Independent Statistics & Analysis
U.S. Energy Information Administration

# FORM EIA-860

## ANNUAL ELECTRIC GENERATOR REPORT

**Approval: OMB No. 1905-0129**
**Approval Expires: 05/31/2017**
**Burden: 9.29 Hours**

**NOTICE:** This report is **mandatory** under the Federal Energy Administration Act of 1974 (Public Law 93-275). Failure to comply may result in criminal fines, civil penalties and other sanctions as provided by law. For further information concerning sanctions and disclosure information, see the provisions stated on the last page of the instructions. **Title 18 USC 1001 makes it a criminal offense for any person knowingly and willingly to make to any Agency or Department of the United States any false, fictitious, or fraudulent statements as to any matter within its jurisdiction.**

### SCHEDULE 1. IDENTIFICATION

**1. Who is the survey contact?**
- The survey contact is the person that completes and submits the data.

| | | | | | |
|---|---|---|---|---|---|
| **First Name** | | **Last Name** | | | |
| **Title** | | | | | |
| **Address** | | | | | |
| **City** | | **State** | | **Zip Code** | |
| **Phone** | | **Ext** | | **Fax** | |
| **Cell Phone** | | | | | |
| **Email** | | | | | |

**2. Who is the survey contact's supervisor?**

| | | | | | |
|---|---|---|---|---|---|
| **First Name** | | **Last Name** | | | |
| **Title** | | | | | |
| **Address** | | | | | |
| **City** | | **State** | | **Zip Code** | |
| **Phone** | | **Ext** | | **Fax** | |
| **Cell Phone** | | | | | |
| **Email** | | | | | |

**3. What is the name and address of the reporting entity?**

| | | | | | |
|---|---|---|---|---|---|
| **Entity Name** | | | | | |
| **Entity Address** | | | | | |
| **City** | | **State** | | **Zip Code** | |

**4. What is the reporting entity's relationship to the power plants reported on Schedule 2?**
- Check all that apply.

☐ **Owner**
☐ **Operator**
☐ **Asset Manager**
☐ **Other – Explain:**

**5. What type of entity is the principle owner and/or operator for the power plants reported on this form?**
- Check one

- ☐ **Cooperative**
- ☐ **Investor-Owned Utility (IOU)**
- ☐ **Independent Power Producer (IPP)**
- ☐ **Municipally-Owned Utility**
- ☐ **Political Subdivision**
- ☐ **Federally-Owned Utility**
- ☐ **State-Owned Utility**
- ☐ **Industrial (principal business is not electricity generation)**
- ☐ **Commercial (principal business is not electricity generation)**

If you have a question about the data requested on this form, email EIA-860@eia.gov (preferred) or contact one of the survey managers listed below.

Jonathan DeVilbiss
Jonathan.DeVilbiss@eia.gov
(202) 586-2992

Suparna Ray
Suparna.Ray@eia.gov
(202) 586-5077

Tosha Richardson
Tosha.Richardson@eia.gov
(202) 287-6597

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## ANNUAL ELECTRIC GENERATOR REPORT

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### SCHEDULE 2. POWER PLANT DATA

Complete one SCHEDULE 2 for:

- Each operable power plant;
- Each coal and nuclear plant planned for initial commercial operation within 10 years; or
- Each plant fueled by any energy source other than coal and nuclear planned for initial commercial operation within 5 years.

**1. What are the plant name and EIA Plant Code for this plant?**
- Leave EIA Plant Code blank if this is the first submission for this plant.

**Plant Name**

**EIA Plant Code**

**2. What is this plant's physical address?**
- If plant does not have a permanent physical address, note in SCHEDULE 7.

**Street Address**

**County**

**City**

**State** **Zip Code**

**3. What is this plant's latitude and longitude?**
- Enter coordinates for central location in plant.
- Report latitude and longitude in decimal format.

**Plant Latitude**

**Plant Longitude**

**4. Which North American Electric Reliability Corporation region does this plant operate in?**

**5. What is this plant's balancing authority?**
- A balancing authority manages supply, demand, and interchanges within an electrically defined area.

**6. What is the name of the principle water source used by this plant for cooling or hydroelectric generation?**
- If from an aquifer, enter aquifer name.
- Enter "Wells" if aquifer name is unknown.
- Enter "Municipality" if water is from a municipality.
- Enter "UNK" for planned plants where water source is unknown.
- Enter "NA" for plants that do not use a water source for cooling or hydroelectric generation.

**7. What is this plant's steam plant type?**
- Steam plant type will be entered by EIA staff.
- Respondents completing this form via internet data collection should contact EIA if this designation is incorrect.

**[ ] 1. Plants with combustible-fueled steam-electric generators with a sum of 100 MW or more steam-electric nameplate capacity (including combined cycle steam-electric generators with duct firing).**

**[ ] 2. Plants with combustible-fueled steam-electric generators with a sum of 10 MW or more but less than 100 MW steam-electric nameplate capacity (including combined cycle steam-electric generators with duct firing).**

**[ ] 3. Plants with nuclear fueled generators, combined cycle steam-electric generators without duct firing and solar thermal electric generators using a steam cycle with a sum of 100 MW or more steam-electric nameplate capacity.**

**[ ] 4. Plants with non-steam fueled electric generators (wind, PV, geothermal, fuel cell, combustion turbines, IC engines, etc.) and electric generators not meeting conditions of categories above.**

**8a. Which North American Industry Classification System (NAICS) Code that best describes this plant's primary purpose?**
- Select the NAICS code from Table 29 in the Instructions.
- If the NAICS code selected is not 22, answer 8b.

**8b. Did this plant have a net metering agreement in effect during the reporting year?**
- Answer ONLY if a NAICS code other than 22 was entered in 8a.

**Yes**

**No**

**9a. Does this plant have Federal Energy Regulatory Commission Qualifying Facility (QF) Cogenerator status?**

**Yes – Continue to Question 9b**

**No – Continue to Question 10a**

**9b. List all applicable QF docket number(s) granted to this plant.**
- Include only numbers and dashes, excluding prefixes.

**10a. Does this plant have Federal Energy Regulatory Commission Qualifying Facility (QF) Small Power Producer status?**

**Yes – Continue to Question 10b**

**No – Continue to Question 11a**

**10b. List all applicable QF docket number(s) granted to this plant.**
- Include only numbers and dashes, excluding prefixes.

**11a. Does this plant have Federal Energy Regulatory Commission Qualifying Facility (QF) Exempt Wholesale Generator status?**

**Yes – Continue to Question 11b**

**No – Continue to Question 12a**

**11b. List all applicable QF docket number(s) granted to this plant.**
- Include only numbers and dashes, excluding prefixes.

**12a. Is there an ash impoundment (e.g. pond, reservoir) at the plant?**

**Yes – Continue to Question 12b**

**No – Continue to Question 13**

**12b. Is this ash impoundment lined?**

**Yes – Continue to Question 12c**

**No – Continue to Question 13**

**12c. What was this ash impoundment's status as of December 31 of the reporting year?**
- Select from Table 1 in SCHEDULE 2 Instructions.

**13. Who is the current owner of the transmission lines and/ or distribution facilities that this plant is interconnected to?**

**14. What is this plant's grid voltage at the point(s) of interconnection to transmission or distribution facilities?**
- Enter up to three grid voltages.
- If more than three, enter three highest grid voltages.

**Kilovolts**

**Kilovolts**

**Kilovolts**

**15. RESERVED FOR FUTURE USE**

**16. What is the name of the natural gas pipeline(s) that is connected to your facility?**
- For plants that receive natural gas only.

## SCHEDULE 3. GENERATOR INFORMATION

## SCHEDULE 3, PART A. GENERATOR INFORMATION – GENERATORS

Complete one SCHEDULE 3, Part A for each generator at this plant that is:

- In commercial operation;
- Capable of commercial operation but currently inactive or on standby;
- Expected to be in commercial operation within 10 years in the case of coal and nuclear generators; or
- Expected to be in commercial operation within 5 years for all generators other than coal and nuclear generators.

**Plant Name**

**EIA Plant Code**

**1. What is the generator ID for this generator?**
- Generator ID is the identification most commonly used by plant management to reference this generator.
- The identification code is restricted to five characters and cannot be changed once provided to EIA
- Enter unique ID for each generator.

**2. What is this generator's prime mover?**
- Select prime mover code from Table 2 in SCHEDULE 3, Part A Instructions.
- For combined cycle units, enter a prime mover code for each generator.

**3. What is this generator's unit or multi-generator code?**
- A unit or multi-generator code is the unique 4-character code associated with multiple generators that operate as a single unit (such as a combined cycle unit).
- Each generator operating as a single unit should have the same unit or multi-generator code.
- Leave blank if this generator does not operate as a single unit with another generator.

**4. What is this generator's ownership code?**
- See Table 3 in SCHEDULE 3, Part A instructions for list of ownership codes.

**5. Does this generator have duct burners for the supplementary firing of the turbine exhaust gas?**
- Answer only for generators with a combined cycle prime mover code of CA, CS or CC.

**Yes**

**No**

**6. Can this generator operate while bypassing the heat recovery steam generator?**
- Answer only for generators with a combined cycle prime mover code of CT or CC.

**Yes**

**No**

**7a. For this generator what is the RTO/ISO LMP price node designation?**
- If this generator operates in an electric system operated by a Regional Transmission Organization (RTO) or Independent System Operator (ISO) and the RTO/ISO calculates a nodal Locational Marginal Price (LMP) at the generator location, then provide the nodal designation used to identify the price node in RTO/ISO LMP price reports.

**7b. For this generator what is the RTO/ISO location designation for reporting wholesale sales data to FERC?**

- If this generator operates in an electric system operated by a Regional Transmission Organization (RTO) or Independent System Operator (ISO) and the generator's wholesale sales transaction data is reported to FERC for the Electric Quarterly Report, then provide the designation used to report the specific location of the wholesale sales transactions to FERC. In many cases the RTO/ISO location designation may be the same as the RTO/ISO LMP price node designation submitted in line 7a. In these cases enter the same response in both line 7a and line 7b.

## SCHEDULE 3, PART B. GENERATOR INFORMATION – OPERABLE GENERATORS

Complete one SCHEDULE 3, Part B for each generator at this plant that is in commercial operation or capable of commercial operation.

**Plant Name**

**EIA Plant Code**

**1a. What is this generator's nameplate capacity?**
- Report the highest value in megawatts as measured in alternating current.
- If capacity is expressed in kilovolt amperes, convert to megawatts using formula in SCHEDULE 3, Part B instructions.
- Round nameplate capacity to the nearest tenth.

**Megawatts**

**1b. What is this generator's nameplate power factor?**
- Use the same power factor as the one used to convert the generator's kilovolt ampere measure to megawatts in Question 1a.
- Solar photovoltaic systems, wind turbines, batteries, fuel cells, and flywheels may skip this question.

**2. What is this generator's net capacity?**
- Report net summer capacity and net winter capacity for primary fuel source.
- Report in megawatts as measured in alternating current.
- Round capacity to nearest tenth.
- If the net summer capacity exceeds the nameplate capacity reported for Question 1A, explain in SCHEDULE 7.
- For solar photovoltaic generators report the peak net capacity during the day for the generator assuming clear sky conditions on June 21 for summer capacity and on December 21 for winter capacity.

**Net summer capacity** **Megawatts**

**Net winter capacity** **Megawatts**

**3. What minimum load can this generator operate at continuously?**
- Solar generators may skip this question.
- For generators that entered a unit code on SCHEDULE 3, Part A report load when all generators are operating at minimum load.

**Megawatts**

**4a. Was an uprate or derate project completed on this generator during the reporting year?**

**Yes – Continue to Question 4b**

**No – Continue to Question 5**

**4b. When was this uprate or derate project completed?**

**(MM-YYYY)**

**5a. What was the status of this generator as of December 31 of the reporting year?**
- Select the status code from Table 4 in SCHEDULE 3, Part B of the instructions.
- If status code is SB, go to Question 5b.
- For all other status codes, go to Question 6.

**5b. Is this generator equipped to be synchronized to the grid?**
- Answer only if the status code reported in question 5a is SB.

**Yes**

**No**

**6. When did this generator begin commercial operation?**

**(MM-YYYY)**

**7. When was this generator retired?**

**(MM-YYYY)**

**8. If this generator will be retired in the next ten years, what is its estimated retirement date?**

**(MM-YYYY)**

**9. Is this generator associated with a combined heat and power system?**

**Yes – Continue to Question 10**

**No – Continue to Question 11**

**10. Is this generator part of a topping or bottoming cycle?**
- In a topping cycle, electricity is produced first and any waste heat from that production is used in a manufacturing or commercial application.
- In a bottoming cycle, thermal output is used in a process other than electricity production and any waste heat is then used to produce electricity.

**Topping**

**Bottoming**

**11. What is this generator's predominant energy source?**
- Enter the energy source code for the fuel used by this generator in the greatest quantity during the reporting year, as measured in Btus.
- Select this energy source code from Table 28 in the instructions.

**12. What are the energy sources used by this generator's combustion units for start-up and flame stabilization?**
- Answer only for generators whose prime mover code was ST (Steam turbine).
- Enter the energy source code for the fuel used by this generator for start-up and flame stabilization during the reporting year, as measured in Btus.
- Select this energy source code from Table 28 in the instructions.

**a.** **b.** **c.** **d.**

**13. What is this generator's second most predominant energy source?**
- Enter the energy source code for the fuel used by this generator in the second quantity during the reporting year, as measured in Btus.
- Do NOT include fuel used only for start-up or flame stabilization.
- Select this energy source code from Table 28 in the instructions.

**14. What other energy sources are used by the generator?**
- Enter the energy source codes for all other fuels this generator either used or was capable of using during the reporting year in descending order, as measured in Btu. Begin with those actually used and then provide those are capable of being used.
- Select energy source code(s) from Table 28 in the instructions.

| a. | b. | c. | d. |
|---|---|---|---|
| | | | |

**15. Is this generator part of a solid fuel gasification system?**

**Yes**

**No**

**16. What is the tested heat rate for this generator?**
- The tested heat rate is the fuel consumed, in Btus, necessary to generate one net kilowatt-hour of electric energy.
- Enter the tested heat rate under full load conditions for all combustible-fueled and nuclear-fueled generators.
- See SCHEDULE 3, Part B instructions for additional guidance on reporting the tested heat rate.

**17. What fuel was used to determine this generator's tested heat rate?**
- Enter the energy source code for the fuel used to calculate the tested heat rate entered for Question 16.
- Select energy source code from Table 28 in the instructions.
- Enter "M" if multiple fuels were used to calculate the tested heat rate.

**18. Is the generator associated with a carbon capture process?**

**Yes**

**No**

**19. How many wind turbines, inverters, or hydrokinetic buoys are there at this generator?**
- Wind generators should enter the number of wind turbines.
- Solar photovoltaic generators should enter the number of inverters.
- Hydrokinetic generators should enter the number of hydrokinetic buoys.
- All other generators should enter 0.

**20. RESERVED FOR FUTURE USE**

**21. What is the minimum amount of time required to bring this generator from cold shut down to full load?**
- Solar and wind generator should skip this question.

**0 – 10 minutes**

**10 minutes – 1 hour**

**1 hour – 12 hours**

**More than 12 hours**

**22. What is the minimum amount of time needed to bring this generator from a non-spinning reserve status to full load?**

- Solar and wind generator should skip this question.

- **0 – 10 minutes**
- **10 minutes – 1 hour**
- **1 hour – 12 hours**
- **More than 12 hours**

Answer questions on lines 23 and 24 only if generator is fueled by coal or petroleum coke

**23. What combustion technology applies to this generator?**

- **Fluidized Bed**
- **Pulverized Coal**
- **Stoker**
- **Other – Explain in SCHEDULE 7**

**24. What steam conditions apply to this generator?**

- **Sub-Critical**
- **Super-Critical**
- **Ultra Super-Critical**

Answer questions on lines 25 through 29 only if generator is wind-powered

**25. What is the predominant manufacturer of the turbines at this generator?**

- Enter “UNKNOWN” if predominant turbine manufacturer is unknown.

**26. What is the predominant model number of the turbines at this generator?**

- Enter “UNKNOWN” if predominant model number is unknown.

**27a. What is the design average annual wind speed for the turbines included in this generator?**

- If more than one value exists, select the one that best represents the turbines.

- **Miles per hour**

**27b. What is the wind quality class for the turbines included in this generator?**

- See Table 5 in the SCHEDULE 3, Part B instructions for wind class definitions.
- If more than one wind class exists, select the one that best represents the turbines.

- **Class 1 – High Wind**
- **Class 2 - Medium Wind**
- **Class 3 – Low Wind**

☐ **Class 4 – Very Low Wind**

**28. What is the hub height of the turbines in this generator?**
- If this generator consists of turbines with multiple hub heights, select the one that best represents the turbines.

☐ **Feet**

**29. What is the FAA Obstacle Number assigned to the turbines at this generator?**
- If this generator consists of turbines with multiple FAA Obstacle Numbers, select the one that best represents the turbines.

☐

Answer questions on lines 30 through 32 only if generator is powered by photovoltaic or concentrated solar thermal technology

**30. What are the solar tracking, concentrating and collector technologies used at this generator?**
- Select all applicable solar tracking, concentrating, or collector technologies used at the unit.

☐ **Lenses / Mirrors**
☐ **Single-Axis Tracking**
☐ **Dual-Axis Tracking**
☐ **Fixed Tilt**
☐ **Parabolic Trough**
☐ **Linear Fresnel**
☐ **Power Tower**
☐ **Dish Engine**
☐ **Other – Explain in SCHEDULE 7**

**31. What is the net capacity of this photovoltaic generator in direct current (DC) under standard test conditions (STC) of 1000 W/m$^2$ solar irradiance and 25 degrees Celsius PV module temperature?**

☐ **Megawatts**

**32. What materials are the photovoltaic panels included in this generator made of? (Select all that apply.)**

☐ **Crystalline Silicon**
☐ **Thin-Film (CdTe)**
☐ **Thin-Film (A-Si)**
☐ **Thin-Film (CIGS)**
☐ **Thin-Film (Other)**
☐ **Other- Explain in SCHEDULE 7**

## PROPOSED CHANGES TO EXISTING GENERATORS

If a capacity uprate is planned within the next 10 years, answer Questions 33a – 33c.

**33a. What is the expected incremental increase in the net summer capacity?**

**Megawatts**

**33b. What is the expected incremental increase in the net winter capacity?**

**Megawatts**

**33c. What is the planned effective date for this capacity uprate?**

**(MM-YYYY)**

If a capacity derate is planned within the next 10 years, answer Questions 34a. – 34c.

**34a. What is the expected incremental decrease in the net summer capacity?**

**Megawatts**

**34b. What is the expected incremental decrease in the net winter capacity?**

**Megawatts**

**34c. What is the planned effective date for this capacity derate?**

- The planned effective date is the date that this generator is scheduled to re-enter operation after the modification.

**(MM-YYYY)**

If a repowering of this generator is planned within the next 10 years, answer Questions 35a. – 35d.

**35a. What is the expected new prime mover for this generator?**

**-** Select prime mover code from Table 2 in the SCHEDULE 3, Part A of the Instructions.

**35b. What is the expected new energy source for this generator?**

**-** Select this energy source code from Table 28 in the instructions

**35c. What is the expected new nameplate capacity for this generator**

-Report the expected value in megawatts as measured in alternating current.
-If capacity is express in kilovolt amperes, convert to megawatts using formula in SCHEDULE 3, Part B instruction line 1a.
-Round nameplate capacity to the nearest tenth.

**Megawatts**

**35d. What is the planned effective date for this repowering?**

-The planned effective date is the date that this generator is scheduled to re-enter operation after this modification.

**(MM-YYYY)**

All respondents should answer question 36a.

**36a. Are any other modifications planned within the next 10 years?**

☐ **Yes – Explain in SCHEDULE 7**

☐ **No**

If other planned modifications for this generator were indicated in Question 36a., then answer Question 36b.

**36b. What is the planned date of these other modifications?**

☐ **(MM-YYYY)**

All respondents should answer question 37a.

**37a. Can this generator co-fire fuels?**

Note: ***Co-firing*** means the simultaneous use of two or more fuels by a single combustion system to meet load. Co-firing excludes the limited use of a secondary fuel for start-up or flame stabilization

☐ **Yes**

☐ **No**

If this generator can co-fire fuels, answer Question 37b.

**37b. What are the fuel options for co-firing**?

-Skip this question if the generator cannot co-fire fuels.

| | | |
|---|---|---|
| | | |
| | | |

All respondents should answer question 38a.

**38a. Can this generator switch between oil and natural gas?**

Note: ***Fuel switching*** means the ability of a combustion system running on one fuel to replace that fuel in its entirety with a substitute fuel. Fuel switching excludes the limited use of a secondary fuel for start-up or flame stabilization

-Answer yes if the combustion system that powers this generator has, in operating order, the equipment AND the regulatory permits necessary to do so.

☐ **Yes**

☐ **No**

If this generator can switch between oil and natural gas, answer Questions 38b.-42b.

**38b. Can this generator switch between oil and natural gas when operating?**

-Skip this question if the generator cannot switch between oil and natural gas.

☐ **Yes**

☐ **No**

**39a. What is the maximum net summer output achievable when running on natural gas?**

-When providing this figure take into account all applicable legal, regulatory, and technical limits.

☐ **Megawatts**

**39b. What is the maximum net winter output achievable when running on natural gas?**

-When providing this figure take into account all applicable legal, regulatory, and technical limits.

Megawatts

**40a. What is the maximum net summer output achievable when running on oil?**
-When providing this figure take into account all applicable legal, regulatory, and technical limits.

Megawatts

**40b. What is the maximum net winter output achievable when running on oil?**
-When providing this figure take into account all applicable legal, regulatory, and technical limits.

Megawatts

**41a. How much time is required to switch the generator from using 100 percent natural gas to 100 percent oil?**

- 0 to 1 hours
- Over 1 hours to 6 hours
- Over 6 hours to 24 hours
- Over 24 hours to 72 hours
- Over 72 hours
- Unknown or uncertain

**41b. How much time is required to switch this generator from using 100 percent oil to using 100 percent natural gas?**

- 0 to 1 hours
- Over 1 hours to 6 hours
- Over 6 hours to 24 hours
- Over 24 hours to 72 hours
- Over 72 hours
- Unknown or uncertain

**42a. Are there factors that limit this generator's ability to switch from natural gas to oil or from oil to natural gas?**

- Yes – Continue to Question 42b
- No

**42b. Which factors limit this generator's ability to switch from natural gas to oil or from oil to natural gas?**
-Select all that apply.

- Limited On-Site Fuel Storage
- Air Permit Limits
- Other- Explain in SCHEDULE 7

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### SCHEDULE 3, PART C. GENERATOR INFORMATION – PROPOSED GENERATORS

Complete one SCHEDULE 3, Part C for:

- Each coal or nuclear generator expected to be in commercial operation within 10 years at this plant; and
- Each generator fueled by any other primary energy source planned for initial commercial operation within 5 years at this plant.

**Plant Name**

**EIA Plant Code**

**1a. What is the expected nameplate capacity for this generator?**

- Report the highest value in megawatts as measured in alternating current.
- If capacity is expressed in kilovolt amperes, convert to megawatts using formula in SCHEDULE 3, Part C of the instructions.
- Round nameplate capacity to the nearest tenth.

**Megawatts**

**1b. What is this generator's expected nameplate power factor?**

- Use the same power factor as the one used to convert the generator's kilovolt ampere measure to megawatts in Question 1a.

**2. What is the expected net capacity for this generator?**

- Report the expected net summer capacity and expected net winter capacity for primary fuel source.
- Report in megawatts as measured in alternating current.
- Round capacity to nearest tenth.

**Expected Net summer capacity** **Megawatts**

**Expected Net winter capacity** **Megawatts**

**3. What was the status of this proposed generator as of December 31 of the reporting year?**

- Select a status code from those listed in Table 6, SCHEDULE 3, Part C Instructions.

**4. What is the planned original effective date for this generator?**

- The planned original effective date is the date that this generator was scheduled to enter operation after construction was completed.
- This date should only be reported once, and should not change once it is reported.

**(MM-YYYY)**

**5. What is the planned current effective date for this generator?**

- The planned current effective date is the date that this generator is scheduled to start operation.

**(MM-YYYY)**

**6. Will this generator be associated with a combined heat and power system?**

**Yes**

**No**

**7. Is this generator part of a site that was previously reported as indefinitely postponed or cancelled?**

- **Yes**
- **No**
- **Unknown**

**8. What is the predominant expected energy source for this generator?**

- Enter the energy source code for the fuel used in the greatest quantity to fuel this generator, as measured in Btus.
- Select this energy source code from Table 28 in the instructions.

**9. What is the second most predominant expected energy source for this generator?**

- Enter the energy source code for the fuel expected to be used in the second greatest quantity to fuel this generator, as measured in Btus.
- Select this energy source code from Table 28 in the instructions.

**10. What other energy sources do you expect to use for this generator?**

- Enter the energy source codes for all other fuels you expect this generator to use in descending order as measured in Btu.
- Select energy source code(s) from Table 28 in the instructions.

**11. How many turbines, inverters, or hydrokinetic buoys is this generator expected to have?**

**12. What combustion technology will apply to this generator?**

- Answer only if this generator will be fueled by coal or petroleum coke.

- **Fluidized Bed**
- **Pulverized Coal**
- **Stoker**
- **Other – Explain in SCHEDULE 7**

**13. What steam conditions will apply to this generator?**

- Answer only if this generator will be fueled by coal or petroleum coke.

- **Sub-Critical**
- **Super-Critical**
- **Ultra Super-Critical**

**14. Will this generator be part of a solid fuel gasification system?**

- Yes
- No

**15. Will this generator be associated with a carbon dioxide capture process?**

- Yes
- No

Note: ***Co-firing*** means the simultaneous use of two or more fuels by a single combustion system to meet load. ***Fuel switching*** means the ability of a combustion system running on one fuel to replace that fuel in its entirety with a substitute fuel. Co-firing and fuel switching exclude the limited use of a secondary fuel for start-up or flame stabilization

**16. Will the combustion system that powers this generator be able to switch between natural gas and oil?**

- Yes
- No
- Undetermined

**17a. Will this generator co-fire fuels?**

- Yes
- No

**17b. What will be the fuel options for co-firing?**

- Select up to six energy source code(s) from Table 28 in the instructions

| | | |
|---|---|---|
| | | |
| | | |

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### SCHEDULE 4. OWNERSHIP OF GENERATORS OWNED JOINTLY OR BY OTHERS

Complete one SCHEDULE 4 for each operable or planned generator that is:

- Jointly owned; or
- Wholly owned by another entity.

The total percentage of ownership reported on SCHEDULE 4 must equal 100 percent.

| | |
|---|---|
| **Plant Name** | |
| **EIA Plant Code** | |
| **Generator ID** | |

| Name of Owner | Owner's Address | | | EIA Owner Code | Percent of Generator Owned |
|---|---|---|---|---|---|
| | City | State | ZIP Code | | |
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| **Total Percent of Generator Owned** | | | | | **100** |

## SCHEDULE 5, PART A. GENERATOR CONSTRUCTION COST INFORMATION – COAL AND NUCLEAR GENERATORS

Complete one SCHEDULE 5, Part A for each coal or nuclear generator that, during the reporting year:

- Began commercial operation; **or**
- Was under construction, in final testing or in the process or receiving permits and regulatory approvals; **or**
- Was a nuclear generator that has applied for a combined operating license from the Nuclear Regulatory Commission.

**Plant Name**

**EIA Plant Code**

**Generator ID**

**1. What is the total construction cost for this generator? (rounded to the nearest thousand dollars)**

- Exclude financing, land acquisition or leasing, government grants, tax benefits, and other incentives from this number.

**(Thousand Dollars)**

**2. What are the total financing costs for construction of this generator? (rounded to the nearest thousand dollars)**

**(Thousand Dollars)**

**3. What is the total cost to construct this generator including financing costs? (rounded to the nearest thousand dollars)**

- This value should be the sum of values in lines 1 and 2.

**(Thousand Dollars)**

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## SCHEDULE 5, PART B. GENERATOR CONSTRUCTION COST INFORMATION - OTHER THAN COAL AND NUCLEAR GENERATORS

Complete one SCHEDULE 5, Part B for each generator other than coal or nuclear generators that, during the reporting year:

- Began commercial operation

**Plant Name**

**EIA Plant Code**

**Generator ID**

**1. What is the total construction cost for this generator? (rounded to the nearest thousand dollars)**

- Exclude financing, land acquisition or leasing, government grants, tax benefits, and other incentives from this number.

**(Thousand Dollars)**

**2. What are the total financing costs for construction of this generator? (rounded to the nearest thousand dollars)**

**(Thousand Dollars)**

**3. What is the total cost to construct this generator including financing costs? (rounded to the nearest thousand dollars)**

- This value should be the sum of values in lines 1 and 2.

**(Thousand Dollars)**

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## SCHEDULE 6. BOILER INFORMATION
## PART A. PLANT CONFIGURATION AND EQUIPMENT INFORMATION

For plants with a total steam-electric nameplate capacity of 10 MW or greater:
Complete SCHEDULE 6, Part A for existing and planned boilers and associated equipment that serve combustible-fueled steam electric generator(s) and/or combined cycle steam generator(s) with duct firing.

**Plant Name**

**EIA Plant Code**

1. **What equipment is associated with each boiler at this plant?** For each boiler and associated equipment, enter the identification codes most commonly used by plant management. If two or more pieces of equipment (e.g., two generators) are associated with a single boiler, report each identification code separated by commas under the appropriate boiler. If any equipment is associated with multiple boilers, repeat the equipment identification code under each boiler. Do not change prepopulated equipment identification codes. (**Note equipment such as selective catalytic reduction, activated carbon injection, and dry sorbent injection into a fluidized bed boiler will require an identification code entry as these were not collected in past reporting years**). Identification codes are generally restricted to six characters and cannot be changed once provided to EIA. However, identification codes for generators are restricted to five characters.

| Row | Type | Equipment Identification | Equipment Identification | Equipment Identification | Equipment Identification | Equipment Identification | Equipment Identification | Equipment Identification |
|---|---|---|---|---|---|---|---|---|
| 1 | Boiler ID | | | | | | | |
| 2 | Associated Generator(s) | | | | | | | |
| 3 | Associated Cooling System(s) | | | | | | | |
| 4 | Associated Particulate Matter Control System(s) | | | | | | | |
| 5 | Associated Sulfur Dioxide Control System(s) | | | | | | | |
| 6 | Associated NOX Control (SCR/SNCR) | | | | | | | |
| 7 | Associated Mercury Control(s) (ACI) | | | | | | | |
| 8 | Associated Stack(s) or Flue(s) | | | | | | | |

**2. What are the characteristics of each piece of emissions control equipment?**

**Column A:**

Select the equipment type from Table 7 in SCHEDULE 6, Part A of the instructions for each operating, out-of-service, under construction or planned piece of equipment at this plant.

**Columns B to E:**

Enter the identification codes from the above table in the appropriate columns for emissions controls. If a piece of equipment controls multiple air emissions, enter the appropriate code in multiple columns (for example, if a wet scrubber controls for both sulfur dioxide, particulate matter and mercury, enter the associated identification code from the table above in Columns B, C and E).

- For Particulate Control (PM) equipment, enter identification code(s) in Column B
- For Sulfur Dioxide Control (SO2) equipment, enter the identification code(s) in Column C
- For Nitrogen Oxide Control (NOx) equipment, enter the identification code(s) in Column D
- For Mercury Control (Hg) equipment, enter the identification code(s) in Column E
- For HCl gas control, enter an X in Column F (no identification codes are required).
- For Column G, enter the status for the equipment as of December 31 of the reporting year from Table 8 in the instructions.
- For Column H, enter the date (MM-YYYY) the equipment began operation.
- For column I, enter the total installation cost for each piece of equipment.

| Equipment Type (A) | PM Control ID (B) | SO2 Control ID (C) | NOX Control ID (D) | Mercury Control ID (ACI) (E) | Acid Gas Control (HCl) (F) | Status (G) | In-service Date (H) | Total Costs (Thousand Dollars) (I) |
|---|---|---|---|---|---|---|---|---|
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## SCHEDULE 6, PART B. BOILER INFORMATION
## AIR EMISSIONS STANDARDS AND CONTROL STRATEGIES

For plants with a total steam-electric nameplate capacity of 10 MW or greater but less than 100MW:

Complete ONLY questions 1, 6a to 6d, 7, 8a, 8b, 11,12, 13 and 14 (NOx and Mercury questions) SCHEDULE 6, Part B for each boiler and its associated equipment that serve combustible-fueled steam electric generators or combined cycle steam generators with duct firing.

For plants with a total steam-electric nameplate capacity of 100 MW or greater:

Complete one SCHEDULE 6, Part B in its entirety for each boiler and its associated equipment that serve combustible-fueled steam electric generators and combined cycle steam generators with duct firing.

**Plant Name**

**EIA Plant Code**

**1. What is the boiler identification code?**

**2a. What type of boiler standards is the boiler operating under?**
Select one from Table 9.

**D -** Standards of Performance for fossil-fuel fired steam boilers for which construction began after August 17, 1971.

**Da -** Standards of Performance for fossil-fuel fired steam boilers for which construction began after September 18, 1978.

**Db -** Standards of Performance for fossil-fuel fired steam boilers for which construction began after June 19, 1984.

**Dc -** Standards of Performance for small industrial-commercial-institutional steam generating units

**N -** Not covered under New Source Performance Standards.

**2b. Is this boiler operating under a New Source Review Permit (NSRP)?**

**Yes**

**No**

**2c. What are the list date and identification number of this NSR Permit?**

**NSR Permit Identification Number**

**NSR Permit List Date**

Sulfur Dioxide Regulations

**3a. What is the regulatory level of the most stringent regulation that this boiler is operating under to meet sulfur dioxide control standards?**

-Select one

- **Federal**
- **State**
- **Local**
- **Unavailable or Unknown**

**3b. What is the emission rate specified by the most stringent sulfur dioxide regulation?**

**-** Answer should correspond to response on line 3a.

**3c. What is the percent of sulfur to be scrubbed specified by the most stringent sulfur dioxide regulation?**

**-** Answer should correspond to response on line 3a.

**3d. What is the unit of measurement specified by the most stringent sulfur dioxide regulation?**

**-** Answer should correspond to response on line 3a. Select from Table 10 in the instructions for units.

**3e. What is the time period specified by the most stringent sulfur dioxide regulation?**

**-** Answer should correspond to responses on lines 3a.

- Select this from Table 11 in the instructions.

**4. In what year did the boiler become compliant or is expected to become compliant with the most stringent sulfur dioxide regulation?**

**-** Answer should correspond to response on line 3a.

**(YYYY)**

**5a. What is your existing strategy for complying with the most stringent sulfur dioxide regulation?**

**-** Answer only if already in compliance.

- Select up to three strategies that apply from Table 12 in the instructions for SCHEDULE 6, Part B.

**5b. What is your proposed strategy for complying with the most stringent sulfur dioxide regulation?**

**-** Answer only if not already in compliance.

- Select up to three strategies that apply from Table 12 in the instructions for SCHEDULE 6, Part B.

Nitrogen Oxide Regulations

**6a. What is the regulatory level of the most stringent regulation that this boiler is operating under to meet nitrogen oxide control standards?**
- Select one.

**Federal**

**State**

**Local**

**Unavailable or Unknown**

**6b. What is the emission rate specified by the most stringent nitrogen oxide regulation?**
- Answer should correspond to response on line 6a.

**6c. What is the unit of measurement specified by the most stringent nitrogen oxide regulation?**
- Answer should correspond to responses on lines 6a.
- Select this energy source code from Table 13 in the instructions.

**6d. What is the time period specified by the most stringent nitrogen oxide regulation?**
- Answer should correspond to responses on lines 6a.
- Select this energy source code from Table 11 in the instructions.

**7. In what year did the boiler became compliant or is expected to become compliant with the most stringent nitrogen oxide regulation?**
- Answer should correspond to response on line 6a.

**(YYYY)**

**8a. What is your existing strategy for complying with the most stringent nitrogen oxide regulation?**
-Answer only if already in compliance.
-Select up to three strategies that apply from Table 14 in the instructions for SCHEDULE 6, Part B.

**8b. What is your proposed strategy for complying with the most stringent nitrogen oxide regulation?**
- Answer only if not already in compliance.
- Select up to three strategies that apply from Table 14 in the instructions for SCHEDULE 6, Part B.

Particulate Matter Regulations

**9a. What is the regulatory level of the most stringent regulation that this boiler is operating under to meet particulate matter standards?**
- Select one.

**Federal**

**State**

**Local**

**Unavailable or Unknown**

**9b. What is the emission rate specified by the most stringent particulate matter regulation?**
- Answer should correspond to response on line 9a.

**9c. What is the unit of measurement specified by the most stringent particulate matter regulation?**
- Answer should correspond to responses on lines 9a.
- Select this energy source code from Table 15 in the instructions.

**9d. What is the time period specified by the most stringent particulate matter regulation?**
- Answer should correspond to responses on lines 9a.
- Select this energy source code from Table 11 in the instructions.

**10. In what year did the boiler became compliant or is expected to become compliant with the most stringent particulate matter regulation?**
- Answer should correspond to response on line 9a.

**(YYYY)**

Mercury and Acid Gas Regulations

**11. What is the regulatory level of the most stringent regulation that this boiler is operating under to meet mercury and acid gas standards?**
- Select one.

**Federal**

**State**

**Local**

**Unavailable or Unknown**

**12. In what year did the boiler became compliant or is expected to become compliant with the most stringent mercury and acid gas regulation?**
- Answer should correspond to response on line 11.

**(YYYY)**

**13. What is your existing strategy for complying with the most stringent mercury control regulation?**
- Answer if already in compliance.
- Select up to three strategies that apply from Table 16 in the instructions for SCHEDULE 6, Part B.

**14. What is your proposed strategy for complying with the most stringent mercury control regulation?**
- Answer only if not already in compliance.
- Select up to three strategies that apply from Table 16 in the instructions for SCHEDULE 6, Part B.

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### SCHEDULE 6, PART C. BOILER INFORMATION – DESIGN PARAMETERS

For plants with a total nameplate capacity of at least 10 MW but less than100 MW:

- Answer ONLY Questions 1 through 3 of SCHEDULE 6, Part C for each boiler and its associated equipment that serve combustible-fueled steam electric generators, including combined cycle steam generators with duct firing.

For plants with a total nameplate capacity of 100 MW or greater:

- Complete one SCHEDULE 6, Part C in its entirety for each boiler and its associated equipment that serve combustible-fueled steam electric generators, including combined cycle steam generators with duct firing.

**Plant Name**

**EIA Plant Code**

**Boiler ID**

**1. What was this boiler's status as of December 31 of the reporting year?**
- Select the boiler status code from the list in Table 17 in the SCHEDULE 6, Part C instructions.

**2. What is the actual or projected in- service date for this boiler?**
-If month is unknown, use June.

**(MM-YYYY)**

**3. What is the actual or projected retirement date for this boiler?**
-If month is unknown, use June.

**(MM-YYYY)**

**4. What type of boiler is this?**
-Select up to three codes from the list of firing codesfrom Table 18 in the SCHEDULE 6, PART C instructions.

**5. What is the maximum continuous steam flow at 100 percent load for this boiler?**

**1000 lbs per hour**

**6. What is the design firing rate at the maximum continuous steam flow for coal and petroleum coke?**
- Enter firing rate data for the coal and petroleum coke, not for startup or flame stabilization fuels.
- For waste-heat boilers with auxiliary firing, enter the firing rate for auxiliary firing.
- Round to nearest tenth.

**tons per hour**

**7. What is the design firing rate at the maximum continuous steam flow for petroleum liquids?**
- Enter firing rate data for the petroleum liquids, not for startup or flame stabilization fuels.
- For waste-heat boilers with auxiliary firing, enter the firing rate for auxiliary firing.
- Round to nearest tenth.

**barrels per hour**

**8. What is the design firing rate at the maximum continuous steam flow for natural gas?**
- Enter firing rate data for the natural gas, not for startup or flame stabilization fuels.
- For waste-heat boilers with auxiliary firing, enter the firing rate for auxiliary firing.
- Round to nearest tenth.

**thousand cubic feet per hour**

**9. What is the design firing rate at the maximum continuous steam flow for energy sources other than coal, petroleum or natural gas?**
- Enter firing rate data for other than coal, petroleum or natural gas, not for startup or flame stabilization fuels.
- For waste-heat boilers with auxiliary firing, enter the firing rate for auxiliary firing.
- Round to nearest tenth.
-Specify the primary fuel (see Table 28 for fuel codes) for which value is provided along with related measurement unit in SCHEDULE 7.

**10. What is the design waste-heat input rate at maximum continuous steam flow for this boiler?**

**million Btu per hour**

**11. What fuels are used by this boiler in order of predominance?**
- Select energy source code(s) from Table 28 in the instructions.

**12. What is the turndown ratio for this boiler?**
- The turndown ratio is the boiler's maximum output to its minimum output (to the nearest 0.1).

**13. What is the efficiency of this boiler when it is burning reported primary fuel at 100 percent load? (to nearest 0.1 percent)**

**percent**

**14. What is the efficiency of this boiler when it is burning reported primary fuel at 50 percent load? (to nearest 0.1 percent)**

**percent**

**15. What is the total air flow (including excess air) at 100 percent load?**

**cubic feet per minute**

**16. Does the boiler have a wet bottom or a dry bottom?**
- For coal-capable boilers only.
- Wet Bottom is defined as having slag tanks installed at the furnace's throat to contain and remove molten ash from the furnace.
- Dry Bottom is defined as having no slag tanks installed at the furnace's throat so bottom ash drops through the throat to bottom ash water hoppers.
- Enter W for Wet or D for Dry.

**17. Is the boiler capable of fly ash re-injection?**

☐ **Yes**

☐ **No**

## SCHEDULE 6, PART D. COOLING SYSTEM INFORMATION - DESIGN PARAMETERS

Complete SCHEDULE 6, PART D for plants with a total steam-electric nameplate capacity of 100 MW or greater including:

- Nuclear generators;
- Combustible fueled steam electric generators, including combined cycle steam-electric generators with and without duct firing; and
- Solar thermal generators using a steam cycle.

**Plant Name**

**EIA Plant Code**

**1. What is the identification code of the cooling system?**
- Enter the code commonly associated by plant management with this cooling system. This should be the same code entered on SCHEDULE 6, PART A, Line 1, Row 3. The identification code is restricted to six characters and cannot be changed once provided to EIA.

**2. What was the status of this cooling system as of December 31 of the reporting year?**
- Select from the equipment status codes in Table 19 of the SCHEDULE 6, PART D of the instructions.

**3. What is the actual or projected in-service date of commercial operation for this cooling system?**
- For operating systems, enter the date that this control began commercial operation.
- For planned systems, enter the date that this system is expected to begin commercial operation.

**(MM-YYYY)**

**4a. What type of cooling system is this?**
- Enter up to four codes from Table 20 in the SCHEDULE 6, PART D of the instructions
- Select HT from the list of codes if this plant has a downstream helper tower associated with all boilers at the plant instead of a particular boiler.

**4b. If this is a hybrid cooling system, what percent of the cooling load is served by dry cooling components?**

**Percent**

**5. What is the name of the water source for this cooling system?**
- Enter name if different from the name of the water body entered in SCHEDULE 2, Question 6.
- Include the source used for makeup water.

**6. What is the name of the cooling system's discharge body of water?**
- Enter only if water discharge location is different from cooling water source.

**7. What is the cooling water source code for this system?**
- Select the cooling water source code from Table 21 in SCHEDULE 6, PART D of the instructions.

**8. What type of cooling water is used for this system?**
- Select the cooling water type from Table 22 in SCHEDULE 6, PART D of the instructions.

**9. What is the design maximum cooling water flow rate at 100 percent load at intake?**

**Gallons per minute**

**10. What is the actual or projected in-service date for the chlorine discharge control structures and equipment?**
- For operating equipment and structures, enter the date that this control began commercial operation.
- For planned equipment and structures, enter the date that this system is expected to begin commercial operation.

**(MM-YYYY)**

## COOLING PONDS

**11. What is the actual or projected in-service date for the cooling ponds?**
- A cooling pond is a natural or man-made body of water that is used for dissipating waste heat from power plants.
- For operating cooling ponds, enter the date that the cooling pond began commercial operation.
- For planned cooling ponds, enter the date that the cooling pond expected to begin commercial operation.

**(MM-YYYY)**

**12. What is the total surface area for the cooling ponds?**
- A cooling pond is a natural or man-made body of water that is used for dissipating waste heat from power plants.

**Acres**

**13. What is the total volume of the cooling ponds?**
- A cooling pond is a natural or man-made body of water that is used for dissipating waste heat from power plants.

**Acre feet**

## COOLING TOWERS

**14. What is the actual or projected in-service date for the cooling towers?**
- For operating cooling towers, enter the date that the cooling pond began commercial operation.
- For planned cooling towers, enter the date that the cooling pond expected to begin commercial operation.

**(MM-YYYY)**

**15. What types of cooling towers are at this plant or are planned to be at this plant?**
- Enter all codes that apply from Table 23 in SCHEDULE 6, PART D of the Instructions.

**16. What is the design rate of water flow at 100 percent load for the cooling towers?**

**Gallons per minute**

**17. What is the maximum design power requirement for the cooling towers at 100 percent load?**

**Megawatts**

## INSTALLED COST OF COOLING SYSTEM EXCLUDING LAND AND CONDENSERS (Thousand Dollars)

**18. What is the total installed cost for this cooling system?**

- For existing cooling systems, enter the installed cost (in nominal dollars).
- For planned cooling systems, enter the anticipated cost to bring a planned system into commercial operation.
- Include the cost of all major modifications.

_____ **(Thousand Dollars)**

**19. What is the installed cost for the cooling ponds?**

_____ **(Thousand Dollars)**

**20. What is the installed cost for the cooling towers?**

_____ **(Thousand Dollars)**

**21. What is the installed cost for the chlorine discharge control structures and equipment?**

_____ **(Thousand Dollars)**

## COOLING WATER INTAKE AND OUTLET LOCATIONS

**22a. What is the maximum distance of water intake from shore?**

_____ **Feet**

**22b. What is the maximum distance of water outlet from shore?**

_____ **Feet**

**23a. What is the average distance of water intake below surface?**

_____ **Feet**

**23b. What is the average distance of water outlet below surface?**

_____ **Feet**

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## SCHEDULE 6, PART E. FLUE GAS PARTICULATE COLLECTOR INFORMATION

Complete SCHEDULE 6, Part E for each installed system or equipment that reduces particulate matter at:

- Combustible fueled steam electric generators where the plant's total steam-electric nameplate capacity is 10 MW or greater, **or**
- Combined cycle steam generators with duct firing, where the plant's total steam-electric nameplate capacity is 10 MW or greater.

**Plant Name**

**EIA Plant Code**

**1. What is the Identification Code associated with the equipment controlling particulate matter?**

- This should be the same ID as entered on SCHEDULE 6, PART A, Line1, Row 4 (Associated Particulate Matter Control Systems). Complete one SCHEDULE 5 PART E for each Particulate Matter Control ID.

**Identification Code**

**2. What type of flue gas particulate matter control is this?**

-Enter flue gas particulate matter control codes from the Table 24 in SCHEDULE 6, PART E of the instructions. Enter up to three type codes. These should be the same equipment types entered on SCHEDULE 6, PART A, LINE 2, COLUMN A for Particulate Matter Control. If more than three are needed, enter in SCHEDULE 7, Comments.

### DESIGN FUEL SPECIFICATIONS FOR ASH AND SULFUR

**3. What is the design fuel specification for ash when burning coal or petroleum coke?**

**percent by weight (to the nearest 0.1)**

**4. What is the design fuel specification for ash when burning petroleum liquids?**

**percent by weight (to the nearest 0.1)**

**5. What is the design fuel specification for sulfur when burning coal or petroleum coke?**

**percent by weight (to the nearest 0.1)**

**6. What is the design fuel specification for sulfur when burning petroleum liquids?**

**percent by weight (to the nearest 0.1 )**

### DESIGN SPECIFICATIONS AT 100 PERCENT GENERATOR LOAD

**7. What is the design collection efficiency for this flue gas particulate collector at 100 percent load?**

**percent (to the nearest 0.1)**

**8. What is the design particulate emission rate for this collector at 100 percent load?**

**Pounds per hour**

**9. What is the particulate collector gas exit rate at 100 percent load?**

**Actual cubic feet per minute**

**10. What is the particulate collector gas exit temperature?**

**Degrees Fahrenheit**

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### SCHEDULE 6, PART F. FLUE GAS DESULFURIZATION UNIT INFORMATION (INCLUDING COMBUSTION TECHNOLOGIES)

Complete one SCHEDULE 6, Part F for each system or equipment installed to control sulfur dioxide emissions at this plant.

**Plant Name**

**EIA Plant Code**

**1. What is the identification code for the equipment associated with this sulfur dioxide control?**

- This should be the same codes entered on SCHEDULE 6, PART A, Line 1, Row 5 (Associated Sulfur Dioxide Control Systems).

**Identification Code**

**2. What type of sulfur dioxide control is this?**

- Enter the sulfur dioxide control code(s) from the Table 25 in SCHEDULE 6, PART F of the instructions. These should be the same codes entered on SCHEDULE 6, PART A, Line 2, Column A for Sulfur Dioxide Control.

**3. What type(s) of sorbent(s) is used by this unit?**

- Select up to four sorbent codes from Table 26 in the SCHEDULE 6, PART F of the instructions.

**4. Is there any salable byproduct recovery?**

**Yes**

**No**

**5. What are the annual pond and land fill requirements?**

- Report requirements to the nearest acre-foot per year.

**Acre feet**

**6. Is the sludge pond lined?**

**Yes**

**No**

**7. Can flue gas bypass the flue gas desulfurization unit?**

**Yes**

**No**

**8. What is the design specification for ash when burning coal or petroleum coke?**

**Percent by weight (to the nearest 0.1)**

**9. What is the design specification for sulfur when burning coal or petroleum coke?**

**Percent by weight (to the nearest 0.1)**

**10. What is the total number of flue gas desulfurization unit scrubber trains or modules?**

**11. How many flue gas desulfurization unit scrubber trains or modules are operated at 100 percent load?**

**12. What is this unit's design removal efficiency for sulfur dioxide when operating at 100 percent load?**

- Report removal efficiency as the percent by weight of gases removed from the flue gas.

**Percent by weight (to the nearest 0.1)**

**13. What is the design sulfur dioxide emission rate for this unit when operating at 100 percent load?**

**Pounds per hour**

**14. What is the flue gas exit rate for this unit?**

**Actual cubic feet per minute**

**15. What is this unit's flue gas exit temperature?**

**Degrees Fahrenheit**

**16. What percentage of flue gas enters the flue gas desulfurization unit when operating at 100 percent load?**

**percent of total**

**INSTALLED COST OF FLUE GAS DESULFURIZATION UNIT, EXCLUDING LAND (Thousand Dollars)**

| | | | |
|---|---|---|---|
| **17. What are the installed or anticipated costs of all FGD structures and equipment, excluding land?** | | | **(Thousand Dollars)** |
| **18 What are the installed costs of the sludge transport and disposal system?** | **+** | | **(Thousand Dollars)** |
| **19. What other installed costs are there pertaining to the installation of the FGD unit?** | **+** | | **(Thousand Dollars)** |
| **20. What are the total installed costs of the FGD unit?** | **=** | | **(Thousand Dollars)** |

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## SCHEDULE 6, PART G. STACK AND FLUE INFORMATION - DESIGN PARAMETERS

For plants with a total steam-electric nameplate capacity of 100 MW or greater:

**Plant Name**

**EIA Plant Code**

**1. What is this stack or flue equipment's identification code?**
- Enter the Identification code commonly used by plant management for this stack or flue. This should be the same ID code entered on SCHEDULE 6, PART A, Line 1, Row 8.

**2. What is the actual or projected in-service date for this stack or flue?**
- For operating units, enter the date that the unit began commercial operation.
- For planned units, enter the date that this unit is expected to begin commercial operation.

**(MM-YYYY)**

**3. What was the status of this stack or flue as of December 31 of the reporting year?**
- Select one status code from Table 27 in the SCHEDULE 6, PART G of the instructions.

**4. What is this stack's height at the top, as measured from the ground?**

**Feet**

**5. What is the cross-sectional area at the top of this stack?**

**Square feet**

## DESIGN FLUE GAS EXIT AT TOP OF STACK

**6. What is the design flue gas exit rate at the top of the stack at 100 percent load?**
- Rate is approximately equal to (cross-sectional area at the top of the flue) x (velocity) x 60.

**Actual cubic feet per minute**

**7. What is the design flue gas exit rate at the top of the stack at 50 percent load?**
- Rate is approximately equal to (cross-sectional area at the top of the flue) x (velocity) x 60.

**Actual cubic feet per minute**

**8. What is the design flue gas exit temperature at the top of the stack at 100 percent load?**

**Degrees Fahrenheit**

**9. What is the design flue gas temperature at the top of the stack at 50 percent load?**

**Degrees Fahrenheit**

**10. What is the design flue gas velocity at the top of the stack at 100 percent load?**

**Feet per second**

**11. What is the design flue gas velocity at the top of the stack at 50 percent load?**

**Feet per second**

## ACTUAL SEASONAL FLUE GAS EXIT TEMPERATURE

**12. What is the average flue gas exit temperature for the summer season?**

- Report the arithmetic mean of measured or estimated temperatures during operating hours.
- The summer season includes June, July and August.

**Degrees Fahrenheit**

**13. What is the average flue gas exit temperature for the winter season?**

- Report the arithmetic mean of measured or estimated temperatures during operating hours.
- The winter season includes December, January and February (see instructions).

**Degrees Fahrenheit**

**14. Were the flue gas exit temperatures measured or estimated?**

- Enter “M” for measured.
- Enter “E” for estimated.

Independent Statistics & Analysis
U.S. Energy Information Administration

# FORM EIA-860

## ANNUAL ELECTRIC GENERATOR REPORT

Approval: OMB No. 1905-0129
Approval Expires: 05/31/2017
Burden: 9.29 Hours

### SCHEDULE 7. COMMENTS
(Use Additional Pages if Necessary)

| SCHEDULE NUMBER | PART (If Applicable) | QUESTION NUMBER | COMMENTS (Include all identifying codes such as plant code, generator ID, or boiler ID to which the comment applies) |
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