RTEM + Tenants - Data Submittal Guidelines

This document should be used together with the Semi-Annual Service Reports Guidelines when submitting data following NYSERDA's Real-Time Energy Management Program with Tenants (RTEM + Tenants) program requirements.

NYSERDA requires Vendors to submit supporting data with each service report. Vendors are encouraged to submit all the data monitored by the RTEM system with each submittal, subject to practical constraints such as file sizes.

1. Data Types

1.1 Utility-Supplied Energy

RTEM + Tenants requires the monitoring of all utility-supplied energy at the project location. Each service report must include consumption records with intervals not more than 15-minutes for each utility, whether it is electricity, natural gas, district steam, etc. NYSERDA requires interval data to be included for each utility identified in the project's funding application. If a utility is disconnected or no longer supplied, the service report must explain the time and dates when the utility service has ceased. Consumptions before the disconnect must still be included with the service report.

1.2 Tenant Sub-Meter Data

RTEM + Tenants requires the monitoring of tenant electricity submeters at the project location. Each service report must include the electricity consumption records with intervals not more than 15-minutes for each tenant identified in the project's funding application. If a submeter is disconnected or the tenant has moved, the service report must explain the time and dates when the tenant space's electrical service was disconnected. Consumptions before the disconnect must still be included with the service report.

1.3 Power Quality Meter Data

RTEM + Tenants requires installing and integrating a Power Quality Meter (PQ Meter) certified for Class A measurement methods based on the current edition of IEC 61000-4-30. Each service report must include power quality records with intervals not more than 15-minutes under normal conditions. When there is an outage of electricity supply, the power quality parameters from just before each outage, such as power frequency, voltage dip/swells, phase unbalance, harmonics and inter-harmonics, must be provided to support the analysis narrative included in the service report.

1.4 Building Automation System and IoT Data

Examples of data include the time-series points to detect malfunctioning of equipment, zonal conditions, set points changes, or adjust the start-up/ramp-down of the facility's HVAC plant. Where vendors depend on algorithms to automatically identify measures, the submittal must include the constituent data utilized by the algorithms (e.g., inputs) in addition to the outcome point, e.g., fault detection point. NYSERDA requires intervals not more than 15-minutes for each point's records.

2. Time Periods

2.1 Time Series Data Start

Each point shall have starting record with a timestamp (e.g., mm/dd/yyyy hh:mm) corresponding to the first date and interval of the service report period. The timestamp should follow sequentially from the last record of the previous service report period.

2.2 Time Series Data End

Each point shall have an ending record with a timestamp (e.g., mm/dd/yyyy hh:mm) corresponding to the last date and interval of the service report period. The timestamp should then follow sequentially with the first record of the next service report period.

3. Data Formats

NYSERDA requires submittal data conforms with the semantic tagging structure of Project Haystack. Custom tags are allowed when the data element is described using Project Haystack's metadata schema. Each site must include a separate Project Haystack site, equip, and point metadata for each service period.

3.1 Site Metadata

NYSERDA requires the following data elements included with each's site's metadata. Data elements span Project Haystack site entity data models and data fields from NYSERDA's RTEM Salesforce intake system. All data types follow the Project Haystack convention (GPS coordinate, time) or by NYSERDA RTEM Salesforce data schema (org, building end-use classification.)

Site Tag	Description
id	The PS identifier assigned by NYSERDA Salesforce RTEM application for the site
name	Site name from NYSERDA Salesforce RTEM application
address	Site address associated with the RTEM project
geoCity	Name of the city where the site is located
geoCoord	GPS coordinates for the site
geoPostalCode	Zip Code for the site
geoState	Name of the State where the site is located: New York
geoCountry	United States
sq_ft	Total square-footage of the site address
timezone	Time zone where the site is located (default is America/New_York)
customerType	Site's principal end-use classification from NYSERDA Salesforce RTEM application
org	Site's main ownership organization
m2fstart	Site scheduled weekday opening time (start of occupancy)
m2fend	Site scheduled weekday closing time (end of occupancy)
satstart	Site scheduled Saturday opening time (start of occupancy)
satend	Site scheduled Saturday closing time (end of occupancy)
sunstart	Site scheduled Sunday opening time (start of occupancy)
sunend	Site scheduled Sunday closing time (end of occupancy)
serviceVendor	Responsible RTEM service vendor
systemVendor	Responsible RTEM system vendor
sfappno	Number assigned by NYSERDA Salesforce for the RTEM application
sfappdate	Salesforce date when NYSERDA approved the RTEM application
cidate	Salesforce date when NYSERDA approved vendor's I&C report for the RTEM system
weatherRef	The source of weather data used by the RTEM system
yearBuilt	Four digit year best associated with the site's construction vintage
floors	Number of floors associated with the site's square footage

3.2 Equip Meta Data

NYSERDA requires the following data elements included with each's equip metadata. Data elements adhere to Project Haystack equip data models with additional supporting elements. All data types follow the Project Haystack convention (e.g., GPS coordinates, date) or by NYSERDA RTEM Salesforce data schema (org, building end-use classification.)

Equip Tag	Description
id	Equipment identifiers used by the site's RTEM system
siteRef	Site id to associate the equipment with the site
equip_tag	Project Haystack Tag Name for the equipment entity
equip_dis	Equipment discription from RTEM applications
equipRef	equip_id for equipment to identify parent-child hierarchy
dynamic_tag	Project Haystack entity markers to comprehensively describe the equipment

3.3 Point Meta Data

NYSERDA requires the following data elements included with each's point metadata. Data elements adhere to Project Haystack point data models with additional supporting elements. All data types follow the Project Haystack convention (e.g., unit) or according to the specified data.

Point Tag	Description
id	Name of the Point Type associated with the data point.
equipRef	Equipment id associated with the Data Point
description	Plain text description for the data point
unit	Units for the data record
siteRef	Site id associated with the data point
virtual	Marker to identify a calculated point from a measured point

3.4 Time Series Data

NYSERDA requires interval data submitted as time series. Data elements adhere to Project Haystack point data models with additional supporting elements. All data types follow the Project Haystack convention (e.g., timestamp) or according to the specified data.

time_stamp	Time Stamp in Project Haystack
point_ID	Point ID associated with the time-series data
values	Cleaned and Project Haystack compliance quantities

4. Data Files

NYSERDA anticipates csv will be the most common and easily generated submittal format. As such, a minimum of four data files are required:

- site metadata,
- equip metadata,
- point metadata,
- time-series data.

Vendors may submit as many separate time-series csv files as necessary to keep the file sizes convenient and logically group related data types. For example, one csv file containing time-series interval utility meter data (e.g., electricity, natural gas, steam, etc.), another csv file containing tenant time-series interval submeter data, and a third csv file containing the time-series BAS/IoT data. To minimize confusion and to streamline NYSERDA's review and approval process, NYSERDA request vendors maintain consistent and self-explanatory file naming conventions for the data files.

As an example to the vendors, a spreadsheet with four tabs for delivering utility meter and tenant submeter data is available as a reference.