Integrated Energy Data Resource (IEDR) Stakeholder Use Case Survey Template

Comments Due: July 23, 2021 to iedr@nyserda.ny.gov

Backgroud and Overview:

The Integrated Energy Data Resource (IEDR) concept has developed through several years of prior work that ultimately led to the New York Public Service Commission's IEDR Order[1] on February 11, 2021. As the resulting IEDR program begins, NYSERDA asks stakeholders to help by identifying, characterizing, and prioritizing a preliminary set of potential IEDR use cases.

The IEDR is intended to eventually support many use cases, but development will begin with an initial set of five to ten priority use cases. These first use cases need to have practical value, urgency, and reliability that a novel data platform can deliver. At the outset, the descriptions of the initial IEDR use cases may be high-level, but specifications will become much more detailed as development proceeds. Also, to achieve a successful launch of the IEDR, we will consider how the initial set of IEDR use cases functions as a portfolio.

To aid our investigation of potential IEDR use cases, NYSERDA is asking stakeholders to use the form provided below to profile use cases that will be most valuable to them. To arrive at consistent profiles of potential use cases, stakeholders, together with the Program Manager and later with the participation of the Solution Architect, will subsequently discuss overlaps, similarities, and differences across their submissions.

Individuals and organizations comprising an industry sector and/or including multiple industry sectors are strongly encouraged to collaborate in the preparation of use case profiles.

The stakeholders' use case profiles will serve as a starting point for specifying and prioritizing IEDR use cases. As the IEDR program progresses, stakeholders may be asked to provide additional details. As potential use cases become better understood, stakeholders should expect their specifications to evolve through peer review.

In preparing these initial profiles, stakeholders should keep in mind that in its Order, the Commission stated that the IEDR is intended to enable use cases that materially improve and/or accelerate investment, operational, or regulatory decisions related to DERs, energy efficiency, environmental justice, or electrification strategies for transportation and buildings thereby facilitating one or more of New York State's REV and CLCPA objectives to accelerate New York's progress toward the climate and equity goals set for the state in the CLCPA and related legislation Orders issued by the Commission. IEDR use cases and their individual goals must be clearly aligned with these statewide commitments.

Instructions for Submitting Comments and Profiles:

Each submission of comments is to include:

- A cover sheet that contains
  - the name and contact information for each of the individual(s) or organization(s) on whose behalf the comments are submitted
  - what are your most immediate needs that the IEDR should address as soon as possible
  - what criteria should be used to prioritize initial use cases
  - if desired, a suggested definition of use case to be used for the IEDR
- A separate use case profile, consisting of responses to the topics below, should be completed for each potential use case presented by a stakeholder(s).
- Each profile should contain:

[1] See New York State Case 20-M-0082 – Strategic Use of Energy Related Data, (Order Instituting Proceeding) (March 19, 2020); and Case 16-M-0411, Summary Report: Distributed Energy Resource Market Enablement Data Needs (filed in the public comments section on January 6, 2020); and Recommendation to Implement an Integrated Energy Data Resource, Case 20-M-0082: Proceeding on Motion of the Commission Regarding Strategic Use of Energy Related Data, a New York Department of Public Service Staff Whitepaper (May 20, 2020).

- a name/description of the use case being profiled
- a response to each topic beginning with an indication of the topic being addressed, up to one page of narrative, and up to one additional page of diagrams, charts, tables, maps, and references (e.g., sources of key claims or evidence). Please specify dates, times, metrics, and quantities when they are essential.

Use Case Profile Form (using fillable form below is optional) :

1) Contributor Name & Contact Information

Enter the name(s), organization(s), and contact information for the contributor(s) of this profile form.

NYSERDA: Jennifer Singh, jennifer.singh@nyserda.ny.gov; Vanessa Ulmer, vanessa.ulmer@nyserda.ny.gov

2) Use Case Category

Select and enter one of the use case categories listed at the end of this form.

Building Electrification

3) Use Case Sub-Category

Select and enter one of the use case sub-categories listed at the end of this form.

Identifying, evaluating, and/or selecting opportunities for building electrification.

4) What Question(s) Does the Stakeholder Seek to Answer with This Use Case?

Enter the questions that this IEDR use case could answer with information that would be useful to the Stakeholder.

Does a building have adequate service capacity for electrification?

5) What Information Should the Use Case Produce for the Stakeholder?

Describe the type(s) of useful information that the use case should produce.

1) Service capacity in Amps of feeder/wires serving the building
2) Voltage
3) Type of system (delta or wye; single or three phase)
4) Peak demand (electricity) of the building
5) Aggregate electricity usage/consumption data for the building
6) Hosting capacity of the grid at service location
7) "Nice to have": Peak and average annual gas demand of the building
8) "Nice to have": Indication of whether the building is in a gas service area that is at risk of supply constraints (as identified by the gas utility)

(a) How Will the Stakeholder Use the Information Produced by This Use Case?

Explain how the Stakeholder will use each type of information produced.

Today, one barrier to building electrification is a building owner or service provider cannot easily determine whether a building has adequate service capacity for electrification. A stakeholder must request information on the building's existing electrical service from the utility, which can take significant time to get, and often the utility will provide this info only after an application for service upgrade has been submitted. This can require a building owner or service provide to have an engineer complete a feasibility study first, which is an upfront cost, prior to even knowing if electrification is feasible from a service capacity standpoint.

(b) What are the Minimum Necessary Attributes for Each Type of Information Produced?

For each type of information produced, specify the minimum necessary information attributes (i.e. precision, accuracy, granularity, etc.).

1) Service capacity in Amps of feeder/wires serving the building: street address level
2) Service voltage: at service point
3) Type of system (delta or wye; single or 3 phase): at service point
4) Peak demand (electricity): at street address / building level; over past 3 years
5) Aggregate electricity consumption data: at street address / building level; over past 3 years, monthly or annual aggregate consumption
6) Hosting capacity of the grid at service location: per regularly updated data
7) Peak and average annual gas demand: at street address / building level; over past 3 years (as available)
8) Indication of whether the building is in a gas service area that is at risk of supply constraints: YES/NO, per latest utility filing

6) How Should the IEDR User Interface Present the Information Produced by the Use Case?

Identify one or more useful ways to present the output information to the user (i.e. list, table, graph, bar chart, pie chart, map, ... , etc.). For example, a bar chart that shows the number of electric customers on each of several rates within a zip code.

Tabular format
The user could search for a building by street address and access the output information in a table

7) What Type(s) of Data Does the IEDR Need to Analyze for This Use Case?

Identify the one or more types of data - from utilities and/or other sources - that the IEDR will need to analyze to produce useful information. See Appendix B of the Staff IEDR Whitepaper for a preliminary list of data types that could be collected and analyzed by the IEDR.

Electric Service Point Details: Service point ID, Street Address, GIS coordinates, Connected Circuit ID, Service Voltage, Number of Phases, Average Load, Average Peak, hosting capacity at service location

Gas Service Point Details: Service point ID, Street Address, GIS coordinates, Connected Pipeline ID, Interconnection flow rating, Meter ID, Average Demand, Averaged Demand Peak, utility filings on geographic areas at risk of gas supply constraints

(a) What are the Minimum Necessary Data Attributes for Each Type of Data Collected and Analyzed?

For each type of data analyzed, specify the minimum necessary data attributes (i.e. precision, accuracy, granularity, age, ... , etc.).

The data would be collected and made available via a user-friendly output at the granularity of the building's street address, using data that is refreshed on a periodic basis, with a clear date stamp for the data vintage.

Further development of this use case would require specifying how often the data would be refreshed and what size buildings would be covered (e.g., exclude single family homes and other small buildings that tend to have standardized electrical service).

8) What Data Relationships Does the IEDR Need to Analyze for This Use Case?

Identify the one or more data relationships, if any, that must exist in the IEDR to enable the analyses needed for this use case. For example, the user may want to identify EV registrations and electric utility customer accounts that share the same street address.

n/a

9) What Data Analysis Function(s) Does the IEDR Need for This Use Case?

Identify the one or more analytic functions that the IEDR must apply to each type of data used in this use case. For example, the use case may require the determination of averages, maximums, minimums, durations, and values greater/lesser/equal/between variables set by the user.

Calculation of feeder headroom / available capacity at the service location.

(a) What are the Minimum Necessary User Input Variables Needed to Enable a Useful Analysis?

For each analytic function, specify the one or more input variables that the user must provide (if any) to enable the desired analysis. For each type of input variable needed, specify the type(s) of condition to be applied in the analysis (i.e., greater than, equal to, less than, between, not between, etc.).

Search field for street address

10) How Often Does the Stakeholder Expect to Employ This Use Case?

For example: sub-daily; daily; weekly; monthly; quarterly; semi-annually; annually ...

As needed / on-demand; this data will be most frequently accessed when a building is being considered for electrification

11) How Does This Use Case Benefit the Stakeholder?

Describe how this use case would benefit its Stakeholder(s) and explain how the use case would enable those benefits. Benefits described and explained could include reduced cost, reduced time, greater revenue, reduced risk, increased understanding, ... , etc.

By making data available around the ability of building-level electrical service and local grid infrastructure to support building electrification, this should reduce the risk and costs for building owners/managers and their service providers associated with investing in building electrification measures. This improved transparency should make it less likely that hidden costs or delays appear during the electrification process due to the need to invest in local grid infrastructure, such as feeders/wires or transformers.

12) Why Should This Use Case Be Prioritized From the Perspective of i) the Industry and ii) the Citizens of New York State?

Service providers and building owners/managers benefit from increased transparency over building-level and local grid readiness for building electrification. By providing upfront information around any needed grid infrastructure constraints and potential investments, this will help to expedite projects, and encourage electrification projects that might otherwise not be pursued in the face of uncertainty. Citizens of New York benefit from this enablement of building electrification, due to the co-benefits of improved air quality from the reduction of on-site combustion of fossil fuels, and the reduction in carbon emissions, which is a shared benefit of all New Yorkers.

***The IEDR use case profiles submitted will be shared, and should contain no proprietary information.**

The profiles are regarded as preliminary working papers, and may be revised based on subsequent analysis and discussion. Advocates submitting profiles of similar use cases will work together with the IEDR development teams to come to a consensus. For consistency in development, the IEDR team may elect to format use case submissions into a stanbdardized format such as UML or BPMN.

Use Case Categories:

Enter one of the following use case categories in Part 2 of the survey form.

- DER Development and Use
- Transportation Electrification
- Building Electrification
- Energy Efficiency (EE)
- Electric Utility Function
- Gas Utility Function
- Local Government Function
- State Government Function
- Other (please describe)

Use Case Sub-Categories:

Enter one of the following use case sub-categories in Part 3 of the survey form.

- For DER Development and Use:
  - identifying, evaluating, and/or selecting potential DER locations;
  - identifying, evaluating, and/or engaging potential DER customers;
  - preparing and/or optimizing DER development plans;
  - preparing and/or optimizing DER operating plans;
  - designing, implementing, and/or operating DER aggregations;
  - monitoring and evaluating the deployment and use of DERs;
  - designing and implementing Community Distributed Generation (CDG) solutions; or,
  - other (please describe)

- For Transportation Electrification:
  - identifying, evaluating, and/or engaging existing EV owners/operators;
  - identifying, evaluating, and/or engaging potential EV owners/operators;
  - monitoring and/or evaluating EV acquisitions and uses;
  - identifying, evaluating, and/or selecting potential locations for EV charging facilities;
  - preparing and/or optimizing plans for developing EV charging facilities;
  - preparing and/or optimizing plans for operating EV charging facilities;
  - monitoring and/or evaluating the deployment and use of EV charging facilities
  - other (please describe)

- For Building Electrification:
  - identifying, evaluating, and/or engaging energy consumers and energy managers in existing buildings;
  - identifying, evaluating, and/or engaging energy consumers and energy managers in planned buildings;
  - monitoring and/or evaluating acquisitions and uses of building electrification solutions;
  - building energy benchmarking;
  - identifying, evaluating, and/or selecting opportunities for building electrification;
  - preparing and/or optimizing plans for developing building electrification solutions;
  - preparing and/or optimizing plans for operating building electrification solutions;
  - monitoring and/or evaluating the deployment and performance of building electrification solutions
  - other (please describe)

- For Energy Efficiency (EE):
  - identifying, evaluating, and/or engaging customers with existing EE solutions;
  - identifying, evaluating, and/or engaging potential EE customers;
  - monitoring and/or evaluating EE acquisitions and uses;
  - building energy benchmarking;
  - identifying, evaluating, and/or selecting EE opportunities;
  - preparing and/or optimizing plans for deploying EE solutions;
  - monitoring and/or evaluating the deployment and use of EE solutions;
  - designing and implementing Community Choice Aggregation (CCA) solutions
  - other (please describe)

- For Electric Utility Functions:
  - system planning;
  - DER interconnection;
  - system operations;
  - market enablement;
  - market operations;
  - customer programs and services;
  - regulatory/statutory compliance;
  - other (please describe)

- For Gas Utility Functions:
  - system planning;
  - system operations;
  - market enablement;
  - market operations;
  - customer programs and services;
  - regulatory/statutory compliance;
  - other (please describe)

- For Local Government Functions:
  - building energy benchmarking;
  - Community Choice Aggregation;
  - Community Distributed Generation;
  - facility siting and permitting;
  - environmental justice initiatives;
  - economic development;
  - planning and zoning;
  - other (please describe)

- For State Government Functions:
  - energy-related R&D;
  - regulatory research and planning;
  - regulatory oversight;
  - building energy benchmarking;
  - facility siting and permitting;
  - environmental justice initiatives;
  - economic development;
  - other (please describe)

Integrated Energy Data Resource (IEDR) Stakeholder Use Case Survey Response

Submitted by:

New York State Energy Research and Development Authority (NYSERDA)

Victoria Engel-Fowles
Program Manager, Market Characterization and Evaluation
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Immediate IEDR Needs:

- Improved understanding of customer energy use and characteristics, including disadvantaged communities
- Access to utility consumption data and/or consumption data trends for participants and nonparticipants
- Distribution of fuels by fuel type and sector
- Energy use intensity data

Criteria for Prioritization:

- Relevance of use case to support statewide, public information sharing
- Application of use case in supporting measurement and verification of savings, market baselines/market progress and clean energy potential
- Application of use case in offsetting time-intensive and costly primary data collection activities

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1) **Contributor Name & Contact Information**
   Victoria Engel-Fowles; NYSERDA; victoria.engel-fowles@nyserda.ny.gov; 518-862-1090 x3207

2) **Use Case Category**
   State Government Function

3) **Use Case Sub-Category**
   Other: Market Characterization, Strategy Development and Program Evaluation

4) **What Question(s) Does the Stakeholder Seek to Answer with This Use Case?**

   NYSERDA seeks information to support the following market characterization, strategy and evaluation needs:

   - Improved understanding of customer (across sectors) energy use and characteristics, including disadvantaged communities
   - Access to utility consumption data and/or consumption data trends for participants and nonparticipants
   - Distribution of fuels by fuel type and sector, especially use of utility natural gas or not (with presumption of delivered fuels if not)
   - Energy use intensity (EUI) understanding, for example total site energy use per square foot for commercial and residential properties (will apply where building = utility account)

5) **What Information Should the Use Case Produce for the Stakeholder?**

   NYSERDA relies on the data sources listed above to conduct measurement and verification of program savings, assess market baselines, monitor market progress and assess clean energy potential in order to design the most effective strategy and programs. However, in absence of ready access to this information, NYSERDA commits significant time and resources to the planning, data collection and analysis of these variables to support evaluation activities as well as communicating the outputs from these analyses to the public. Streamlined access to this information will offset the time and resources needed to collect and analyze this data. Additionally, NYSERDA's current method is to collect these variables from a statistical sample of customers, which is always challenging to extrapolate to a heterogenous population; thus, having the actual data for the entire population is far superior.

(a) How Will the Stakeholder Use the Information Produced by This Use Case?

As described in Question 5 above, the information gathered from this use case will be used to conduct measurement and verification of program savings, assess market baselines, monitor market progress, assess clean energy potential, offset time-intensive and costly primary data collection, and allow for a holistic perspective of data (versus statistical sampling). As an example, customer energy use and characteristics and EUI data supports statewide building/facility stock studies and the strata analyzed therein. In addition, utility consumption data has long been used to assess energy savings prior to and following program interventions for a variety of programs and sectors.

(b) What are the Minimum Necessary Attributes for Each Type of Information Produced?

Pending further discussion, NYSERDA offers the following minimum attributes:

- It is assumed that all consumption data is derived from utility grade meters. In circumstances where data provided is derived from other sources, the information produced should indicate this alternate source and associated precision/accuracy of measurement.
- Where appropriate, site-level data would be ideal, where confidentiality of utility customers is maintained. As an alternative, categorizing data by consumption levels could also be considered.

6) How Should the IEDR User Interface Present the Information Produced by the Use Case?

At minimum, tabular format (Excel or similar). In addition, maps, graphs and bar charts would be useful to help users select data needed for more analysis. All information should be available for download in Excel/CSV format for additional analysis, similar to the existing DER portal.

7) What Type(s) of Data Does the IEDR Need to Analyze for This Use Case?

Certain components of the data types listed in Appendix B of the Staff IEDR Whitepaper would be useful, less any personally-identifiable data (e.g., account ID and customer name). Further, certain variables, such as square footage of homes/buildings/facilities would be useful to add, if available. NYSERDA looks forward to further discussion.

Data types include:

- Electric Customer Details
- Gas Customer Details
- Installed DER Details
- Queued DER Details
- Forecasted DER Details
- Existing Building Details
- Forecasted New Building Details
- Forecasted Building Modification Details

(a) What are the Minimum Necessary Data Attributes for Each Type of Data Collected and Analyzed?

Response to this question will likely be informed by further discussion. Some minimum necessary data attributes are outlined in the response to Question 5b.

8) What Data Relationships Does the IEDR Need to Analyze for This Use Case?

Where available, data relationships would ideally include a common identifier to cross-reference NYSERDA program participation (where relevant) with other programs, or clearly indicate non-participation.

9) What Data Analysis Function(s) Does the IEDR Need for This Use Case?

Pending further discussion, example analytic functions that the IEDR must apply to each type of data outlined in this use case includes, but is not limited to:

- A histogram indicating the distribution of consumption across selected groups
- Maximum/minimum consumption characteristics to determine peak periods across identified groups/sectors as noted above

(a) What are the Minimum Necessary User Input Variables Needed to Enable a Useful Analysis?

Pending further discussion, input needs include, but are not limited to:

- Fuel type
- Location, including identification of disadvantaged communities
- Sector

10) How Often Does the Stakeholder Expect to Employ This Use Case?

Quarterly or semi-annually

11) How Does This Use Case Benefit the Stakeholder?

As described in Question 5, NYSERDA relies on the data sources listed above to conduct measurement and verification of program savings, assess market baselines, monitor market progress and assess clean energy potential. However, in the absence of ready access to this information, NYSERDA commits significant time and resources to the planning, data collection and analysis of these variables to support evaluation activities as well as communicating the outputs from these analyses to the public. Streamlined access to this information will offset the time and resources needed to collect and analyze this data. Additionally, NYSERDA's current method is to collect these variables from a statistical sample of customers, which is always challenging to extrapolate to a heterogenous population; thus, having the actual data for the entire population is far superior.

As such, the benefits outlined here have relevance to NYS as a whole. In addition to sharing its reports publicly, NYSERDA endeavors to share its anonymized data on OpenNY. Information leveraged from this use case, where appropriate, can contribute to this public-facing data sharing to serve multiple stakeholders, market actors and the public at large.

12) Why Should This Use Case Be Prioritized From the Perspective of i) the Industry and ii) the Citizens of New York State?

As described above, the benefits outlined in this use case do not apply narrowly to NYSERDA. NYSERDA's studies and reports are typically shared publicly; outputs from this use case will leverage and support these studies and reports and contribute to the body of information that is shared publicly.

***The IEDR use case profiles submitted will be shared, and should contain no proprietary information.**

The profiles are regarded as preliminary working papers, and may be revised based on subsequent analysis and discussion. Advocates submitting profiles of similar use cases will work together with the IEDR development teams

to come to a consensus. For consistency in development, the IEDR team may elect to format use case submissions into a standardized format such as UML or BPMN.

Use Case Categories:

Enter one of the following use case categories in Part 3 of the survey form.

- DER Development and Use
- Transportation Electrification
- Building Electrification
- Energy Efficiency (EE)
- Electric Utility Function
- Gas Utility Function
- Local Government Function
- State Government Function
- Other (please describe)

Use Case Sub-Categories:

Enter one of the following use case sub-categories in Part 4 of the survey form.

- For DER Development and Use:
  - identifying, evaluating, and/or selecting potential DER locations;
  - identifying, evaluating, and/or engaging potential DER customers;
  - preparing and/or optimizing DER development plans;
  - preparing and/or optimizing DER operating plans;
  - designing, implementing, and/or operating DER aggregations;
  - monitoring and evaluating the deployment and use of DERs;
  - designing and implementing Community Distributed Generation (CDG) solutions; or,
  - other (please describe)

- For Transportation Electrification:
  - identifying, evaluating, and/or engaging existing EV owners/operators;
  - identifying, evaluating, and/or engaging potential EV owners/operators;
  - monitoring and/or evaluating EV acquisitions and uses;
  - identifying, evaluating, and/or selecting potential locations for EV charging facilities;
  - preparing and/or optimizing plans for developing EV charging facilities;
  - preparing and/or optimizing plans for operating EV charging facilities;
  - monitoring and/or evaluating the deployment and use of EV charging facilities
  - other (please describe)

- For Building Electrification:
  - identifying, evaluating, and/or engaging energy consumers and energy managers in existing buildings;
  - identifying, evaluating, and/or engaging energy consumers and energy managers in planned buildings;
  - monitoring and/or evaluating acquisitions and uses of building electrification solutions;
  - building energy benchmarking;
  - identifying, evaluating, and/or selecting opportunities for building electrification;
  - preparing and/or optimizing plans for developing building electrification solutions;
  - preparing and/or optimizing plans for operating building electrification solutions;
  - monitoring and/or evaluating the deployment and performance of building electrification solutions
  - other (please describe)

- For Energy Efficiency (EE):
  - identifying, evaluating, and/or engaging customers with existing EE solutions;
  - identifying, evaluating, and/or engaging potential EE customers;
  - monitoring and/or evaluating EE acquisitions and uses;
  - building energy benchmarking;
  - identifying, evaluating, and/or selecting EE opportunities;
  - preparing and/or optimizing plans for deploying EE solutions;
  - monitoring and/or evaluating the deployment and use of EE solutions;

    - designing and implementing Community Choice Aggregation (CCA) solutions
    - other (please describe)

- For Electric Utility Functions:
    - system planning;
    - DER interconnection;
    - system operations;
    - market enablement;
    - market operations;
    - customer programs and services;
    - regulatory/statutory compliance;
    - other (please describe)

- For Gas Utility Functions:
    - system planning;
    - system operations;
    - market enablement;
    - market operations;
    - customer programs and services;
    - regulatory/statutory compliance;
    - other (please describe)

- For Local Government Functions:
    - building energy benchmarking;
    - Community Choice Aggregation;
    - Community Distributed Generation;
    - facility siting and permitting;
    - environmental justice initiatives;
    - economic development;
    - planning and zoning;
    - other (please describe)

- For State Government Functions:
    - energy-related R&D;
    - regulatory research and planning;
    - regulatory oversight;
    - building energy benchmarking;
    - facility siting and permitting;
    - environmental justice initiatives;
    - economic development;
    - other (please describe)