



July 23, 2021

**Re: Mission:data Coalition Use Cases for NYSERDA IEDR**

On behalf of Mission:data Coalition, a non-profit organization working to improve permission-based energy data exchanges nationwide for the benefit of consumers and distributed energy resources (DERs), please see our enclosed Use Case Profiles. By representing 30 advanced energy companies, many of whom provide services to New Yorkers today, we believe our submittal provides NYSERDA with practical and actionable insights about what data is used today by leading DER providers and how access to customer data can be improved.

**Most immediate needs that the IEDR should address as soon as possible:** To reiterate from our March 15, 2021 comments filed in Docket No. 20-M-0082, the immediate needs of DER providers are the following:

- A) Permission-based access to customer energy data (electric and gas), including usage, account information, billing history and bill images
- B) Analysis of portfolio-level energy savings, and providing tools for DER providers to link individual customers to the portfolio as a whole
- C) Enable the loading of software “apps” onto smart meters, focused on Avangrid and National Grid

**Prioritization criteria:** In addition to enclosing detailed cost-benefit analysis information where available, Mission:data believes the following criteria for prioritization should apply:

1. Use cases should serve multiple DER providers as a category, rather than be tailored to individual firms

Respectfully submitted,

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## Use Case #1:

### Permission-based access to comprehensive customer energy data for DERs

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#### 2-3. Use case categories and sub-categories

The following categories and sub-categories apply to this use case:

- DER development and use
  - 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
- 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
  - 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
- Building electrification
  - identifying, evaluating, and/or engaging energy consumers and energy managers in existing 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

- Energy efficiency
  - 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

#### **4. What question(s) does the stakeholder seek to answer with this use case?**

As discussed with NYSERDA during our June 28, 2021 meeting with Michael Murray, this use case covers a very broad range of activities. The common thread is that a customer is working with a non-utility DER provider and the customer grants his or her permission to the utility to share usage, account, billing and other information with the DER provider in order to access a product or service. Here is a subset of questions that could be posed by the DER provider:

- What opportunities exist for energy efficiency, demand response, building electrification, etc. given the home or building’s energy profile?
- How did a home/building (or a collection of homes/buildings) perform with regard to a historical energy efficiency intervention or demand response event?
- What is the payback time of rooftop solar or heat pumps at my house?<sup>1</sup>
- What is my home’s “base load” of always-on electronics and how much could I save?

#### **5. What information should the use case produce for the stakeholder?**

The information sought from the utility is all **customer-specific** data that falls into these categories: (1) usage data (at whatever interval is available), (2) account information (including, but not limited to, account numbers, meter numbers, service addresses, and the relationships among them), (3) billing information (including, but not limited to, the rates or tariffs applicable to the customer, bill line items, bill images or PDFs, payment history, etc.) and (4) any information necessary to determine eligibility for participation in efficiency, demand response, or renewable energy programs.

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<sup>1</sup> Note: We do *not* expect the IEDR to provide cost information on solar panels or heat pump installation. The DER provider will have cost information, and will use the customer’s usage and billing history from the IEDR to calculate payback time.

**(a) How will the stakeholder use the information produced by this use case?**

It is difficult to answer this question given the range of possibilities. The DER provider will digest and analyze the customer data, combine it with other data they have available (such as contractors' bids, interest rates for financing given customer credit scores, square footage information from Zillow, etc.) described above in order to suit their offering. However, in addition to the example scenarios above, see our two reports that highlight several DERs and provide examples of the services they could provide to customers:

[http://www.missiondata.io/s/EmPOWEREDConsumer\\_CaseStudy.pdf](http://www.missiondata.io/s/EmPOWEREDConsumer_CaseStudy.pdf)

<http://www.missiondata.io/s/Got-Data-value-of-energy-data-access-to-consumers.pdf>

**(b) What are the minimum necessary attributes for each type of information produced?**

We answer this question in two parts. First, the data provided should meet a “best available” standard. This means that whatever the utility has at any particular time that is the best or most accurate information to the utility’s knowledge should be made available to the DER provider. If subsequent usage or billing data becomes available to the utility that is more accurate for any reason (such as a disputed bill or an estimated interval usage reading), then that information should be transmitted to the DER provider and clearly marked as being updated. This is a particularly useful principle to apply when, for example, wading through the complexities of validation, editing and estimation (VEE) rules that apply to meter data.

Second, there are necessary attributes of the IEDR platform from an information technology perspective. These are what you might refer to as “non-functional requirements” and should include the following:

- Uptime: 99.5% uptime or greater, measured on a calendar month basis
- Scheduled maintenance: Maintenance windows up to 12 hours per month, announced several weeks in advance
- Responsiveness: After a customer clicks “Agree” to share their data with a DER provider, the requested data should be transmitted within 60-90 seconds
- Metrics and reporting: On a publicly-available website, the IEDR should report uptime, web page load time, customer funnel statistics, and the like, sortable by time period, device type and operating system

California provides a model for these performance metrics.

**6. How should the IEDR user interface present the information produced by the use case?**

We do not believe the IEDR user interface needs any special tools for presenting the information because it is the DER provider that will manipulate the data with their own tools. Nevertheless, the IEDR user interface should help facilitate administrative functions, such as:

- Security certificate management (adding/deleting SSL certificates)
- Viewing uptime, server status, outages, scheduled maintenance periods, etc.
- Submitting trouble tickets or bugs
- Viewing customers who have completed authorizations in a rudimentary dashboard, with simple data download capabilities (if the DER provider does not want to develop software to communicate via API, they could use the dashboard as an alternative)

As part of its evaluation, Mission:data recommends that NYSERDA consider the Smart Meter Texas dashboard ([www.smartmetertexas.com](http://www.smartmetertexas.com)), developed by the Texas utilities, and the Silicon Valley Clean Energy dashboard ([data.svcleanenergy.org](http://data.svcleanenergy.org)), provided by UtilityAPI, as starting points.

**7. What type(s) of data does the IEDR need to analyze for this use case?**

None. The IEDR does not need to analyze any of the customer data requested, because that is the role of the DER provider.

**(a) What are the minimum necessary data attributes for each type of data collected and analyzed?**

Not applicable.

**8. What data relationships does the IEDR need to analyze for this use case?**

In general, the IEDR itself does not need to analyze any of the customer data requested in this use case. However, as a “conduit” for DER providers to access customer data, the IEDR will of course need to maintain accurate relationships between customers, their service addresses and meters, so that the correct usage information consistent with the customer’s authorization is transmitted.

**9. What data analysis functions does the IEDR need for this use case?**

None.

**(a) What are the minimum necessary user input variables needed to enable a useful analysis?**

Not applicable.

**10. How often does the stakeholder expect to employ this use case?**

Every day, including holidays and weekends. DER providers will run various marketing campaigns, and customers will complete the authorization whenever it is convenient for them. In other words, the API services need to be available 24x7x365.

**11. How does this use case benefit the stakeholder?**

See the Mission:data reports cited above that document potential energy savings of 6% to 18% when customers have access to data-driven energy management services. In addition, DER providers and utilities will benefit because the IEDR provides a pathway other than credential-sharing (this is the practice of asking customers for their usernames and passwords to their utility accounts and accessing the information automatically). Credential-sharing can be costly for DERs, and utilities will gain confidence in knowing which entities are accessing customer data.

**12. Why should this use case be prioritized from the perspective of (i) the industry and (ii) the citizens of New York State?**

Mission:data views this as foundational to virtually all of the other REV goals New York seeks to achieve. We also reiterate that other jurisdictions have conducted cost-benefit analyses of improved access to customer-specific data and found a CAD\$180-\$198 benefit per commercial building per year, in addition to 2%-10% energy savings benefits. See Michael Murray's email to [iedr@nyserda.ny.gov](mailto:iedr@nyserda.ny.gov) on June 29, 2021 on the topic of cost-benefit analyses in other jurisdictions.

## Use Case #2:

### Enabling demand flexibility markets

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#### 2-3. Use case categories and sub-categories

The following categories and sub-categories apply to this use case:

- DER development and use
  - 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
- 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
  - monitoring and/or evaluating the deployment and use of EV charging facilities
- Building electrification
  - identifying, evaluating, and/or engaging energy consumers and energy managers in existing buildings
  - monitoring and/or evaluating acquisitions and uses of building electrification solutions
  - 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
- Energy efficiency
  - 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
- Local government functions
  - Community Choice Aggregation
  - Other: evaluating the impacts of building codes or local efficiency programs
- State government functions
  - Energy-related R&D
  - Regulatory research and planning
  - Regulatory oversight
  - Other: evaluating impacts and cost-effectiveness of market-based demand-side energy procurement

#### **4. What question(s) does the stakeholder seek to answer with this use case?**

The Stakeholder in this use case would be a vendor interested in implementing a state-wide demand flexibility marketplace (such as [www.demandflexmarket.com](http://www.demandflexmarket.com)).

The IEDR would not have to answer any questions, and would rather serve as a central hub for access to standardized data on energy consumption and key meta data to operationalize the marketplace.

In the course of implementing the marketplace, the following questions, and many others, may be answered:

- How much energy is being saved among a portfolio of homes/buildings at a particular time?
- What project attributes are yielding the greatest energy savings (i.e. contractor, measure type, zip code, building type, etc.)?
- How much will I get paid in a pay-for-performance program given my performance over a given time period?

#### **5. What information should the use case produce for the stakeholder?**

The use case is a market implementation model for deploying distributed energy resources that can in turn be bought or procured by utilities, program administrators, the NYISO or state agencies in aggregate to meet climate goals or optimize grid resources.

The IEDR would serve as a data access hub for qualified vendors (per the data access framework certification requirements) to support the aggregation of DERs.



**(a) How will the stakeholder use the information produced by this use case?**

Data would be made accessible to the stakeholder to operationalize the marketplace. This would include energy consumption data, customer meta data, including locational data. All data would be protected and secured by the vendor.

**(b) What are the minimum necessary attributes for each type of information produced?**

Hourly energy consumption data would need to be available for the scope of the market footprint geographically and updated annually, quarterly, or daily depending on the requirements of the procurement (e.g. a demand response marketplace may need daily; whereas an electrification program may suffice with quarterly or annual updates). The precision, accuracy and granularity would also be dependent on the procurement. Settlement quality meter data at the hourly level may be sufficient for the assumptions of this exercise.

**6. How should the IEDR user interface present the information produced by the use case?**

Direct access via API would be the only interface necessary for access to raw data to enable this use case. The vendor may also present information externally as illustrated in the form of maps and reports to answer publicly relevant questions. For example, see: <https://seat-poc.herokuapp.com/>

**7. What type(s) of data does the IEDR need to analyze for this use case?**

Hourly energy consumption data is the primary data type that would be collected along with basic customer account information (name, location, rate, building type). Standardization across utilities (formats, fields etc) would be completed within the IEDR.

**(a) What are the minimum necessary data attributes for each type of data collected and analyzed?**

Settlement-quality interval usage data will be necessary for energy savings analysis.

**8. What data relationships does the IEDR need to analyze for this use case?**

The IEDR will need to associate projects with contractors, homes/buildings and meters. However, there would be no supplemental data analysis by the IEDR.

**9. What data analysis functions does the IEDR need for this use case?**

The IEDR would not be used for analysis in this use case.

**(a) What are the minimum necessary user input variables needed to enable a useful analysis?**

The IEDR would not be used for analysis in this use case. Vendor would need to specify boundaries of service territory and sector within which the marketplace was being deployed to access the minimum data.

**10. How often does the stakeholder expect to employ this use case?**

Depending on the marketplace parameters, daily, monthly, quarterly or annually may all be possible timeline for accessing data for this use case.

**11. How does this use case benefit the stakeholder?**

A myriad of programs currently operate in New York each of which is independently contracted and secured through arduous contracting processes. Opportunities to quickly respond and deploy solutions to things like gas constraints or significantly expand demand flexibility are hampered by that process. They are also necessarily constrained to data access agreements with each utility and data handling has to be customized to each unique situation. Since NY has opted for a centralized data repository, a key benefit would be curating raw data per a standardized specification for basic energy consumption data and customer data and make it available to qualified vendors.

**12. Why should this use case be prioritized from the perspective of (i) the industry and (ii) the citizens of New York State?**

Demand flexibility opportunities are not being procured in New York in a streamlined way. This use case could open doors for more actors to support New York's climate goals and scale investment in a meaningful way. This would benefit the citizens of New York State through greater investment, more jobs, enhanced infrastructure, and a cleaner future. In addition, this use case ensures that pay-for-performance programs remain innovative and cost-effective. Because pay-for-performance shifts performance risk onto DER aggregators, innovation cycles will be shorter than in traditional programs.

## Use Case #3:

### Customers load energy analysis “apps” onto their smart meter

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#### 2-3. Use case categories and sub-categories

The following categories and sub-categories apply to this use case:

- DER development and use
  - 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
- 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
  - monitoring and/or evaluating the deployment and use of EV charging facilities
- Building electrification
  - identifying, evaluating, and/or engaging energy consumers and energy managers in existing buildings
  - monitoring and/or evaluating acquisitions and uses of building electrification solutions
  - 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
- Energy efficiency
  - 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;

**4. What question(s) does the stakeholder seek to answer with this use case?**

In this use case, the DER aggregator need permission to deploy, via the utility’s AMI network, a software “app” onto a customer’s meter. This use case only applies to customers of Avangrid and National Grid that have the latest smart meter technology in which a Linux computer is embedded in the meter. The questions this use case helps answer are:

- Is a given customer eligible to have an app loaded onto their meter? (Perhaps AMI network limitations or other restrictions make it impossible.)
- Does the utility report any errors after the customer has granted authorization to load the app?

For more information about how the new smart meters function, please see our enclosed report, “Digital Platform Regulation.”

**5. What information should the use case produce for the stakeholder?**

Once successful in deploying an app to a customer’s meter, the IEDR should enable the DER provider to receive, directly from the customer’s meter over their home or business Wifi connection, the following two pieces of information: (1) the customer’s real-time energy usage data (perhaps every 1-5 seconds) and (2) disaggregation of usage into devices and appliances (e.g., “your water heater is 20% of your total bill”). Disaggregation is performed on the meter itself, with only the results being transmitted directly to the DER provider. To be clear, the IEDR is not the source of this information; instead, the IEDR merely manages the permissions and deployment of a software app made by a DER provider onto the customer’s meter(s).

**(a) How will the stakeholder use the information produced by this use case?**

It will be used by DER aggregators to improve their offerings by knowing what devices and appliances are consuming electricity. In particular, real-time usage data at intervals of a few seconds will be extremely valuable for demand response.

**(b) What are the minimum necessary attributes for each type of information produced?**

To be clear, this use case is not about the IEDR delivering data to the DER provider. Rather, it is about the IEDR facilitating the deployment of smart meter “apps” over the utilities’ AMI networks. Both Avangrid and National Grid are pursuing a new generation of advanced meter in which apps can be loaded to run computations locally on the meter. The DER provider can write its own software application to perform whatever functions are supported by that particular meter manufacturer. The important point is that the IEDR is not involved in authoring such apps, but rather serves as an important centralized administrator to deploy the app over the utility’s AMI network once the customer has granted permission.

**6. How should the IEDR user interface present the information produced by the use case?**

A simple management dashboard would suffice for managing customers’ app authorizations, app loading status, error messages, etc.

**7. What type(s) of data does the IEDR need to analyze for this use case?**

Besides interacting with the utilities’ AMI systems, there is no customer data the IEDR itself needs to analyze.

**(a) What are the minimum necessary data attributes for each type of data collected and analyzed?**

Not applicable.

**8. What data relationships does the IEDR need to analyze for this use case?**

The IEDR needs to maintain correct relationships between customers and their meters.

**9. What data analysis functions does the IEDR need for this use case?**

None.

**(a) What are the minimum necessary user input variables needed to enable a useful analysis?**

Not applicable.

**10. How often does the stakeholder expect to employ this use case?**

Daily – whenever a customer is solicited and approves loading the app of their choice.

**11. How does this use case benefit the stakeholder?**

See the attached report, “Digital Platform Regulation,” that shows disaggregations accuracies of 90% or greater are possible with meter-based computing platforms.

**12. Why should this use case be prioritized from the perspective of (i) the industry and (ii) the citizens of New York State?**

One of the promises of New York’s multi-billion-dollar advanced metering deployment is that customers will have increased insight into, and control over, their energy usage. This promise can only be fulfilled when utilities are not the bottleneck to innovation. By opening the meter-based computing platforms to entrepreneurs, customers can choose to have an app of their choice assist them with home energy management functions.