

NYSERDA Integrated Data System Data Submission Specification

This document describes the requirements for submitting data to the NYSERDA DG/CHP Integrated Data System (DIS) website.

File Format:

The data file shall be a column oriented text file containing plain ASCII data delimited by commas, equivalent to the comma separated values (CSV) format. The first column shall contain the date-time value corresponding to the data records, which are stored across each row. The file may optionally contain header row(s) describing the contents of each column in the file. The header row(s) are not required if documentation of the file contents is provided. The sequence of the columns in the data file must not change. If additional data columns are required, they shall be added to the right-hand side of the file, as not to change the preceding column contents.

Date/Time values shall use numeric dates and 24-hour clock format. Data provided are assumed to be in local time unless otherwise indicated. Numeric data entries should have enough significant digits to represent the accuracy of the measurement provided.

An example of this file structure is displayed below.

| Date/Time, | kW, | kW, | kW, | kW, | lbs/h, | SCFH, | KPPH, | PSIG, | KPPH, | PSIG |
|-----------------|----------|---------|---------|----------|----------|-----------|--------|---------|--------|--------|
| 4/26/2017 0:15, | 3449.64, | 178.16, | 108.42, | 3225.14, | 1988.52, | 12205.88, | 29.80, | 167.21, | 30.03, | 204.30 |
| 4/26/2017 0:30, | 3450.81, | 178.03, | 108.51, | 3229.26, | 1993.69, | 12026.34, | 29.70, | 167.01, | 29.64, | 204.32 |
| 4/26/2017 0:45, | 3449.30, | 178.33, | 108.92, | 3236.78, | 2003.20, | 11903.56, | 29.71, | 167.13, | 29.81, | 204.35 |
| 4/26/2017 1:00, | 3450.60, | 178.69, | 108.96, | 3238.32, | 2003.98, | 11836.17, | 29.60, | 167.12, | 29.48, | 204.33 |

Accompanying this example data, the following documentation of each column was provided. This information may also be included in the header row(s) of the data file. Header row(s) shall be delimited consistently with the remainder of the file.

| Column | Description |
|--------|--|
| 0 | Date/Time |
| 1 | Turbine Generator Real Power |
| 2 | BOP Auxiliary Load |
| 3 | BOP Gas Compressor Power Usage (Shark Meter) |
| 4 | BOP Net Power |
| 5 | Turbine Fuel Gas Flow (FIT 0101) |
| 6 | HRSG/DB Gas Flow |
| 7 | HRSG Steam Flow (FIT 0208) |
| 8 | HRSG Steam Header Pressure (PIT 0201) |
| 9 | HRSG Boiler Feedwater Flow (FIT 0213) |
| 10 | HRSG Boiler Feedwater Pressure (PIT 0212) |

Deviations from above require explicit approval from CDH Energy. Higher level file formats (e.g. Microsoft Excel XLS) and overly verbose (e.g. XML) files are discouraged.

File Contents:

The data points provided in the file should be sufficient to characterize the performance of the system, and a separate Monitoring and Verification Plan (M&V Plan) should be provided that describes the physical location, sensor type, units of measure, and type of data provided (e.g. analog value, discrete pulse count, accumulated energy, etc.). The number and type of measurements required will be unique to each DG/CHP site, and may change as NYSERDA reporting requirements evolve.

Data shall be recorded on a regular interval (e.g. on a 1, 5, or 15-minute basis), with 15-minute data being the preferred interval. The records in the data file shall consist of an average (or total for discrete data) of samples in the interval. The sampling rate for all data points shall be 1-minute or faster.

Examples for typical data types are shown below.

| Data Type: Analog Example: Power (kW) | Data Type: Discrete Pulse Example: Gas Meter @ 10 CF/pulse | Data Type: Accumulator Example: Total Heat Transfer from BTU meter from Modbus |
|--|---|---|
| Sample #1 3036.17 | Sample #1 0 | Sample #1 29000 |
| Sample #2 3049.89 | Sample #2 10 | Sample #2 29100 |
| Sample #3 3042.13 | Sample #3 10 | Sample #3 29200 |
| Sample #4 3179.58 | Sample #4 10 | Sample #4 29300 |
| Sample #5 3082.14 | Sample #5 10 | Sample #5 29400 |
| Sample #6 3025.41 | Sample #6 0 | Sample #6 29500 |
| Sample #7 3013.76 | Sample #7 10 | Sample #7 29600 |
| Sample #8 3030.50 | Sample #8 10 | Sample #8 29700 |
| Sample #9 3005.48 | Sample #9 0 | Sample #9 29800 |
| Sample #10 3031.37 | Sample #10 0 | Sample #10 29900 |
| Sample #11 3121.37 | Sample #11 0 | Sample #11 30000 |
| Sample #12 3113.59 | Sample #12 10 | Sample #12 30100 |
| Sample #13 3073.82 | Sample #13 10 | Sample #13 30200 |
| Sample #14 3495.38 | Sample #14 0 | Sample #14 30300 |
| Sample #15 3173.88 | Sample #15 10 | Sample #15 30400 |
| Data Record (avg) 3098.30 | Data Record (sum) 90 | Data Record (max) 30400 |

For heat transfer measurements, the corresponding flow rate and temperature difference data should be provided. The reporting of heat transfer as MBtu or MBtu/h without the corresponding flow and temperature data is discouraged.

Transmission Protocols, Filename Convention, Scheduling:

The NYSERDA DIS website operates in a “store and forward” manner. Therefore, data must be provided on a regular, automated basis, with data transmitted to the website at a minimum of once per day. Excessive transmission of data (e.g. every 15-minutes) should be avoided if possible. Data shall be scheduled to arrive at the NYSERDA DIS website between 12:00 midnight and 3:00 AM each day (for daily transfers).

To prevent data loss, each data file transmitted shall have a unique filename. The preferred filename format incorporates the date the data file as such:

| |
|--|
| SiteName_YYYYMMDD_HHMM.csv SiteName_20170427_0130.csv for data transmitted on April 27, 2017 at 1:30 AM |
|--|

Data shall be transmitted using either the File Transfer Protocol (FTP), secure File Transfer Protocol (sFTP), or email. Credentials for data transfer shall be provided by CDH Energy, and will be unique to each DG/CHP site submitting data.

Alternatives and Exceptions:

This document describes the minimum requirements for data submittal. Alternative methods to delivering data are subject to review and acceptance by CDH Energy, may be deemed unusable.