Company | Western Electricity Coordinating Council |
| Upper Peninsula Power Co. | Midwest Reliability Organization |
| Utilities Commission, City of New Smyrna Beach | Florida Reliability Coordinating Council |
| WAPA - Colorado-Missouri | Western Electricity Coordinating Council |
| WAPA - Lower Colorado | Western Electricity Coordinating Council |
| WAPA - Upper Great Plains East | Midwest Reliability Organization |
| WAPA - Upper Great Plains West | Western Electricity Coordinating Council |
| Western Farmers Electric Cooperative | Southwest Power Pool |
| Western Resources dba Westar Energy | Southwest Power Pool |
| Wisconsin Energy Corporation | Reliability First Corporation |
| Wisconsin Public Service Corporation | Midwest Reliability Organization |

A representation of the NERC region map used for eGRID2006 is included in Appendix B.

## 3. eGRID Subregion

eGRID subregions are identified and defined by EPA – using the new 2006 NERC regions and PCAs as a guide – along with the older eGRID subregions. 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 in Fall 2006. 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 (each is associated with three eGRID subregions). See Section IV for further information about eGRID subregions. The 26 eGRID subregion names and their acronyms are as follows:

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

Because the NERC regions substantially changed between 2002 and 2006, the eGRID subregions necessarily changed, too, between editions of eGRID. Table III-4 below describes the new eGRID subregions in eGRID2006 and their relationship to the eGRID subregions in eGRID2002.

### Table III-4. eGRID Subregion Changes

| eGRID Subregion Name | Relationship of eGRID subregion in eGRID2006 to that in eGRID2002 |
|---|---|
| NPCC New England | Unchanged |
| NPCC NYC/Westchester | Unchanged |
| NPCC Long Island | Unchanged |
| NPCC Upstate New York | Unchanged |

## Table III-4 (continued)

| eGRID Subregion Name | Relationship of eGRID subregion in eGRID2006 to that in eGRID2002 |
|---|---|
| RFC East | The eastern portion of Reliability First Corporation that corresponds to MAAC All in eGRID2002 |
| SERC Virginia/Carolina | Unchanged. |
| SERC Tennessee Valley | Now includes portions of Kentucky (LG&E Energy) that were in ECAR Ohio Valley in eGRID2002 |
| SERC Mississippi Valley | Now excludes areas in Missouri that are in the Associated Electric Cooperative territory |
| SERC South | Unchanged |
| FRCC All | Unchanged |
| RFC Michigan | The portion of Reliability First Corporation that corresponds to ECAR Michigan in eGRID2002 |
| RFC West | The portion of Reliability First Corporation that corresponds to ECAR Ohio Valley in eGRID2002, minus portions of Kentucky (LG&E Energy), plus portions of Illinois (Commonwealth Edison territory) that were in MAIN South in eGRID2002, plus portions of Wisconsin and portions of the upper peninsula of Michigan (Wisconsin Energy Corporation territory) that were in MAIN North in eGRID2002 |
| MRO East | The eastern portion of the Midwest Reliability Organization that corresponds to MAIN North in eGRID2002, excluding portions of Wisconsin and portions of the upper peninsula of Michigan (Wisconsin Energy Corporation territory) |
| SERC Midwest | The portion of SERC that corresponds to MAIN South in eGRID2002, minus portions of Illinois (Commonwealth Edison territory), plus Associated Electric Cooperative territory that was in SERC Mississippi Valley in eGRID2002 |
| MRO West | The western portion of the Midwest Reliability Organization that corresponds to MAPP All in eGRID2002 plus portions of Minnesota and Iowa (Alliant West territory) that were in MAIN South in eGRID2002 |
| SPP North | Unchanged |
| SPP South | Unchanged |
| ERCOT All | Unchanged |
| WECC Rockies | This subregion of the Western Electricity Coordinating Council corresponds to WECC Rockies in eGRID2002. This subregion corresponds to NERC's current subregion designation. |
| WECC Northwest | This subregion of the Western Electricity Coordinating Council corresponds to the combination of WECC Great Basin and WECC Pacific Northwest in eGRID2002. This subregion corresponds to NERC's current subregion designation. |
| WECC Southwest | This subregion of the Western Electricity Coordinating Council corresponds to the WECC Southwest in eGRID2002. This subregion corresponds to NERC's current subregion designation. |
| WECC California | This subregion of the Western Electricity Coordinating Council corresponds to WECC California in eGRID2002. This subregion corresponds to NERC's current subregion designation. |
| HICC Miscellaneous | Unchanged |
| HICC Oahu | Unchanged |
| ASCC Miscellaneous | Unchanged |
| ASCC Alaska Grid | Unchanged |

The relationship among PCAs, eGRID subregions, and NERC regions is depicted in Table III-5 below.

## Table III-5. PCA-eGRID Subregion – NERC Region Relationship

| PCA Name | eGRID Subregion Name | NERC Region |
|---|---|---|
| Alabama Electric Cooperative, Inc. | SERC South | SERC |
| Alaska Misc | ASCC Miscellaneous | ASCC |
| Alliant Energy - CA - ALTE | MRO East | MRO |
| Alliant Energy - CA - ALTW | MRO West | MRO |
| Ameren Transmission | SERC Midwest | SERC |

## Table III-5 (continued)

| PCA Name | eGRID Subregion Name | NERC Region |
|---|---|---|
| Anchorage, Municipality of | ASCC Alaska Grid | ASCC |
| Aquila Networks - MPS | SPP North | SPP |
| Aquila Networks - WPK | SPP North | SPP |
| Arizona Public Service Company | WECC Southwest | WECC |
| Associated Electric Cooperative, Inc. | SERC Midwest | SERC |
| Avista Corp. | WECC Northwest | WECC |
| Big Rivers Electric Corp. | SERC Tennessee Valley | SERC |
| Board of Public Utilities | SPP North | SPP |
| Bonneville Power Administration | WECC Northwest | WECC |
| California Independent System Operator | WECC California | WECC |
| Central Illinois Light Co | SERC Midwest | SERC |
| Central and Southwest | SPP South | SPP |
| Chugach Electric Assn Inc | ASCC Alaska Grid | ASCC |
| Cinergy Corporation | RFC West | RFC |
| City Water Light & Power | RFC West | RFC |
| City of Homestead | FRCC All | FRCC |
| City of Independence Missouri | SPP North | SPP |
| City of Lafayette | SPP South | SPP |
| City of Tallahassee | FRCC All | FRCC |
| Cleco Corporation, Inc. | SPP South | SPP |
| Columbia Water & Light | SERC Midwest | SERC |
| Dairyland Power Cooperative | MRO West | MRO |
| Duke Power Company | SERC Virginia/Carolina | SERC |
| ERCOT ISO | ERCOT All | ERCOT |
| East Kentucky Power Cooperative, Inc. | SERC Tennessee Valley | SERC |
| El Paso Electric Company | WECC Southwest | WECC |
| Empire District Electric Co., The | SPP North | SPP |
| Entergy Services, Inc. | SERC Mississippi Valley | SERC |
| First Energy Corp. | RFC West | RFC |
| Florida Municipal Power Pool | FRCC All | FRCC |
| Florida Power & Light | FRCC All | FRCC |
| Florida Power Corporation | FRCC All | FRCC |
| Gainesville Regional Utilities | FRCC All | FRCC |
| Golden Valley Elec Assn Inc | ASCC Alaska Grid | ASCC |
| Grand River Dam Authority | SPP South | SPP |
| Great River Energy | MRO West | MRO |
| Hawaii Electric Light Co., Inc | HICC Miscellaneous | HICC |
| Hawaii Misc | HICC Miscellaneous | HICC |
| Hawaiian Electric Co Inc | HICC Oahu | HICC |
| Hoosier Energy | RFC West | RFC |
| ISO New England Inc. | NPCC New England | NPCC |
| Idaho Power Company | WECC Northwest | WECC |
| Illinois Power Co. | SERC Midwest | SERC |
| Imperial Irrigation District | WECC Southwest | WECC |
| Indianapolis Power & Light Company | RFC West | RFC |
| JEA | FRCC All | FRCC |
| Kansas City Power & Light, Co | SPP North | SPP |
| LG&E Energy Transmission Services | RFC West | RFC |
| Lincoln Electric System | MRO West | MRO |
| Los Angeles Department of Water and Power | WECC California | WECC |
| Louisiana Energy & Power Authority | SPP South | SPP |
| Louisiana Generating, LLC | SERC Mississippi Valley | SERC |
| Madison Gas and Electric Company | MRO East | MRO |
| Maritime Area | NPCC New England | NPCC |
| Michigan Electric Coordinated Systems | RFC Michigan | RFC |

## Table III-5 (continued)

| PCA Name | eGRID Subregion Name | NERC Region |
|---|---|---|
| MidAmerican Energy Company | MRO West | MRO |
| Minnesota Power, Inc. | MRO West | MRO |
| Muscatine Power and Water | MRO West | MRO |
| Nebraska Public Power District | MRO West | MRO |
| Nevada Power Company | WECC Southwest | WECC |
| New York Independent System Operator | NPCC NYC/Westchester | NPCC |
| New York Independent System Operator | NPCC Long Island | NPCC |
| New York Independent System Operator | NPCC Upstate NY | NPCC |
| Northern Indiana Public Service Company | RFC West | RFC |
| Northern States Power Company | MRO West | MRO |
| Ohio Valley Electric Corporation | RFC West | RFC |
| Oklahoma Gas and Electric | SPP South | SPP |
| Omaha Public Power District | MRO West | MRO |
| Otter Tail Power Company | MRO West | MRO |
| PJM Interconnection | RFC East | RFC |
| PJM Interconnection | RFC West | RFC |
| PJM Interconnection | SERC Virginia/Carolina | SERC |
| PUD No. 1 of Chelan County | WECC Northwest | WECC |
| PUD No. 1 of Douglas County | WECC Northwest | WECC |
| PUD No. 2 of Grant County | WECC Northwest | WECC |
| PacifiCorp-East | WECC Northwest | WECC |
| PacifiCorp-West | WECC Northwest | WECC |
| Portland General Electric Company | WECC Northwest | WECC |
| Progress Energy Carolinas - EAST | SERC Virginia/Carolina | SERC |
| Public Service Company of Colorado | WECC Rockies | WECC |
| Public Service Company of New Mexico | WECC Southwest | WECC |
| Puget Sound Energy | WECC Northwest | WECC |
| Salt River Project | WECC Southwest | WECC |
| Seattle Department of Lighting | WECC Northwest | WECC |
| Seminole Electric Cooperative | FRCC All | FRCC |
| Sierra Pacific Power Company | WECC Northwest | WECC |
| South Carolina Electric & Gas Company | SERC Virginia/Carolina | SERC |
| South Carolina Public Service Authority (Santee Cooper) | SERC Virginia/Carolina | SERC |
| South Mississippi Electric Power Association | SERC South | SERC |
| Southeastern Power Administration - Hartwell | SERC Virginia/Carolina | SERC |
| Southern Company Services, Inc. | SERC South | SERC |
| Southern Illinois Power Cooperative | SERC Midwest | SERC |
| Southern Indiana Gas & Electric Co. | RFC West | RFC |
| Southern Minnesota Municipal Power Agency | MRO West | MRO |
| Southwestern Power Administration | SPP South | SPP |
| Southwestern Public Service Company | SPP South | SPP |
| Sunflower Electric Power Corporation | SPP North | SPP |
| Tacoma Power | WECC Northwest | WECC |
| Tampa Electric Company | FRCC All | FRCC |
| Tennessee Valley Authority | SERC Tennessee Valley | SERC |
| Tucson Electric Power Company | WECC Southwest | WECC |
| Upper Peninsula Power Co. | MRO East | MRO |
| Utilities Commission, City of New Smyrna Beach | FRCC All | FRCC |
| WAPA - Colorado-Missouri | WECC Rockies | WECC |
| WAPA - Lower Colorado | WECC Southwest | WECC |
| WAPA - Upper Great Plains East | MRO West | MRO |
| WAPA - Upper Great Plains West | WECC Northwest | WECC |
| Western Farmers Electric Cooperative | SPP South | SPP |
| Western Resources dba Westar Energy | SPP North | SPP |
| Wisconsin Energy Corporation | RFC West | RFC |
| Wisconsin Public Service Corporation | MRO East | MRO |

A representation of the eGRID subregion map used in eGRID2006 is included in Appendix B.

# H. 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.

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. 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 location(operator)- and/or owner-based parent company.

# SECTION IV. SPECIFIC eGRID ID AND NAME CHANGES AND ASSOCIATIONS

eGRID2006 generally uses ID codes (for plants, companies, etc.) assigned by EIA. However, identifiers (IDs) and certain corresponding names have been changed in eGRID2006 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 (ORIS plant code=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 eGRID2006 with a new (dummy) ORIS plant code 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 new (dummy) ORIS plant code 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

More detailed information about some EGCs in eGRID follows:

Many eGRID EGCs, or companies, do not have a known ID code assigned by EIA, perhaps because they recently purchased or began to operate a plant. Thus, companies with unknown EIA EGC IDs are assigned a dummy negative three-digit EGC ID code.

Nonutility, or unregulated, companies that represent the same EGC are called nufronts, are grouped together under a nufront name, and are given an EGC ID of the form -1xxx. 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 aggregation to the EGC level would have been meaningless if these separate EGC 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 used their Ohio Municipal Electric Generation Agency (OMEGA) Joint Ventures that groups these owners into OMEGA JV1, OMEGA JV2, and OMEGA JV5, and used that name as a single owner. These relationships, however, have not been recently been updated.

Several 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 (ID=1307), which was broken up into two divisions: Basin Electric Power Coop-East (ID=1307.1) and Basin Electric Power Coop-West (ID=1307.2);
- Pacificorp (ID=14354), which was broken up into two divisions: Pacificorp-Rocky Mtn (ID=14354.1) and Pacificorp-Pacific (ID=14354.2);
- Texas-New Mexico Power Co (ID=40051), which was broken up into Texas-New Mexico Power Co-NM (ID=40051.1) and Texas-New Mexico Power Co-TX (ID=40051.2); and
- Aquila Inc (ID= 770) which was broken up into Aquila Networks Co-Colorado (ID= 770.1), Aquila Networks Co-Kansas (ID= 770.2), and Aquila Networks-Missouri (ID= 770.3).

## C. PARENT COMPANY LEVEL

Parent company refers to a company (such as a holding company) that owns one or more operating subsidiaries or divisions (ownership-based) 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:

- Aquila Inc (ID= -7062), which includes the two former Utilicorp United EGC divisions, Aquila Networks-Colorado (ID= 770.1) and Aquila Networks-Kansas (ID= 770.2), as well as the former Missouri Public Service Co, Aquila Networks-Missouri (ID= 770.3);
- Basin Electric Power Coop (ID=1307), which includes two Basin Electric Power Coop EGC divisions;
- Pacificorp (ID=14354), which includes two Pacificorp EGC divisions absorbed by MidAmerican Energy Holdings Co parent company (ID= -7034);
- U.S. Army Corp of Engineers, USCE, (ID= -7059), which includes 15 EGCs that are divisions of the Corps of Engineers;
- U.S. Bureau of Indian Affairs, USBIA, (ID= -7060), which includes two EGCs that are divisions of the Bureau of Indian Affairs;
- U.S. Bureau of Reclamation (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 ID=13908 and Northwestern Energy (MT), 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.

## D. POWER CONTROL AREA (PCA) and NERC REGION LEVELS

More detailed information about power control areas (PCA) and NERC regions follow.

By January 2006, there were many changes to both NERC regions and PCAs. The NERC regions in the middle of the country either collapsed or merged into existing NERC regions, and PCAs also merged and/or switched into a different NERC region. In some cases, a PCA, formerly associated with one NERC region, also became associated with more than one NERC region, depending on the States in which their plants are located. An example is the PJM PCA, which consolidated several previous PCAs, and is now spread over two NERC regions (RFC and SERC). There were minor additional changes to the NERC regions in Fall 2006 that are also reflected in this edition of eGRID.

Two PCAs have dummy (negative) codes since there are none available from EIA: -1 for Alaska Misc, and -2 for Hawaii Misc.

In eGRID, a PCA associated with a plant is determined first by its utility operator. If the plant is operated by a nonutility, then the associated utility service area (a utility company with a specified area close the plant's location) determines the PCA. There are some plants that report both a utility operator and a different utility service area to EIA. For some cases in eGRID, the utility service area is used to determine the PCA because the operator's location seems to be too far away. The eight plants for which the utility service area rather than the utility operator were used to determine the PCA are ORISPLs=127 (Oklaunion, TX), 887 (Joppa Steam, IL), 1574 (Conowingo, MD), 7128 (William F Matson, PA), 8024 (Kewaunee, WI), 55202 (Pinckneyville, IL), 54827 (Wailuku River Hydro, HI), and 55496 (Goose Creek, IL).

See a representation of the eGRID2006 NERC region map in Appendix B.

## E. eGRID SUBREGION LEVEL

eGRID subregions are developed as subsets of NERC regions. In the previous versions of eGRID, these grid regions were similar to EPA's IPM subregions (except for the New York and California areas). At this juncture, however, there are no known defined subregions (except for those in WECC, which have been defined by NERC). Therefore, for the WECC NERC region and for those other NERC regions that did not change configuration, the new eGRID subregions will remain the same. Definitions of the other new eGRID subregions were made by EPA/CPPD after consultation with NERC staff.

See a representation of the eGRID2006 subregion map in Appendix B.

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# SECTION V. DESCRIPTION OF DATA ELEMENTS

For year 2004 data, eGRID2006 has 12 files, named EGRDBLR (boiler), EGRDGEN (generator), EGRDPLNT (plant), EGRDST (State), EGRDEGCL (location (operator)-based EGC), EGRDEGCO (owner-based EGC), EGRDPRL (location (operator)-based parent company), EGRDPRO (owner-based parent company), EGRDPCAL (PCA), EGRDSRL (eGRID subregion), EGRDNRCL (NERC region), and EGRDUS (Unites States total). Appendix A provides file structures for the eGRID2006 2004 data year, which include variable descriptions and data sources.

Unlike the Technical Support Document for eGRID2002, definitions for like variables are not repeated after described 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=ST, EG, PR, PC, SR, NR, is not defined; it is simply the sum of PLNGENAN attributed to the aggregation entity.

## A. THE EGRDBLR (BOILER) FILE

There are 34 variables in the first file, EGRDBLR, 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 ETS/CEM or EIA-767 data files may be included in the plant emissions values.

1. **eGRID2006 2004 File Boiler Sequence Number (SEQBLR04) –**
   The boiler records in this year 2004 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.

2. **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, as reported to the EIA-860.
   Source: EIA-860

4. **DOE/EIA ORIS Plant or Facility Code (ORISPL) –**
   This plant code corresponds to PNAME and was originally developed for utility 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 of Laramie River, has been altered. See Section IV for details.
   Source: EIA-860

5. **Boiler ID (BLRID) –**
   This field identifies the boiler (in the steam unit case) or gas or oil burning turbine (in the new simple combustion turbine case). In the majority of cases, there is a 1-to-1 correspondence with the generator ID.
   Sources: EIA-767, ETS/CEM

**6. Acid Rain Program Flag (ARPFLAG) –**
This field indicates if the boiler reports ETS/CEM data annually under Title IV of the Clean Air Act Amendments of 1990 as part of the Acid Rain Program (1=Yes, 0=No).
Source: ETS/CEM

**7. $NO_x$ Budget Program Flag (NBPFLAG) –**
This field indicates if the boiler reports ETS/CEM data as part of the $NO_x$ Budget Program (1=Yes, 0=No).
Source: ETS/CEM

**8. Boiler Bottom and Firing Types (BOTFIRTY) –**
This field has a meaningful value. The field is four characters in length, with the first two designating the bottom type and the last two representing the firing type of the boiler. Defaults of dry bottom and wall-fired are not included (this is new in eGRID2006). 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 |
| OTHER | = | Other |
| STOKER | = | Stoker |
| TANG | = | Tangential firing |
| TURBO | = | Turbo |
| VERT | = | Vertical firing |
| WALL | = | Wall |

Source: EIA-767, ETS/CEM

**9. Number of Associated Generators (NUMGEN) –**
This field provides the number of generators associated with each boiler in the file.
Source: EIA-767

**10. Primary Boiler Fuel (FUELB1) –**
This field specifies the primary fuel reported to the EIA-767 or EPA's ETS/CEM. Possible choices are:

| | | |
|---|---|---|
| AB | = | Agricultural byproducts |
| BFG | = | Blast-furnace gas |
| BIT | = | Bituminous coal |
| BLQ | = | Black liquor |
| COG | = | Coke oven gas |

| | | |
|---|---|---|
| DFO | = | Distillate, light fuel oil, FO2 |
| DG | = | Digester gas (other biomass gases) |
| LFG | = | Landfill gas |
| LIG | = | Lignite coal |
| NG | = | Natural gas |
| OGS | = | Other gas |
| OOL | = | Other oil |
| PC | = | Petroleum coke |
| PRG | = | Process gas |
| RFO | = | Petroleum, heavy, residual oil |
| RG | = | Refinery gas |
| SC | = | Synthetic coal |
| SW7 | = | 70% municipal solid waste as biomass |
| SUB | = | Subbituminous coal |
| TDF | = | Tire derived fuel |
| WC | = | Waste coal |
| WDL | = | Wood/wood waste liquids |
| WDS | = | Wood/wood waste solids |
| WO | = | Waste oil |

Sources: ETS/CEM, EIA-767 based

**11. Hours Connected to Load (LOADHRS) –**
This field indicates the reported number of hours per year that the boiler operated.
Source: EIA-767

**12 Boiler Unadjusted Annual ETS/CEM Heat Input (HTIEAN) –**
This field, in MMBtu, is the boiler unadjusted annual total heat input assigned by EPA/CAMD, based on the values reported to EPA's ETS/CEM. When not available, it is zero.
Source: ETS/CEM

**13. Boiler Unadjusted Ozone Season ETS/CEM Heat Input (HTIEOZ) –**
This field, in MMBtu, is the boiler unadjusted ozone season (May through September) heat input, based on the values reported to EPA's ETS/CEM. If ETS/CEM ozone season data are not available, but ETS/CEM annual data are, then the value in this field is calculated as 5/12 of the annual value. Otherwise, the value is zero.
Source: ETS/CEM

**14 Boiler Unadjusted Annual Total EIA-Based Calculated Heat Input (HTIFAN) –**
This field, in MMBtu, provides the boiler unadjusted annual total heat input, calculated using EIA-767 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 unadjusted ozone season (May through September) heat input, calculated using EIA 767 based data, when available. If EIA-767 based ozone season data are not available, but EIA-767 based annual data are, then the value in this field is calculated as 5/12 of the annual value. Otherwise, the value is zero.

16. **Boiler Unadjusted Annual ETS/CEM $NO_x$ Emissions (NOXEAN) –**
This field, in tons, is the boiler unadjusted $NO_x$ emissions assigned by EPA/CAMD based on the values reported to EPA's ETS/CEM. When not available, it is zero.
Source: ETS/CEM

17. **Boiler Unadjusted Ozone Season ETS/CEM $NO_x$ Emissions (NOXEOZ) –**
This field, in tons, is the boiler unadjusted ozone season (May through September) $NO_x$ emissions based on values reported to EPA's ETS/CEM. If ETS/CEM ozone season data are not available, but ETS/CEM annual data are, then the value in this field is calculated as 5/12 of the annual value. Otherwise, the value is zero.
Source: ETS/CEM

18. **Boiler Unadjusted Annual EIA-Based Calculated $NO_x$ Emissions (NOXFAN) –**
This field, in tons, is the boiler unadjusted annual $NO_x$ emissions, calculated using EIA-767 reported data, when available, and AP-42 emission factors. When not available, it is zero.

19. **Boiler Unadjusted Ozone Season EIA-Based Calculated $NO_x$ Emissions (NOXFOZ) –**
This field, in tons, is the boiler unadjusted ozone season (May through September) $NO_x$ emissions calculated from EIA-reported data and EPA approved emission factors. If EIA-76- based ozone season data are not available, but EIA-767 based 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 ETS/CEM $SO_2$ Emissions (SO2EAN) –**
This field, in tons, is the boiler unadjusted annual $SO_2$ emissions assigned by EPA/CAMD based on the values reported to EPA's ETS/CEM. When not available, it is zero.
Source: ETS/CEM

21. **Boiler Unadjusted Annual EIA-Based Calculated $SO_2$ Emissions (SO2FAN) –**
This field, in tons, is the boiler unadjusted annual $SO_2$ emissions calculated using EIA-767 reported data, when available, and EPA approved emission factors. When not available, it is zero.

22. **Boiler Unadjusted Annual ETS/CEM $CO_2$ Emissions (CO2EAN) –**
This field, in tons, is the boiler unadjusted annual $CO_2$ emissions assigned by EPA/CAMD based on the values reported to EPA's ETS/CEM. When not available, it is zero. If the fuel for this boiler is biomass, the $CO_2$ emissions are assigned a zero value (see the Methodology Section for the rationale for biomass adjustments for $CO_2$).
Source: ETS/CEM

23. **Boiler Unadjusted Annual EIA-Based Calculated $CO_2$ Emissions (CO2FAN) –**
This field, in tons, is the boiler unadjusted annual $CO_2$ emissions calculated using EIA-reported data, when available, and IPCC GHG carbon coefficients. When not available, it is zero. If the fuel for this boiler is biomass, the $CO_2$ emissions are zero since there are no carbon coefficients for this fuel category.

24. **Source of "Best" Data From ETS/CEM or EIA-767 (SRCBEST) –**

This field describes the one source of the "best" variables (HTIBAN, NOXBAN, SO2BAN, CO2BAN, HTIBOZ, NOXBOZ) – either ETS/CEM or EIA-767.

**25. Boiler Unadjusted Annual Best Heat Input (HTIBAN) –**
This field, in MMBtu, contains the "best" boiler 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" boiler 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 $NO_x$ Emissions (NOXBAN) –**
This field, in tons, contains the "best" boiler unadjusted annual $NO_x$ value by taking NOXEAN as its value, if it exists; otherwise NOXFAN's value is used.

**28. Boiler Unadjusted Ozone Season Best $NO_x$ Emissions (NOXBOZ) –**
This field, in tons, contains the "best" boiler unadjusted ozone season (May through September) $NO_x$ value by taking NOXEOZ as its value, if it exists; otherwise NOXFOZ's value is used.

**29. Boiler Unadjusted Annual Best $SO_2$ Emissions (SO2BAN) –**
This field, in tons, contains the "best" boiler unadjusted annual $SO_2$ value by taking SO2EAN as its value, if it exists; otherwise SO2FAN's value is used.

**30. Boiler Unadjusted Annual Best $CO_2$ Emissions (CO2BAN) –**
This field, in tons, contains the "best" boiler unadjusted annual $CO_2$ value by taking CO2EAN as its value, if it exists; otherwise CO2FAN's value is used.

**31. $SO_2$ (Scrubber) First Control Device (SO2CTLDV) –**
This field contains the $SO_2$ control device. Possible values are:

| | | |
|---|---|---|
| BR | = | Jet bubbling reactor |
| CD | = | Circulating dry scrubber |
| DA | = | Dual alkali |
| FBL | = | Fluidized bed |
| FGD, DL | = | Dry lime flue gas desulfurization unit |
| FGD, WL | = | Wet lime flue gas desulfurization unit |
| MA | = | Mechanically aided type |
| MO | = | Magnesium oxide |
| O | = | Other |
| PA | = | Packed type |
| SB | = | Sodium based |
| SD | = | Spray dryer type |
| SP | = | Spray type |
| VE | = | Venturi type |
| WLS | = | Wet limestone |

Sources: EIA-767, ETS/CEM

**32. $NO_x$ First Control Device (NOXCTLDV) –**
This field contains the $NO_x$ control device. Possible single values are:

| | | |
|---|---|---|
| AA | = | Advanced overfire air |
| BF | = | Biased firing |
| CF | = | Fluidized bed combustor |
| CM | = | Combustion modification/fuel reburning |
| DLNB | = | Dry low $NO_x$ premixed technology |
| FR | = | Flue gas recirculation |
| FU | = | Fuel reburning |
| H2O | = | Water injection |
| LA | = | Low excess air |
| LN, LNB | = | Low $NO_x$ burner |
| LNBO | = | Low $NO_x$ burner with overfire air |
| LNC1 | = | Low $NO_x$ burner technology with close-coupled overfire air |
| LNC3 | = | Low $NO_x$ burner technology with close-coupled and separated overfire air |
| LNCB | = | Low $NO_x$ burner technology for cell burners |
| NH3 | = | Ammonia injection |
| O, OT | = | Other |
| OFA, OV | = | Overfire air |
| SC | = | Slagging |
| SCR, SR | = | Selective catalytic reduction |
| SN, SNCR | = | Selective noncatalytic reduction |
| STM | = | Steam injection |

Sources: EIA-767, ETS/CEM

**33. Hg Activated Carbon Injected System Flag (HGCTLDV) –**
This field contains an activated carbon injection mercury control flag (1=Yes).
Source: EIA-767

**34. Boiler Year On-Line (BLRYRONL) –**
The field provides the four digit date boiler year on-line date.
Source: EIA-767

## B. THE EGRDGEN (GENERATOR) FILE

There are 15 variables in the second file, EGRDGEN, 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 generators in the EIA-767, from nuclear units in the EIA-906/920, and from those plant-prime movers in the EIA-906/920 that have only one generator in the EIA-860. The source of generation in the plant file is primarily the EIA-906/920.

**1. eGRID2006 2004 File Generator Sequence Number (SEQGEN04) –**
The generator records in this year 2004 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.

**2. 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, as reported to the EIA-860.
Source: EIA-860

**4. DOE/EIA ORIS Plant or Facility Code (ORISPL) –**
This plant code corresponds to PNAME and was originally developed for utility 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 of Laramie River, has been altered. See Section IV for details.
Source: EIA-860

**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, EIA-767

**6. Number of Associated Boilers (NUMBLR) –**
This field provides the number of boilers associated with each generator in the file.
Source: EIA-767

**7. Generator Status (GENSTAT) –**
This field indicates the reported generator status at the end of the given year for utilities and nonutilities. Possible values are:

| | | |
|---|---|---|
| BU | = | Cold storage |
| OP | = | Operating |
| OS | = | In commercial operation, but out of service |
| RE | = | Retired |
| SB | = | Cold stand-by (long-term storage) |

| | | |
|---|---|---|
| TS | = | Testing |
| V | = | More than 50% constructed |

Source: EIA-860

**8. Prime Mover Type (PRMVR) –**

This field indicates the reported generator's electric generator type. Possible choices 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 |
| 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. Primary Generator Fuel (FUELG1) –**

This field indicates the potential primary fuel reported for the generator. Possible choices are:

| | | |
|---|---|---|
| AB | = | Agricultural byproducts |
| BFG | = | Blast-furnace gas |
| BIT | = | Bituminous coal |
| BLQ | = | Black liquor |
| DFO | = | Distillate, light fuel oil, FO2 |
| GEO | = | Geothermal |
| JF | = | Jet fuel |
| KE | = | Kerosene |
| LFG | = | Landfill gas |
| LIG | = | Lignite coal |
| MSW | = | Municipal solid waste |
| NG | = | Natural gas |
| NUC | = | Nuclear materiel |
| OBG | = | Other biomass gases (digester gas) |
| OG | = | Other gas |
| OTH | = | Other unknown |
| PC | = | Petroleum coke |
| PUR | = | Purchased steam |
| RFO | = | Petroleum, heavy, residual oil |
| SC | = | Synthetic coal |
| SUB | = | Subbituminous coal |
| SUN | = | Solar |
| TDF | = | Tire derived fuel |
| WAT | = | Water |

| | | |
|---|---|---|
| WC | = | Waste coal |
| WDL | = | Wood/wood waste liquids |
| WDS | = | Wood/wood waste solids |
| WH | = | Waste heat |
| WND | = | Wind |
| WO | = | Waste oil |
| WAT | = | Water |

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 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-767, EIA-906/920

**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-767, EIA-906/920

**14. Generation Data Source (GENERSRC) –**
This field describes the source of the generator generation data. The three choices are as follows: 767=EIA-767, 906NK=EIA-906/920 nuclear unit, or 906NONK=EIA-906/920 only generator at that plant's prime mover. This is a new field in eGRID2006.

**15. Generator Year On-Line (GENYRONL) –**
This field provides the four digit generator year on-line date.
Source: EIA-860

## C. THE EGRDPLNT (PLANT) FILE

There are 131 variables in EGRDPLNT. Some data may be outliers and should be viewed with caution.

1. **eGRID2006 2004 File Plant Sequence Number (SEQPLT04) –**
   The plant records in this year 2004 data file are sorted by State postal code abbreviation, plant name, and boiler ID, and are assigned a unique sequential number beginning with 1.

2. **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

4. **DOE/EIA ORIS Plant or Facility Code (ORISPL) –**
   This plant code corresponds to PNAME and was originally developed for utility 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 of Laramie River, has been altered. See Section IV for details.
   Source: EIA-860

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 based on matches from EPA's FRS database as of March 2006 and is not based on more recent FRS data. This is a new field in eGRID2006.
   Source: EPA FRS

6. **Plant Operator Name (OPRNAME) –**
   The name associated with each operating utility company (or EGC) is contained in this field.
   Source: EIA-860

7. **Plant Operator ID (OPRCODE) –**
   This field corresponds to OPRNAME and contains the operating company ID. Each operating utility has a unique company code assigned by EIA. Some operator names do not have associated codes assigned by EIA and some nonutility EGC are grouped together; thus, EPA has uniquely assigned negative integers beginning with -101, -1001, or -2001. See Section IV for details.
   Source: EIA-860 and updates through 2006

8. **Utility Service Area Name (UTLSRVNM) –**
   This field contains the name of the utility service area (a utility company or EGC) in which the nonutility plant is located. See Section IV for further details.
   Source: EIA-860 and updates through 2006

**9. Utility Service Area ID (UTLSRVID) –**
This field corresponds to UTLSRVNM and contains the unique ID code associated with each utility service area.
Source: EIA-860 and updates through 2006

**10. Parent Company ID Associated with the Operator (OPPRNUM) –**
This field contains the ID of the parent company, if it exists, associated with the plant's operating company. 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. Parent Company Name Associated with the Operator (OPPRNAME) –**
This field corresponds to OPPRNUM and contains the name of the parent company, if it exists, associated with the plant's operating company. 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. See the Methodology Section and Section IV for further information about PCAs.
Sources: NERC, EIA-861 plus updates

**13. Power Control Area ID (PCAID) –**
This field corresponds to PCANAME and contains the ID of the power control area for the plant. See the Methodology Section and Section IV for further information about eGRID subregions.
Sources: NERC, EIA-861 plus updates

**14. NERC Region Acronym (NERC) –**
This field contains the acronym for the NERC region in which the plant is located. This field includes the acronym for one of the NERC defined regions and is the NERC region associated with the PCA. See the Methodology Section and Section IV for further information about NERC regions. A representation of the eGRID2006 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. See the Methodology Section and Section IV for further information about eGRID subregions. A representation of the eGRID2006 eGRID subregion map is included in Appendix B.
Source: EPA

**16. eGRID Subregion Name (SRNAME) –**
This field corresponds to SUBRGN and contains the name of the eGRID subregion in which the plant is located. See the Methodology Section and Section IV for further information about eGRID subregions.
Source: EPA

**17. Plant FIPS State Code (FIPSST) –**
This field contains the two digit Federal Information Processing Standards (FIPS) State character code of the State in which the plant is located.
Source: EIA-860

**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.

**19. Plant County Name (CNTYNAME) –**
This field corresponds to FIPSST and contains the name of the county in which the plant is located.
Source: EIA-860

**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, update files

**21. Plant Longitude (LON) –**
This field contains the longitude, in degrees to four decimal places, associated with the plant. When not provided, the plant's county centroid's x-coordinate is used.
Source: EPA, update files

**22. Number of Boilers (NUMBLR) –**
This field contains the number of boilers within a plant.
Source: ETS/CEM, EIA-767

**23. Number of Generators (NUMGEN) –**
This field contains the number of 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 generator file.
Source: EIA-860

**24. Plant Emissions Source(s) (SOURCEM) –**
This field describes the source(s) of emissions data for the plant. The choices are:

| | | |
|---|---|---|
| ETS/CEM | = | $NO_x$, $SO_2$, $CO_2$ emissions reported via Continuous Emissions Monitoring Systems (CEMS) to EPA's Emissions tracking System (ETS) |
| EF | = | Emissions estimated by applying EPA-approved emission factors to EIA data |
| ICR | = | EPA's Year 1999 Mercury ICR (adjusted for data year) |
| MWC | = | EPA's Year 2000 Large MWC Boiler Database for Hg (adjusted for data year) |

**25. Plant Primary Fuel (PLPRIMFL) –**
This field contains the plant's primary fuel based on maximum heat input or assignment (if plant is solar, wind, nuclear, geothermal, or hydro). Possible choices are:

| | | |
|---|---|---|
| AB | = | agricultural byproducts |
| BFG | = | blast furnace gas |

| | | |
|---|---|---|
| BIT | = | bituminous coal |
| BLQ | = | black liquor |
| COG | = | coke oven gas |
| DFO | = | distillate oil |
| DG | = | digester gas |
| JF | = | jet fuel |
| KER | = | kerosene |
| LFG | = | landfill gas |
| LIG | = | lignite coal |
| NG | = | natural gas |
| OBS | = | other biomass gases |
| OG | = | other gas |
| OOL | = | other oil |
| OTH | = | other (unknown) |
| PC | = | petroleum coke |
| PRG | = | process gas |
| PUR | = | purchased fuel (unknown) |
| RFO | = | residual oil |
| RG | = | refinery gas |
| SC | = | coal-based syn fuel |
| SUB | = | subbituminous coal |
| SW7 | = | 70% municipal solid waste as biomass |
| TDF | = | tire-derived fuel |
| WC | = | waste coal |
| WDL | = | wood (waste) liquids |
| WDS | = | wood (waste) solids |
| WO | = | residual oil |
| NUC | = | nuclear materiel |
| WAT | = | water |
| GEO | = | geothermal steam |
| SUN | = | sun |
| WND | = | wind |

**26. Plant Primary Coal/Oil/Gas Fossil Fuel Category (PLFFLCTG) –**
This value of this field is "COAL" if PLPRIMFL is derived from coal, "OIL" if it is derived from oil, or "GAS" if it is derived from gas. The value is blank otherwise. 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.

**27. Plant Capacity Factor (CAPFAC) –**
This field contains the plant capacity factor, expressed with two decimal places. It is calculated as follows:
CAPFAC = PLNGENAN / (NAMEPCAP * 8760)
Although the value should be between 0 and 1 inclusive, there are outliers.

**28. Plant Nameplate Capacity (NAMEPCAP) –**
This field contains the nameplate capacity of the plant, in MW.
Source: EIA-860 summed

**29. Renewable Methane/Biomass Plant Adjustment Flag (RMBMFLAG) –**
This field contains the renewable methane (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 ETS/CEM. Possible codes are: 0=No biomass, 1=Renewable methane included, or 100=Other biomass included. For details, see the Methodology Section.

**30. Combined Heat and Power (CHP) (Cogenerator) Plant Adjustment Flag (CHPFLAG) –**
This field contains a flag to indicate if the plant is a CHP facility (1=Yes, 0=No). 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 ETS/CEM. For details, see the Methodology Section.

**31. CHP Plant Useful Thermal Output (USETHRMO) –**
This field, in MMBtu, contains the useful thermal output estimated or reported for a CHP facility.

**32. CHP Plant Power to Heat Ratio (PWRTOHT) –**
This field contains the power to heat ratio in a CHP facility, which is the ratio of heat value of electricity generated (3412 x kWh output) to the facility's useful thermal output. There are outliers.

**33 CHP Plant Electric Allocation Factor (ELCALLOC) –**
This field contains the 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. See CHP in the Methodology Section for further information. For non-CHP plants, eGRID uses an electric allocation factor of 1.0.

**34. Plant Pumped Storage Flag (PSFLAG) –**
This field indicates if the plant has at least one pumped storage generator (1=Yes, 0=No). Source: EIA-860.

**35. 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.

**36. 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.

**37. Plant Annual Net Generation (PLNGENAN) –**
This field is the total reported annual net generation, in MWh, for the plant.
Sources: EIA-906/920, EIA-767

**38. 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-906/920, EIA-767

**39. Plant Annual $NO_x$ Emissions (PLNOXAN) –**
This field, in tons, is the total annual $NO_x$ emissions for the plant. Renewable methane biomass components of this field 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 renewable methane adjustment (if it exists) and then applying the electric allocation factor (if the plant is a CHP). See the Methodology Section for details.

**40. Plant Ozone Season $NO_x$ Emissions (PLNOXOZ) –**
This field, in tons, is the five month ozone season (May through September) $NO_x$ emissions for the plant. Renewable methane biomass components of this field 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 renewable methane adjustment (if it exists) and then applying the electric allocation factor (if the plant is a CHP). See the Methodology Section for details.

**41. Plant Annual $SO_2$ Emissions (PLSO2AN) –**
This field, in tons, is the total annual $SO_2$ emissions for the plant. Renewable methane biomass components of this field 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 renewable methane adjustment (if it exists) and then applying the electric allocation factor (if the plant is a CHP). See the Methodology Section for details.

**42. Plant Annual $CO_2$ Emissions (PLCO2AN) –**
This field, in tons, is the total annual $CO_2$ emissions for the plant. For biomass (including renewable methane) components of the plant emissions, the unadjusted and adjusted-for-biomass emission values are the same since there are no carbon coefficients for these fuels. 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.

**43. 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.

**44. Plant Annual $NO_x$ Output Emission Rate (PLNOXRTA) –**
This field, in lb/MWh, is calculated as follows:
PLNOXRTA = 2000 * PLNOXAN / PLNGENAN.

**45. Plant Ozone Season $NO_x$ Output Emission Rate (PLNOXRTO) –**
This field, in lb/MWh, is calculated as follows:
PLNOXRTO = 2000 * PLNOXOZ / PLNGENOZ.

**46. Plant Annual $SO_2$ Output Emission Rate (PLSO2RTA) –**
This field, in lb/MWh, is calculated as follows:
PLSO2RTA = 2000 * PLSO2AN / PLNGENAN.

**47. Plant Annual $CO_2$ Output Emission Rate (PLCO2RTA) –**
This field, in lb/MWh, is calculated as follows:
PLCO2RTA = 2000 * PLCO2AN / PLNGENAN.

**48. Plant Annual Mercury Output Emission Rate (PLHGRTA) –**
This field, in lb/GWh, is calculated as follows:
PLHGRTA = PLHGAN / (PLNGENAN / 1000).

**49. Plant Annual $NO_x$ Input Emission Rate (PLNOXRA) –**
This field, in lb/MMBtu, is calculated as follows:
PLNOXRA = 2000 * PLNOXAN / PLHTIAN.

**50. Plant Ozone Season $NO_x$ Input Emission Rate (PLNOXRO) –**
This field, in lb/MMBtu, is calculated as follows:
PLNOXRO = 2000 * PLNOXOZ / PLHTIOZ.

**51. Plant Annual $SO_2$ Input Emission Rate (PLSO2RA) –**
This field, in lb/MMBtu, is calculated as follows:
PLSO2RA = 2000 * PLSO2AN / PLHTIAN.

**52. Plant Annual $CO_2$ Input Emission Rate (PLCO2RA) –**
This field, in lb/MMBtu, is calculated as follows:
PLCO2RA = 2000 * PLCO2AN / PLHTIAN.

**53. Plant Annual Mercury Input Emission Rate (PLHGRA) –**
This field, in lb/BBtu, is calculated as follows:
PLHGRA = PLHGAN / (PLHTIAN / 1000).

**54. Plant Unadjusted Annual $NO_x$ Emissions (UNNOX) –**
This field, in tons, is the total plant level unadjusted annual $NO_x$ emissions. See the Methodology Section for details. This is a new field in eGRID2006.

**55. Plant Unadjusted Ozone Season $NO_x$ Emissions (UNNOXOZ) –**
This field, in tons, is the unadjusted five month ozone season (May through September) $NO_x$ emissions for the plant. See the Methodology Section for details. This is a new field in eGRID2006.

**56. Plant Unadjusted Annual $SO_2$ Emissions (UNSO2) –**
This field, in tons, is the total plant level unadjusted annual $SO_2$ emissions. See the Methodology Section for details. This is a new field in eGRID2006.

**57. Plant Unadjusted Annual $CO_2$ Emissions (UNCO2) –**
This field, in tons, is the total plant level unadjusted annual $CO_2$ emissions. For biomass components of the plant emissions, the adjusted and unadjusted emission values are the same since there are no carbon coefficients for these fuels. See the Methodology Section for details. This is a new field in eGRID2006.

**58. 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 1999 for coal plants and for year 2000 for large municipal solid waste combustors, and for eGRID, are estimated for year 2004. See the Methodology Section for details. This is a new field in eGRID2006.

**59. 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. This is a new field in eGRID2006.
Sources: ETS/CEM, EIA-906/920, EIA-767 calculated

**60. 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. This is a new field in eGRID2006.
Sources: ETS/CEM, EIA-906/920, EIA-767 calculated

**61. Plant Nominal Heat Rate (PLHTRT) –**
This field, in Btu/kWh, contains the plant nominal heat rate. It is calculated as follows:
PLHTRT = 1000 * PLHTIAN / PLNGENAN.
For CHP plants, the value is, in effect, adjusted by the electric allocation factor, since the heat input has been adjusted.

**62. 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, SC.

**63. 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, RFO, OIL, WO, OOL, PC, RG.

**64. 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, PG, BU.

**65. 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.

**66. Plant Annual Hydro Net Generation (PLGENAHY) –**
This field, in MWh, contains the plant annual net generation for hydro if the fuel code is WAT.

**67. Plant Annual Biomass/Wood Net Generation (PLGENABM) –**
This field, in MWh, contains the plant annual net generation for biomass/wood. 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 (assumed to be 70% of generation – fuel code="SW7") is included as biomass, as are WDS, WDL, PP, BLQ, AB, SLW, ME, DG, LFG, OBS, OBL, OO, TO. See the Methodology Section for more information.

**68. Plant Annual Wind Net Generation (PLGENAWI) –**
This field, in MWh, contains the plant annual net generation for wind if the fuel code is WND.

**69. Plant Annual Solar Net Generation (PLGENASO) –**
This field, in MWh, contains the plant annual net generation for solar if the fuel code is SUN.

**70. Plant Annual Geothermal Net Generation (PLGENAGT) –**
This field, in MWh, contains the plant annual net generation for geothermal if the fuel code is GEO.

**71 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 natural gas. Other fossil fuel codes include LB, MH, OTL, HY, OG, PRG, BFG, COG, TDF, SW3.

**72. 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. This is a new field in eGRID2006.

**73. 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, natural gas, and nuclear power. This field is the sum of PLGENACL, PLGENAOL, PLGENAGS, PLGENANC, PLGENAOF, PLGENAOP.

**74. 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 hydro, wind, solar, geothermal, and biomass. This field is the sum of PLGENABM, PLGENAWI, PLGENASO, PLGENAGT, PLGENAHY.

**75. 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, PLGENAGT.

**76. 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.

**77. 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.

**78. 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.

**79. 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.

**80. 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.

**81. Plant Biomass/Wood Generation Percent (PLBMPR) –**
This field, the biomass/wood resource mix expressed as a percent of plant annual net generation, is calculated as follows:
PLBMPR = 100 * PLGENABM / PLNGENAN.

**82. Plant Wind Generation Percent (PLWIPR) –**
This field, the wind resource mix expressed as a percent of plant annual net generation, is calculated as follows:
PLWIPR = 100 * PLGENAWI / PLNGENAN.

**83. Plant Solar Generation Percent (PLSOPR) –**
This field, the solar resource mix expressed as a percent of plant annual net generation, is calculated as follows:
PLSOPR = 100 * PLGENASO / PLNGENAN.

**84. Plant Geothermal Generation Percent (PLGTPR) –**
This field, the geothermal resource mix expressed as a percent of plant annual net generation, is calculated as follows:
PLGTPR = 100 * PLGENAGT / PLNGENAN.

**85. 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:
PLOFPR = 100 * PLGENAOF / PLNGENAN.

**86. Plant Other Unknown/Purchased Fuel Generation Percent (PLOPPR) –**
This field, the other unknown/purchased fuel resource mix expressed as a percent of plant annual net generation, is calculated as follows:
PLOPPR = 100 * PLGENAOP / PLNGENAN.
This is a new field in eGRID2006.

**87. 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:
PLTNPR = 100 * PLGENATN / PLNGENAN.

**88. 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:
PLTRPR = 100 * PLGENATR / PLNGENAN.

**89. 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:
PLTHPR = 100 * PLGENATH / PLNGENAN.

**90. Plant Owner Name (First) (OWNRNM01) –**
This field contains the name of the first plant owner, a company or EGC.
Sources: EIA-860 and updates through 2006

**91. Plant Owner Code (First) (OWNRUC01) –**
This field contains the unique EIA-assigned number associated with OWNRNM01, with some exceptions. Some owner names do not have associated codes assigned by EIA and some nonutility EGC are grouped together; thus, EPA has uniquely assigned negative integers beginning with -101, -1001, or -2001. See Section IV for further details.
Sources: EIA-860 and updates through 2006

**92. 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 for details.
Source: EIA-860 and updates through 2006

**93. Plant Owner Name (Second) (OWNRNM02) –**
This field contains the name of the second plant owner.
Source: EIA-860 and updates through 2006

**94. Plant Owner Code (Second) (OWNRUC02) –**
This field contains the unique EIA-assigned number associated with OWNRNM02.
Source: EIA-860 and updates through 2006

**95. 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.
Source: EIA-860 and updates through 2006

**96. – 131. Plant Owner Name, Plant Owner Code, and Plant Owner Percent (Third - Fourteenth) –**
The description of these fields contains the information for the third through fourteenth plant owners. See the descriptions in fields #93 through #95 above.
Source: EIA-860 and updates through 2006

# D. THE EGRDST (STATE) FILE

There are 92 variables in the fourth file, EGRDST, 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 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., STHTIAN instead of PLHTIAN) are not re-described. Aggregated variable names generally begin with "ST."

1. **eGRID2006 2004 File State Sequence Number (SEQST04) –**
   The State records in this year 2004 data file are sorted by State postal code abbreviation and are assigned a unique sequential number beginning with 1.

2. **State Abbreviation (PSTATABB)**

3. **FIPS State Code (FIPSST)**

4. **State Generator Capacity (NAMEPCAP)**

5. **State Annual Heat Input (STHTIAN)**

6. **State Ozone Season Heat Input (STHTIOZ)**

7. **State Annual Net Generation (STNGENAN)**

8. **State Ozone Season Net Generation (STNGENOZ)**

9. **State Annual $NO_x$ Emissions (STNOXAN)**

10. **State Ozone Season $NO_x$ Emissions (STNOXOZ)**

11. **State Annual $SO_2$ Emissions (STSO2AN)**

12. **State Annual $CO_2$ Emissions (STCO2AN)**

13. **State Annual Hg Emissions (STHGAN)**

14. **State Annual $NO_x$ Output Emission Rate (STNOXRTA) –**
    This field, in lb/MWh, is calculated as follows:
    STNOXRTA = 2000 * STNOXAN / STNGENAN.

15. **State Ozone Season $NO_x$ Output Emission Rate (STNOXRTO) –**
    This field, in lb/MWh, is calculated as follows:
    STNOXRTO = 2000 * STNOXOZ / STNGENOZ.

16. **State Annual $SO_2$ Output Emission Rate (STSO2RTA) –**
    This field, in lb/MWh, is calculated as follows:
    STSO2RTA = 2000 * STSO2AN / STNGENAN.

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17. **State Annual $CO_2$ Output Emission Rate (STCO2RTA) –**
This field, in lb/MWh, is calculated as follows:
STCO2RTA = 2000 * STCO2AN / STNGENAN.

18. **State Annual Hg Output Emission Rate (STHGRTA) –**
This field, in lb/GWh, is calculated as follows:
STHGRTA = STHGAN / (STNGENAN / 1000).

19. **State Annual $NO_x$ Input Emission Rate (STNOXRA) –**
This field, in lb/MMBtu, is calculated as follows:
STNOXRA = 2000 * STNOXAN / STHTIAN.

20. **State Ozone Season $NO_x$ Input Emission Rate (STNOXRO) –**
This field, in lb/MMBtu, is calculated as follows:
STNOXRO = 2000 * STNOXOZ / STHTIOZ.

21. **State Annual $SO_2$ Input Emission Rate (STSO2RA) –**
This field, in lb/MMBtu, is calculated as follows:
STSO2RA = 2000 * STSO2AN / STHTIAN.

22. **State Annual $CO_2$ Input Emission Rate (STCO2RA) –**
This field, in lb/MMBtu, is calculated as follows:
STCO2RA = 2000 * STCO2AN / STHTIAN.

23. **State Annual Hg Input Emission Rate (STHGRA) –**
This field, in lb/BBtu, is calculated as follows:
STHGRA = STHGAN / (STHTIAN / 1000).

24. **State Coal Annual $NO_x$ Output Emission Rate (STCNOXRT) –**
This field, in lb/MWh, is calculated as the sum of the annual $NO_x$ emissions from all plants in the State that have coal as its primary fuel (PLPRIMFL) 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.

25. **State Oil Annual $NO_x$ Output Emission Rate (STONOXRT) –**
This field, in lb/MWh, is calculated as the sum of the annual $NO_x$ emissions from all plants in the State that have oil as its primary fuel (PLPRIMFL) 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.

26. **State Gas Annual $NO_x$ Output Emission Rate (STGNOXRT) –**
This field, in lb/MWh, is calculated as the sum of the annual $NO_x$ emissions from all plants in the State that have natural gas as its primary fuel (PLPRIMFL) 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.

27. **State Fossil Fuel Annual $NO_x$ Output Emission Rate (STFSNXRT) –**
This field, in lb/MWh, is calculated as the sum of the annual $NO_x$ emissions from all plants in the State that have coal, oil, or gas fossil fuel as its primary fuel (PLPRIMFL) 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.

**28 -. State Coal, Oil, Gas, Fossil Fuel Ozone Season $NO_x$ Output Emission Rates –**
**31.** The descriptions of these fields, in lb/MWh, contain the same information for ozone season $NO_x$ as fields #24 through #27, respectively, do for annual $NO_x$.

**32. - State Coal, Oil, Gas, Fossil Fuel Annual $SO_2$ Output Emission Rates –**
**35.** The descriptions of these fields, in lb/MWh, contain the same information for annual $SO_2$ as fields #24 through #27, respectively, do for annual $NO_x$.

**36. - State Coal, Oil, Gas, Fossil Fuel Annual $CO_2$ Output Emission Rates –**
**39.** The descriptions of these fields, in lb/MWh, contain the same information for annual $CO_2$ as fields #24 through #27, respectively, do for annual $NO_x$.

**40. - State Coal, Fossil Fuel Annual Hg Output Emission Rates –**
**41.** The descriptions of these fields, in lb/GWh, contain the same information for annual Hg as fields #24 and #27, respectively, do for annual $NO_x$.

**42. - State Coal, Oil, Gas, Fossil Fuel Annual $NO_x$, Ozone Season $NO_x$, Annual $SO_2$,**
**59. Annual $CO_2$, Annual Hg Input Emission Rates –**
The description of these fields, primary fuel-specific input emissions rates, contain the same information that fields #24 through #41 do for primary fuel-specific output emissions 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.

**60. State Annual Non-baseload $NO_x$ Output Emission Rates (STNBNOX) –**
This field, in lb/MWh, is the sum of the annual non-baseload $NO_x$ emissions divided by the sum of annual non-baseload net generation in the State and then multiplied by a unit conversation 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. This is a new field in eGRID2006.

**61. - State Ozone Season Non-baseload $NO_x$ Output Emission Rate (STNBNXO),**
**64. State Annual Non-baseload $SO_2$ Output Emission Rate (STNBSO2),**
**State Annual Non-baseload $CO_2$ Output Emission Rate (STNBCO2)**
**State Annual Non-baseload Hg Output Emission Rate (STNBHG) –**
The description of these fields, in lb/MWh, contain the same information as field #60 does for annual $NO_x$ – but for ozone season $NO_x$, annual $SO_2$, annual $CO_2$, and annual Hg. These are new fields in eGRID2006.

**65. State Annual Coal Net Generation (STGENACL)**

**66. State Annual Oil Net Generation (STGENAOL)**

**67. State Annual Gas Net Generation (STGENAGS)**

**68. State Annual Nuclear Net Generation (STGENANC)**

69. **State Annual Hydro Net Generation (STGENAHY)**

70. **State Annual Biomass/Wood Net Generation (STGENABM)**

71. **State Annual Wind Net Generation (STGENAWI)**

72. **State Annual Solar Net Generation (STGENASO)**

73. **State Annual Geothermal Net Generation (STGENAGT)**

74. **State Annual Other Fossil Net Generation (STGENAOF)**

75. **State Annual Other Unknown/Purchased Net Generation (STGENAOP)**

76. **State Annual Total Nonrenewables Net Generation (STGENATN)**

77. **State Annual Total Renewables Net Generation (STGENATR)**

78. **State Annual Total Nonhydro Renewables Net Generation (STGENATH)**

79. **State Coal Generation Percent (STCLPR)**

80. **State Oil Generation Percent (STOLPR)**

81. **State Gas Generation Percent (STGSPR)**

82. **State Nuclear Generation Percent (STNCPR)**

83. **State Hydro Generation Percent (STHYPR)**

84. **State Biomass/Wood Generation Percent (STBMPR)**

85. **State Wind Generation Percent (STWIPR)**

86. **State Solar Generation Percent (STSOPR)**

87. **State Geothermal Generation Percent (STGTPR)**

88. **State Other Fossil Generation Percent (STOFPR)**

89. **State Other Unknown/Purchased Generation Percent (STOPPR)**

90. **State Total Nonrenewables Generation Percent (STTNPR)**

91. **State Total Renewables Generation Percent (STTRPR)**

92. **State Total Nonhydro Renewables Generation Percent (STTHPR)**

## E. THE EGRDEGCL AND EGRDEGCO (EGC) FILES

There are 94 variables in the fifth and sixth files, EGRDEGCL, which contains location (operator)-based EGC data, and EGRDEGCO, which contains owner-based EGC data. 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 are no variables in these files that have not been previously described in the plant or State file variable descriptions. Aggregated variable names generally begin with "EG."

## F. THE EGRDPRL AND EGRDPRO (PARENT COMPANY) FILES

There are 92 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 EGRDPRL, all generation and emissions are derived by aggregating from the location (operator)-based EGC level based on the EGC subsidiaries in the parent company. For EGRDPRO, all generation and emissions are derived by aggregating from the 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 EGRDPRL and EGRDPRO 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 and operate eGRID plants. There are no variables in these files that have not been previously described in the plant or State file variable descriptions. Aggregated variable names generally begin with "PR."

## G. THE EGRDPCAL (PCA) FILE

There are 92 variables in the ninth file, EGRDPCAL, 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. There are no variables in this file that have not been previously described in the plant or State file variable descriptions. Aggregated variable names generally begin with "PC."

## H. THE EGRDSRL (eGRID SUBREGION) FILE

There are 93 variables in the tenth file, EGRDSRL, which contains 26 location (operator)-based eGRID subregions. All generation and emission values are derived by aggregating from the plant level based on the associated eGRID subregion. There are no variables in this file that have not been previously described in the plant or State file variable descriptions. Aggregated variable names generally begin with "SR."

## I. THE EGRDNRCL (NERC REGION) FILE

There are 92 variables in the eleventh file, EGRDNRCL, 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. There are no variables in this file that have not been previously described in the plant or State file variable descriptions. Aggregated variable names generally begin with "NR."

## J. THE EGRDUS (U.S.) FILE

There are 90 variables in the twelfth file, EGRDUS, which contains data for the entire United States. All generation and emission values are derived by aggregating from the plant level. There are no variables in this file that have not been previously described in the plant or State file variable descriptions. Aggregated variable names generally begin with "US."

# SECTION VI. REFERENCES


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# APPENDIX A. eGRID2006 FILE STRUCTURE - VARIABLE DESCRIPTIONS FOR 2004 DATA YEAR

The year 2004 data for eGRID2006 are initially in database format and are then transformed into Excel spreadsheets. The structure of the 12 database files, including descriptions of the variables and original sources of data, are delineated below in the file structure.

## Table A-1
## eGRID2006 Version 2.1 File Structure
## 2004 EGRDBLR Boiler File*

| Field | Name | Description | Source(s) |
|---|---|---|---|
| 1 | SEQBLR04 | eGRID2006 2004 file boiler sequence number | |
| 2 | PSTATABB | State abbreviation | EIA-860 |
| 3 | PNAME | Plant name | EIA-860 |
| 4 | ORISPL | DOE/EIA ORIS plant or facility code | EIA-860 |
| 5 | BLRID | Boiler ID | EIA-767, ETS/CEM |
| 6 | ARPFLAG | Acid Rain Program flag (1=Yes) | ETS/CEM |
| 7 | NBPFLAG | $NO_x$ Budget Program flag (1=Yes) | ETS/CEM |
| 8 | BOTFIRTY | Boiler bottom and firing types | EIA-767, ETS/CEM |
| 9 | NUMGEN | Number of associated generators | EIA-767 |
| 10 | FUELB1 | Primary boiler fuel | ETS/CEM, EIA-767 based |
| 11 | LOADHRS | Hours connected to load | EIA-767 |
| 12 | HTIEAN | Boiler unadjusted annual ETS/CEM heat input (MMBtu) | ETS/CEM |
| 13 | HTIEOZ | Boiler unadjusted ozone season ETS/CEM heat input (MMBtu) | ETS/CEM |
| 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 ETS/CEM $NO_x$ emissions (tons) | ETS/CEM |
| 17 | NOXEOZ | Boiler unadjusted ozone season ETS/CEM $NO_x$ emissions (tons) | ETS/CEM |
| 18 | NOXFAN | Boiler unadjusted annual EIA-based calculated $NO_x$ emissions (tons) | |
| 19 | NOXFOZ | Boiler unadjusted ozone season EIA-based calculated $NO_x$ emissions (tons) | |
| 20 | SO2EAN | Boiler unadjusted annual ETS/CEM $SO_2$ emissions (tons) | ETS/CEM |
| 21 | SO2FAN | Boiler unadjusted annual EIA-based calculated $SO_2$ emissions (tons) | |
| 22 | CO2EAN | Boiler unadjusted annual ETS/CEM $CO_2$ emissions (tons) | ETS/CEM |
| 23 | CO2FAN | Boiler unadjusted annual EIA-based calculated $CO_2$ emissions (tons) | |
| 24 | SRCBEST | Source of “best” data from ETS/CEM or EIA-767 | |
| 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 $NO_x$ emissions (tons) | |
| 28 | NOXBOZ | Boiler unadjusted ozone season best $NO_x$ emissions (tons) | |
| 29 | SO2BAN | Boiler unadjusted annual best $SO_2$ emissions (tons) | |
| 30 | CO2BAN | Boiler unadjusted annual best $CO_2$ emissions (tons) | |
| 31 | SO2CTLDV | $SO_2$ (scrubber) first control device | EIA-767, ETS/CEM |
| 32 | NOXCTLDV | $NO_x$ first control device | EIA-767, ETS/CEM |
| 33 | HGCTLDV | Hg Activated carbon injection system flag (1=Yes) | EIA-767 |
| 34 | BLRYRONL | Boiler year on-line | EIA-767 |

*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 ETS/CEM or EIA-767 data files may be included in the plant emissions values.

## Table A-1 (continued)
## eGRID2006 Version 2.1 File Structure
## 2004 EGRDGEN Generator File**

| Field | Name | Description | Source(s) |
|---|---|---|---|
| 1 | SEQGEN04 | eGRID2006 2004 file generator sequence number | |
| 2 | PSTATABB | State abbreviation | EIA-860 |
| 3 | PNAME | Plant name | EIA-860 |
| 4 | ORISPL | DOE/EIA ORIS plant or facility code | EIA-860 |
| 5 | GENID | Generator ID | EIA-860, EIA-767 |
| 6 | NUMBLR | Number of associated boilers | EIA-767 |
| 7 | GENSTAT | Generator status | EIA-860 |
| 8 | PRMVR | Prime mover type | EIA-860 |
| 9 | FUELG1 | Primary generator fuel | EIA-860 |
| 10 | NAMEPCAP | Generator nameplate capacity (MW) | EIA-860 |
| 11 | CFACT | Generator capacity factor | |
| 12 | GENNTAN | Generator annual net generation (MWh) | EIA-767, EIA-906/920 |
| 13 | GENNTOZ | Generator ozone season net generation (MWh) | EIA-767, EIA-906/920 |
| 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 includes generation from generators in the EIA-767, from nuclear units in the EIA-906/920, and from those plant-prime movers in the EIA-906/920 that have only one generator in the EIA-860. The source of generation in the plant file is primarily the EIA-906/920.

## Table A-1 (continued)
## eGRID2006 Version 2.1 File Structure
## 2004 EGRDPLNT Plant File

| Field | Name | Description | Source(s) |
|---|---|---|---|
| 1 | SEQPLT04 | eGRID2006 2004 file plant sequence number | |
| 2 | PSTATABB | State abbreviation | EIA-860 |
| 3 | PNAME | Plant name | EIA-860 |
| 4 | ORISPL | DOE/EIA ORIS plant or facility code | EIA-860 |
| 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 area name | EIA-860, EIA + updates |
| 9 | UTLSRVID | Utility service area ID | EIA-860, EIA + updates |
| 10 | OPPRNUM | Parent company ID associated with the operator | EIA + updates |
| 11 | OPPRNAME | Parent company name associated with the operator | EIA + updates |
| 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 | FIPSST | Plant FIPS State code | EIA-860 |
| 18 | FIPSCNTY | Plant FIPS county code | EIA-860 |
| 19 | CNTYNAME | Plant county name | EIA-860 |
| 20 | LAT | Plant latitude | EPA/CAMD + updates |
| 21 | LON | Plant longitude | EPA/CAMD + updates |
| 22 | NUMBLR | Number of boilers | |
| 23 | NUMGEN | Number of generators | |
| 24 | SOURCEM | Plant emissions source(s): ETS/CEM = $NO_x$, $SO_2$, $CO_2$ emissions reported via Continuous Emissions Monitoring Systems (CEMS) to EPA's Emissions tracking System (ETS); EF = Emissions estimated by applying EPA-approved emission factors to EIA data; ICR= EPA's Year 1999 Mercury ICR (adjusted for data year); MWC = EPA's Year 2000 Large MWC Boiler Database for Hg ICR (adjusted for data year). | |
| 25 | PLPRMFL | Plant primary fuel | |
| 26 | PLFUELCT | Plant primary coal/oil/gas fossil fuel category | |
| 27 | CAPFAC | Plant capacity factor | |
| 28 | NAMEPCAP | Plant nameplate capacity (MW) | EIA-860 |
| 29 | RMBMFLAG | Renewable methane/biomass plant adjustment flag: 0=No biomass; 1=Renewable methane included (LFG/DG/OBG/ME); 100=Other biomass included | |
| 30 | CHPFLAG | Combined heat and power (CHP) (cogenerator) plant adjustment flag: 1=Yes | eGRID CHP List |
| 31 | USETHRMO | CHP plant useful thermal output (MMBtu) | EIA-906/920 calculated, EIA-767 |
| 32 | PWRTOHT | CHP plant power to heat ratio | |
| 33 | ELCALLOC | CHP plant electric allocation factor | |
| 34 | PSFLAG | Plant pumped storage flag: 1=Yes | EIA-860 |
| 35 | PLHTIAN | Plant annual heat input (MMBtu) | |
| 36 | PLHTIOZ | Plant ozone season heat input (MMBtu) | |
| 37 | PLNGENAN | Plant annual net generation (MWh) | EIA-906/920, EIA-767 |
| 38 | PLNGENOZ | Plant ozone season net generation (MWh) | EIA-906/920, EIA-767 |
| 39 | PLNOXAN | Plant annual $NO_x$ emissions (tons) | |
| 40 | PLNOXOZ | Plant ozone season $NO_x$ emissions (tons) | |
| 41 | PLSO2AN | Plant annual $SO_2$ emissions (tons) | |
| 42 | PLCO2AN | Plant annual $CO_2$ emissions (tons) | |
| 43 | PLHGAN | Plant annual Hg emissions (lbs) | |
| 44 | PLNOXRTA | Plant annual $NO_x$ output emission rate (lb/MWh) | |
| 45 | PLNOXRTO | Plant ozone season $NO_x$ output emission rate (lb/MWh) | |
| 46 | PLSO2RTA | Plant annual $SO_2$ output emission rate (lb/MWh) | |
| 47 | PLCO2RTA | Plant annual $CO_2$ output emission rate (lb/MWh) | |

## Table A-1 (continued)
## eGRID2006 Version 2.1 File Structure
## 2004 EGRDPLNT Plant File (continued)

| Field | Name | Description | Source(s) |
|---|---|---|---|
| 48 | PLHGRTA | Plant annual Hg output emission rate (lb/GWh) | |
| 49 | PLNOXRA | Plant annual $NO_x$ input emission rate (lb/MMBtu) | |
| 50 | PLNOXRO | Plant ozone season $NO_x$ input emission rate (lb/MMBtu) | |
| 51 | PLSO2RA | Plant annual $SO_2$ input emission rate (lb/MMBtu) | |
| 52 | PLCO2RA | Plant annual $CO_2$ input emission rate (lb/MMBtu) | |
| 53 | PLHGRA | Plant annual Hg input emission rate (lb/BBtu) | |
| 54 | UNNOX | Plant unadjusted annual $NO_x$ emissions (tons) | |
| 55 | UNNOXOZ | Plant unadjusted ozone season $NO_x$ emissions (tons) | |
| 56 | UNSO2 | Plant unadjusted annual $SO_2$ emissions (tons) | |
| 57 | UNCO2 | Plant unadjusted annual $CO_2$ emissions (tons) | |
| 58 | UNHG | Plant unadjusted annual Hg emissions (lbs) | |
| 59 | UNHTI | Plant unadjusted annual heat input (MMBtu) | ETS/CEM, EIA-906/920, EIA-767 calculated |
| 60 | UNHTIOZ | Plant unadjusted ozone season heat input (MMBtu) | ETS/CEM, EIA-906/920, EIA-767 calculated |
| 61 | PLHTRT | Plant nominal heat rate (Btu/kWh) | |
| 62 | PLGENACL | Plant annual coal net generation (MWh) | |
| 63 | PLGENAOL | Plant annual oil net generation (MWh) | |
| 64 | PLGENAGS | Plant annual gas net generation (MWh) | |
| 65 | PLGENANC | Plant annual nuclear net generation (MWh) | |
| 66 | PLGENAHY | Plant annual hydro net generation (MWh) | |
| 67 | PLGENABM | Plant annual biomass net generation (MWh) | |
| 68 | PLGENAWI | Plant annual wind net generation (MWh) | |
| 69 | PLGENASO | Plant annual solar net generation (MWh) | |
| 70 | PLGENAGT | Plant annual geothermal net generation (MWh) | |
| 71 | PLGENAOF | Plant annual other fossil net generation (MWh) | |
| 72 | PLGENAOP | Plant annual other unknown/purchased fuel net generation (MWh) | |
| 73 | PLGENATN | Plant annual total nonrenewables net generation (MWh) | |
| 74 | PLGENATR | Plant annual total renewables net generation (MWh) | |
| 75 | PLGENATH | Plant annual total nonhydro renewables net generation (MWh) | |
| 76 | PLCLPR | Plant coal generation percent (resource mix) | |
| 77 | PLOLPR | Plant oil generation percent (resource mix) | |
| 78 | PLGSPR | Plant gas generation percent (resource mix) | |
| 79 | PLNCPR | Plant nuclear generation percent (resource mix) | |
| 80 | PLHYPR | Plant hydro generation percent (resource mix) | |
| 81 | PLBMPR | Plant biomass generation percent (resource mix) | |
| 82 | PLWIPR | Plant wind generation percent (resource mix) | |
| 83 | PLSOPR | Plant solar generation percent (resource mix) | |
| 84 | PLGTPR | Plant geothermal generation percent (resource mix) | |
| 85 | PLOFPR | Plant other fossil generation percent (resource mix) | |
| 86 | PLOPPR | Plant other unknown/purchased fuel generation percent (resource mix) | |
| 87 | PLTNPR | Plant total nonrenewables generation percent (resource mix) | |
| 88 | PLTRPR | Plant total renewables generation percent (resource mix) | |
| 89 | PLTHPR | Plant total nonhydro renewables generation percent (resource mix) | |
| 90 | OWNRNM01 | Plant owner name (first) | EIA-860 + updates |
| 91 | OWNRUC01 | Plant owner code (first) | EIA-860 + updates |
| 92 | OWNRPR01 | Plant owner percent (first) | EIA-860 + updates |
| 93 | OWNRNM02 | Plant owner name (second) | EIA-860 + updates |
| 94 | OWNRUC02 | Plant owner code (second) | EIA-860 + updates |
| 95 | OWNRPR02 | Plant owner percent (second) | EIA-860 + updates |
| 96 | OWNRNM03 | Plant owner name (third) | EIA-860 + updates |

## Table A-1 (continued)
## eGRID2006 Version 2.1 File Structure
## 2004 EGRDPLNT Plant File (continued)

| Field | Name | Description | Source(s) |
|---|---|---|---|
| 97 | OWNRUC03 | Plant owner code (third) | EIA-860 + updates |
| 98 | OWNRPR03 | Plant owner percent (third) | EIA-860 + updates |
| 99 | OWNRNM04 | Plant owner name (fourth) | EIA-860 + updates |
| 100 | OWNRUC04 | Plant owner code (fourth) | EIA-860 + updates |
| 101 | OWNRPR04 | Plant owner percent (fourth) | EIA-860 + updates |
| 102 | OWNRNM05 | Plant owner name (fifth) | EIA-860 + updates |
| 103 | OWNRUC05 | Plant owner code (fifth) | EIA-860 + updates |
| 104 | OWNRPR05 | Plant owner percent (fifth) | EIA-860 + updates |
| 105 | OWNRNM06 | Plant owner name (sixth) | EIA-860 + updates |
| 106 | OWNRUC06 | Plant owner code (sixth) | EIA-860 + updates |
| 107 | OWNRPR06 | Plant owner percent (sixth) | EIA-860 + updates |
| 108 | OWNRNM07 | Plant owner name (seventh) | EIA-860 + updates |
| 109 | OWNRUC07 | Plant owner code (seventh) | EIA-860 + updates |
| 110 | OWNRPR07 | Plant owner percent (seventh) | EIA-860 + updates |
| 111 | OWNRNM08 | Plant owner name (eighth) | EIA-860 + updates |
| 112 | OWNRUC08 | Plant owner code (eighth) | EIA-860 + updates |
| 113 | OWNRPR08 | Plant owner percent (eighth) | EIA-860 + updates |
| 114 | OWNRNM09 | Plant owner name (ninth) | EIA-860 + updates |
| 115 | OWNRUC09 | Plant owner code (ninth) | EIA-860 + updates |
| 116 | OWNRPR09 | Plant owner percent (ninth) | EIA-860 + updates |
| 117 | OWNRNM10 | Plant owner name (tenth) | EIA-860 + updates |
| 118 | OWNRUC10 | Plant owner code (tenth) | EIA-860 + updates |
| 119 | OWNRPR10 | Plant owner percent (tenth) | EIA-860 + updates |
| 120 | OWNRNM11 | Plant owner name (eleventh) | EIA-860 + updates |
| 121 | OWNRUC11 | Plant owner code (eleventh) | EIA-860 + updates |
| 122 | OWNRPR11 | Plant owner percent (eleventh) | EIA-860 + updates |
| 123 | OWNRNM12 | Plant owner name (twelfth) | EIA-860 + updates |
| 124 | OWNRUC12 | Plant owner code (twelfth) | EIA-860 + updates |
| 125 | OWNRPR12 | Plant owner percent (twelfth) | EIA-860 + updates |
| 126 | OWNRNM13 | Plant owner name (thirteenth) | EIA-860 + updates |
| 127 | OWNRUC13 | Plant owner code (thirteenth) | EIA-860 + updates |
| 128 | OWNRPR13 | Plant owner percent (thirteenth) | EIA-860 + updates |
| 129 | OWNRNM14 | Plant owner name (fourteenth) | EIA-860 + updates |
| 130 | OWNRUC14 | Plant owner code (fourteenth) | EIA-860 + updates |
| 131 | OWNRPR14 | Plant owner percent (fourteenth) | EIA-860 + updates |

## Table A-1 (continued)
## eGRID2006 Version 2.1 File Structure
## 2004 EGRDST State File

| Field | Name | Description |
|---|---|---|
| 1 | SEQST04 | eGRID2006 2004 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 $NO_x$ emissions (tons) |
| 10 | STNOXOZ | State ozone season $NO_x$ emissions (tons) |
| 11 | STSO2AN | State annual $SO_2$ emissions (tons) |
| 12 | STCO2AN | State annual $CO_2$ emissions (tons) |
| 13 | STHGAN | State annual Hg emissions (lbs) |
| 14 | STNOXRTA | State annual $NO_x$ output emission rate (lb/MWh) |
| 15 | STNOXRTO | State ozone season $NO_x$ output emission rate (lb/MWh) |
| 16 | STSO2RTA | State annual $SO_2$ output emission rate (lb/MWh) |
| 17 | STCO2RTA | State annual $CO_2$ output emission rate (lb/MWh) |
| 18 | STHGRTA | State annual Hg output emission rate (lb/GWh) |
| 19 | STNOXRA | State annual $NO_x$ input emission rate (lb/MMBtu) |
| 20 | STNOXRO | State ozone season $NO_x$ input emission rate (lb/MMBtu) |
| 21 | STSO2RA | State annual $SO_2$ input emission rate (lb/MMBtu) |
| 22 | STCO2RA | State annual $CO_2$ input emission rate (lb/MMBtu) |
| 23 | STHGRA | State annual Hg input emission rate (lb/BBtu) |
| 24 | STCNOXRT | State coal annual $NO_x$ output emission rate (lb/MWh) |
| 25 | STONOXRT | State oil annual $NO_x$ output emission rate (lb/MWh) |
| 26 | STGNOXRT | State gas annual $NO_x$ output emission rate (lb/MWh) |
| 27 | STFSNXRT | State fossil fuel annual $NO_x$ output emission rate (lb/MWh) |
| 28 | STCNXORT | State coal ozone season $NO_x$ output emission rate (lb/MWh) |
| 29 | STONXORT | State oil ozone season $NO_x$ output emission rate (lb/MWh) |
| 30 | STGNXORT | State gas ozone season $NO_x$ output emission rate (lb/MWh) |
| 31 | STFSNORT | State fossil fuel ozone season $NO_x$ output emission rate (lb/MWh) |
| 32 | STCSO2RT | State coal annual $SO_2$ output emission rate (lb/MWh) |
| 33 | STOSO2RT | State oil annual $SO_2$ output emission rate (lb/MWh) |
| 34 | STGSO2RT | State gas annual $SO_2$ output emission rate (lb/MWh) |
| 35 | STFSS2RT | State fossil fuel annual $SO_2$ output emission rate (lb/MWh) |
| 36 | STCCO2RT | State coal annual $CO_2$ output emission rate (lb/MWh) |
| 37 | STOCO2RT | State oil annual $CO_2$ output emission rate (lb/MWh) |
| 38 | STGCO2RT | State gas annual $CO_2$ output emission rate (lb/MWh) |
| 39 | STFSC2RT | State fossil fuel annual $CO_2$ output emission rate (lb/MWh) |
| 40 | STCHGRT | State coal annual Hg output emission rate (lb/GWh) |
| 41 | STFSHGRT | State fossil fuel annual Hg output emission rate (lb/GWh) |
| 42 | STCNOXR | State coal annual $NO_x$ input emission rate (lb/MMBtu) |
| 43 | STONOXR | State oil annual $NO_x$ input emission rate (lb/MMBtu) |
| 44 | STGNOXR | State gas annual $NO_x$ input emission rate (lb/MMBtu) |
| 45 | STFSNXR | State fossil fuel annual $NO_x$ input emission rate (lb/MMBtu) |
| 46 | STCNXOR | State coal ozone season $NO_x$ input emission rate (lb/MMBtu) |
| 47 | STONXOR | State oil ozone season $NO_x$ input emission rate (lb/MMBtu) |
| 48 | STGNXOR | State gas ozone season $NO_x$ input emission rate (lb/MMBtu) |
| 49 | STFSNOR | State fossil fuel ozone season $NO_x$ input emission rate (lb/MMBtu) |
| 50 | STCSO2R | State coal annual $SO_2$ input emission rate (lb/MMBtu) |
| 51 | STOSO2R | State oil annual $SO_2$ input emission rate (lb/MMBtu) |
| 52 | STGSO2R | State gas annual $SO_2$ input emission rate (lb/MMBtu) |

## Table A-1 (continued)
## eGRID2006 Version 2.1 File Structure
## 2004 EGRDST State File (continued)

| Field | Name | Description |
|---|---|---|
| 53 | STFSS2R | State fossil fuel annual $SO_2$ input emission rate (lb/MMBtu) |
| 54 | STCCO2R | State coal annual $CO_2$ input emission rate (lb/MMBtu) |
| 55 | STOCO2R | State oil annual $CO_2$ input emission rate (lb/MMBtu) |
| 56 | STGCO2R | State gas annual $CO_2$ input emission rate (lb/MMBtu) |
| 57 | STFSC2R | State fossil fuel annual $CO_2$ input emission rate (lb/MMBtu) |
| 58 | STCHGR | State coal annual Hg input emission rate (lb/BBtu) |
| 59 | STFSHGR | State fossil fuel annual Hg input emission rate (lb/BBtu) |
| 60 | STNBNOX | State annual non-baseload $NO_x$ output emission rate (lb/MWh) |
| 61 | STNBNXO | State ozone season non-baseload $NO_x$ output emission rate (lb/MWh) |
| 62 | STNBSO2 | State annual non-baseload $SO_2$ output emission rate (lb/MWh) |
| 63 | STNBCO2 | State annual non-baseload $CO_2$ output emission rate (lb/MWh) |
| 64 | STNBHG | State annual non-baseload Hg output emission rate (lb/GWh) |
| 65 | STGENACL | State annual coal net generation (MWh) |
| 66 | STGENAOL | State annual oil net generation (MWh) |
| 67 | STGENAGS | State annual gas net generation (MWh) |
| 68 | STGENANC | State annual nuclear net generation (MWh) |
| 69 | STGENAHY | State annual hydro net generation (MWh) |
| 70 | STGENABM | State annual biomass net generation (MWh) |
| 71 | STGENAWI | State annual wind net generation (MWh) |
| 72 | STGENASO | State annual solar net generation (MWh) |
| 73 | STGENAGT | State annual geothermal net generation (MWh) |
| 74 | STGENAOF | State annual other fossil net generation (MWh) |
| 75 | STGENAOP | State annual other unknown/purchased fuel net generation (MWh) |
| 76 | STGENATN | State annual total nonrenewables net generation (MWh) |
| 77 | STGENATR | State annual total renewables net generation (MWh) |
| 78 | STGENATH | State annual total nonhydro renewables net generation (MWh) |
| 79 | STCLPR | State coal generation percent (resource mix) |
| 80 | STOLPR | State oil generation percent (resource mix) |
| 81 | STGSPR | State gas generation percent (resource mix) |
| 82 | STNCPR | State nuclear generation percent (resource mix) |
| 83 | STHYPR | State hydro generation percent (resource mix) |
| 84 | STBMPR | State biomass generation percent (resource mix) |
| 85 | STWIPR | State wind generation percent (resource mix) |
| 86 | STSOPR | State solar generation percent (resource mix) |
| 87 | STGTPR | State geothermal generation percent (resource mix) |
| 88 | STOFPR | State other fossil generation percent (resource mix) |
| 89 | STOPPR | State other unknown/purchased fuel generation percent (resource mix) |
| 90 | STTNPR | State total nonrenewables generation percent (resource mix) |
| 91 | STTRPR | State total renewables generation percent (resource mix) |
| 92 | STTHPR | State total nonhydro renewables generation percent (resource mix) |

## Table A-1 (continued)
## eGRID2006 Version 2.1 File Structure
## 2004 EGRDEGCL and EGRDEGCO Files

| Field | Name | Description |
|---|---|---|
| 1 | SEQEGL04, SEQEGO04 | eGRID2006 2004 file EGC location (operator)-based, owner-based sequence number |
| 2 | EGCNAME | EGC name |
| 3 | EGCCODE | EGC ID |
| 4 | PRNUM | Parent company ID associated with the EGC |
| 5 | PRNAME | Parent company name associated with the EGC |
| 6 | NAMEPCAP | EGC nameplate capacity (MW) |
| 7 | EGHTIAN | EGC annual heat input (MMBtu) |
| 8 | EGHTIOZ | EGC ozone season heat input (MMBtu) |
| 9 | EGNGENAN | EGC annual net generation (MWh) |
| 10 | EGNGENOZ | EGC ozone season net generation (MWh) |
| 11 | EGNOXAN | EGC annual $NO_x$ emissions (tons) |
| 12 | EGNOXOZ | EGC ozone season $NO_x$ emissions (tons) |
| 13 | EGSO2AN | EGC annual $SO_2$ emissions (tons) |
| 14 | EGCO2AN | EGC annual $CO_2$ emissions (tons) |
| 15 | EGHGAN | EGC annual Hg emissions (lbs) |
| 16 | EGNOXRTA | EGC annual $NO_x$ output emission rate (lb/MWh) |
| 17 | EGNOXRTO | EGC ozone season $NO_x$ output emission rate (lb/MWh) |
| 18 | EGSO2RTA | EGC annual $SO_2$ output emission rate (lb/MWh) |
| 19 | EGCO2RTA | EGC annual $CO_2$ output emission rate (lb/MWh) |
| 20 | EGHGRTA | EGC annual Hg output emission rate (lb/GWh) |
| 21 | EGNOXRA | EGC annual $NO_x$ input emission rate (lb/MMBtu) |
| 22 | EGNOXRO | EGC ozone season $NO_x$ input emission rate (lb/MMBtu) |
| 23 | EGSO2RA | EGC annual $SO_2$ input emission rate (lb/MMBtu) |
| 24 | EGCO2RA | EGC annual $CO_2$ input emission rate (lb/MMBtu) |
| 25 | EGHGRA | EGC annual Hg input emission rate (lb/BBtu) |
| 26 | EGCNOXRT | EGC coal annual $NO_x$ output emission rate (lb/MWh) |
| 27 | EGONOXRT | EGC oil annual $NO_x$ output emission rate (lb/MWh) |
| 28 | EGGNOXRT | EGC gas annual $NO_x$ output emission rate (lb/MWh) |
| 29 | EGFSNXRT | EGC fossil fuel annual $NO_x$ output emission rate (lb/MWh) |
| 30 | EGCNXORT | EGC coal ozone season $NO_x$ output emission rate (lb/MWh) |
| 31 | EGONXORT | EGC oil ozone season $NO_x$ output emission rate (lb/MWh) |
| 32 | EGGNXORT | EGC gas ozone season $NO_x$ output emission rate (lb/MWh) |
| 33 | EGFSNORT | EGC fossil fuel ozone season $NO_x$ output emission rate (lb/MWh) |
| 34 | EGCSO2RT | EGC coal annual $SO_2$ output emission rate (lb/MWh) |
| 35 | EGOSO2RT | EGC oil annual $SO_2$ output emission rate (lb/MWh) |
| 36 | EGGSO2RT | EGC gas annual $SO_2$ output emission rate (lb/MWh) |
| 37 | EGFSS2RT | EGC fossil fuel annual $SO_2$ output emission rate (lb/MWh) |
| 38 | EGCCO2RT | EGC coal annual $CO_2$ output emission rate (lb/MWh) |
| 39 | EGOCO2RT | EGC oil annual $CO_2$ output emission rate (lb/MWh) |
| 40 | EGGCO2RT | EGC gas annual $CO_2$ output emission rate (lb/MWh) |
| 41 | EGFSC2RT | EGC fossil fuel annual $CO_2$ output emission rate (lb/MWh) |
| 42 | EGCHGRT | EGC coal annual Hg output emission rate (lb/GWh) |
| 43 | EGFSHGRT | EGC fossil fuel annual Hg output emission rate (lb/GWh) |
| 44 | EGCNOXR | EGC coal annual $NO_x$ input emission rate (lb/MMBtu) |
| 45 | EGONOXR | EGC oil annual $NO_x$ input emission rate (lb/MMBtu) |
| 46 | EGGNOXR | EGC gas annual $NO_x$ input emission rate (lb/MMBtu) |
| 47 | EGFSNXR | EGC fossil fuel annual $NO_x$ input emission rate (lb/MMBtu) |
| 48 | EGCNXOR | EGC coal ozone season $NO_x$ input emission rate (lb/MMBtu) |
| 49 | EGONXOR | EGC oil ozone season $NO_x$ input emission rate (lb/MMBtu) |
| 50 | EGGNXOR | EGC gas ozone season $NO_x$ input emission rate (lb/MMBtu) |
| 51 | EGFSNOR | EGC fossil fuel ozone season $NO_x$ input emission rate (lb/MMBtu) |
| 52 | EGCSO2R | EGC coal annual $SO_2$ input emission rate (lb/MMBtu) |

## Table A-1 (continued)
## eGRID2006 Version 2.1 File Structure
## 2004 EGRDEGCL and EGRDEGCO Files (continued)

| Field | Name | Description |
|---|---|---|
| 53 | EGOSO2R | EGC oil annual $SO_2$ input emission rate (lb/MMBtu) |
| 54 | EGGSO2R | EGC gas annual $SO_2$ input emission rate (lb/MMBtu) |
| 55 | EGFSS2R | EGC fossil fuel annual $SO_2$ input emission rate (lb/MMBtu) |
| 56 | EGCCO2R | EGC coal annual $CO_2$ input emission rate (lb/MMBtu) |
| 57 | EGOCO2R | EGC oil annual $CO_2$ input emission rate (lb/MMBtu) |
| 58 | EGGCO2R | EGC gas annual $CO_2$ input emission rate (lb/MMBtu) |
| 59 | EGFSC2R | EGC fossil fuel annual $CO_2$ input emission rate (lb/MMBtu) |
| 60 | EGCHGR | EGC coal annual Hg input emission rate (lb/BBtu) |
| 61 | EGFSHGR | EGC fossil fuel annual Hg input emission rate (lb/BBtu) |
| 62 | EGNBNOX | EGC annual non-baseload $NO_x$ output emission rate (lb/MWh) |
| 63 | EGNBNXO | EGC ozone season non-baseload $NO_x$ output emission rate (lb/MWh) |
| 64 | EGNBSO2 | EGC annual non-baseload $SO_2$ output emission rate (lb/MWh) |
| 65 | EGNBCO2 | EGC annual non-baseload $CO_2$ output emission rate (lb/MWh) |
| 66 | EGNBHG | EGC annual non-baseload Hg output emission rate (lb/GWh) |
| 67 | EGGENACL | EGC annual coal net generation (MWh) |
| 68 | EGGENAOL | EGC annual oil net generation (MWh) |
| 69 | EGGENAGS | EGC annual gas net generation (MWh) |
| 70 | EGGENANC | EGC annual nuclear net generation (MWh) |
| 71 | EGGENAHY | EGC annual hydro net generation (MWh) |
| 72 | EGGENABM | EGC annual biomass net generation (MWh) |
| 73 | EGGENAWI | EGC annual wind net generation (MWh) |
| 74 | EGGENASO | EGC annual solar net generation (MWh) |
| 75 | EGGENAGT | EGC annual geothermal net generation (MWh) |
| 76 | EGGENAOF | EGC annual other fossil net generation (MWh) |
| 77 | EGGENAOP | EGC annual other unknown/purchased fuel net generation (MWh) |
| 78 | EGGENATN | EGC annual total nonrenewables net generation (MWh) |
| 79 | EGGENATR | EGC annual total renewables net generation (MWh) |
| 80 | EGGENATH | EGC annual total nonhydro renewables net generation (MWh) |
| 81 | EGCLPR | EGC coal generation percent (resource mix) |
| 82 | EGOLPR | EGC oil generation percent (resource mix) |
| 83 | EGGSPR | EGC gas generation percent (resource mix) |
| 84 | EGNCPR | EGC nuclear generation percent (resource mix) |
| 85 | EGHYPR | EGC hydro generation percent (resource mix) |
| 86 | EGBMPR | EGC biomass generation percent (resource mix) |
| 87 | EGWIPR | EGC wind generation percent (resource mix) |
| 88 | EGSOPR | EGC solar generation percent (resource mix) |
| 89 | EGGTPR | EGC geothermal generation percent (resource mix) |
| 90 | EGOFPR | EGC other fossil generation percent (resource mix) |
| 91 | EGOPPR | EGC other unknown/purchased fuel generation percent (resource mix) |
| 92 | EGTNPR | EGC total nonrenewables generation percent (resource mix) |
| 93 | EGTRPR | EGC total renewables generation percent (resource mix) |
| 94 | EGTHPR | EGC total nonhydro renewables generation percent (resource mix) |

## Table A-1 (continued)
## eGRID2006 Version 2.1 File Structure
## 2004 EGRDPRCL and EGRDPRCO Files
## Parent Company Location (Operator)-based and Owner-based Files

| Field | Name | Description |
|---|---|---|
| 1 | SEQPRL04, SEQPRO04 | eGRID2006 2004 file Parent company location (operator)-based, owner-based sequence number |
| 2 | PRNUM | Parent company ID |
| 3 | PRNAME | Parent company name associated with the parent company ID |
| 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 $NO_x$ emissions (tons) |
| 10 | PRNOXOZ | Parent company ozone season $NO_x$ emissions (tons) |
| 11 | PRSO2AN | Parent company annual $SO_2$ emissions (tons) |
| 12 | PRCO2AN | Parent company annual $CO_2$ emissions (tons) |
| 13 | PRHGAN | Parent company annual Hg emissions (lbs) |
| 14 | PRNOXRTA | Parent company annual $NO_x$ output emission rate (lb/MWh) |
| 15 | PRNOXRTO | Parent company ozone season $NO_x$ output emission rate (lb/MWh) |
| 16 | PRSO2RTA | Parent company annual $SO_2$ output emission rate (lb/MWh) |
| 17 | PRCO2RTA | Parent company annual $CO_2$ output emission rate (lb/MWh) |
| 18 | PRHGRTA | Parent company annual Hg output emission rate (lb/GWh) |
| 19 | PRNOXRA | Parent company annual $NO_x$ input emission rate (lb/MMBtu) |
| 20 | PRNOXRO | Parent company ozone season $NO_x$ input emission rate (lb/MMBtu) |
| 21 | PRSO2RA | Parent company annual $SO_2$ input emission rate (lb/MMBtu) |
| 22 | PRCO2RA | Parent company annual $CO_2$ input emission rate (lb/MMBtu) |
| 23 | PRHGRA | Parent company annual Hg input emission rate (lb/BBtu) |
| 24 | PRCNOXRT | Parent company coal annual $NO_x$ output emission rate (lb/MWh) |
| 25 | PRONOXRT | Parent company oil annual $NO_x$ output emission rate (lb/MWh) |
| 26 | PRGNOXRT | Parent company gas annual $NO_x$ output emission rate (lb/MWh) |
| 27 | PRFSNXRT | Parent company fossil fuel annual $NO_x$ output emission rate (lb/MWh) |
| 28 | PRCNXORT | Parent company coal ozone season $NO_x$ output emission rate (lb/MWh) |
| 29 | PRONXORT | Parent company oil ozone season $NO_x$ output emission rate (lb/MWh) |
| 30 | PRGNXORT | Parent company gas ozone season $NO_x$ output emission rate (lb/MWh) |
| 31 | PRFSNORT | Parent company fossil fuel ozone season $NO_x$ output emission rate (lb/MWh) |
| 32 | PRCSO2RT | Parent company coal annual $SO_2$ output emission rate (lb/MWh) |
| 33 | PROSO2RT | Parent company oil annual $SO_2$ output emission rate (lb/MWh) |
| 34 | PRGSO2RT | Parent company gas annual $SO_2$ output emission rate (lb/MWh) |
| 35 | PRFSS2RT | Parent company fossil fuel annual $SO_2$ output emission rate (lb/MWh) |
| 36 | PRCCO2RT | Parent company coal annual $CO_2$ output emission rate (lb/MWh) |
| 37 | PROCO2RT | Parent company oil annual $CO_2$ output emission rate (lb/MWh) |
| 38 | PRGCO2RT | Parent company gas annual $CO_2$ output emission rate (lb/MWh) |
| 39 | PRFSC2RT | Parent company fossil fuel annual $CO_2$ output emission rate (lb/MWh) |
| 40 | PRCHGRT | Parent company coal annual Hg output emission rate (lb/GWh) |
| 41 | PRFSHGRT | Parent company fossil fuel annual Hg output emission rate (lb/GWh) |
| 42 | PRCNOXR | Parent company coal annual $NO_x$ input emission rate (lb/MMBtu) |
| 43 | PRONOXR | Parent company oil annual $NO_x$ input emission rate (lb/MMBtu) |
| 44 | PRGNOXR | Parent company gas annual $NO_x$ input emission rate (lb/MMBtu) |
| 45 | PRFSNXR | Parent company fossil fuel annual $NO_x$ input emission rate (lb/MMBtu) |
| 46 | PRCNXOR | Parent company coal ozone season $NO_x$ input emission rate (lb/MMBtu) |
| 47 | PRONXOR | Parent company oil ozone season $NO_x$ input emission rate (lb/MMBtu) |
| 48 | PRGNXOR | Parent company gas ozone season $NO_x$ input emission rate (lb/MMBtu) |
| 49 | PRFSNOR | Parent company fossil fuel ozone season $NO_x$ input emission rate (lb/MMBtu) |
| 50 | PRCSO2R | Parent company coal annual $SO_2$ input emission rate (lb/MMBtu) |

## Table A-1 (continued)
## eGRID2006 Version 2.1 File Structure
## 2004 EGRDPRCL and EGRDPRCO Files
## Parent Company Location (Operator)-based and Owner-based Files (continued)

| Field | Name | Description |
|---|---|---|
| 51 | PROSO2R | Parent company oil annual $SO_2$ input emission rate (lb/MMBtu) |
| 52 | PRGSO2R | Parent company gas annual $SO_2$ input emission rate (lb/MMBtu) |
| 53 | PRFSS2R | Parent company fossil fuel annual $SO_2$ input emission rate (lb/MMBtu) |
| 54 | PRCCO2R | Parent company coal annual $CO_2$ input emission rate (lb/MMBtu) |
| 55 | PROCO2R | Parent company oil annual $CO_2$ input emission rate (lb/MMBtu) |
| 56 | PRGCO2R | Parent company gas annual $CO_2$ input emission rate (lb/MMBtu) |
| 57 | PRFSC2R | Parent company fossil fuel annual $CO_2$ input emission rate (lb/MMBtu) |
| 58 | PRCHGR | Parent company coal annual Hg input emission rate (lb/BBtu) |
| 59 | PRFSHGR | Parent company fossil fuel annual Hg input emission rate (lb/BBtu) |
| 60 | PRNBNOX | Parent company annual non-baseload $NO_x$ output emission rate (lb/MWh) |
| 61 | PRNBNXO | Parent company ozone season non-baseload $NO_x$ output emission rate (lb/MWh) |
| 62 | PRNBSO2 | Parent company annual non-baseload $SO_2$ output emission rate (lb/MWh) |
| 63 | PRNBCO2 | Parent company annual non-baseload $CO_2$ output emission rate (lb/MWh) |
| 64 | PRNBHG | Parent company annual non-baseload Hg output emission rate (lb/GWh) |
| 65 | PRGENACL | Parent company annual coal net generation (MWh) |
| 66 | PRGENAOL | Parent company annual oil net generation (MWh) |
| 67 | PRGENAGS | Parent company annual gas net generation (MWh) |
| 68 | PRGENANC | Parent company annual nuclear net generation (MWh) |
| 69 | PRGENAHY | Parent company annual hydro net generation (MWh) |
| 70 | PRGENABM | Parent company annual biomass net generation (MWh) |
| 71 | PRGENAWI | Parent company annual wind net generation (MWh) |
| 72 | PRGENASO | Parent company annual solar net generation (MWh) |
| 73 | PRGENAGT | Parent company annual geothermal net generation (MWh) |
| 74 | PRGENAOF | Parent company annual other fossil net generation (MWh) |
| 75 | PRGENAOP | Parent company annual other unknown/purchased fuel net generation (MWh) |
| 76 | PRGENATN | Parent company annual total nonrenewables net generation (MWh) |
| 77 | PRGENATR | Parent company annual total renewables net generation (MWh) |
| 78 | PRGENATH | Parent company annual total nonhydro renewables net generation (MWh) |
| 79 | PRCLPR | Parent company coal generation percent (resource mix) |
| 80 | PROLPR | Parent company oil generation percent (resource mix) |
| 81 | PRGSPR | Parent company gas generation percent (resource mix) |
| 82 | PRNCPR | Parent company nuclear generation percent (resource mix) |
| 83 | PRHYPR | Parent company hydro generation percent (resource mix) |
| 84 | PRBMPR | Parent company biomass generation percent (resource mix) |
| 85 | PRWIPR | Parent company wind generation percent (resource mix) |
| 86 | PRSOPR | Parent company solar generation percent (resource mix) |
| 87 | PRGTPR | Parent company geothermal generation percent (resource mix) |
| 88 | PROFPR | Parent company other fossil generation percent (resource mix) |
| 89 | PROPPR | Parent company other unknown/purchased fuel generation percent (resource mix) |
| 90 | PRTNPR | Parent company total nonrenewables generation percent (resource mix) |
| 91 | PRTRPR | Parent company total renewables generation percent (resource mix) |
| 92 | PRTHPR | Parent company total nonhydro renewables generation percent (resource mix) |

## Table A-1 (continued)
## eGRID2006 Version 2.1 File Structure
## 2004 EGRDPCAL File
## Power Control Area (PCA) Location (Operator)-based File

| Field | Name | Description |
|---|---|---|
| 1 | SEQPCL04 | eGRID2006 2004 file PCA location (operator)-based sequence number |
| 2 | PCAID | PCA ID |
| 3 | PCANAME | PCA name associated with the PCA ID |
| 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 $NO_x$ emissions (tons) |
| 10 | PCNOXOZ | PCA ozone season $NO_x$ emissions (tons) |
| 11 | PCSO2AN | PCA annual $SO_2$ emissions (tons) |
| 12 | PCCO2AN | PCA annual $CO_2$ emissions (tons) |
| 13 | PCHGAN | PCA annual Hg emissions (lbs) |
| 14 | PCNOXRTA | PCA annual $NO_x$ output emission rate (lb/MWh) |
| 15 | PCNOXRTO | PCA ozone season $NO_x$ output emission rate (lb/MWh) |
| 16 | PCSO2RTA | PCA annual $SO_2$ output emission rate (lb/MWh) |
| 17 | PCCO2RTA | PCA annual $CO_2$ output emission rate (lb/MWh) |
| 18 | PCHGRTA | PCA annual Hg output emission rate (lb/GWh) |
| 19 | PCNOXRA | PCA annual $NO_x$ input emission rate (lb/MMBtu) |
| 20 | PCNOXRO | PCA ozone season $NO_x$ input emission rate (lb/MMBtu) |
| 21 | PCSO2RA | PCA annual $SO_2$ input emission rate (lb/MMBtu) |
| 22 | PCCO2RA | PCA annual $CO_2$ input emission rate (lb/MMBtu) |
| 23 | PCHGRA | PCA annual Hg input emission rate (lb/BBtu) |
| 24 | PCCNOXRT | PCA coal annual $NO_x$ output emission rate (lb/MWh) |
| 25 | PCONOXRT | PCA oil annual $NO_x$ output emission rate (lb/MWh) |
| 26 | PCGNOXRT | PCA gas annual $NO_x$ output emission rate (lb/MWh) |
| 27 | PCFSNXRT | PCA fossil fuel annual $NO_x$ output emission rate (lb/MWh) |
| 28 | PCCNXORT | PCA coal ozone season $NO_x$ output emission rate (lb/MWh) |
| 29 | PCONXORT | PCA oil ozone season $NO_x$ output emission rate (lb/MWh) |
| 30 | PCGNXORT | PCA gas ozone season $NO_x$ output emission rate (lb/MWh) |
| 31 | PCFSNORT | PCA fossil fuel ozone season $NO_x$ output emission rate (lb/MWh) |
| 32 | PCCSO2RT | PCA coal annual $SO_2$ output emission rate (lb/MWh) |
| 33 | PCOSO2RT | PCA oil annual $SO_2$ output emission rate (lb/MWh) |
| 34 | PCGSO2RT | PCA gas annual $SO_2$ output emission rate (lb/MWh) |
| 35 | PCFSS2RT | PCA fossil fuel annual $SO_2$ output emission rate (lb/MWh) |
| 36 | PCCCO2RT | PCA coal annual $CO_2$ output emission rate (lb/MWh) |
| 37 | PCOCO2RT | PCA oil annual $CO_2$ output emission rate (lb/MWh) |
| 38 | PCGCO2RT | PCA gas annual $CO_2$ output emission rate (lb/MWh) |
| 39 | PCFSC2RT | PCA fossil fuel annual $CO_2$ output emission rate (lb/MWh) |
| 40 | PCCHGRT | PCA coal annual Hg output emission rate (lb/GWh) |
| 41 | PCFSHGRT | PCA fossil fuel annual Hg output emission rate (lb/GWh) |
| 42 | PCCNOXR | PCA coal annual $NO_x$ input emission rate (lb/MMBtu) |
| 43 | PCONOXR | PCA oil annual $NO_x$ input emission rate (lb/MMBtu) |
| 44 | PCGNOXR | PCA gas annual $NO_x$ input emission rate (lb/MMBtu) |
| 45 | PCFSNXR | PCA fossil fuel annual $NO_x$ input emission rate (lb/MMBtu) |
| 46 | PCCNXOR | PCA coal ozone season $NO_x$ input emission rate (lb/MMBtu) |
| 47 | PCONXOR | PCA oil ozone season $NO_x$ input emission rate (lb/MMBtu) |
| 48 | PCGNXOR | PCA gas ozone season $NO_x$ input emission rate (lb/MMBtu) |
| 49 | PCFSNOR | PCA fossil fuel ozone season $NO_x$ input emission rate (lb/MMBtu) |
| 50 | PCCSO2R | PCA coal annual $SO_2$ input emission rate (lb/MMBtu) |

## Table A-1 (continued)
## eGRID2006 Version 2.1 File Structure
## 2004 EGRDPCAL File
## Power Control Area (PCA) Location (Operator)-based File (continued)

| Field | Name | Description |
|---|---|---|
| 51 | PCOSO2R | PCA oil annual $SO_2$ input emission rate (lb/MMBtu) |
| 52 | PCGSO2R | PCA gas annual $SO_2$ input emission rate (lb/MMBtu) |
| 53 | PCFSS2R | PCA fossil fuel annual $SO_2$ input emission rate (lb/MMBtu) |
| 54 | PCCCO2R | PCA coal annual $CO_2$ input emission rate (lb/MMBtu) |
| 55 | PCOCO2R | PCA oil annual $CO_2$ input emission rate (lb/MMBtu) |
| 56 | PCGCO2R | PCA gas annual $CO_2$ input emission rate (lb/MMBtu) |
| 57 | PCFSC2R | PCA fossil fuel annual $CO_2$ input emission rate (lb/MMBtu) |
| 58 | PCCHGR | PCA coal annual Hg input emission rate (lb/BBtu) |
| 59 | PCFSHGR | PCA fossil fuel annual Hg input emission rate (lb/BBtu) |
| 60 | PCNBNOX | PCA annual non-baseload $NO_x$ output emission rate (lb/MWh) |
| 61 | PCNBNXO | PCA ozone season non-baseload $NO_x$ output emission rate (lb/MWh) |
| 62 | PCNBSO2 | PCA annual non-baseload $SO_2$ output emission rate (lb/MWh) |
| 63 | PCNBCO2 | PCA annual non-baseload $CO_2$ output emission rate (lb/MWh) |
| 64 | PCNBHG | PCA annual non-baseload Hg output emission rate (lb/GWh) |
| 65 | PCGENACL | PCA annual coal net generation (MWh) |
| 66 | PCGENAOL | PCA annual oil net generation (MWh) |
| 67 | PCGENAGS | PCA annual gas net generation (MWh) |
| 68 | PCGENANC | PCA annual nuclear net generation (MWh) |
| 69 | PCGENAHY | PCA annual hydro net generation (MWh) |
| 70 | PCGENABM | PCA annual biomass net generation (MWh) |
| 71 | PCGENAWI | PCA annual wind net generation (MWh) |
| 72 | PCGENASO | PCA annual solar net generation (MWh) |
| 73 | PCGENAGT | PCA annual geothermal net generation (MWh) |
| 74 | PCGENAOF | PCA annual other fossil net generation (MWh) |
| 75 | PCGENAOP | PCA annual other unknown/purchased fuel net generation (MWh) |
| 76 | PCGENATN | PCA annual total nonrenewables net generation (MWh) |
| 77 | PCGENATR | PCA annual total renewables net generation (MWh) |
| 78 | PCGENATH | PCA annual total nonhydro renewables net generation (MWh) |
| 79 | PCCLPR | PCA coal generation percent (resource mix) |
| 80 | PCOLPR | PCA oil generation percent (resource mix) |
| 81 | PCGSPR | PCA gas generation percent (resource mix) |
| 82 | PCNCPR | PCA nuclear generation percent (resource mix) |
| 83 | PCHYPR | PCA hydro generation percent (resource mix) |
| 84 | PCBMPR | PCA biomass generation percent (resource mix) |
| 85 | PCWIPR | PCA wind generation percent (resource mix) |
| 86 | PCSOPR | PCA solar generation percent (resource mix) |
| 87 | PCGTPR | PCA geothermal generation percent (resource mix) |
| 88 | PCOFPR | PCA other fossil generation percent (resource mix) |
| 89 | PCOPPR | PCA other unknown/purchased fuel generation percent (resource mix) |
| 90 | PCTNPR | PCA total nonrenewables generation percent (resource mix) |
| 91 | PCTRPR | PCA total renewables generation percent (resource mix) |
| 92 | PCTHPR | PCA total nonhydro renewables generation percent (resource mix) |

## Table A-1 (continued)
## eGRID2006 Version 2.1 File Structure
## 2004 EGRDSRL File
## eGRID Subregion Location (Operator)-based File

| Field | Name | Description |
|---|---|---|
| 1 | SEQSRL04 | eGRID2006 2004 file eGRID subregion location (operator)-based sequence number |
| 2 | SUBRGN | eGRID subregion acronym |
| 3 | SRNAME | eGRID subregion name associated with eGRID subregion acronym |
| 4 | NERC | NERC acronym associated with the eGRID subregion |
| 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 $NO_x$ emissions (tons) |
| 11 | SRNOXOZ | eGRID subregion ozone season $NO_x$ emissions (tons) |
| 12 | SRSO2AN | eGRID subregion annual $SO_2$ emissions (tons) |
| 13 | SRCO2AN | eGRID subregion annual $CO_2$ emissions (tons) |
| 14 | SRHGAN | eGRID subregion annual Hg emissions (lbs) |
| 15 | SRNOXRTA | eGRID subregion annual $NO_x$ output emission rate (lb/MWh) |
| 16 | SRNOXRTO | eGRID subregion ozone season $NO_x$ output emission rate (lb/MWh) |
| 17 | SRSO2RTA | eGRID subregion annual $SO_2$ output emission rate (lb/MWh) |
| 18 | SRCO2RTA | eGRID subregion annual $CO_2$ output emission rate (lb/MWh) |
| 19 | SRHGRTA | eGRID subregion annual Hg output emission rate (lb/GWh) |
| 20 | SRNOXRA | eGRID subregion annual $NO_x$ input emission rate (lb/MMBtu) |
| 21 | SRNOXRO | eGRID subregion ozone season $NO_x$ input emission rate (lb/MMBtu) |
| 22 | SRSO2RA | eGRID subregion annual $SO_2$ input emission rate (lb/MMBtu) |
| 23 | SRCO2RA | eGRID subregion annual $CO_2$ input emission rate (lb/MMBtu) |
| 24 | SRHGRA | eGRID subregion annual Hg input emission rate (lb/BBtu) |
| 25 | SRCNOXRT | eGRID subregion coal annual $NO_x$ output emission rate (lb/MWh) |
| 26 | SRONOXRT | eGRID subregion oil annual $NO_x$ output emission rate (lb/MWh) |
| 27 | SRGNOXRT | eGRID subregion gas annual $NO_x$ output emission rate (lb/MWh) |
| 28 | SRFSNXRT | eGRID subregion fossil fuel annual $NO_x$ output emission rate (lb/MWh) |
| 29 | SRCNXORT | eGRID subregion coal ozone season $NO_x$ output emission rate (lb/MWh) |
| 30 | SRONXORT | eGRID subregion oil ozone season $NO_x$ output emission rate (lb/MWh) |
| 31 | SRGNXORT | eGRID subregion gas ozone season $NO_x$ output emission rate (lb/MWh) |
| 32 | SRFSNORT | eGRID subregion fossil fuel ozone season $NO_x$ output emission rate (lb/MWh) |
| 33 | SRCSO2RT | eGRID subregion coal annual $SO_2$ output emission rate (lb/MWh) |
| 34 | SROSO2RT | eGRID subregion oil annual $SO_2$ output emission rate (lb/MWh) |
| 35 | SRGSO2RT | eGRID subregion gas annual $SO_2$ output emission rate (lb/MWh) |
| 36 | SRFSS2RT | eGRID subregion fossil fuel annual $SO_2$ output emission rate (lb/MWh) |
| 37 | SRCCO2RT | eGRID subregion coal annual $CO_2$ output emission rate (lb/MWh) |
| 38 | SROCO2RT | eGRID subregion oil annual $CO_2$ output emission rate (lb/MWh) |
| 39 | SRGCO2RT | eGRID subregion gas annual $CO_2$ output emission rate (lb/MWh) |
| 40 | SRFSC2RT | eGRID subregion fossil fuel annual $CO_2$ output emission rate (lb/MWh) |
| 41 | SRCHGRT | eGRID subregion coal annual Hg output emission rate (lb/GWh) |
| 42 | SRFSHGRT | eGRID subregion fossil fuel annual Hg output emission rate (lb/GWh) |
| 43 | SRCNOXR | eGRID subregion coal annual $NO_x$ input emission rate (lb/MMBtu) |
| 44 | SRONOXR | eGRID subregion oil annual $NO_x$ input emission rate (lb/MMBtu) |
| 45 | SRGNOXR | eGRID subregion gas annual $NO_x$ input emission rate (lb/MMBtu) |
| 46 | SRFSNXR | eGRID subregion fossil fuel annual $NO_x$ input emission rate (lb/MMBtu) |
| 47 | SRCNXOR | eGRID subregion coal ozone season $NO_x$ input emission rate (lb/MMBtu) |
| 48 | SRONXOR | eGRID subregion oil ozone season $NO_x$ input emission rate (lb/MMBtu) |
| 49 | SRGNXOR | eGRID subregion gas ozone season $NO_x$ input emission rate (lb/MMBtu) |
| 50 | SRFSNOR | eGRID subregion fossil fuel ozone season $NO_x$ input emission rate (lb/MMBtu) |

## Table A-1 (continued)
## eGRID2006 Version 2.1 File Structure
## 2004 EGRDSRL File
## eGRID Subregion Location (Operator)-based File (continued)

| Field | Name | Description |
|---|---|---|
| 51 | SRCSO2R | eGRID subregion coal annual $SO_2$ input emission rate (lb/MMBtu) |
| 52 | SROSO2R | eGRID subregion oil annual $SO_2$ input emission rate (lb/MMBtu) |
| 53 | SRGSO2R | eGRID subregion gas annual $SO_2$ input emission rate (lb/MMBtu) |
| 54 | SRFSS2R | eGRID subregion fossil fuel annual $SO_2$ input emission rate (lb/MMBtu) |
| 55 | SRCCO2R | eGRID subregion coal annual $CO_2$ input emission rate (lb/MMBtu) |
| 56 | SROCO2R | eGRID subregion oil annual $CO_2$ input emission rate (lb/MMBtu) |
| 57 | SRGCO2R | eGRID subregion gas annual $CO_2$ input emission rate (lb/MMBtu) |
| 58 | SRFSC2R | eGRID subregion fossil fuel annual $CO_2$ input emission rate (lb/MMBtu) |
| 59 | SRCHGR | eGRID subregion coal annual Hg input emission rate (lb/BBtu) |
| 60 | SRFSHGR | eGRID subregion fossil fuel annual Hg input emission rate (lb/BBtu) |
| 61 | SRNBNOX | eGRID subregion annual non-baseload $NO_x$ output emission rate (lb/MWh) |
| 62 | SRNBNXO | eGRID subregion ozone season non-baseload $NO_x$ output emission rate (lb/MWh) |
| 63 | SRNBSO2 | eGRID subregion annual non-baseload $SO_2$ output emission rate (lb/MWh) |
| 64 | SRNBCO2 | eGRID subregion annual non-baseload $CO_2$ output emission rate (lb/MWh) |
| 65 | SRNBHG | eGRID subregion annual non-baseload Hg output emission rate (lb/GWh) |
| 66 | SRGENACL | eGRID subregion annual coal net generation (MWh) |
| 67 | SRGENAOL | eGRID subregion annual oil net generation (MWh) |
| 68 | SRGENAGS | eGRID subregion annual gas net generation (MWh) |
| 69 | SRGENANC | eGRID subregion annual nuclear net generation (MWh) |
| 70 | SRGENAHY | eGRID subregion annual hydro net generation (MWh) |
| 71 | SRGENABM | eGRID subregion annual biomass net generation (MWh) |
| 72 | SRGENAWI | eGRID subregion annual wind net generation (MWh) |
| 73 | SRGENASO | eGRID subregion annual solar net generation (MWh) |
| 74 | SRGENAGT | eGRID subregion annual geothermal net generation (MWh) |
| 75 | SRGENAOF | eGRID subregion annual other fossil net generation (MWh) |
| 76 | SRGENAOP | eGRID subregion annual other unknown/purchased fuel net generation (MWh) |
| 77 | SRGENATN | eGRID subregion annual total nonrenewables net generation (MWh) |
| 78 | SRGENATR | eGRID subregion annual total renewables net generation (MWh) |
| 79 | SRGENATH | eGRID subregion annual total nonhydro renewables net generation (MWh) |
| 80 | SRCLPR | eGRID subregion coal generation percent (resource mix) |
| 81 | SROLPR | eGRID subregion oil generation percent (resource mix) |
| 82 | SRGSPR | eGRID subregion gas generation percent (resource mix) |
| 83 | SRNCPR | eGRID subregion nuclear generation percent (resource mix) |
| 84 | SRHYPR | eGRID subregion hydro generation percent (resource mix) |
| 85 | SRBMPR | eGRID subregion biomass generation percent (resource mix) |
| 86 | SRWIPR | eGRID subregion wind generation percent (resource mix) |
| 87 | SRSOPR | eGRID subregion solar generation percent (resource mix) |
| 88 | SRGTPR | eGRID subregion geothermal generation percent (resource mix) |
| 89 | SROFPR | eGRID subregion other fossil generation percent (resource mix) |
| 90 | SROPPR | eGRID subregion other unknown/purchased fuel generation percent (resource mix) |
| 91 | SRTNPR | eGRID subregion total nonrenewables generation percent (resource mix) |
| 92 | SRTRPR | eGRID subregion total renewables generation percent (resource mix) |
| 93 | SRTHPR | eGRID subregion total nonhydro renewables generation percent (resource mix) |

## Table A-1 (continued)
## eGRID2006 Version 2.1 File Structure
## 2004 EGRDNRL File
## NERC Region Location (Operator)-based File

| Field | Name | Description |
|---|---|---|
| 1 | SEQNRL04 | eGRID2006 2004 file NERC region location (operator)-based sequence number |
| 2 | NERC | NERC region acronym |
| 3 | NERCNAME | NERC name associated with the NERC region acronym |
| 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 $NO_x$ emissions (tons) |
| 11 | NRNOXOZ | NERC region ozone season $NO_x$ emissions (tons) |
| 11 | NRSO2AN | NERC region annual $SO_2$ emissions (tons) |
| 12 | NRCO2AN | NERC region annual $CO_2$ emissions (tons) |
| 13 | NRHGAN | NERC region annual Hg emissions (lbs) |
| 14 | NRNOXRTA | NERC region annual $NO_x$ output emission rate (lb/MWh) |
| 15 | NRNOXRTO | NERC region ozone season $NO_x$ output emission rate (lb/MWh) |
| 16 | NRSO2RTA | NERC region annual $SO_2$ output emission rate (lb/MWh) |
| 17 | NRCO2RTA | NERC region annual $CO_2$ output emission rate (lb/MWh) |
| 18 | NRHGRTA | NERC region annual Hg output emission rate (lb/GWh) |
| 19 | NRNOXRA | NERC region annual $NO_x$ input emission rate (lb/MMBtu) |
| 20 | NRNOXRO | NERC region ozone season $NO_x$ input emission rate (lb/MMBtu) |
| 21 | NRSO2RA | NERC region annual $SO_2$ input emission rate (lb/MMBtu) |
| 22 | NRCO2RA | NERC region annual $CO_2$ input emission rate (lb/MMBtu) |
| 23 | NRHGRA | NERC region annual Hg input emission rate (lb/BBtu) |
| 24 | NRCNOXRT | NERC region coal annual $NO_x$ output emission rate (lb/MWh) |
| 25 | NRONOXRT | NERC region oil annual $NO_x$ output emission rate (lb/MWh) |
| 26 | NRGNOXRT | NERC region gas annual $NO_x$ output emission rate (lb/MWh) |
| 27 | NRFSNXRT | NERC region fossil fuel annual $NO_x$ output emission rate (lb/MWh) |
| 28 | NRCNXORT | NERC region coal ozone season $NO_x$ output emission rate (lb/MWh) |
| 29 | NRONXORT | NERC region oil ozone season $NO_x$ output emission rate (lb/MWh) |
| 30 | NRGNXORT | NERC region gas ozone season $NO_x$ output emission rate (lb/MWh) |
| 31 | NRFSNORT | NERC region fossil fuel ozone season $NO_x$ output emission rate (lb/MWh) |
| 32 | NRCSO2RT | NERC region coal annual $SO_2$ output emission rate (lb/MWh) |
| 33 | NROSO2RT | NERC region oil annual $SO_2$ output emission rate (lb/MWh) |
| 34 | NRGSO2RT | NERC region gas annual $SO_2$ output emission rate (lb/MWh) |
| 35 | NRFSS2RT | NERC region fossil fuel annual $SO_2$ output emission rate (lb/MWh) |
| 36 | NRCCO2RT | NERC region coal annual $CO_2$ output emission rate (lb/MWh) |
| 37 | NROCO2RT | NERC region oil annual $CO_2$ output emission rate (lb/MWh) |
| 38 | NRGCO2RT | NERC region gas annual $CO_2$ output emission rate (lb/MWh) |
| 39 | NRFSC2RT | NERC region fossil fuel annual $CO_2$ output emission rate (lb/MWh) |
| 40 | NRCHGRT | NERC region coal annual Hg output emission rate (lb/GWh) |
| 41 | NRFSHGRT | NERC region fossil fuel annual Hg output emission rate (lb/GWh) |
| 42 | NRCNOXR | NERC region coal annual $NO_x$ input emission rate (lb/MMBtu) |
| 43 | NRONOXR | NERC region oil annual $NO_x$ input emission rate (lb/MMBtu) |
| 44 | NRGNOXR | NERC region gas annual $NO_x$ input emission rate (lb/MMBtu) |
| 45 | NRFSNXR | NERC region fossil fuel annual $NO_x$ input emission rate (lb/MMBtu) |
| 46 | NRCNXOR | NERC region coal ozone season $NO_x$ input emission rate (lb/MMBtu) |
| 47 | NRONXOR | NERC region oil ozone season $NO_x$ input emission rate (lb/MMBtu) |
| 48 | NRGNXOR | NERC region gas ozone season $NO_x$ input emission rate (lb/MMBtu) |
| 49 | NRFSNOR | NERC region fossil fuel ozone season $NO_x$ input emission rate (lb/MMBtu) |
| 50 | NRCSO2R | NERC region coal annual $SO_2$ input emission rate (lb/MMBtu) |

## Table A-1 (continued)
## eGRID2006 Version 2.1 File Structure
## 2004 EGRDNRL File
## NERC Region Location (Operator)-based File (continued)

| Field | Name | Description |
|---|---|---|
| 51 | NROSO2R | NERC region oil annual $SO_2$ input emission rate (lb/MMBtu) |
| 52 | NRGSO2R | NERC region gas annual $SO_2$ input emission rate (lb/MMBtu) |
| 53 | NRFSS2R | NERC region fossil fuel annual $SO_2$ input emission rate (lb/MMBtu) |
| 54 | NRCCO2R | NERC region coal annual $CO_2$ input emission rate (lb/MMBtu) |
| 55 | NROCO2R | NERC region oil annual $CO_2$ input emission rate (lb/MMBtu) |
| 56 | NRGCO2R | NERC region gas annual $CO_2$ input emission rate (lb/MMBtu) |
| 57 | NRFSC2R | NERC region fossil fuel annual $CO_2$ input emission rate (lb/MMBtu) |
| 58 | NRCHGR | NERC region coal annual Hg input emission rate (lb/BBtu) |
| 59 | NRFSHGR | NERC region fossil fuel annual Hg input emission rate (lb/BBtu) |
| 60 | NRNBNOX | NERC region annual non-baseload $NO_x$ output emission rate (lb/MWh) |
| 61 | NRNBNXO | NERC region ozone season non-baseload $NO_x$ output emission rate (lb/MWh) |
| 62 | NRNBSO2 | NERC region annual non-baseload $SO_2$ output emission rate (lb/MWh) |
| 63 | NRNBCO2 | NERC region annual non-baseload $CO_2$ output emission rate (lb/MWh) |
| 64 | NRNBHG | NERC region annual non-baseload Hg output emission rate (lb/GWh) |
| 65 | NRGENACL | NERC region annual coal net generation (MWh) |
| 66 | NRGENAOL | NERC region annual oil net generation (MWh) |
| 67 | NRGENAGS | NERC region annual gas net generation (MWh) |
| 68 | NRGENANC | NERC region annual nuclear net generation (MWh) |
| 69 | NRGENAHY | NERC region annual hydro net generation (MWh) |
| 70 | NRGENABM | NERC region annual biomass net generation (MWh) |
| 71 | NRGENAWI | NERC region annual wind net generation (MWh) |
| 72 | NRGENASO | NERC region annual solar net generation (MWh) |
| 73 | NRGENAGT | NERC region annual geothermal net generation (MWh) |
| 74 | NRGENAOF | NERC region annual other fossil net generation (MWh) |
| 75 | NRGENAOP | NERC region annual other unknown/purchased fuel net generation (MWh) |
| 76 | NRGENATN | NERC region annual total nonrenewables net generation (MWh) |
| 77 | NRGENATR | NERC region annual total renewables net generation (MWh) |
| 78 | NRGENATH | NERC region annual total nonhydro renewables net generation (MWh) |
| 79 | NRCLPR | NERC region coal generation percent (resource mix) |
| 80 | NROLPR | NERC region oil generation percent (resource mix) |
| 81 | NRGSPR | NERC region gas generation percent (resource mix) |
| 82 | NRNCPR | NERC region nuclear generation percent (resource mix) |
| 83 | NRHYPR | NERC region hydro generation percent (resource mix) |
| 84 | NRBMPR | NERC region biomass generation percent (resource mix) |
| 85 | NRWIPR | NERC region wind generation percent (resource mix) |
| 86 | NRSOPR | NERC region solar generation percent (resource mix) |
| 87 | NRGTPR | NERC region geothermal generation percent (resource mix) |
| 88 | NROFPR | NERC region other fossil generation percent (resource mix) |
| 89 | NROPPR | NERC region other unknown/purchased fuel generation percent (resource mix) |
| 90 | NRTNPR | NERC region total nonrenewables generation percent (resource mix) |
| 91 | NRTRPR | NERC region total renewables generation percent (resource mix) |
| 92 | NRTHPR | NERC region total nonhydro renewables generation percent (resource mix) |

## Table A-1 (continued)
## eGRID2006 Version 2.1 File Structure
## 2004 EGRDUS File
## United States File

| Field | Name | Description |
|---|---|---|
| 1 | SEQUS04 | eGRID2006 2004 file US sequence number |
| 2 | NAMEPCAP | US nameplate capacity (MW) |
| 3 | USHTIAN | US annual heat input (MMBtu) |
| 4 | USHTIOZ | US ozone season heat input (MMBtu) |
| 5 | USNGENAN | US annual net generation (MWh) |
| 6 | USNGENOZ | US ozone season net generation (MWh) |
| 7 | USNOXAN | US annual $NO_x$ emissions (tons) |
| 8 | USNOXOZ | US ozone season $NO_x$ emissions (tons) |
| 9 | USSO2AN | US annual $SO_2$ emissions (tons) |
| 10 | USCO2AN | US annual $CO_2$ emissions (tons) |
| 11 | USHGAN | US annual Hg emissions (lbs) |
| 12 | USNOXRTA | US annual $NO_x$ output emission rate (lb/MWh) |
| 13 | USNOXRTO | US ozone season $NO_x$ output emission rate (lb/MWh) |
| 14 | USSO2RTA | US annual $SO_2$ output emission rate (lb/MWh) |
| 15 | USCO2RTA | US annual $CO_2$ output emission rate (lb/MWh) |
| 16 | USHGRTA | US annual Hg output emission rate (lb/GWh) |
| 17 | USNOXRA | US annual $NO_x$ input emission rate (lb/MMBtu) |
| 18 | USNOXRO | US ozone season $NO_x$ input emission rate (lb/MMBtu) |
| 19 | USSO2RA | US annual $SO_2$ input emission rate (lb/MMBtu) |
| 20 | USCO2RA | US annual $CO_2$ input emission rate (lb/MMBtu) |
| 21 | USHGRA | US annual Hg input emission rate (lb/BBtu) |
| 22 | USCNOXRT | US coal annual $NO_x$ output emission rate (lb/MWh) |
| 23 | USONOXRT | US oil annual $NO_x$ output emission rate (lb/MWh) |
| 24 | USGNOXRT | US gas annual $NO_x$ output emission rate (lb/MWh) |
| 25 | USFSNXRT | US fossil fuel annual $NO_x$ output emission rate (lb/MWh) |
| 26 | USCNXORT | US coal ozone season $NO_x$ output emission rate (lb/MWh) |
| 27 | USONXORT | US oil ozone season $NO_x$ output emission rate (lb/MWh) |
| 28 | USGNXORT | US gas ozone season $NO_x$ output emission rate (lb/MWh) |
| 29 | USFSNORT | US fossil fuel ozone season $NO_x$ output emission rate (lb/MWh) |
| 30 | USCSO2RT | US coal annual $SO_2$ output emission rate (lb/MWh) |
| 31 | USOSO2RT | US oil annual $SO_2$ output emission rate (lb/MWh) |
| 32 | USGSO2RT | US gas annual $SO_2$ output emission rate (lb/MWh) |
| 33 | USFSS2RT | US fossil fuel annual $SO_2$ output emission rate (lb/MWh) |
| 34 | USCCO2RT | US coal annual $CO_2$ output emission rate (lb/MWh) |
| 35 | USOCO2RT | US oil annual $CO_2$ output emission rate (lb/MWh) |
| 36 | USGCO2RT | US gas annual $CO_2$ output emission rate (lb/MWh) |
| 37 | USFSC2RT | US fossil fuel annual $CO_2$ output emission rate (lb/MWh) |
| 38 | USCHGRT | US coal annual Hg output emission rate (lb/GWh) |
| 39 | USFSHGRT | US fossil fuel annual Hg output emission rate (lb/GWh) |
| 40 | USCNOXR | US coal annual $NO_x$ input emission rate (lb/MMBtu) |
| 41 | USONOXR | US oil annual $NO_x$ input emission rate (lb/MMBtu) |
| 42 | USGNOXR | US gas annual $NO_x$ input emission rate (lb/MMBtu) |
| 43 | USFSNXR | US fossil fuel annual $NO_x$ input emission rate (lb/MMBtu) |
| 44 | USCNXOR | US coal ozone season $NO_x$ input emission rate (lb/MMBtu) |
| 45 | USONXOR | US oil ozone season $NO_x$ input emission rate (lb/MMBtu) |
| 46 | USGNXOR | US gas ozone season $NO_x$ input emission rate (lb/MMBtu) |
| 47 | USFSNOR | US fossil fuel ozone season $NO_x$ input emission rate (lb/MMBtu) |
| 48 | USCSO2R | US coal annual $SO_2$ input emission rate (lb/MMBtu) |
| 49 | USOSO2R | US oil annual $SO_2$ input emission rate (lb/MMBtu) |
| 50 | USGSO2R | US gas annual $SO_2$ input emission rate (lb/MMBtu) |

## Table A-1 (continued)
## eGRID2006 Version 2.1 File Structure
## 2004 EGRDUS File
## United States File (continued)

| Field | Name | Description |
|---|---|---|
| 51 | USFSS2R | US fossil fuel annual $SO_2$ input emission rate (lb/MMBtu) |
| 52 | USCCO2R | US coal annual $CO_2$ input emission rate (lb/MMBtu) |
| 53 | USOCO2R | US oil annual $CO_2$ input emission rate (lb/MMBtu) |
| 54 | USGCO2R | US gas annual $CO_2$ input emission rate (lb/MMBtu) |
| 55 | USFSC2R | US fossil fuel annual $CO_2$ input emission rate (lb/MMBtu) |
| 56 | USCHGR | US coal annual Hg input emission rate (lb/BBtu) |
| 57 | USFSHGR | US fossil fuel annual Hg input emission rate (lb/BBtu) |
| 58 | USNBNOX | US annual non-baseload $NO_x$ output emission rate (lb/MWh) |
| 59 | USNBNXO | US ozone season non-baseload $NO_x$ output emission rate (lb/MWh) |
| 60 | USNBSO2 | US annual non-baseload $SO_2$ output emission rate (lb/MWh) |
| 61 | USNBCO2 | US annual non-baseload $CO_2$ output emission rate (lb/MWh) |
| 62 | USNBHG | US annual non-baseload Hg output emission rate (lb/GWh) |
| 63 | USGENACL | US annual coal net generation (MWh) |
| 64 | USGENAOL | US annual oil net generation (MWh) |
| 65 | USGENAGS | US annual gas net generation (MWh) |
| 66 | USGENANC | US annual nuclear net generation (MWh) |
| 67 | USGENAHY | US annual hydro net generation (MWh) |
| 68 | USGENABM | US annual biomass net generation (MWh) |
| 69 | USGENAWI | US annual wind net generation (MWh) |
| 70 | USGENASO | US annual solar net generation (MWh) |
| 71 | USGENAGT | US annual geothermal net generation (MWh) |
| 72 | USGENAOF | US annual other fossil net generation (MWh) |
| 73 | USGENAOP | US annual other unknown/purchased fuel net generation (MWh) |
| 74 | USGENATN | US annual total nonrenewables net generation (MWh) |
| 75 | USGENATR | US annual total renewables net generation (MWh) |
| 76 | USGENATH | US annual total nonhydro renewables net generation (MWh) |
| 77 | USCLPR | US coal generation percent (resource mix) |
| 78 | USOLPR | US oil generation percent (resource mix) |
| 79 | USGSPR | US gas generation percent (resource mix) |
| 80 | USNCPR | US nuclear generation percent (resource mix) |
| 81 | USHYPR | US hydro generation percent (resource mix) |
| 82 | USBMPR | US biomass generation percent (resource mix) |
| 83 | USWIPR | US wind generation percent (resource mix) |
| 84 | USSOPR | US solar generation percent (resource mix) |
| 85 | USGTPR | US geothermal generation percent (resource mix) |
| 86 | USOFPR | US other fossil generation percent (resource mix) |
| 87 | USOPPR | US other unknown/purchased fuel generation percent (resource mix) |
| 88 | USTNPR | US total nonrenewables generation percent (resource mix) |
| 89 | USTRPR | US total renewables generation percent (resource mix) |
| 90 | USTHPR | US total nonhydro renewables generation percent (resource mix) |

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# APPENDIX B. eGRID2006 eGRID SUBREGION AND NERC REGION REPRESENTATIONAL MAPS

## Figure B-1. eGRID2006 eGRID Subregion Representational Map

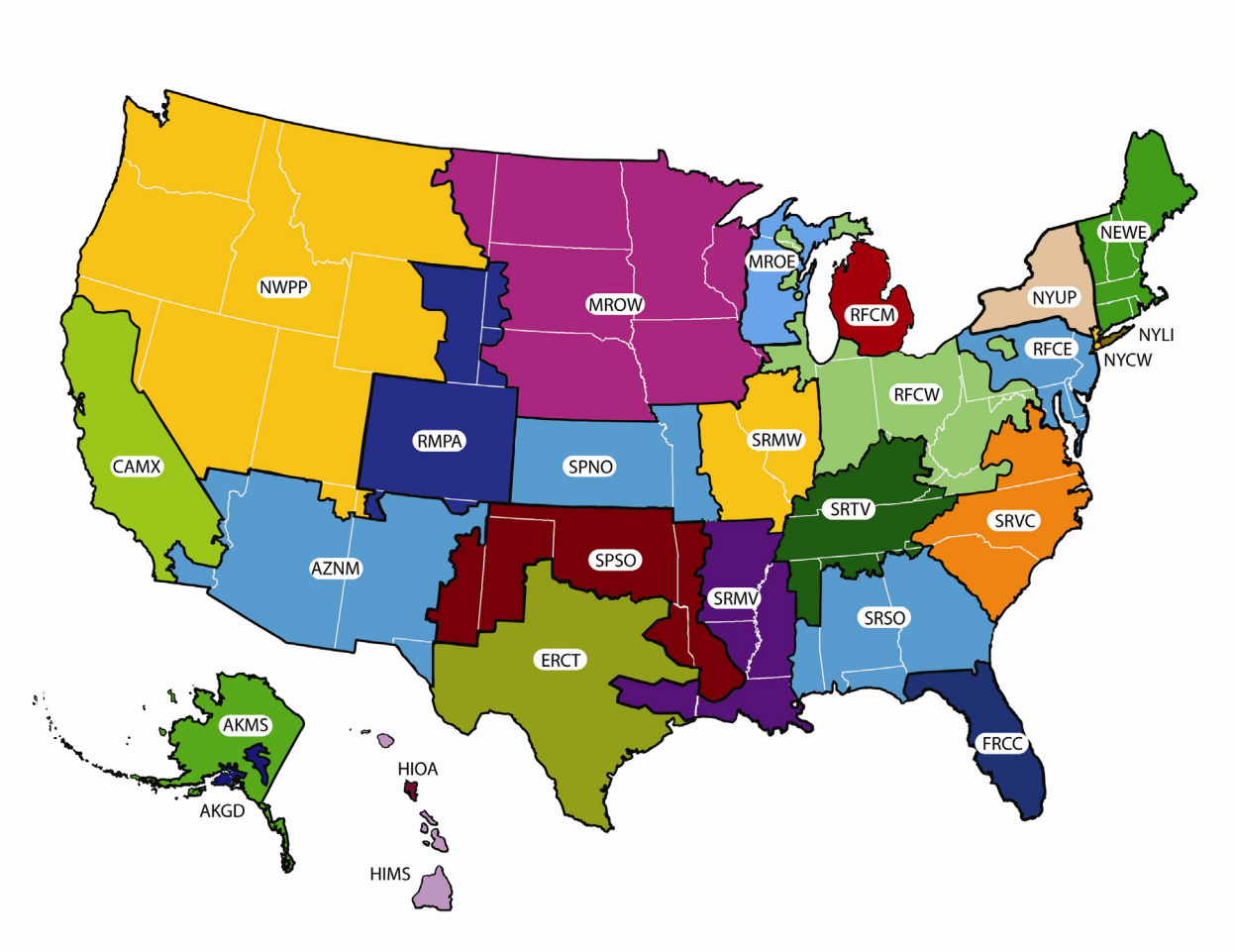

**Figure B-2. eGRID2006 NERC Region Representational Map**