



March 21, 2011

TO: RELIABILITY COORDINATORS  
INDUSTRY STAKEHOLDERS

**Request for Public Comment on Data Request for  
Generating Availability Data System:  
Mandatory Reporting of Conventional Generation Performance Data**

The North American Electric Reliability Corporation (“NERC”) is hereby requesting public comment by May 5, 2011 on this proposed *Generating Availability Data System: Mandatory Reporting of Conventional Generation Performance Data*. Please respond to the questions in Sections B to facilitate the development of data to be requested in Section A, and submit your responses in a Word document to [gadstfcomments@nerc.net](mailto:gadstfcomments@nerc.net) by May 5, 2011.


In accordance with Section 1600 of the NERC *Rules of Procedure*,<sup>1</sup> NERC may request data or information that is deemed necessary to meet its obligations under Section 215 of the Federal Power Act, as authorized by Section 39.2(d) of the Federal Energy Regulatory Commission’s (“FERC”) regulations. This is a proposal for such a request. In accordance with Section 1606 of the NERC Rules of Procedure, NERC provided this proposed data request to FERC for informational purposes on March 14, 2011. Accordingly, NERC is hereby posting this proposed data request for public comment. After consideration of comments received, NERC will present this proposed data request to the NERC Board of Trustees for approval, as required by Section 1602 of the NERC *Rules of Procedure*. Upon NERC Board of Trustees’ approval, this data request will become mandatory for all Generator Owners (“GOs”) in the U.S. who are registered on the NERC Compliance Registry. Non-U.S. GOs who are NERC members are also required to comply with NERC’s *Rules of Procedure*. Therefore, because this data is being requested in accordance with Section 1600, non-U.S. GOs that are NERC members must also provide the requested generator outage information through NERC’s Generating Availability Data System (GADS).

Under the direction of the NERC Planning Committee, the Generating Availability Data System Task Force (GADSTF) was asked to review and recommend whether GOs on the NERC Compliance Registry should report GADS data on a mandatory basis.<sup>2</sup> The GADSTF recommended that generator outage information should be reported on a mandatory basis for conventional generating units beginning January 1, 2012. GADS data will be due 30 days after each calendar quarter. Mandatory data collection will begin from January 1, 2012 to March 31, 2012 and will be due to NERC no later than April 30, 2012.

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<sup>1</sup> NERC’s Rules of Procedure at [http://www.nerc.com/files/NERC\\_Rules\\_of\\_Procedure\\_EFFECTIVE\\_20100121.pdf](http://www.nerc.com/files/NERC_Rules_of_Procedure_EFFECTIVE_20100121.pdf).

<sup>2</sup> The report is available at [http://www.nerc.com/docs/pc/gadstf/GADSTF\\_Recommendation\\_Report\\_02-18-2011\\_FINAL.pdf](http://www.nerc.com/docs/pc/gadstf/GADSTF_Recommendation_Report_02-18-2011_FINAL.pdf).



GADS data is vital to measure generation reliability and performance information used in modeling energy resources and providing NERC committees, subcommittees, working groups, and task forces data for:

- Reliability assessment reports and modeling;
- Loss-of-Load Expectation (LOLE) studies and modeling;
- Understanding how the changes in resource availability/performance translate into required Planning Reserve Margins as the resource mix and associated infrastructure changes;
- Understanding the performance of existing and new resource technologies is essential to comprehend the reliability of the projected bulk power system in North America;
- The use of historical event data to develop a severity risk measurement tool to establish the bulk power system's characteristic performance curve;
- Calculation and measurement of both Event and Condition-Driven risks,<sup>3</sup> detailed event and performance information;
- Monitor impacts of transmission outages on generators and generator outages on transmission; and
- Power plant benchmarking, equipment analysis, design characteristics, projected performance, avoid long-term equipment/unit failures, etc.

This recommendation will improve NERC's reliability assessments and performance analysis, while not overburdening the industry. Further, this recommendation balances NERC's current approach to collect similar information on the bulk power system infrastructure, such as bulk transmission and demand response performance data through Transmission Availability Data System (TADS) and Demand Response Availability Data System (DADS). Like these existing systems, GADS data will continue to be confidential under NERC's *Rules of Procedure*, Section 1500: *Confidential Information*.

Comments in response to Section B are due to NERC by May 5, 2011 and must be submitted in a Word document to [gadstfcomments@nerc.net](mailto:gadstfcomments@nerc.net). If you have any questions, please contact Mike Curley at (801) 756-0972 or [mike.curley@nerc.net](mailto:mike.curley@nerc.net).

Regards,



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Vice President and Director of Reliability Assessment & Performance Analysis

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<sup>3</sup> [http://www.nerc.com/docs/pc/rmwg/Integrated\\_Bulk\\_Power\\_System\\_Risk\\_Assessment\\_Concepts\\_Final.pdf](http://www.nerc.com/docs/pc/rmwg/Integrated_Bulk_Power_System_Risk_Assessment_Concepts_Final.pdf)

## Section A: Mandatory Generating Availability Data Request Information

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1. *Description of the data or information to be requested, how the data or information will be used, and how the availability of the data or information is necessary for NERC to meet its obligations under applicable laws and agreements.*

NERC's mission is to ensure the reliability of the North American bulk power system. With that responsibility, NERC and its stakeholders require high quality, accurate data provided in a timely fashion to assess projected bulk power system reliability and analyze its ongoing performance for individual, Regional and interconnection-wide planning. In the coming years, the evolution in resource mix will require the industry to gain experience with technology behavior, operating characteristics, and optimal planning approaches in order to properly assess reliability and improve performance analysis. As new technologies are integrated on the bulk power system, a complete set of design, event, and performance power plant data will be critical to ensure bulk power system reliability. Generation performance data is required for the following NERC and Regional Entity activities:

- Reliability Assessment reports and modeling;
- Loss-of-load Expectation studies and modeling;
- As the resource mix and associated infrastructure changes, NERC and its stakeholders will need to understand how the changes in resource availability/performance translate into required Planning Reserve Margins;
- Understanding the performance of existing and new resource technologies is essential to comprehending the reliability of the projected bulk power system in North America;
- Historical event data to develop a severity metric risk measurement tool to establish the bulk power system's characteristic performance curve;
- To calculate and measure both event-driven and condition-driven risk, detailed event, and performance information;
- Monitoring the impact of transmission outages on generators and generator outages on transmission; and
- Power plant benchmarking, equipment analysis, design characteristics, projected performance, avoid long-term equipment/unit failures, etc.

There are three data/information categories currently being collected in the Generating Availability Data System (GADS) for the ten unit types described below. These data shall continue to be collected under Section 1600 of the *Rules of Procedure*:

- **Design** records characteristics of the major equipment at each unit such as manufacturer, model number, number of fans or pumps, and other relevant information. See Appendix E of the *GADS Data Reporting Instructions*<sup>4</sup> or *Appendix 1 of this document*.

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<sup>4</sup> For GADS Data Reporting Instruction, see <http://www.nerc.com/page.php?cid=4|43|45>

- **Event** records contain detailed information about when and to what extent the generating unit could not generate power. There are certain elements of the event records that are currently required reporting; other parts are optional reporting. See Section III of the *GADS Data Reporting Instructions*.
- **Performance** records track monthly generation, unit-attempted starts, actual starts, summary event outage information, and fuels. See Section IV of the *GADS Data Reporting Instructions*.

Information on generating units for this Section 1600 rule are conventional, non-renewable (not wind or solar) units as described in its *GADS Data Reporting Instructions*. The ten types of units for mandatory reporting are:

- Fossil steam including fluidized bed design;
- Nuclear;
- Gas turbines/jet engines (simple cycle and others modes);
- Internal combustion engines (diesel engines);
- Hydro units/pumped storage;
- Combined cycle blocks and their related components (gas turbines and steam turbines);
- Co-generation blocks and their related components (gas turbines and steam turbines);
- Multi-boiler/multi-turbine units;
- Geothermal units; and
- Other miscellaneous conventional generating units (such as variable fuel – biomass, landfill gases, etc) used to generate electric power for the grid and similar in design and operation as the units shown above and as defined by the *GADS Data Reporting Instructions*.

There are several hundred data fields collected by GADS in the design, event, and performance records. A full list of each field is shown in Appendix I. This Appendix also lists the data fields that shall be reported on a mandatory basis and those that should be voluntary submission.

NERC introduced the Generating Availability Data System (GADS) in 1982. This database is currently supported by voluntary data submittals. Currently, not all registered GO's provide GADS data. With voluntary data submittal, data provided by GO's represent over 72.4 percent of the existing capacity in North America for conventional generating units 20 MW and larger, as shown in Table 1.

Current voluntary practices have resulted in a number of concerns:

- Design data has not been kept up to date and reduces the ability to measure performance analysis.
- Incomplete or no data submission significantly diminishes the metric quality and timeliness, affecting the accuracy of analysis and results suspect.

- Analysis of generator classes incomplete due to the gaps in design data and unit population. Therefore, assessment of unit performance, such as those important for system balancing, may lack credibility.

In Table 2, the unit types in the Electricity Supply and Demand (ES&D) database, used to support NERC's *Long-Term Reliability Assessments* (LTRA), were compared to the GADS unit-type data. The results of this comparison show that the majority of missing existing generation in GADS (42.9 percent) is combined cycle facilities, the most popular newly-constructed unit for capacity in North America. In addition to the combined cycle units, almost 55 percent of all existing hydro/pumped storage units, over 30 percent of existing gas turbines, and 14 percent of the existing fossil generation are not in GADS. This equates to 291.7 GW missing in GADS.

**Table 1**  
**Percent of Reported GADS Data by Region in North America**  
**Conventional Generating Units 20 MW and Larger**

Region	2010 LTRA "Existing Certain" (Summer) Capacity (MW)	2009 GADS Summer NDC (June - August) Reported Capacity (MW)	% GADS Capacity Reported
FRCC	50,548	43,640	86.3%
MRO	53,815	44,672	83.0%
NPCC	152,047	54,477	35.8%
RFC	210,489	201,632	95.8%
SERC	245,148	185,309	75.6%
SPP	54,081	43,215	79.9%
TRE	85,581	57,471	67.2%
WECC	203,923	133,529	65.5%
	<b>1,055,632</b>	<b>763,945</b>	<b>72.4%</b>

**Table 2**  
**Percent of Missing GADS Data by Unit Types**  
**Units 20 MW and Larger in North America**

<b>Types of Generating Units</b>	<b>Percent of Missing Capacity in GADS Compared to Long-Term Assessment Data</b>
Combined cycle generation	42.9%
Gas turbine - simple cycle	31.3%
Hydro-Pumped storage	54.7%
Fossil	14.3%
Nuclear	13.6%

In further examinations of the missing 27.6 percent, each NERC Region was examined to view the make-up of the missing unit types. The Regional Entities with 30 percent or more missing generation in GADS included Northeast Power Coordinating Council (NPCC), Western Electric Coordinating Council (WECC), and Texas Reliability Entity (TRE). However, each Regional Entity contributed to missing generation needed for GADS analyses and work.

A good portion of the missing 27.6 percent of generating units from GADS equates to new, commercial units and new generating unit technologies needed for completely analyzing Regional reliabilities (See Table 3). Measuring bulk power system reliability severity and risks from events is limited or impossible with the incomplete data submittal currently experienced.<sup>5</sup>

**Table 3**  
**Percent of Missing New Generating Units Not In GADS**  
**Units 20 MW and Larger in the United States**

<b>Number of New , Commercial -operating Generating Units in GADS (2000-2008)</b>	<b>Total MW Capacity from New Commercial Units in GADS (2000-2008)</b>	<b>Number of New, Commercial-operating Generating Units in EIA Form 860 (2000-2008)</b>	<b>Total MW Capacity from New Commercial Units in EIA Form 860 (2000-2008)</b>	<b>Percent of New, Commercial-operating Unit Capacity Missing in GADS</b>
1,058	152,352	4,531	296,200	48.6%

<sup>5</sup> 2010 Long-Term Reliability Assessment, section on severity risk curves

In summary, the existing GADS database is incomplete, missing performance data from generator owners and operators from key areas, such as the Northeast, Texas and the Western states. This limits NERC's ability to measure the severity risk effects from transmission/generation outages. For example, for years there has been a need to measure the impact of transmission outages on generating plants and vice versa. With incomplete data from GO's and operators, it is impossible to quantify their impacts on bulk power system reliability.

To address this need, focused on bulk power system reliability improvement, a complete set of generation and transmission outage data must be available. The transmission database is now in place to record all transmission outages; we now need a complete record of generator outages, which can be captured in the GADS database.

Key statistics and trends used for reliability assessments and performance analysis, such as Loss of Load Expectations (LOLE), trending, and other analyses cannot be relied upon without both GADS event and performance data. ***Without complete reporting, these statistics are now created from an incomplete and unverified sample determined by each industry analyst.***

In order to have a more complete and accurate picture of the generating resources in North America, it is vital to have a broader and full population of generating units in the NERC footprint. The inadequate population of availability data from generating units within the GADS database cannot provide a full representation for resource planners and operators to analyze and project to a high degree of accuracy the future of bulk power system requirements. Further, performance analysis would not be possible without a complete and industry-supported generation database. ***GADS data is critical to ongoing improvements required to sustain reliability assessments and performance analyses.***

2. *A description of how the data or information will be collected and validated.*

GADS created a set of data reporting instructions for describing the process for data collection. The *GADS Data Reporting Instructions* was introduced in 1982 and has been the key instruction manual of GADS ever since that time. The *GADS Data Reporting Instructions* provides a clear, precise set of documents to collect GADS design, event, and performance records in a complete and accurate manner. It is reviewed annually and updated as needed to meet industry needs. Annual meetings of data reporters are conducted to introduce and instruct in *GADS Data Reporting Instruction* concepts.

NERC provides a set of electronic software programs to collect, edit, and report GADS design, event, and performance records to GADS. The GADS editing programs were first introduced in 1982 and are reviewed and updated as needed. A data collection system, much like that provided for NERC's Transmission Availability Data System (TADS), will be provided for data collection and data verification. The existing data verification software tool will be used to create this advanced data collection and verification system.

3. *A description of the entities (by functional class and jurisdiction) that will be required to provide the data or information (“reporting entities”).*

Generator owners on the NERC Compliance Registry with generating units that, (a) meet the MVA requirements in the *Statement of Compliance Registry Criteria (Revision 5.0)*, which are excerpted below, and, (b) which are one of the ten unit types described in Question #1 above will be required to report GADS data for their units per this Section 1600 request. For U.S. Go’s, non-compliance with this mandatory reporting requirement is a violation of the *Federal Power Act* and may have serious legal repercussions. For Canadian entities that are also NERC members, the NERC membership agreement requires them to abide by NERC’s *Rules of Procedure*, and Section 1600 is part of that body of rules. As indicated in NERC’s Compliance Registry:

*Statement of Compliance Registry Criteria (Revision 5.0)*

- III(c) Generator owner/Operator:
  - III.c.1 Individual generating unit > 20 MVA (gross nameplate rating) and is directly connected to the bulk power system, or;
  - III.c.2 Generating plant/facility > 75 MVA (gross aggregate nameplate rating) or when the entity has responsibility for any facility consisting of one or more units that are connected to the bulk power system at a common bus with total generation above 75 MVA gross nameplate rating, or;
  - III.c.3 Any generator, regardless of size, that is a black start unit material to and designated as part of a transmission operator entity’s restoration plan, or;
  - III.c.4 Any generator, regardless of size, that is material to the reliability of the bulk power system [*Exclusions: A generator owner/operator will not be registered based on these criteria if responsibilities for compliance with approved NERC Reliability Standards or associated requirements including reporting has been transferred by written agreement to another entity that has registered for the appropriate function for the transferred responsibilities, such as a load-serving entity, G&T cooperative, or joint action agency as described in Sections 501 and 507 of the NERC Rules of Procedure*].

*As a general matter, a customer-owned or operated generator/generation that serves all or part of retail load with electric energy on the customer’s side of the retail meter may be excluded as a candidate for registration based on these criteria if, (i) the net capacity provided to the bulk power system does not exceed the criteria above or the Regional Entity otherwise determines the generator is not material to the bulk power system and (ii) standby, back-up, and maintenance power services are provided to the generator or to the retail load pursuant to a binding obligation with another generator owner/operator or under terms approved by the local regulatory authority or the Federal Energy Regulatory Commission, as applicable.]*



4. *The schedule or due date for the data or information.*

- The GADS Task Force recommends that mandatory GADS reporting for all generating units as outlined in this proposal (Question #1) under NERC *Statement of Compliance Registry, (Revision 5)* shall begin, subject to approval by the NERC Board of Trustees, on January 1, 2012. GADS data will be due 30 days after the end of each quarter year (April 30, July 30, October 30 and January 30).
- The first mandatory GADS data will encompass 2012 events and performance data of conventional generating units from January 1 to March 31, 2012 and will be due to NERC no later than April 30, 2012.
- Year-to-date GADS event and performance data is required for each submittal as described in the *GADS Data Reporting Instructions*.

5. *A description of any restrictions on disseminating the data or information (e.g., “confidential,” “critical energy infrastructure information,” “aggregating” or “identity masking”).*

In the past, GADS information has remained confidential under the *GADS Data Release Guidelines*. This document was first approved by the NERC Board of Trustees in 1981 and has had very little modification since that time. GADS data will continue to be confidential under NERC’s *Rules of Procedure, Section 1500: Confidential Information*. Data submitted by GO’s would be classified as confidential in accordance with Section 1500, including procedures that address a request for the release of confidential information. In addition, GADS public reports will not inadvertently release confidential information by the display of Regional or NERC information from which a GO’s confidential information could be ascertained. For example, if the GO in a Region is the only owner of assets in a particular generator class, the metrics on that data would not be released if the GO’s name and its confidential information could be identified. The exception is if the GO voluntarily provides NERC permission to do so, which NERC will seek. However, if the identity of the GO in the previous example could not be identified in a NERC-wide report that combines the data from many reporting GOs, that report would not violate the confidentiality of that GO’s data, and the NERC-wide report containing information on the Voltage Class, for example, would be released.

6. *An estimate of the relative burden imposed on the reporting entities to accommodate the data or information request.*

Most GO’s already collect generation outage data on their units. Therefore, there will be little or no additional work to report the outage data to GADS.

The impact of GADS data collection in hours-per-week will vary. The time for data collection depends on the type of unit, number of units per station, the condition of the unit, and other factors. The important note is that the reporting entities still collect event and performance data but it may not be as detailed or structured.

For the 27.6 percent of generation not currently reporting to NERC GADS, there may be some cost in collecting the existing data, re-formatting the information into the uniform GADS format before

submitting the data to GADS. GADS can provide some free software for data collection in the proper format as needed. There may be some additional cost to train non-reporting entities in the GADS nomenclature and reporting procedures. However, in most cases, the data is already being collected by the majority of GO's. Thus, the burden of transferring the required information of GADS should be minimal.

## Section B. Comment and Questions

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While those who comment are not restricted in the format of their comments, we would appreciate your answers to the following questions:

- 1 If you are a generator owner on the NERC Compliance Registry, do you currently collect Generating Availability Data System (GADS) event, performance, and design-type information, whether you do or do not report such data to NERC? If “no”, please explain.
- 2 Is the data being requested in Section A of this data request reasonable and obtainable? If “no”, please explain.
- 3 Is the data request schedule in Section A of this data request reasonable? If “no” please explain.
- 4 Please provide any other comments you may have about this data request.

## Appendix 1: GADS Task Force Design, Event, and Performance Recommendations

Design - Fossil Steam Record Fields		GADSTF Recommendation
1	Identification (Utility and number ID, unit name)	All Parts Required
2	Date the Unit Entered Service	All Parts Required
3	Unit Loading Characteristics at Time of Unit's Design	All Parts Required
4	Design and Construction Contractors	Voluntary
5	Boiler - Manufacturer	All Parts Required
6	Boiler - Enclosure	All Parts Required
7	Boiler - Nameplate Conditions	All Parts Required
8	Boiler - Fuel Firing System	All Parts Required
9	Boiler - Type of Circulation	All Parts Required
10	Boiler - Circulation System	Voluntary
11	Boiler - Type of Furnace Bottom	All Parts Required
12	Boiler - Furnace (Surface) Release Rate	Voluntary
13	Boiler - Furnace Volumetric Heat Release Rate	Voluntary
14	Boiler - Primary and Secondary Design Fuels (All parts required except fuel characteristics)	Not All Parts Required
15	Boiler - Fuel Oil Forwarding System	Voluntary
16	Boiler - Burner System (General)	Voluntary
17	Boiler - Burner Management System	Voluntary
18	Boiler - Fuel Oil Burner Supply System (In-plant)	Voluntary
19	Boiler - Igniter System (All parts required except manufacturer and type)	Not All Parts Required
20	Boiler - Coal Handling Systems - Yard Area	Voluntary

Design - Fossil Steam Record Fields		GADSTF Recommendation
21	Boiler - Coal Feeders for Pulverizers or Coal Mills	Voluntary
22	Boiler - Pulverizer or Coal Mill Capability (All parts required except flow rate, minimum and type)	Not All Parts Required
23	Boiler - Primary Air System (All parts required except manufacturer, drive and type)	Not All Parts Required
24	Boiler - Exhausters for Pulverizers or Coal Mills (All parts required except drive manufacturer, minimum and type)	Not All Parts Required
25	Boiler - Balanced Draft or Pressurized Draft	All Parts Required
26	Boiler - Forced Draft Fan System (All parts required except manufacturer, drive manufacturer, minimum and type)	Not All Parts Required
27	Boiler - Induced Draft Fan System (All parts required except manufacturer, drive manufacturer, minimum and type)	Not All Parts Required
28	Boiler - Gas Recirculating Fan System (All parts required except manufacturer, drive manufacturer, minimum and type)	Not All Parts Required
29	Boiler - Primary Air Heating System (All parts required except manufacturer)	Not All Parts Required
30	Boiler - Secondary Air Heating System (All parts required except manufacturer)	Not All Parts Required
31	Boiler - Soot Blowers	Voluntary
32	Boiler - Bottom Ash Handling System	Voluntary
33	Boiler - Mechanical Fly Ash Precipitator System	Voluntary
34	Boiler - Electrostatic Precipitator	All Parts Required

Design - Fossil Steam Record Fields		GADSTF Recommendation
35	Boiler - Baghouse Fly Ash System  (All parts required except booster fan manufacturer, booster fan drive manufacturer and type)	Not All Parts Required
36	Boiler - Fly Ash Transport System	Voluntary
37	Flue Gas Desulfurization (FGD) Manufacturer	All Parts Required
38	FGD Installation Date	All Parts Required
39	FGD Cycle Type	All Parts Required
40	FGD Absorbing Reagents	Voluntary
41	FGD Flow Rates	Voluntary
42	FGD By-pass Capacity	All Parts Required
43	FGD Modules	All Parts Required
44	Scrubber/Absorber Tower Type	All Parts Required
45	FGD Fans  (All parts required except fan manufacturer, fan drive manufacturer, minimum and type)	Not All Parts Required
46	Scrubber Recycle (Liquid) Pumps	Voluntary
47	Stack Gas Reheater Methods	Voluntary
48	FGD Primary Mist Eliminator	Voluntary
49	Steam Turbine - Manufacturer  (All parts required including manufacturer of each steam turbine section)	All Parts Required plus
50	Steam Turbine - Enclosure	All Parts Required
51	Steam Turbine - Nameplate Rating in MW	All Parts Required
52	Steam Turbine - Type of Steam Turbine	All Parts Required
53	Steam Turbine – Manufacturer’s Building Block or Design Codes	All Parts Required

Design - Fossil Steam Record Fields		GADSTF Recommendation
54	Steam Turbine - Steam Conditions	All Parts Required
55	Steam Turbine - High, Intermediate, and Low Pressure Sections	All Parts Required
56	Steam Turbine - Governing System	All Parts Required
57	Steam Turbine - Lube Oil System	Voluntary
58	Generator - Manufacturer	All Parts Required
59	Generator - Enclosure	All Parts Required
60	Generator - Ratings and Power Factor	All Parts Required
61	Generator - Cooling System	All Parts Required
62	Generator - Hydrogen Pressure	All Parts Required
63	Exciter - Configuration	All Parts Required
64	Auxiliary Systems - Main Condenser	All Parts Required
65	Auxiliary Systems - Condenser Cleaning System	Voluntary
66	Auxiliary Systems - Condensate Polishing System	Voluntary
67	Auxiliary Systems - Condensate Pumps  (All parts required except manufacturer, drive manufacturer and minimum)	Not All Parts Required
68	Auxiliary Systems - Condensate Booster Pumps  (All parts required except manufacturer, drive manufacturer and minimum)	Not All Parts Required
69	Auxiliary Systems - Feedwater (Boiler Feed) Pumps  (All parts required except manufacturer, drive manufacturer and minimum)	Not All Parts Required
70	Auxiliary Systems - Feedwater (Boiler Feed) Pump Drives	All Parts Required
71	Auxiliary Systems - Startup Feedwater (Boiler Feed) Pumps  (All parts required except manufacturer, drive manufacturer and percent capacity)	Not All Parts Required

Design - Fossil Steam Record Fields		GADSTF Recommendation
72	Auxiliary Systems - High Pressure Feedwater Heaters (All parts required except manufacturer)	Not All Parts Required
73	Auxiliary Systems - Intermediate Pressure Feedwater Heaters (All parts required except manufacturer)	Not All Parts Required
74	Auxiliary Systems - Low Pressure Feedwater Heaters (All parts required except manufacturer)	Not All Parts Required
75	Auxiliary Systems - Deaerator Heater	All Parts Required
76	Auxiliary Systems - Heater Drain Pumps	Voluntary
77	Auxiliary Systems - Circulating Water Pumps (All parts required except manufacturer drives)	Not All Parts Required
78	Auxiliary Systems - Cooling Tower and Auxiliaries (All parts required except manufacturer, drive manufacturer and booster pump information)	Not All Parts Required
79	Balance of Plant - Main Transformer	All Parts Required
80	Balance of Plant - Unit Auxiliary Transformer	All Parts Required
81	Balance of Plant - Station Service Transformer	All Parts Required
82	Balance of Plant - Auxiliary (Start-up) Boiler	Voluntary
83	Balance of Plant - Auxiliary Generator	Voluntary
84	Balance of Plant - Plant Process Computer	Voluntary
85	CEMS - General	Voluntary
86	CEMS - Pollutant Gas and Diluent Gas Analyzers/Monitors	Voluntary
87	CEMS - Flue Gas Flow Monitors	Voluntary
88	CEMS - Data Acquisition and Reporting System	Voluntary
89	Selective Non-Catalytic Reduction System (SNCR) (All parts required except injector type and location and gas type)	Not All Parts Required



Design - Fossil Steam Record Fields		GADSTF Recommendation
90	Selective Catalytic Reduction System (SCR)  (All parts required except reactor type, injector type and location, gas type)	Not All Parts Required
91	Catalytic Air Heaters  (All parts required except injector type and location and gas type)	Not All Parts Required

Design - Fluidized Bed Record Fields	GADSTF Recommendations
1 Identification (Utility and number ID, unit name)	All Parts Required
2 Date the Unit Entered Service	All Parts Required
3 Unit Loading Characteristics at Time of Unit's Design	All Parts Required
4 Design and Construction Contractors	Voluntary
5 Boiler – Manufacturer	All Parts Required
6 Boiler – Enclosure	All Parts Required
7 Boiler - Nameplate Conditions	All Parts Required
8 Boiler - Fuel Firing System	All Parts Required
9 Boiler - Method of Solid Feed to the Boiler	All Parts Required
10 Boiler - Type of Circulation	All Parts Required
11 Boiler - Circulation System  (All parts required except manufacturer, drive manufacture, and type)	Not All Parts Required
12 Boiler - Heat Exchanger	Voluntary
13 Boiler - Char Reinjection System  (All parts required except separation temperature, liner, pressure, type)	Not All Parts Required
14 Boiler - Design Parameters	Voluntary
15 Boiler - Furnace (Surface) Release Rate	Voluntary
16 Boiler - Furnace Volumetric Heat Release Rate	Voluntary
17 Boiler - Primary and Secondary Design Fuel, Sorbents, and Non-sorbent  (All parts required except fuel characteristics)	Not All Parts Required
18 Boiler - Fuel Oil Forwarding System	Voluntary
19 Boiler - Burner Management Systems	Voluntary
20 Boiler - Fuel Oil Burner Supply System (In-plant)	Voluntary

Design - Fluidized Bed Record Fields	GADSTF Recommendations
21 Boiler - Burner Systems  (All parts required except duct burner type, BTU rate)	Not All Parts Required
22 Boiler - Solid Fuel Handling Systems - Yard Area  (All parts required except manufacturer)	Not All Parts Required
23 Boiler - Solid Fuel Crushers	Voluntary
24 Boiler - Solid Fuel Feed to Boiler  (All parts required except type, manufacturer, drive manufacturer, feeder information)	Not All Parts Required
25 Boiler - Secondary Fuel Feed (other than coal)	Voluntary
26 Boiler - Sorbent Crusher or Pulverizer Capability  (All parts required except type, manufacturer, drive manufacturer, sorbent feeder information)	Not All Parts Required
27 Boiler - Sorbent Feed System to Boiler  (All parts required except type, manufacturer, drive manufacturer, feeder information)	Not All Parts Required
28 Boiler - Bed Material Injection Feed System  (All parts required except type, manufacturer, drive manufacturer, feeder information)	Not All Parts Required
29 Boiler - Balanced Draft or Pressurized Draft	All Parts Required
30 Boiler - Primary Air (Forced Draft) Fan System  (All parts required except manufacturer, type)	Not All Parts Required
31 Boiler - Induced Draft Fan System  (All parts required except manufacturer, type)	Not All Parts Required
32 Boiler - Secondary Air Fan System  (All parts required except manufacturer, type)	Not All Parts Required
33 Boiler - Primary Air Heating System	Not All Parts Required

Design - Fluidized Bed Record Fields		GADSTF Recommendations
	(All parts required except manufacturer)	
34	Boiler - Secondary Air Heating System  (All parts required except manufacturer)	Not All Parts Required
35	Boiler - Soot Blowers	Voluntary
36	Boiler - Bed Material Coolers  (All parts required except manufacturer and cooler type)	Not All Parts Required
37	Boiler - Bed Material Handling System  (All parts required except manufacturer)	Not All Parts Required
38	Boiler - Char Disposal System  (All parts required except manufacturer)	Not All Parts Required
39	Boiler - Electrostatic Precipitator	All Parts Required
40	Boiler - Baghouse Fly Ash System	Voluntary
41	Boiler - Fly Ash Transport System	Voluntary
42	Steam Turbine - Manufacturer  (All parts required including manufacturer of each steam turbine section)	All Parts Required plus
43	Steam Turbine - Enclosure	All Parts Required
44	Steam Turbine - Nameplate Rating in MW	All Parts Required
45	Steam Turbine - Type of Steam Turbine	All Parts Required
46	Steam Turbine – Manufacturer’s Building Block or Design Codes	All Parts Required
47	Steam Turbine - Steam Conditions	All Parts Required
48	Steam Turbine - High, Intermediate, and Low Pressure Sections	All Parts Required
49	Steam Turbine - Governing System	All Parts Required
50	Steam Turbine - Lube Oil System	Voluntary

Design - Fluidized Bed Record Fields		GADSTF Recommendations
51	Generator - Manufacturer	All Parts Required
52	Generator - Enclosure	All Parts Required
53	Generator - Ratings and Power Factor	All Parts Required
54	Generator - Cooling System	All Parts Required
55	Generator - Hydrogen Pressure	All Parts Required
56	Exciter - Configuration	All Parts Required
57	Auxiliary Systems - Main Condenser	All Parts Required
58	Auxiliary Systems - Condenser Cleaning System	Voluntary
59	Auxiliary Systems - Condensate Polishing System	Voluntary
60	Auxiliary Systems - Condensate Pumps  (All parts required except manufacturer, drive manufacturer and minimum)	Not All Parts Required
61	Auxiliary Systems - Condensate Booster Pumps  (All parts required except manufacturer, drive manufacturer and minimum)	Not All Parts Required
62	Auxiliary Systems - Feedwater (Boiler Feed) Pumps  (All parts required except manufacturer, drive manufacturer and minimum)	Not All Parts Required
63	Auxiliary Systems - Feedwater (Boiler Feed) Pump Drives	All Parts Required
64	Auxiliary Systems - Startup Feedwater (Boiler Feed) Pumps  (All parts required except manufacturer, drive manufacturer and percent capacity)	Not All Parts Required
65	Auxiliary Systems - High Pressure Feedwater Heaters  (All parts required except manufacturer)	Not All Parts Required
66	Auxiliary Systems - Intermediate Pressure Feedwater Heaters  (All parts required except manufacturer)	Not All Parts Required

Design - Fluidized Bed Record Fields		GADSTF Recommendations
67	Auxiliary Systems - Low Pressure Feedwater Heaters  (All parts required except manufacturer)	Not All Parts Required
68	Auxiliary Systems - Deaerator Heater	All Parts Required
69	Auxiliary Systems - Heater Drain Pumps	Voluntary
70	Auxiliary Systems - Circulating Water Pumps  (All parts required except manufacturer drives)	Not All Parts Required
71	Auxiliary Systems - Cooling Tower and Auxiliaries  (All parts required except manufacturer, drive manufacturer and booster pump information)	Not All Parts Required
72	Balance of Plant - Main Transformer	All Parts Required
73	Balance of Plant - Unit Auxiliary Transformer	All Parts Required
74	Balance of Plant - Station Service Transformer	All Parts Required
75	Balance of Plant - Auxiliary (Start-up) Boiler	Voluntary
76	Balance of Plant - Auxiliary Generator	Voluntary
77	Balance of Plant - Plant Process Computer	Voluntary
78	CEMS - General	Voluntary
79	CEMS - Pollutant Gas and Diluent Gas Analyzers/Monitors	Voluntary
80	CEMS - Flue Gas Flow Monitors	Voluntary
81	CEMS - Data Acquisition and Reporting System	Voluntary
82	Selective Non-Catalytic Reduction System (SNCR)  (All parts required except injector type and location and gas type)	Not All Parts Required
83	Selective Catalytic Reduction System (SCR)	Not All Parts Required
84	(All parts required except reactor type, injector type and location, gas type)	
85	Catalytic Air Heaters	Not All Parts Required

<b>Design - Fluidized Bed Record Fields</b>	<b>GADSTF Recommendations</b>
(All parts required except injector type and location and gas type)	

Design - Nuclear Record Fields		GADSTF Recommendations
1	Identification (Utility and number ID, unit name)	All Parts Required
2	Date the Unit Entered Service	All Parts Required
3	Reactor Manufacturer, type, temperatures, pressures	All Parts Required
4	Primary loop or recirculating pump manufacturer	Voluntary
5	Primary loop or recirculating pump type drives	All Parts Required
6	Steam generator manufacturer	All Parts Required
7	Control rods, shim, weight of uranium, enrichment, etc	Voluntary
8	Fuel type	All Parts Required
9	Fuel cladding material	Voluntary
10	Containment type	All Parts Required
11	Architect/Engineer	Voluntary
12	Steam Turbine – Manufacturer (All parts required including manufacturer of each steam turbine section)	All Parts Required plus
13	Steam Turbine - Enclosure	All Parts Required
14	Steam Turbine - Nameplate Rating in MW	All Parts Required
15	Steam Turbine - Type of Steam Turbine	All Parts Required
16	Steam Turbine – Manufacturer’s Building Block or Design Codes	All Parts Required
17	Steam Turbine - Steam Conditions	All Parts Required
18	Steam Turbine - High, Intermediate, and Low Pressure Sections	All Parts Required
19	Steam Turbine - Governing System	All Parts Required
20	condenser Manufacturer  (All parts required except manufacturer)	Not All Parts Required
21	Type cooling water	Voluntary



Design - Nuclear Record Fields		GADSTF Recommendations
22	Cooling water origin	All Parts Required
23	Number of condensate pumps	All Parts Required
24	Condensate pump manufacturer	Voluntary
25	Number of circulating water pumps	All Parts Required
26	Circulating water pump manufacturer	Voluntary
27	Number of secondary loop or single loop feed pumps	All Parts Required
28	Number of spare feed pumps which are same size	All Parts Required
29	Number of spare or startup feed pumps which smaller than one	All Parts Required
30	Normal feed pump manufacturer	Voluntary
31	Normal feed pump type drive	All Parts Required
32	Normal feed pump, enter	All Parts Required
33	Normal feed pump maximum speed in RPM	All Parts Required
34	Number of feed water heaters on high side of feed pump	All Parts Required
35	High pressure feed water heater manufacturer	Voluntary
36	Number of feed water heaters on low side of feed pump	All Parts Required
37	Low pressure feed water heater manufacturer	Voluntary
38	Computer system supplier	Voluntary
39	Number of computer	Voluntary
40	Computer system capability	Voluntary
41	generator Manufacturer	All Parts Required
42	Generator type	All Parts Required
43	Generator Type	All Parts Required
44	Nameplate power factor in percent	All Parts Required
45	Cooling medium, stator/rotor	All Parts Required

Design - Nuclear Record Fields		GADSTF Recommendations
46	Cooling method, stator/rotor	All Parts Required
47	Hydrogen pressure in PSIG at nameplate MVA	All Parts Required
48	Number of exciters required by the unit	All Parts Required
49	alternator rectifier	All Parts Required
50	Type normal exciters	All Parts Required
51	Type drive for normal exciters, if rotating	All Parts Required
52	Number of spare exciters available to the unit	All Parts Required
53	if more than 50% of generator is outdoors	Voluntary

Design - Hydro/Pumped Storage Record Fields		GADSTF Recommendations
1	Identification (Utility and number ID, unit name)	All Parts Required
2	Date the Unit Entered Service	All Parts Required
3	Hydro or Pumped Storage	All Parts Required
4	Turbine/Pump manufacturer	Voluntary
5	Turbine/Pump impulse type	All Parts Required
6	Turbine/Pump reaction type	All Parts Required
7	Turbine rated head to nearest foot	All Parts Required
8	Turbine rated speed to nearest RPM	All Parts Required
9	Turbine rating in horsepower to nearest 100 hp	Voluntary
10	Turbine runner, type	All Parts Required
11	Number of buckets/blades per runner	Voluntary
12	Governor type	All Parts Required
13	Turbine bearing type	All Parts Required
14	Thrust bearing location	All Parts Required
15	Guide bearing, location	All Parts Required
16	Nameplate rating of unit (MVA times power factor)	All Parts Required
17	Generator Manufacturer	All Parts Required
18	Generator type	All Parts Required
19	Generator Type	All Parts Required
20	Nameplate power factor in percent	All Parts Required
21	Cooling medium, stator/rotor	All Parts Required
22	Cooling method, stator/rotor	All Parts Required
23	Hydrogen pressure in PSIG at nameplate MVA	All Parts Required
24	Number of exciters required by the unit	All Parts Required
25	alternator rectifier	All Parts Required

26	Type normal exciters	All Parts Required
27	Type drive for normal exciters, if rotating	All Parts Required
28	Number of spare exciters available to the unit	All Parts Required
29	if more than 50% of generator is outdoors	Voluntary

Design - Diesel Record Fields		GADSTF Recommendations
1	Identification (Utility and number ID, unit name)	Voluntary
2	Date the Unit Entered Service	Voluntary
3	Diesel engine manufacturer	Voluntary
4	Fuel, type (design)	Voluntary
5	Cylinders, number per engine	Voluntary
6	Cycle, type	Voluntary
7	Startup system, type	Voluntary
8	Time for normal cold start to full load in seconds	Voluntary
9	Time for emergency cold start to full load in seconds	Voluntary
10	Coolant, type	Voluntary
11	Generator Manufacturer	Voluntary
12	Generator type	Voluntary
13	Generator Type	Voluntary
14	Nameplate power factor in percent	Voluntary
15	Cooling medium, stator/rotor	Voluntary
16	Cooling method, stator/rotor	Voluntary
17	Hydrogen pressure in PSIG at nameplate MVA	Voluntary
18	Number of exciters required by the unit	Voluntary
19	alternator rectifier	Voluntary
20	Type normal exciters	Voluntary
21	Type drive for normal exciters, if rotating	Voluntary
22	Number of spare exciters available to the unit	Voluntary
29	if more than 50% of generator is outdoors	Voluntary

Design - Gas Turbine/Jet Engines Record Fields	GADSTF Recommendations
1 Identification (Utility and number ID, unit name)	All Parts Required
2 Date the Unit Entered Service	All Parts Required
3 Engine manufacturer	All Parts Required
4 Engine type	All Parts Required
5 Engines, number per unit	All Parts Required
6 Expander turbines, number per unit if applicable	Voluntary
7 Type expander, if applicable	Voluntary
8 Cycle type	Voluntary
9 Startup system	All Parts Required
10 Startup type	Voluntary
11 Type of Fuel(s) that will be used	All Parts Required
12 Enter (1) if sound attenuators located at inlet	Voluntary
13 Enter (1) if sound attenuators located at outlet	Voluntary
14 Enter (1) if sound attenuators located in building enclosures	Voluntary
15 Time for normal cold start to full load in seconds	All Parts Required
16 Time for emergency cold start to full load in seconds	All Parts Required
17 Black start capability	All Parts Required
18 Do you have Selective Non-catalytic Reduction (SNCR)	All Parts Required
19 SNCR reagent	Voluntary
20 SNCR injection equipment location	Voluntary
21 Number of SNCR injectors	Voluntary
22 SNCR carrier gas type	Voluntary
23 SNCR carrier gas total flow rate (thousands of lbs. /hr.)	Voluntary
24 SNCR carrier gas pressure at nozzle (psi)	Voluntary
25 SNCR carrier gas nozzle exit velocity (thousands of ft. /sec.)	Voluntary

Design - Gas Turbine/Jet Engines Record Fields		GADSTF Recommendations
26	Do you have Selective Catalytic Reduction (SCR)	All Parts Required
27	SCR reactor	Voluntary
28	SCR reagent	Voluntary
29	SCR ammonia injection grid location	Voluntary
30	SCR duct configuration	Voluntary
31	SCR Catalyst Element Type	Voluntary
32	SCR catalyst support material	Voluntary
33	SCR catalytic material configuration	Voluntary
34	SCR catalyst surface face area (thousands of square feet)	Voluntary
35	SCR catalyst volume (thousands of cubic feet)	Voluntary
36	Number of SCR catalytic layers	Voluntary
37	SCR catalytic layer thickness (1/1000 inches)	Voluntary
38	SCR sootblower type	Voluntary
39	SCR sootblower manufacturer	Voluntary
40	Catalytic Air Heater (CAH) element type	Voluntary
41	CAH catalyst material	Voluntary
42	CAH catalyst support material	Voluntary
43	CAH catalyst material configuration	Voluntary
44	CAH catalyst material total face area (thousands of square feet)	Voluntary
45	CAH catalyst material open face area (thousands of square feet)	Voluntary
46	CAH catalyst material layer thickness (1/1000 inches)	Voluntary
47	Generator Manufacturer	All Parts Required
48	Generator type	All Parts Required
49	Generator Type	All Parts Required

Design - Gas Turbine/Jet Engines Record Fields		GADSTF Recommendations
50	Nameplate power factor in percent	All Parts Required
51	Cooling medium, stator/rotor	All Parts Required
52	Cooling method, stator/rotor	All Parts Required
53	Hydrogen pressure in PSIG at nameplate MVA	All Parts Required
54	Number of exciters required by the unit	All Parts Required
55	alternator rectifier	All Parts Required
56	Type normal exciters	All Parts Required
57	Type drive for normal exciters, if rotating	All Parts Required
58	Number of spare exciters available to the unit	All Parts Required
59	if more than 50% of generator is outdoors	Voluntary



Design - Combined Cycle Block Record Fields		GADSTF Recommendations
1	Identification (Utility and number ID, unit name)	All Parts Required
2	Date the Unit Entered Service	All Parts Required
3	Block Loading Characteristics at Time of Design	All Parts Required
4	Design and Construction Contractors	Voluntary
5	Total Nameplate Rating of all units in the block (in MW)	All Parts Required
6	Does the block have co-generation (steam for other than electric generation) capabilities	All Parts Required
7	What is the number of gas turbines/jet engines per Heat Recovery Steam Generator (HRSG)	All Parts Required
8	What is the number of gas turbines/jet engines - Heat Recovery Steam Generator (HRSG) Trains	All Parts Required
9	Total number of gas turbines/jet engines in block	All Parts Required
10	Total number of Heat Recovery Steam Generator (HRSG) in block	All Parts Required
11	Total number of Steam Turbines in block	All Parts Required
12	Identification	All Parts Required
13	Date the gas turbine/jet engine Entered Service	All Parts Required
14	Design and Construction Contractors	Voluntary
15	Gas turbine/jet engine nameplate rating in MW	All Parts Required
16	Engine manufacturer	All Parts Required
17	Engine type	All Parts Required
18	Expander turbines, number per unit if applicable	Voluntary
19	Type expander, if applicable	Voluntary
20	Engine Cycle type	Voluntary
21	Engine Startup system	All Parts Required
22	Engine Startup type	Voluntary

Design - Combined Cycle Block Record Fields		GADSTF Recommendations
23	Engine Type of Fuel(s) that will be used	All Parts Required
24	Enter (1) if sound attenuators located at inlet	Voluntary
25	Enter (1) if sound attenuators located at outlet	Voluntary
26	Enter (1) if sound attenuators located in building enclosures	Voluntary
27	Time for normal cold start to full load in seconds	Voluntary
28	Time for emergency cold start to full load in seconds	Voluntary
29	Black start capability	All Parts Required
30	Engine Model Number (MS 7001EA, W501AA, FT4A11, etc.)	All Parts Required
31	Selective Non-catalytic Reduction equipment?	All Parts Required
32	SNCR reagent	Voluntary
33	SNCR injector type	Voluntary
34	SNCR injection equipment location	Voluntary
35	Number of SNCR injectors	Voluntary
36	SNCR carrier gas type	Voluntary
37	SNCR carrier gas total flow rate (thousands of lbs. /hr.)	Voluntary
38	SNCR carrier gas pressure at nozzle (psi)	Voluntary
39	SNCR carrier gas nozzle exit velocity (thousands of ft. /sec.)	Voluntary
40	Selective Catalytic Reduction equipment?	All Parts Required
41	CR reactor	Voluntary
42	SCR reagent	Voluntary
43	SCR ammonia injection grid location	Voluntary
44	SCR duct configuration	Voluntary
45	SCR Catalyst Element Type	Voluntary
46	SCR catalyst support material	Voluntary
47	SCR catalytic material configuration	Voluntary

Design - Combined Cycle Block Record Fields		GADSTF Recommendations
48	SCR catalyst surface face area (thousands of square feet)	Voluntary
49	SCR catalyst volume (thousands of cubic feet)	Voluntary
50	Number of SCR catalytic layers	Voluntary
51	SCR catalytic layer thickness (1/1000 inches)	Voluntary
52	SCR sootblower type	Voluntary
53	SCR sootblower manufacturer	Voluntary
54	CAH element type	Voluntary
55	CAH catalyst material	Voluntary
56	CAH catalyst support material	Voluntary
57	CAH catalyst material configuration	Voluntary
58	CAH catalyst material total face area (thousands of square feet)	Voluntary
59	CAH catalyst material open face area (thousands of square feet)	Voluntary
60	CAH catalyst material layer thickness (1/1000 inches)	Voluntary
61	Generator - Manufacturer	All Parts Required
62	Number of generators per gas turbine/jet engine	All Parts Required
63	Generator - Enclosure	Voluntary
64	Generator - Ratings and Power Factor	All Parts Required
65	Generator - Cooling System	All Parts Required
66	Generator - Hydrogen Pressure	All Parts Required
67	Exciter - Configuration	All Parts Required
68	Enter the unit code information for each GT/Jet that supplies heat energy to this single HRSG.	All Parts Required
69	HRSG - Manufacturer	All Parts Required
70	HRSG - Enclosure	Voluntary

Design - Combined Cycle Block Record Fields		GADSTF Recommendations
71	HRSG - Nameplate Steam Conditions When fired situation	All Parts Required
72	HRSG - Nameplate Steam Conditions When unfired situation	All Parts Required
73	Is the HRSG top-supported (pressure parts hang like in a utility boiler) or bottom-supported?	Voluntary
74	Does the HRSG have vertical or horizontal heat exchangers?	Voluntary
75	Is the duct insulation is cold-casing (insulation on the inside of the duct) or hot casing (insulation on the outside of the duct)?	Voluntary
76	HRSG Supplemental Firing (duct burners)	All Parts Required
77	HRSG bypass capabilities	All Parts Required
78	Does the HRSG have a drum or is it once-through design?	All Parts Required
79	HRSG - Circulation System	Voluntary
80	HRSG – Duct Burner System (General)	Voluntary
81	HRSG – Duct Burner Management System	Voluntary
82	Auxiliary Systems - Feedwater (HRSG Feed) Pumps  (All parts required except operating speed, minimum number, percent of capacity)	Not All Parts Required
83	Auxiliary Systems - Feedwater (HRSG Feed) Pump Drives	All Parts Required
84	Auxiliary Systems - Startup Feedwater (HRSG Feed) Pumps	Voluntary
85	Auxiliary Systems - High Pressure Feedwater Heaters	Voluntary
86	Auxiliary Systems - Intermediate Pressure Feedwater Heaters	Voluntary
87	Auxiliary Systems - Low Pressure Feedwater Heaters	Voluntary
88	Auxiliary Systems - Deaerator Heater	Voluntary
89	Auxiliary Systems - Heater Drain Pumps	Voluntary
90	Steam Turbine Identification (utility-unit codes)	All Parts Required
91	Does steam turbine have bypass capability?	All Parts Required

Design - Combined Cycle Block Record Fields		GADSTF Recommendations
92	Steam Turbine - Manufacturer	All Parts Required
93	Steam Turbine - Enclosure	Voluntary
94	Steam Turbine - Nameplate Rating in MW	All Parts Required
95	Steam Turbine - Type of Steam Turbine	All Parts Required
96	Steam Turbine – Manufacturer’s Building Block or Design Codes	All Parts Required
97	Steam Turbine - Steam Conditions	All Parts Required
98	Steam Turbine - High, Intermediate, and Low Pressure Sections	All Parts Required
99	Steam Turbine - Governing System	All Parts Required
100	Steam Turbine - Lube Oil System	Voluntary
101	Generator - Manufacturer	All Parts Required
102	Generator - Enclosure	Voluntary
103	Generator - Ratings and Power Factor	All Parts Required
104	Generator - Cooling System	All Parts Required
105	Generator - Hydrogen Pressure	All Parts Required
106	Exciter - Configuration	All Parts Required
107	Auxiliary Systems - Main Condenser  (All parts required except condenser manufacturer and ejector manufacturer)	Not All Parts Required
108	Auxiliary Systems - Condenser Cleaning System	Voluntary
109	Auxiliary Systems - Condensate Polishing System	Voluntary
110	Auxiliary Systems - Condensate Pumps  (All parts required except manufacturer, drive manufacturer, and minimum)	Not All Parts Required
111	Auxiliary Systems - Condensate Booster Pumps	Not All Parts Required

Design - Combined Cycle Block Record Fields		GADSTF Recommendations
	(All parts required except manufacturer, drive manufacturer, and minimum)	
112	Auxiliary Systems - Circulating Water Pumps  (All parts required except manufacturer, drive manufacturer, and minimum)	Not All Parts Required
113	Auxiliary Systems - Cooling Tower and Auxiliaries  (All parts required except manufacturer, drive manufacturer, and booster pump information)	Not All Parts Required
114	Balance of Plant - Main Transformer	All Parts Required
115	Balance of Plant - Block Auxiliary Transformer	All Parts Required
116	Balance of Plant - Station Service Transformer	All Parts Required

Design - Miscellaneous Record Fields		GADSTF Recommendations
1	Identification (Utility and number ID, unit name)	All Parts Required
2	Date the Unit Entered Service	All Parts Required
3	Energy source	All Parts Required
4	Energy medium	All Parts Required
5	Enter (1) if header unit	All Parts Required
6	Enter (1) if non-condensing steam turbine	All Parts Required
7	Nameplate MW Rating of the unit	All Parts Required
SELECTIVE NON-CATALYTIC REDUCTION SYSTEM (SNCR)		
8	reagent	All Parts Required
9	SNCR injector type	Voluntary
10	SNCR injection equipment location	Voluntary
11	Number of SNCR injectors	Voluntary
12	SNCR carrier gas type	Voluntary
13	SNCR carrier gas total flow rate (thousands of lbs. /hr.)	Voluntary
14	SNCR carrier gas pressure at nozzle (psi)	Voluntary
15	SNCR carrier gas nozzle exit velocity (thousands of ft. /sec.)	Voluntary
SELECTIVE CATALYTIC REDUCTION SYSTEM (SCR) reactor		
16	SELECTIVE CATALYTIC REDUCTION SYSTEM (SCR) reactor	Voluntary
17	SCR reagent	All Parts Required
18	SCR ammonia injection grid location	Voluntary
19	SCR duct configuration	Voluntary
20	SCR Catalyst Element Type	All Parts Required
21	SCR catalyst support material	Voluntary
22	SCR catalytic material configuration	Voluntary
23	SCR catalyst surface face area (thousands of square feet)	Voluntary
24	SCR catalyst volume (thousands of cubic feet)	Voluntary

Design - Miscellaneous Record Fields		GADSTF Recommendations
25	Number of SCR catalytic layers	Voluntary
26	SCR catalytic layer thickness (1/1000 inches)	Voluntary
27	SCR sootblower type	Voluntary
28	SCR sootblower manufacturer	Voluntary
29	CATALYTIC AIR HEATERS (CAH) element type	Voluntary
30	CAH catalyst material	Voluntary
31	CAH catalyst support material	Voluntary
32	CAH catalyst material configuration	Voluntary
33	CAH catalyst material total face area (thousands of square feet)	Voluntary
34	CAH catalyst material open face area (thousands of square feet)	Voluntary
35	CAH catalyst material layer thickness (1/1000 inches)	Voluntary
36	Total nameplate rating in MW	All Parts Required
37	Type electrical output	All Parts Required



Event Record Fields	GADSTF Recommendations
Utility and unit identifier (like GADS utility-unit code)	Required
Year of event	Required
Event number	Required
Report Revision Code	Voluntary
Event Type – Forced Outages (U1, U2, U3), Forced Deratings (D1, D2, D3), Planned Outages (PO), Planned Deratings (PD), Maintenance Outage (MO), Maintenance Deratings (D4), Reserve Shutdown (RS), Start-up Failure (SF), Non-curtailing (NC)	Required
Start Date – Date of Event Initiation	Required
Start Time – Time of Event Initiation	Required
End Date – Date of Event Completion	Required
End Time – Time of Event Completion	Required
MW Reduction – Number of MWs Derated (For Deratings Only)	Required
Dominant Derating Code	Voluntary but strongly recommended
System/Component Cause Code	Required
Cause Code Amplification Code	Required for transmission events only; strongly recommended for all other events.
Time Work Started	Voluntary
Time Work Ended	Voluntary
Event Contribution Code	Voluntary
Problem Alert	Voluntary
Man-hours Worked	Voluntary
Verbal Description	Voluntary but strongly recommended

Performance Record Fields	GADSTF Recommendation
Utility and unit identifier (like GADS utility-unit code)	Required
Year of event	Required
Month of performance reporting	Required
Monthly Unit Capacity (GMC, GDC, NMC, NDC - one or more)	Required
Gross Generation in MW	Voluntary
Net Generation in MW	Required
Loading Characteristic (base loaded, cycling, etc)	Voluntary
Number of attempted unit starts	Required
Number of actual unit starts	Required
Service Hours (SH)	Required
Reserve Shutdown Hours (RSH)	Required
Pumping hours	Required
Synchronous Condensing Hours	Required
Total Available Hours (SH +RSH + Pump + Synchronous)	Required
Planned Outage Hours (POH)	Required
Forced Outage Hours (FOH)	Required
Maintenance Outage Hours (MOH)	Required
Extension Hours to planned and maintenance outages	Required
Total Unavailable Hours (POH+FOH+MOH+MEH + PEH)	Required
Period Hours (Available hours + unavailable hours)	Required
Primary type of fuel (coal, gas, etc)	Required
Primary fuel quality, heat content, percent ash, etc	Voluntary