DER Aggregation Descriptive Characteristics

Scope of Work Paper – The intent is to identify common information around heterogenous and homogeneous DER aggregations that may benefit from standardization and general information requirements

**DER aggregation descriptive characteristics that may benefit from standardization**

* Grid services under Order No. 2222
  + FER Order No. 2222, Paragraph 27: Aggregations of new and existing distributed energy resources can provide new cost-effective sources of energy and grid services and enhance competition in wholesale markets as new market participants
* Locational information
* Operational characteristics of resources comprising aggregation
* Number of resources in the aggregation
* Types of resources in the aggregation
* Seams issues – need additional information (R. Berdahl)

**Proposed Information Requirements for DER aggregation for potential inclusion in registry database**

DER Aggregation-Level Information

* Name of DER aggregator
* Name of scheduling entity
* Name of energy manager
* DER aggregation capacity (in MW)
* DER aggregation available energy (in MWh)
* DER aggregation consumption capability (in MWh)
* DER aggregation frequency regulation capability (in MWh)
* Is the DER aggregation homogenous (i.e. one technology type) or heterogenous (i.e. multiple technology types)?
* List of individual registered DERs in the DER aggregation
* Metering
  + Who owns the metering equipment?
  + Are the individual behind-the-meter DERs sub-metered?
  + What are the technical metering specifications?
  + What information is it collecting and over what time intervals?Who is responsible for reading and telemetering the data?
* Telemetry
  + Who is responsible for telemetry?
  + What are the technical telemetry requirements that must be satisfied?

Individual DER-Level Information

* Requirements applicable to every DER in an aggregation
* Name of DER owner
* Geographic location
* Electrical location
* Interconnection information
* Possible operating modes—*e.g.*, peak shaving, emergency power, etc.
* Intended use—*e.g.*, wholesale market, retail market, net metering, demand response, etc.
* Is the DER dispatchable?
* Inverter(s)
  + - [Note: Should inverter information vary based on resource technology—*e.g.*, solar, wind, storage?]
  + Metering
    - [Note: Should metering information vary based on resource technology—*e.g.*, solar, wind, storage, DR?]
  + Telemetry
    - [Note: Should information vary based on resource technology—*e.g.*, solar, wind, storage, DR?]
* Requirements specific to solar DERs
* Solar array information
  + - Number/capacity of PV cells
    - Azimuth
    - Autotracking capability
    - Obstructions
    - Historical production
    - Expected production
    - Forecasted/actual weather data
* Requirements specific to wind DERs
* Turbine information
  + - Number/capacity of turbines
    - Historical production
    - Expected production
    - Forecasted/actual weather data
* Requirements specific to storage DERs
* Storage asset(s)
  + - [Note: should we include here all of the requirements listed above for Order No. 841 storage resources?]
    - [Note: should this list also include requirements specific to electric vehicles used as DER storage devices?]
* Requirements specific to Demand Response DERs
* Demand reduction capability
* Historical performance
* Expected performance
* Forecasted/actual weather data
* Requirements specific to Energy Efficiency DERs
* Requirements specific to microgrids
* Requirements specific to other DERs