

# Reporting Formats and Fields

Sub-Group Data

GADS Wind Training Module 04

March 2019 – Final

RELIABILITY | ACCOUNTABILITY



- This module will review:
  - How the data is defined
  - Excel layout and testing of data
  - Templates
  - Reference Tables
  - Data Entry Tips
  - Sub-Group Data
  - Importing Sub-Group Data

Below is an excerpt from the GADS Wind Turbine Generation DRI that became effective January 1, 2017. Each data section provides the below information.

*The section name with a brief description*

Figure 1 – DRI Data Section Layout

*The record layout*

*Required column headers*

*The type of values and their length*

**Sub-Group Record Layout (Excel or CSV Format)**

Table 2: Sub-Group Record Layout			
Column	Field Name	Column Header Label	Entry Type
1	Utility ID	UtilityID	Alpha-Numeric-10
2	Region	Region	Alpha-Numeric - 6

*Field descriptions*

*Comma Separated Values (CSV)*

**Sub-Group IDs**

**Utility ID (Column 1)**

Enter the NERC Compliance Registry number (NCR #) or voluntary reporting ID (assigned by NERC – see Appendix B) of the organization that owns the wind plants.

**Region (Column 2)**

Enter the region code for the NERC region where the Sub-Group is located.

**Plant ID/Name (Column 3)**

Enter the Plant ID and/or name used by the utility. This will not be assigned by NERC or the GADS Wind application.

The GADS Wind DRI data sections for Sub-Groups, Performance and Component are organized similarly.

- Section name – Describes the record type
- Column = The record layout – The expected data order
- Field Name = The column data long name of the data required in a column
- Column Header Label – NERC is expecting and checks for correct headers in each column of data. Data will not be accepted that does not have a header.
- Entry Type = what entry values are expected for each piece of information. When dealing with numeric data (Numeric – 10 + 3), truncating data rather than rounding will prevent some data checking errors.
- Field Description – More detailed information on each of the data columns
- Often more detailed information can be found in Appendix D

- CSV data files can be created in a number of ways:
  1. Directly out of a database (SQL, Oracle, Access & etc.) using a query exported to a CSV file.
  2. Create CSV files using Excel or an other text editor.

Excel is a great way to layout and test CSV files:

- Provides a way to visualize the data
- Allows for testing fields for length and field type
- Errors can be highlighted using conditional formatting

*Figure 2 – Plant Excel Planning File Example*

	A	B	C	D
1	<b>Sub-Group</b>			
2	Column Name	Utility ID	Region	Plant ID / Name
3	Column	1	2	3
4	Header	UtilityID	Region	PlantIDName
5	Data Type	A/N	A/N	A/N
6	Field Length	10	6	45
7				
8	Example	NERC-2X0T12	MRO	Basecamp
9	Test - Length	11 =LEN(B8)	3 =LEN(C8)	8
10	Test - Numeric	N/A	N/A	N/A
11	Result (CSV)	NERC-2X0T12,MRO,Basecamp,Section 1,1234,Group A,10		

**Data Checks will Prevent Submission Headaches**

- Each column in the example defines a single input
  - Field Name
  - Column #
  - CSV / Excel header
  - Data Type
  - Field Length
  - Quality Tests
- Quality test:
  - Test for proper data type
  - Test that the field length is not exceeded
  - Test that there are no numeric commas
  - Test that entries match appropriate entries from Appendix F.
  - And other tests
- Test the input – count the commas. Should be one less the number of fields.

Excel Templates are an easy way to enter data:

1. One template for each of the three submittal files
2. <http://www.nerc.com/pa/RAPA/gads/Pages/GADS-Wind-DRI.aspx>

The application looks for a specific tab name for each type of submittal and ignores other tabs

- There are 3 templates – Sub-Group, Performance and Component
- The templates are located on the NERC – GADSWG home page at this web address
- When you open the page, there is a section on the right side for various options. Pick Wind Data Reporting Instructions (DRI)
- Open the DRI and Template sections by clicking on the plus button next to the label
- This is an example of the Sub-Group file and there are several items of interest:
  - The name of the file makes no difference to the application. The file is not saved. So use a title for the file that makes sense to your organization
  - On the top are the Header or Column names. These are required and without them the data will be rejected
  - Each row represents data for a sub-group. In the component file, each row represent a component for a particular sub-group
  - There is no limit other than Excel to the number of rows, but best practice is to submit manageable chunks. This help with error identification and none of the data is accepted until all the data in the file is error free
  - Data is submitted for a specific data type (Sub-Group, Performance or Component). The application looks for a specific tab name and ignores other tabs. This is a helpful feature

because you can have all your submittal data in one file with a tab for each data type. The file could be submitted 3 times for each of the file types

**Appendix F**

- Contains lists of Reference Tables with acceptable entries for various data fields
- Not using the correct abbreviations will cause data to be rejected
- Reference tables are referred to in the detailed field descriptions

*Figure 3 – Reference Tables*

**Appendix F – Reference Tables**

If you would like to add an item to any of the tables, please e-mail your request to GADS at [gads@nerc.net](mailto:gads@nerc.net)

**Table 1 - Country**

Country	
Name	Abbreviation
Canada	CA
Mexico	MX
United States	US

**Table 2.1 - States**

United States					
Name	Abb.	Name	Abb.	Name	Abb.
Alabama	AL	Kentucky	KY	Oklahoma	OK
Alaska	AK	Louisiana	LA	Oregon	OR

- There is also additional descriptive information for some of the technical fields like Wind Shear.
- When submitting data, the fields will be tested against the Reference Tables. If improper entries are found the record will be rejected for correction.

- Do not use punctuation in values other than decimal points and slashes in dates
- Use intelligent file names
- The application is looking for a specific tab name for each submittal type
- A separate file is not required for each plant. More than one sub-group, performance or component record maybe included in a file
- All data is submitted on a Sub-group basis for each month
- Data only needs to be submitted for the Sub-group when something has changed. Examples would be when the site capacity has changed or a new Sub-group is added to the plant
- Be familiar with error checking found in Appendix J
- Use only spaces and underscore ( \_ ) for special characters. All other special characters including dashes ( - ) will cause data errors
- Truncate data, do not round

- Please ensure that all values are not formatted with any punctuation other than a decimal point and slashes used in dates, for example, numbers with embedded commas can cause problems such as 12,000.25. In this example, the value should be reported as 12000.25.
- The application does not save the files and does not care what the name of the file is. As a best practice it makes sense to use an intelligent file name that means something to the reporting organization. For example, using the plant ID from figure 2:
  - XYZ-HTH 0116 subgroup.csv or xlsx
  - XYZ-HTH 0116 performance.csv or xlsx
  - XYZ-HTH 0116 component.csv or xlsx
- More than one sub-group, performance or component data maybe included in a file.
  - Example: Five plants are owned. In the Sub-group file there should be five rows for each month of data. Three rows for each plant. Instead of putting the plant name in the file name use the utility/parent name. Remember, reporting is monthly submitted on a quarterly basis.
- There is no limit, other than Excel, to the number of data rows that can be submitted. Performance records and Component records can are separated by Sub-group, month and



year. Best practice would be to submit one month at a time. This will make error checking easier.

- Data is submitted on a Sub-Group basis for each month. Data submittals need to be entered in the NERC application no later than 45 days after the quarter ends. There is nothing to prevent submittals at the end of each month.
- Once a Sub-group is registered, Sub-group configuration data only needs to be resubmitted when something changes. Capacity, name change, sale of asset etc.
- Error checking occurs at the time of submittal. Data will not be accepted until it is error free.

Table 1 – Sub-Group Data Field List

Column	Field Name	Column Header Label	Entry Type
1	Utility ID	UtilityID	Alpha-Numeric-10
2	Region	Region	Alpha-Numeric - 6
3	Plant ID/Name	PlantIDName	Alpha-Numeric - 45
4	Group ID/Name	GroupIDName	Alpha-Numeric - 45
5	Sub-Group ID	SubGroupID	Numeric - 10
6	Sub-Group Name	SubGroupName	Alpha-Numeric - 45
7	ISO Resource ID	ISOID	Alpha-Numeric - 30
8	Country	Country	Alpha-Numeric - 2
9	Nearest City	NearCity	Alpha-Numeric - 40
10	State/Province	State	Alpha-Numeric - 2
11	Location Latitude	Latitude	Numeric - 4 + 4 decimals
12	Location Longitude	Longitude	Numeric - 4 + 4 decimals
13	Elevation	Elevation	Numeric - 8 + 2 decimals
14	Wind Regime (topography)	WRegime	Numeric - 3
15	Annual Average Wind Speed (AAWS)	AAWS	Numeric - 3 + 2 decimals
16	SCADA Manufacturer	SCADAMfr	Alpha-Numeric - 5
17	SCADA Model	SCADAMdl	Alpha-Numeric - 10
18	Commissioning Year	CommYear	Numeric - 4
19	Total Installed Capacity	TotInstCapacity	<i>Calculated Field</i> (Numeric - 8 + 3 decimals)
20	Reserve Capacity	RsrvCapacity	Numeric - 8 + 3 decimals

- Remember that the Sub-Group ID is a unique ID that is assigned by NERC when the Sub-Group is registered. The ID never changes throughout the Sub-Groups life. It even stays with the Sub-Group when it is sold or transferred. When registering a Sub-group for the first time this column is left blank. Future submissions will have the assigned Sub-Group ID entered.
- The Plant, Group and Sub-Group Names are defined by the plant owner. The Plant name should be the same for all Sub-Groups that belong to that Plant. These names can be changed at any time. So if you purchase a Wind Plant you can change the names to meet your unique naming conventions.
- ISO Resource ID is used for those plants that will be required to report to GADS based on the agreements with the ISO. Not every plant will have an ISO ID.
- Latitude / Longitude – Pick a location anywhere within the plant boundary that makes sense to the Plant. It could be at the entrance to the Plant, the O&M building or a turbine location that is closest to the center of the Plant.
- Enter the installed Capacity of the Sub-Group. This is the number of turbines in the Sub-Group times the turbine system capacity. It will be checked and over written by NERC.

- Reserve Capacity is capacity above the PPA or contract agreements. As an example you have a 200MW purchase agreement and have a Total Installed capacity of 202.5MW. There would be 2.5MW of Reserve Capacity.

*Table 2 – Sub-Group Data Field List*

21	Total Number of Turbines	TurbineCount	Numeric - 7
22	Turbine System MW	SystemMW	Numeric - 8 + 3 decimals
23	Max Turbine Capacity MW	MaxTurbineCap	Numeric - 8 + 3 decimals
24	Turbine Manufacturer	TurbineMfr	Alpha-Numeric - 5
25	Turbine Model	TurbineMdl	Alpha-Numeric - 20
26	Turbine Model Version	TurbineMdlVer	Alpha-Numeric - 20
27	Rotor Height (meters)	RotorHeight	Numeric - 7 + 2 decimals
28	Rotor Diameter (meters)	RotorDiam	Numeric - 7 + 2 decimals
29	Cut-in Wind Speed (meters/second)	CutinSpd	Numeric - 7 + 2 decimals
30	Low Cut-out Wind Speed (meters/second)	LowCutoutSpd	Numeric - 7 + 2 decimals
31	High Cut-out Wind Speed (meters/second)	HighCutoutSpd	Numeric - 7 + 2 decimals
32	Turbulence Intensity	TurbIntensity	Numeric - 3
33	Average Wind Speed	AvgWind Spd	Numeric - 3 + 2 decimals
34	Wind Shear (Optional)	WindShear	Numeric - 3
35	Reference Anemometer Height (meters)	ReferenceAnemom	Numeric - 3
36	Minimal Operating Temperature (Celsius)	MinOpTemp	Numeric - 3
37	Maximum Operating Temperature (Celsius)	MaxOpTemp	Numeric - 3
38	Sub-Group Ownership Status	SubGrpOwnStatus	Alpha-Numeric - 2
39	Effective Date	StatusEffDate	Date (mm/dd/yyyy)
40	Transfer to Utility	TransferToUtility	Alpha-Numeric - 10

- Turbine System MW is the turbine capacity as agreed in the purchase agreements. It is not the nameplate rating of the generator.
- Max Turbine Capacity is when improvements to the system increase the capacity of the turbine. Example: Improve controller logic increase the maximum output of a turbine from 1.5MW to 1.7MW. The original Turbine System MW stays the same but the Max Turbine Capacity increases. Initially upon registration, Turbine System MW and Max Turbine Capacity are the same.
- Rotor Diameter is an important component of a turbine and is a major contributor to turbine Capacity. Turbines in the same Sub-group should have the same rotor diameter.
  - The meteorological data can be challenging for some organizations. Here are a few short-cuts:
  - Seek help from the turbine manufacture for Cut-in, Cut-out, High Cut-out, Minimal Operating and Maximum Operating temperatures. If they are not available use power curve or turbine parameter data. Also, the purchase agreements and warranty information may be helpful.

- Turbulence and Wind Shear are calculated fields. Many times this information is in the project design documents or can be calculated from existing data. The appendix has the specifications for calculating and a table of values for input
  - Column 33 is a repeat of Column 15. Just enter the same data
  - If there are no reference anemometers, use the approximate height of the turbine anemometers.
- Columns 38-40 are administrative fields. They are used for registering, indicating status of the entire Sub-Group, selling Sub-Groups and more. See Appendix M for more information. When registering a new Sub-Group “ID” is entered column 38. NERC will quality check the inputs and if they pass a Sub-Group ID will be assigned.

## Importing Sub-Group Data

- Sub-Group IDs
  - Assigned by the GADS Wind Reporting application
  - Unique for the lifetime of the sub-group
    - Should not be requested when a plant has been sold to another company
    - Ownership Transfer process will reassign the Sub-Group ID
    - Process is covered in the full-day GADS Wind training course
- For new Sub-Group IDs:
  - Leave the Sub-Group ID and effective date blank in the Sub-Group template
- All other Sub-Group Ownership states require at least the Sub-Group ID and the effective date
- Same template can include both new Sub-Group ID requests and updates to configuration data of existing Sub-Groups

Sub-Group IDs are unique for each individual Sub-Group. They never change even if a Sub-Group is transferred or sold.

- **Configuration Data:**
  - Characteristics about the sub-group
    - Identification
    - Location
    - Equipment
    - Environment
    - Ownership status
- **Sub-Group Ownership Status:**
  - Used to manage the state of each sub-group within the application
    - Facilitates transfer of ownership
  - Different from reporting of the operational status of the sub-group on Performance records



<https://gadswind.nerc.net/>

The screenshot shows a web browser window with the URL <https://gadswind.nerc.net/>. The page title is "GADS Wind Data Submission Site". Below the title is the NERC logo and the text "NORTH AMERICAN ELECTRIC RELIABILITY CORPORATION". A navigation panel is highlighted with a red box, containing the following links: Home, Submissions, Request NCR Number, Request VR Number, Reports, and Contact Us. To the right of the navigation panel is a "User Authorization" form with the following fields: "Authorized email address: \*" and "Authorization PIN: \*". Below the PIN field is a link: "Need Personal Identification Number? Please click [here](#)". A "Submit" button is located below the form. At the bottom of the form, there is a red link: "Request access to GADSWind Reporting by clicking [here](#)".

Notice in the Navigation Panel that there are options to request a NCR or VR number. These numbers are needed before reporters can be assigned.

## GADS Wind Data Submission Site



### Navigation Panel

- Home
- Submissions
- Request NCR Number
- Request VR Number
- Reports
- Contact Us

This GADS Wind Reporting application has been developed to facilitate reporting of wind plant information. Wind plants with a Total Installed Capacity of 75 MW or more with a commissioning date of January 1, 2005 or later will be required to report on a quarterly basis according to the following phased-in schedule:

- January 1, 2017: The data collection period for voluntary reporting begins.
- January 1, 2018: Mandatory reporting begins for plants with a Total Installed Capacity of 200 MW or larger.
- January 1, 2019: Mandatory reporting begins for plants with a Total Installed Capacity between 100 MW and 199.99 MW.
- January 1, 2020: Mandatory reporting begins for plants with a Total Installed Capacity between 75 MW and 99.99 MW.

Detailed Wind Data Reporting Instructions are available [here](#).

Questions regarding reporting requirements for wind may be directed to [gadswind@nerc.net](mailto:gadswind@nerc.net).

## Authorized Accounts

Authorized entities user may submit data for.

Entity ID	Entity Name
	1

Can't find Entity? Please click [here](#). 2

## Submission Data

### Instructions:

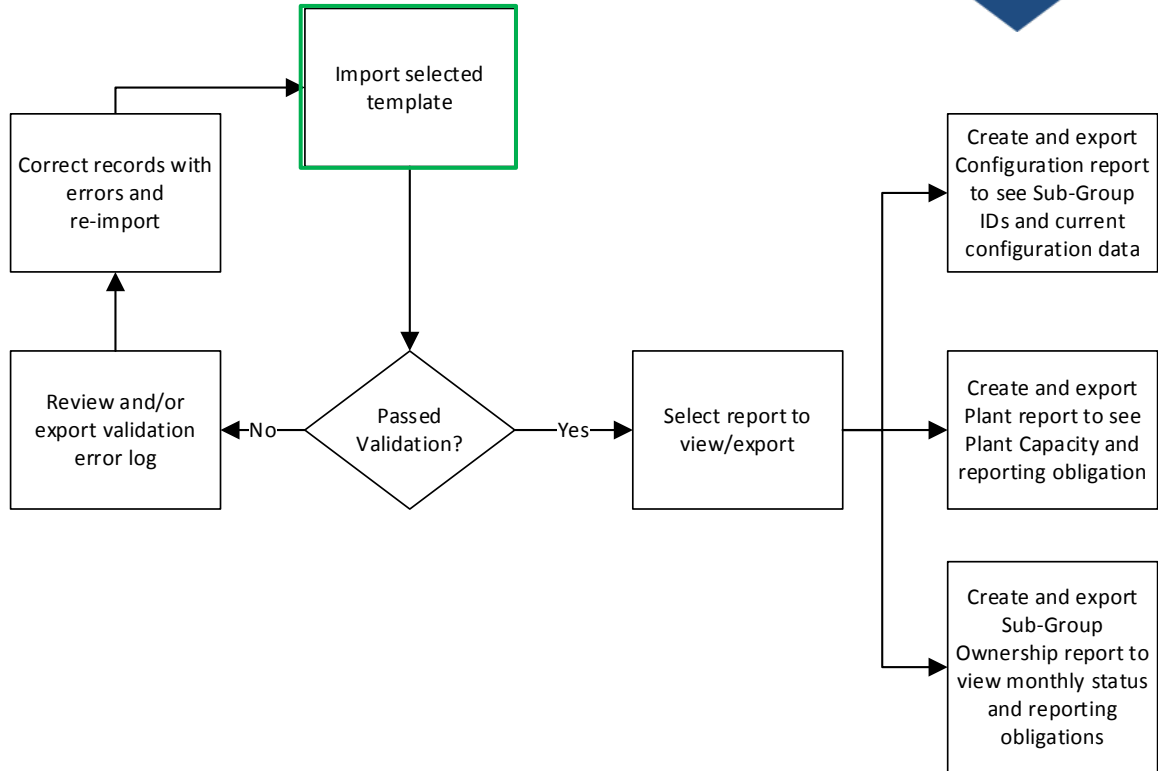
Respective file type must be selected.  
Only Excel and CSV files are supported.

Select submission type:  SubGroup  Performance  Component Outage 3

Browse... 4  5

Download templates and view reporting instructions? Please click [here](#). 6

1. List of entities for which the user may submit data
2. Click on the link to request access to an entity that the user should have access to, but is not in the list.
3. Select the type of data template to import.
4. Click Browse to find the file to import.
5. Click Upload to import the data.
6. Click the link to go to the GADS Wind Reporting page on NERC's website for the templates and GADS Wind Data Reporting Instructions (DR!).



- Enter Sub-Group configuration data and ownership status, one sub-group ID per row, on the Sub-Group template
- In the left panel, click on **Submissions**
- Select to import the Sub-Group template
- Validation process reports any validation errors
  - Validation errors shown at the bottom of the screen may be exported to Excel
- Correct any Sub-Group records that did not pass validation
- Import the corrected Sub-Group configuration data
  - System accepts the sub-group records that pass validation when other sub-groups do not pass validation.
  - Creation of multiple sub-group IDs is not permitted when the sub-group template is imported again; a validation error will occur.
  - System will not overwrite sub-group records where no changes have been made.

- Import validation status shows at the top of the Submissions screen

*Upload status 'SUB-GROUP TEMPLATE-20170216-TEST DATA-REGIONAL ENTITY SUBMISSIONS-DEMO IMPORT.XLSX: 0 record(s) passed validation : 4 record(s) failed (See 'Validation Failures' below for details).*

Authorized Accounts

Authorized entities user may submit data for:

- Details of validation errors displayed at the bottom of the Submissions screen

- Click “Export to Excel to see details and save validation error log

Browse... Upload

*Download templates and view reporting instructions? Please click [here](#).*

**Validation Failures:**

ID	Type	Column	Row	Error Description	Value	Required
NCRO0000	SUBGROUP	SubGroupName	2	Value can not contain any special characters	Test Sub-Group 1	True
NCRO0000	SUBGROUP	SubGroupName	3	Value can not contain any special characters	Test Sub-Group 2	True
NCRO0000	SUBGROUP	SubGroupName	4	Value can not contain any special characters	Test Sub-Group 3	True
NCRO0000	SUBGROUP	SubGroupName	5	Value can not contain any special characters	Test Sub-Group 4	True

Export to Excel

## Primary Validation: Utility ID, user, and file format

### Validation Results

[filename] has failed Validations. Please make corrections and resubmit the file. [Export to Excel](#)

#	Utility ID	Row	Validation Error Message
1	NCR10394	1	Not Authorized to submit for this Utility
2	NCR10742	3	Not Authorized to submit for this Utility
3	VR103744	7	Utility does not exist

## Secondary Validation: record content

### Validation Results

[filename] has failed Validations. Please make corrections and resubmit the file. [Export to Excel](#)

#	Subgroup ID	Column	Row	Value	Validation Error Message
1	SG1001	Country	1	null	Invalid Country code. See Appendix F for codes.
2	SG2144	RotorDiam	1	-25	Invalid entry. Value must be positive.
3	SG1002	State	2	null	Invalid State/Province code. See Appendix F for codes.
4	SG1002	Latitude	3	TX	Invalid format. Required format is [-] ddd.dddd
5	SG1004	RotorDiam	5	-25	Invalid entry. Value must be positive.
6	SG1005	Country	5	null	Invalid Country code. See Appendix F for codes.
7	SG1006	Latitude	10	TX	Invalid format. Required format is [-] ddd.dddd
8	SG1012	State	17	null	Invalid State/Province code. See Appendix F for codes.

1. Click on Reports to display the available views/reports
2. The list of available entities is displayed
3. Click on checkbox in header to select all entities (3a) or box next to individual entities (3b) to limit report
4. Select report type
5. Select years to report (applies only to Sub-Group Ownership report)
6. Click View Report

The screenshot shows the 'Reports Screen' interface. On the left is a navigation menu with 'Reports' highlighted and circled in red with the number '1'. The main content area is titled 'Authorized Reports' and contains a table with columns 'Entity ID' and 'Name'. A red box labeled '3a' highlights the first checkbox in the 'Entity ID' column with the text 'Click this box to select all entities'. A red box labeled '3b' highlights several checkboxes in the same column with the text 'Click individual boxes to limit the report to selected entities'. Below the table, there are radio buttons for 'Report Type' (Sub-Group Ownership, Sub-Group Configuration, Plant, Contact List) with the number '4' above them. Below that are 'Date From' and 'To' dropdown menus with the number '5' above them. At the bottom is a 'View Report' button with the number '6' next to it. A red number '2' is located in the top right corner of the main content area.



View Report

*Important: If the report does not properly display, please open the report with Internet Explorer!*

The screenshot shows a report viewer interface. At the top left is a 'View Report' button. Below it is a red warning message. The main content area contains a report title 'Sub-Group Owners Report as of: 12/7/2016 11:16:14 PM', a user email 'User e-mail: donna.pratt@nerc.net', and a report type 'Report Type: Sub-Group Owners Summary Report'. A toolbar at the top right includes navigation icons, a search box, and icons for print and export to Excel. Five numbered callouts point to specific elements: 1 points to the date and time, 2 points to the user email, 3 points to the report name, 4 points to the print icon, and 5 points to the Excel export icon.

1. Date and time of view/report
2. User e-mail used to produce view/report
3. Report Name
4. Print
5. Export to Excel

- To view the Sub-Group IDs
  - Select the Sub-Group Configuration to view or export the Sub-Group ID assigned to each sub-group
- The current complete sub-group configuration record is exported to Excel format

# Sub-Group Configuration Report

*Sub-Group ID*

	A	B	C	D	E	F	G	H	I	J
1	Utility ID	Region	Plant ID	Group ID	Sub-Group ID	Sub-Group Name	ISOID	Country	Nearest City	State
2	NCR88888	WECC	54 Big Turbine Valley	61 GE Turbines	0000000007	Big Sub Group		United States	San Diego	CA
3	NCR88888	TRE	1 First Wind Plant Ever	84 North Side Group	0000000004	First Sub Group		United States	Austin	TX
4	NCR88888	TRE	12 Better by the Dozen	43 Another Group of Turbines	0000000005	Eastern Sub Group		United States	Austin	TX

	K	L	M	N	O	P	Q	R	S	T	U	V	W
1	Latitude	Longitude	Elevation	Wind Regime	AAWS	Scada Mfg	Scada Mdl	Com Year	Total Installed Cap	Reserve Cap	Turbine Count	System MW	Max Turbine Cap
2	32.7200	-117.1600	110	1-Seashore	19.00	Proprietary	1		42.500	15.000	25	1.700	2.300
3	30.2700	-97.7500	110	2-Plain	13.00	Proprietary	1	2015	100.000	35.000	40	2.500	2.800
4	30.2700	-97.7500	110	2-Plain	13.00	Proprietary	1	2015	100.000	35.000	40	2.500	2.800

	X	Y	Z	AA	AB	AC	AD	AE
1	Turbine Mfr	Turbine Mdl	Turbine Ver	Rotor Height	Rotor Diameter	Cutinwind Speed	Low Cutout Windspeed	High Cutout Windspeed
2	General Electric	1	1	25.00	48.00	13.00	11.00	22.00
3	Clipper	1	2	27.00	55.00	9.00	8.00	19.00
4	Clipper	1	2	27.00	55.00	9.00	8.00	19.00

	AF	AG	AH	AI	AJ	AK
1	Wind Turbulence	Average Windspeed	Windshear	Ref Anemometer Height	Min Opt Temp	Max Opt Temp
2	2-Mild	17.00	2-Moderately Rough	22	4	97
3	4-Strong	12.00	4-Very Rough	22	4	97
4	4-Strong	12.00	1-Smooth	22	4	97

	AL	AM	AN	AO
1	Ownership Status	Effective Date	Transfer To Entity	Transfer From Entity
2	AV-Active	1/13/2017		
3	AV-Active	12/31/2016		
4	AV-Active	11/30/2016		

