Integrated Energy Data Resource (IEDR) Program
Phase 2 Proposal

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BACKGROUND

New York State is transforming its electricity system into one that is cleaner, more resilient, and affordable through changes in energy policy. Adequate access to useful energy-related data is required to achieve this transformation.

On February 11, 2021, the New York Public Service Commission (PSC) issued the *Order Implementing an Integrated Energy Data Resource* ("IEDR Order")[1], based on Department of Public Service (DPS) staff recommendations[2], directing the development of an IEDR to securely collect, integrate, and provide broad and appropriate access to large and diverse sets of valuable energy-related information on one statewide data platform. The IEDR Order designated The New York State Energy Research and Development Authority (NYSERDA) as the IEDR Program Sponsor responsible for defining, initiating, overseeing, and facilitating the IEDR Program on behalf of New York State.

The IEDR Order articulated the foundational principles for developing the IEDR throughout its life cycle and stated that the IEDR would be guided by the policy of obtaining the best overall value for New York State. NYSERDA, as the Program Sponsor, established a process to deliver the best overall value that is based on three commitments:

1. Conducting effective and extensive collaboration with and among stakeholders, including the state's utilities, to identify use cases of value to them (A use case represents access to data, combinations of data, analysis, or other functions that create value to a specific type of user by supporting a specific identified use or outcome.)
2. Procuring the services of individuals and organizations that possess the necessary expertise and experience in the development, implementation, and operation of a data platform of similar scale and scope
3. Establishing unambiguous performance requirements, including firm schedules and milestones

The IEDR Order establishes the regulatory expectation that the IEDR will enable approximately 50 use cases over two phases of development, with specific deadlines for achieving minimum performance capabilities. Specifically, the PSC established a two-phase schedule for developing and operating the IEDR:

- **Phase 1:** The initial IEDR implementation will enable at least five of the highest priority use cases with an expectation that 10 or more could be achieved. Phase 1 will be completed within 24 – 30 months after the program manager's work has commenced (completion of Phase 1 is anticipated to occur within Q4 2023).

[1] State of New York Department of Public Service, "Case 20-M-0082- Proceeding on Motion of the Commission Regarding Strategic Use of Energy Related Data." *Order Implementing an Integrated Energy Data Resource.* February 11, 2021.
[2] State of New York Department of Public Service, "Case 20-M-0082- Proceeding on Motion of the Commission Regarding Strategic Use of Energy Related Data." *Department of Public Service Staff Whitepaper Recommendation to Implement an Integrated Energy Data Resource.* May 29, 2020.

- **Phase 2:** The initial IEDR will expand and enhance approximately 40 additional use cases, building on the successful implementation and operation of Phase 1. Phase 2 will be completed 30 – 36 months after Phase 1 (on or about July 30, 2026).

Additionally, the PSC issued an order in April 2021 to establish a uniform and comprehensive Data Access Framework (DAF)[3] to govern the means and methods for accessing and protecting all energy-related information. This order was also based on DPS staff recommendations.[4] Implementing the DAF is crucial to operating the IEDR because it will create a consistent statewide process for establishing any IEDR user's readiness to access data in the IEDR securely and responsibly. Accordingly, all aspects of designing and operating the IEDR will comply with the framework and requirements that the PSC establishes for the DAF.

1 IEDR Phase 1 Review

1.1 Accomplishments of Phase 1

The IEDR Program has successfully met the Phase 1 requirements of the IEDR Order. The program released an initial public version (IPV) of the IEDR on March 31, 2023[5], that addressed three priority use cases and is on track to address an additional seven use cases (for a total of 10 use cases in Phase 1) in a minimum viable product (MVP), which will be released by the end of Phase 1 in Q4 2023. All Phase 1 program activities were conducted within the PSC budget established in the IEDR Order. The program's success in Phase 1 was based on the timely procurement of core program team services by NYSERDA as the Program Sponsor; the establishment of governance, coordination, and advisory bodies as required by the IEDR Order; and extensive stakeholder engagement to ensure the needs of potential IEDR users remained at the center of design and development activities.

1.1.1 Core Program Team

NYSERDA successfully established a core program team, with clear and distinct responsibilities for each member, by conducting a series of competitive procurements for necessary services:

- **Program Manager:** Deloitte Consulting LLP ("Deloitte") was selected as Program Manager in October 2021. As Program Manager, Deloitte maintains the overall program schedule and budget; administers the governance, coordination, and advisory groups; and oversees all technical activities that will lead to the operation of the IEDR in accordance with the IEDR Order.
- **Utility Data Advisor:** Pecan Street Inc. ("Pecan Street") was selected as Utility Data Advisor in October 2021. As Utility Data Advisor, Pecan Street provides subject-matter expertise on utility data systems to DPS staff and participates in the IEDR Utility Coordination Group (UCG) described below.

[3] State of New York Department of Public Service, "CASE 20-M-0082 - In the Matter of the Strategic Use of Energy Related Data." *Order Adopting a Data Access Framework and Establishing Further Process.* April 15, 2021.
[4] State of New York Department of Public Service, "CASE 20-M-0082 – In the Matter of Strategic Use of Energy Related Data." *Department of Public Service Staff Whitepaper Regarding a Data Access Framework*. May 29, 2020.
[5] New York State Energy Research and Development Authority - Integrated Energy Data Resource (IEDR) Program. *The Initial Public Version (IPV) of the IEDR Platform has been launched!* https://www.nyserda.ny.gov/All-Programs/Integrated-Energy-Data-Resource-Program

- **Development Team:** In October 2022, NYSERDA selected a team led by E Source Companies LLC ("E Source") to design, build, and operate the IEDR platform. The E Source Team (which includes UtilityAPI, Flux Tailor, and TRC Companies) develops system requirements and architecture; establishes secure and efficient interfaces for data transfer to the IEDR from multiple sources; and develops, tests, delivers, and maintains an IEDR platform that meets use case descriptions and delivers value to users.

1.1.2 Governance, Coordination, and Advisory Bodies

The IEDR Order called for establishing three bodies during Phase 1 to guide the IEDR program's activities: the IEDR Steering Committee, UCG, and Advisory Group (AG).

The IEDR Steering Committee, consisting of five members from DPS staff and four members from NYSERDA, was convened by NYSERDA starting in Q3 2021. The Steering Committee reviews and, when necessary, acts on (1) program issues that require Steering Committee awareness and possible actions or decisions; (2) significant program risks that require management and mitigation; (3) planned and unplanned deviations from the program scope, schedule, or budget; and (4) upcoming program milestones—especially those that depend on Steering Committee actions or decisions. The Steering Committee initially met biweekly and has transitioned to monthly meetings unless a program issue requires a special meeting. As of the submission of this proposal, the IEDR Steering Committee has met with the Program Team 16 times and is anticipated to be convened another 10 sessions prior to the completion of Phase 1.

The IEDR Order mandated the establishment of an AG representing relevant stakeholder groups, including, but not limited to, DER developers, utilities, energy consumers, state, and local government entities, and interested industry associations. Beginning in November 2021, the Program Manager led and facilitated monthly meetings with these appointed members of diverse stakeholder groups in New York State's energy sector. These sessions provided opportunities for the IEDR Program Team to solicit feedback on all relevant program progress, including progress toward planned IEDR capabilities, prioritization of use cases for development, and stakeholder input on IEDR program priorities and milestones. AG members also participated in additional stakeholder outreach efforts, including surveys, workshops, user acceptance testing, and other focused feedback sessions. The AG met 16 times during Phase 1.

A UCG was also established in accordance with the IEDR Order. The UCG has and will continue to provide a venue for collaboration, coordination, and oversight of the utility activities related to the design and implementation of the IEDR and alignment with the schedules and activities of both the DAF and future Orders. The UCG frequently met throughout Phase 1, with meetings varying from monthly, weekly, and biweekly cadences. Discussion topics with the UCG included the means and methods of acquiring the data needed to successfully fulfill the requirements of IEDR use cases. The UCG met approximately 25 times during Phase 1, not including multiple (6) one-on-one meetings held with each of the state's utilities to understand utility-specific issues related to data availability and transfer.

1.1.3 Additional Phase 1 Stakeholder Engagement

Extensive stakeholder engagement is a foundational element for creating a successful IEDR. As such, a robust stakeholder outreach campaign was initiated and executed throughout Phase 1. This outreach

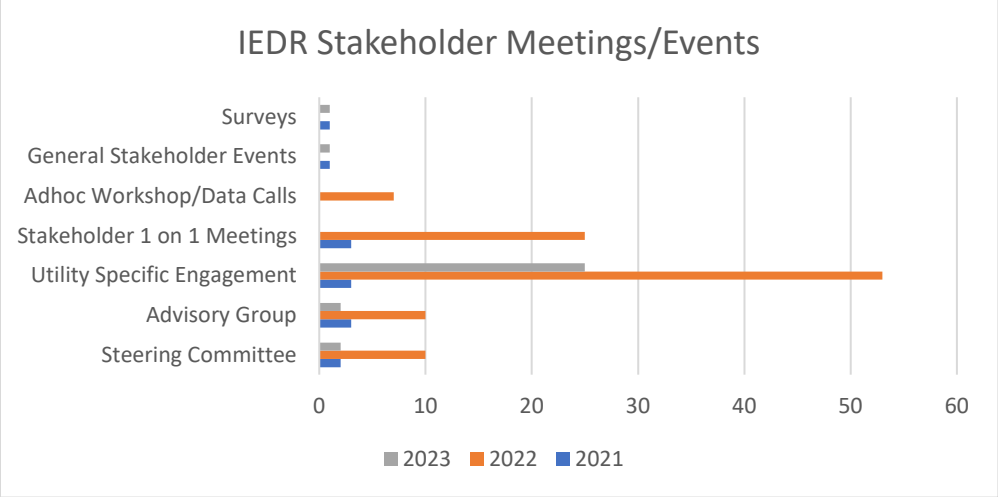
ensured that all program activities were driven by stakeholder input, helping to craft a platform ultimately born from the ideas of potential end users and shaped by subject-matter experts.

In Q2 2021, NYSERDA began accepting use case proposals from the public. Once Phase 1 officially began, the IEDR Program Team held a General Stakeholder Event (GSE) on November 15, 2021, which was advertised and open to the public. During the first GSE in November, the Program Team provided background and context to the IEDR and explained the use case identification and prioritization processes. This first GSE's audience included 119 attendees representing 65 organizations. This event served to share the vision of the IEDR platform, inform the IEDR Program Team of the current makeup of existing stakeholder groups, and create an understanding of ways public use case submissions would be considered for development.

To further refine submitted use cases, the Program Team conducted 28 one-on-one interviews with a diverse set of non-utility stakeholders, explaining the vision of the program, the use case development and prioritization process, and incorporating feedback received into user stories. Stakeholders also attended deep dive workshops to help develop a shared understanding of processes, needs, and the steps necessary for enabling use cases and discussing any challenges and data needs associated with development. These one-on-one and working group sessions enabled the Program Team to gather in-depth firsthand feedback from likely end users of the platform.

The public has been encouraged to review program updates, which have been shared via newsletters, NYSERDA's IEDR website updates, and posts to NYSERDA's social media accounts. Messaging tailored to specific stakeholder groups was used to increase participation from potential end users of the platform. Open communication channels with the public were established to enable and encourage ongoing feedback between specific outreach or engagement events. The IEDR public dashboard contains links which provide stakeholders with the ability to join the public distribution list and submit new use cases for development consideration. A program wide email address has been created to field all incoming program related stakeholder questions and feedback. All communications include a link or mention of this email address, which is monitored daily by the Program Team. Users of the platform are able to submit feedback, ideas, and questions directly to the Development Team through links posted on the IEDR platform's homepage.

Figure 1. Volume Of Stakeholder Engagement Conducted In Phase 1



The stakeholder outreach campaign successfully provided the IEDR Program Team with insights from potential future platform users and increased general awareness of the platform before initial releases. A poll conducted during the GSE on February 9, 2023, discussed further in *Section 2.1.1 Phase 2 Use Case Roadmap – Stakeholder Engagement*, indicated that 75 percent of participants felt they had either a "very clear" or "pretty clear" understanding of Phase 1 progress. The stakeholder outreach efforts enabled and shaped the prioritization and development of Phase 1 use cases.

1.1.4 IEDR Prioritization Framework

To prioritize the use cases to be addressed in Phase 1, the IEDR Program Team created a use case prioritization framework. This framework assessed use cases based on impact (the extent to which a use case enabled Climate Leadership and Community Protection Act goals) and feasibility (the degree to which a use case can be easily implemented, with a focus on cost and time requirements). This use case prioritization framework was used throughout Phase 1 and addressed during six AG meetings where the application of the prioritization framework was reviewed. The prioritization framework was also used to create the proposed use case roadmap for Phase 2.

Figure 2. Use Case Prioritization Framework

Use cases were prioritized on an impact and feasibility matrix. As shown in Figure 2, prioritization results were divided into quadrants correlating to priority level: I Highest Priority, II Strategic Solutions, III Worth Pursuing Later, and IV Lowest Priority. For the Phase 2 roadmap, the IEDR Program Team also normalized the results so that each stakeholder group response was represented equally and to avoid any one stakeholder group from skewing the results.

1.1.5 IEDR Releases

Per the program's focus on user value and the guiding principle of providing value to New York State, the program elected to create an IPV of the IEDR in advance of the release that would meet all Phase 1 requirements as detailed in the IEDR Order. The decision to create an IPV was motivated by a desire within the program to set a constructive tempo for IEDR development, demonstrate early value to the public and IEDR stakeholders/users, and identify as many challenges in data acquisition or platform development as early as possible to accelerate their resolution.

Figure 3. IEDR Milestone Roadmap

The IPV is the first release of the platform to the public. It addresses three of the highest rated priority use cases based on stakeholder input and AG review and demonstrates functionality of the IEDR platform. The IPV use cases and the data that supports them will be instrumental to the rest of Phase 1 and early Phase 2 use cases. The IPV was launched on March 31, 2023.

The MVP release will create the go-to resource for multiple stakeholders working to achieve New York State's clean energy goals by rapidly iterating on the IPV and launching new use cases that provide end-to-end solutions for key challenges. The proposed MVP scope is displayed in Table 1 below. The use case "Aggregated Consumption Energy Data for Community Choice Aggregation (CCA)" has been moved out of MVP per a feasibility analysis and will be developed in parallel to Phase 2.

Table 1. Scope of IEDR MVP

Access to Basic Rate Data and Tariff Book for Individual Rate	
Description	This use case is comprised of features that enable those estimating energy customer bills to access the data they need to do so more easily and precisely than they are currently able to: 1. Make rate parameters that change slowly available in structured format: Rate periods, Holidays, Seasons, minimum and other fixed charges, and baseline allowances (aka tiered block rates). 2. Facilitate easier navigation to the section of the tariff book where rate parameters for a given rate can be found, which includes easier navigation to both the most recent version of the tariff book itself and historical versions of the tariff book.
High Level Data Needs	Utilities: All data specification parameters (tariff service classes, rate holidays, etc.) for slowly changing dimensions for priority rates DPS: Tariff book PDFs
Expected Outcome	• Better experience accessing data, understanding data, and using data to drive valuable outcomes (renewables, EV, heat pumps) • Reduced calls to utility call center for access to / explanation of rates and tariffs by ESE on behalf of customers • Fewer steps in process to access rate and tariff data • Currently, anyone that wants to estimate customer bills are manually navigating through complex tariff data books if they need parameters more precise than an estimated $/usage unit (from for example historical customer bill totals from a secondary source). We aim to significantly reduce the time required to do this work.
DER Siting – Environmental, Community, Terrain, Land, and Property Assessment	
Description	This use case will support local governments and community solar developers who would want to accelerate the process for identifying, selecting, and negotiating site agreements for community solar projects in order to deploy available capital more quickly and increase the amount of clean energy

	available to NY electricity customers. In addition to electrical infrastructure information which will be foundationally covered in the IEDR IPV release, these end users need environmental, community, and property data to be able to reliably identify feasible sites for solar development. The IEDR will serve as a one-stop shop for standardized DER data and will operationalize the demand flexible marketplace.		
High Level Data Needs	3rd Party • Parcel • Zoning • Additional Basemaps	• Terrain/Landform • DAC Regions • Land Cover	• Critical Environment Areas • Civil Boundaries • Climate Zones
Expected Outcome	• Better experience accessing data, viewing data, understanding data, and using data to drive valuable outcomes • Fewer steps in process to access parcel and land data • Easier way to filter parcels and save results • Currently, anyone that wants to identify or select sites for solar projects are gathering information from multiple government websites and pdf resources. We aim to significantly reduce the time required to do this work		
EIAT Hosting Capacity & DER Map Enhancements			
Description	This use case will support DER developers, DER owners and/or utilities to better understand and accelerate the interconnection approval process for planned / installed DER systems, so that DER projects can deliver clean energy to customers as soon as possible. Accelerating the interconnection process also includes a clearer understanding and evaluation of the process of siting the location of a DER installation. These goals could be achieved by enhancing existing hosting capacity maps through standardization, the addition of interconnection approval time and interconnection cost information, the inclusion of utility upgrade project information, and corresponding forecast of hosting capacity updates.		
High Level Data Needs	Utility • Interconnection costs and approval times • Utility upgrade project data		
Expected Outcome	• EIAT usability enhancements • Consistent state-wide experience for DER Providers and Owners • Reduced time to deploy DERs for Providers • Improved DER siting based on interconnection queues and timing		
Efficient and Effective Access to Existing Customer Billing Data			
Description	Current access to bill data is problematic as the only way to access bill image PDFs is through a customer online account, which brings risks. An energy manager obtains authorization from customers at contract signing to share data access with a data provider to access data. This use case would grant access electronically for a list of properties at the time of energy manager and data services contract signing, with no additional action required on behalf of the customer after that for the data services provider to access data for those properties at a later point within the authorized timeframe. Currently, separate actions are required for each customer account at the time of the authorization request. Ideally, customer consent can be granted both in advance and at the moment of the request, and it should be possible to grant access via mobile phone. This use case would help improve the timeliness of bill payment, reduce late fees, and verify customer savings.		
High Level Data Needs	Utility • Customer Data • Billing Data • Usage Data • Complete set of data representing usage, charges, and transaction data, with 100% accurate, machine-readable representation of all elements from customer bills • Relationship between unique property ID, service points, addresses, meters, accounts billed, and bill images		
Expected Outcome	• Consistent statewide Green Button Connect (GBC) experience • Save users time and resources accessing bill data • Reduce time and resources spent managing out of date authorization documentation and bill data • Increase number of customers who authorize use of their bill data to users • Increased customer program participation enabled with bill data analysis		
Find and Filter Rate Options Across NYS IOU Utilities			
Description	This use case will support Energy Service Entity (ESE) or government staff members who want to view a list of rates/tariffs across New York State utilities filterable by key criteria (e.g., rate name, rate type, location, etc.) in order to quickly navigate to the pertinent rate information. This use case is driven by a need to be able to access rate and tariff information in a consistent and machine-readable format that does not require an ESE or government staff member to have to manually review individual PDFs over time or		

	visit individual utility websites to see what the available rates are. This use case will allow users to export the list in order to use it for analysis and integration with other analysis tools.
High Level Data Needs	Utility: Rate lists per utility and Development Team jointly developed specification for priority rates
Expected Outcome	• Increased enrollment in TOU rates • Increased participation in DR programs • Increased standardization in rate and tariff attributes across utilities • Increased awareness and understanding of rates and tariffs by stakeholders

1.1.6 Value to New York State

New York State recognized early that access to data is essential to cost-effectively decarbonize its energy system. The passage of the Climate Leadership and Community Protection Act (the "Climate Act" or CLCPA), in New York and the Infrastructure Investment and Jobs Act (IIJA) and Inflation Reduction Act (IRA) at the federal level increase the necessity for effective access to useful energy data.

A successful IEDR will provide lasting value to a broad range of stakeholders engaged in and affected by New York's nation-leading Climate Act commitments. Access to useful energy data provided by the IEDR will enable analyses that inform investment decisions, identify operational inefficiencies, monitor the fulfillment of policy objectives, promote innovation, and encourage new business models.

For example, in December 2022, the Climate Action Council, established under the Climate Act, released its final scoping plan, the collection of strategies New York State aims to enact to achieve economywide decarbonization by 2050. One of those strategies, *E.4.Support Clean Energy Siting and Community Acceptance,* calls for creating a "Clean Energy Development Mapping tool" for local communities. The use cases in the IEDR IPV will begin to address this need, and additional use cases included in the MVP will further deliver capability needed for this strategy. The Final Scoping Plan contains more than 12 strategies (in Transportation, Buildings, Electricity, Local Government, and other areas) that a fully developed IEDR will, or with reasonable modifications could, enable, support, or satisfy.

Likewise, the IEDR will be uniquely valuable as New York State works to capture and execute available funding under the IRA.

These examples of value to be delivered by the IEDR—and the many more aligned to Climate Act, IIJA, and IRA needs—are enabled by progressing through the use case screening process and identifying use cases that are both high priority and quickly implementable. The selection of use cases for Phase 1 was a key strategic decision for the program, aimed at developing early iterations of the platform that build stakeholder trust and showcase the platform's value to end users to foster ongoing use and engagement.

1.2 Program Costs Incurred during Phase 1

Phase 1 was accomplished through core and non-core program activities. Core program activities were completed by three main program contributors under the direction of NYSERDA: the Program Manager (Deloitte), the Utility Data Advisor (Pecan Street), and the Solution Architect and Development Team (the "Development Team," led by E Source). Non-core program activities were completed by the jurisdictional utilities (as a key data supplier and a potential IEDR user) and non-

jurisdictional utilities (PSEG LI) to support the program through initial data transfer needs and prepare for future data transfers as guided by the IEDR program.

1.2.1 Core Program Costs

Expenditures through Phase 1 are within the expected estimated range for all program contributors. The Program Manager was selected and brought under contract in October 2021. From that date until the award of the Development Team contract in November 2022, the Program Manager was responsible for all aspects of program execution, including stakeholder engagement, program communications, use case identification and development, early solution architecture, and Development Team procurement support. As a result, the Program Manager's expenditures reflect most core program costs to date. Activities within the program's technical scope transitioned to the Development Team beginning in November 2022. The majority of core program costs to be incurred during the remainder of Phase 1 will result from expenditures of the Development Team, reflected in the IPV and MVP releases. Throughout Phase 1, the Utility Data Advisor has had a specific role in providing input to DPS staff on the adequacy and justification for non-core (i.e., utility) activities and costs during Phase 1 (including planning for Phase 2).

The Program Sponsor manages all IEDR program-related expenditures in compliance with NYSERDA's budget and accounting policies and principles. Core program costs incurred by program contributors through February 1, 2023, are displayed in Figure 4 and Table 2.

Figure 4. Actual Program Costs Incurred As Of April 1, 2023

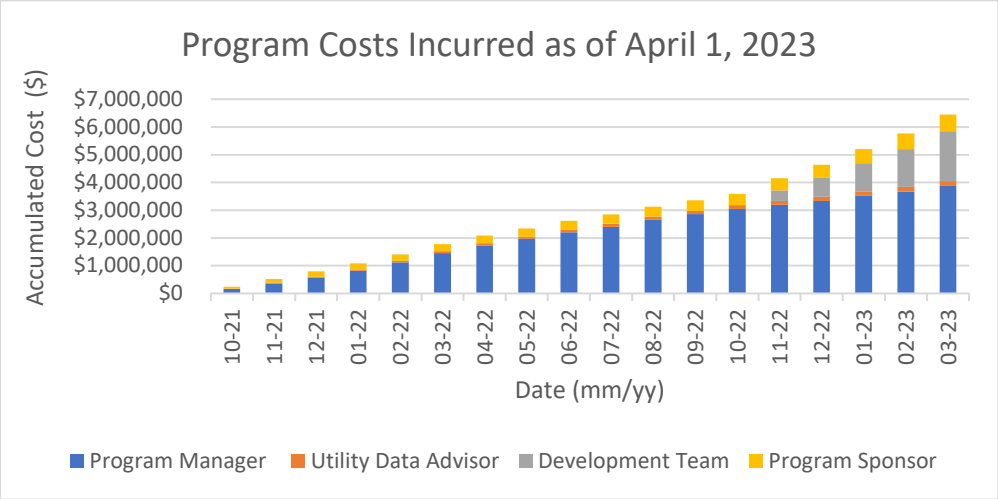


Table 2. Actual Program Costs Incurred As Of April 1, 2023

Calendar Year	Month	Program Manager	Utility Data Advisor	Development Team	Program Sponsor
Q4 2021	Oct-21	$157,722.50	$14,712.50	-	$65,400.00
	Nov-21	$198,877.50	$22,687.50	-	$65,400.00
	Dec-21	$204,387.50	$6,531.25	-	$65,400.00
Q1 2022	Jan-22	$256,362.50	$9,281.25	-	$18,433.00
	Feb-22	$299,217.50	$8,043.75	-	$18,433.00
	Mar-22	$340,320.00	$7,768.75	-	$18,433.00
Q2 2022	Apr-22	$276,857.50	$8,731.25	-	$20,077.33
	May-22	$233,535.00	-	-	$20,077.33
	Jun-22	$239,250.00	$26,062.50	-	$20,077.34
Q3 2022	Jul-22	$195,245.00	$7,906.25	-	$21,039.67
	Aug-22	$248,137.50	$10,793.75	-	$21,039.67
	Sep-22	$205,240.00	-	-	$21,039.66
Q4 2022	Oct-22	$194,285.04	$11,550.00	-	$31,624.00
	Nov-22	$142,360.17	$6,256.25	$382,536.75	$31,624.00
	Dec-22	$143,689.43	$3,162.50	$305,615.25	$31,624.00
Q1 2023	Jan-23	$183,585.93	$11,756.25	$328,104.29	$45,000.67
	Feb-23	$154,139.51	$10,450.00	$349,346.00	$45,000.67
	Mar-23	$197,332.55	$11,206.25	$431,435.50	$45,000.66
	Total	**$3,870,545.13**	**$176,900.00**	**$ 1,797,037.79**	**$604,724.00**

Costs are estimated and averaged throughout the remainder of Phase 1 and remain on track:

Figure 5. Estimated Average Program Cost Throughout Remainder Of Phase 1

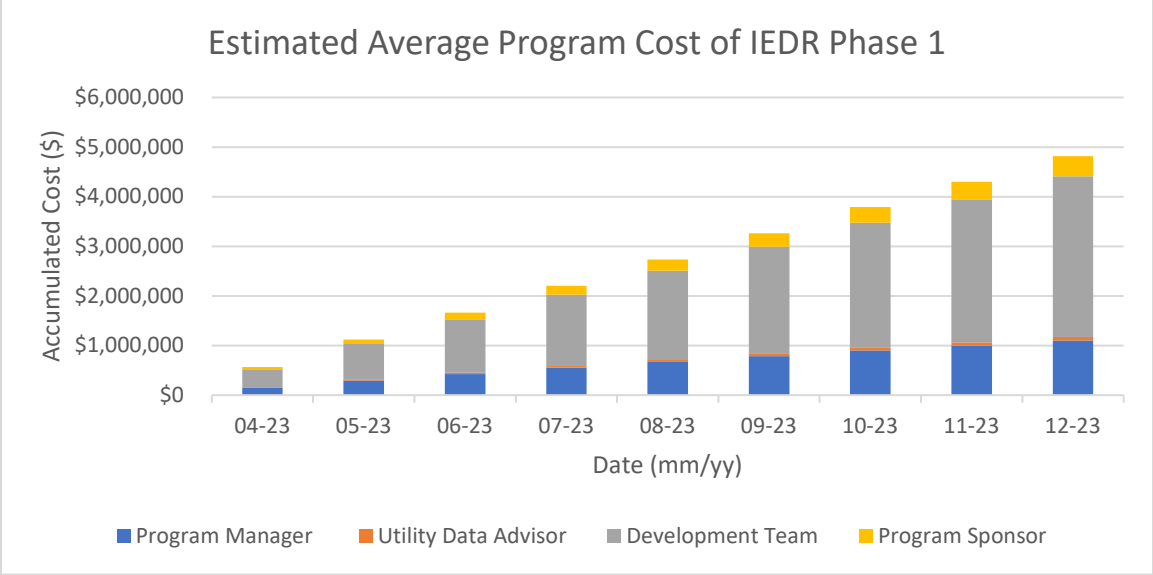


Table 3. Estimated Averaged Program Cost Throughout Remainder Of Phase 1

Calendar Year	Month	Program Manager	Utility Data Advisor	Development Team	Program Sponsor
Q2 2023	Apr-23	$ 155,000.00	$8,000.00	$360,000.00	$45,000.00
	May-23	$ 140,000.00	$8,000.00	$360,000.00	$45,000.00
	Jun-23	$ 130,000.00	$8,000.00	$360,000.00	$45,000.00

Q3 2023	Jul-23	$ 130,000.00	$8,000.00	$360,000.00	$45,000.00
	Aug-23	$ 115,000.00	$8,000.00	$360,000.00	$45,000.00
	Sep-23	$ 115,000.00	$8,000.00	$360,000.00	$45,000.00
Q4 2023	Oct-23	$ 115,000.00	$8,000.00	$360,000.00	$45,000.00
	Nov-23	$ 100,000.00	$8,000.00	$360,000.00	$45,000.00
	Dec-23	$ 100,000.00	$8,000.00	$360,000.00	$45,000.00
	Total	**$1,100,000.00**	**$72,000.00**	**$3,240,000.00**	**$405,000.000**

Estimated Phase 1 totals:

Table 4. Expected IEDR Cost Totals Per Selected Program Contributor

	Program Manager	**Utility Data Advisor**	**Development Team**	**Program Sponsor**	**Total Program**
Contributor	Deloitte	Pecan Street	E Source	NYSERDA	Total Program
Total	$4,970,545.13	$248,900.00	$5,037,037.79	$1,009,730	$11,266,212.92

2 Phase 2 Use Case and Data Roadmap

2.1 Background

Based on the successful activities in Phase 1, the IEDR Program has a reliable plan for delivering the value of the IEDR in Phase 2 in accordance with the IEDR Order.

Identification and development of use cases have been underway in the IEDR Program since the "Department of Public Service Staff Whitepaper Recommendation to Implement an Integrated Energy Data Resource" paper[6] (which contained Appendix B listing 33 possible use cases) and has included all stakeholder engagement activities summarized in the review of Phase 1. The whitepaper can be found for further reference in the Appendix. Use cases identified as valuable but not selected for IPV or MVP development are planned for Phase 2. The IEDR Program expects that additional use cases will emerge once the platform is available, as users begin to identify new sources of value from the data and tools available on the IEDR. Similarly, the implementation of the Climate Act and progress in capturing IIJA and IRA opportunities will likely drive additional IEDR use cases.

The IEDR program has also been working to identify the data needed to support use cases. Again, the DPS staff whitepaper provides an initial list of data types needed, and the sources of much of this data are the electric, gas, and steam utilities in New York. However, valuable non-utility data has also been identified and is essential to many use cases. As use cases are developed, an early step in their development is linking data needs to the use case. Similar to stakeholder engagement for use case development, the IEDR Program Team has conducted many meetings—through the UCG and in one-on-one sessions—with the utilities and other possible sources of needed data. The IEDR Program comprehensively tracks the data required for use cases. Source data can be used to support multiple use cases; for that reason, data transfer to the IEDR is an essential prerequisite for addressing use cases and delivering value.

[6] State of New York Department of Public Service, "Case 20-M-0082-Proceeding on Motion of the Commission Regarding Strategic Use of Energy Related Data" *Department of Public Service Staff Whitepaper Recommendation to Implement an Integrated Energy Data Resource*. May 29, 2020. Page B1-13. *http://documents.dps.ny.gov/public/Common/ViewDoc.aspx?DocRefId=%7b43298F6A-3CA4-435F-BC9D-6DEF6F575836%7d*

To support planning for Phase 2, the IEDR Program Team has developed a roadmap for use case development and data acquisition. This proposed roadmap includes six themed iterative releases, with four to seven use cases per release, from approximately December 2023 to July 2026. The IEDR Program has also developed an associated data acquisition component of the roadmap. Because data availability precedes use cases, and individual data elements can support multiple use cases, data acquisition is significantly front-loaded in Phase 2. As shown in Figure 7, the six planned releases will:

- Expand Phase 1 successes by adding use cases that complete the user stories (e.g., community energy siting) for which the IPV and MVP use cases were foundational and expand the user community accordingly
- Accelerate climate action by focusing on use cases that are the highest leverage to support Climate Act final scoping plan strategies and capture opportunities in federal legislation (e.g., IIJA, IRA)
- Deliver advanced capabilities based on maturing user needs and the anticipation of expanding requirements to support the growth of clean energy solutions as New York leads the nation in climate action and energy transition

Table 5. Phase 2 Themes and Taglines

	Expand Phase 1 Successes *Q1 2024–Q4 2024*	**Accelerate Climate Action** *Q1 2025–Q4 2025*	**Deliver Advanced Capabilities** *Q1 2026–Q3 2026*
Phase 2	*Continue growing Phase 1 momentum by building on existing successes and providing expansive, powerful solutions to a wider audience.* *This encapsulates Release 1 and 2.*	*Create solutions that accelerate climate action and address extensive and complex challenges reported by stakeholders.* *This encapsulates Release 3 and 4.*	*Develop advanced capabilities within New York State that solve longstanding barriers to equitable stakeholder energy access.* *This encapsulates Release 5 and 6.*

The proposed roadmap provides a solid basis for the Phase 2 budget proposal. These use cases may be updated, deferred, split into multiple use cases, or otherwise modified or removed in the final roadmap as a result of data availability, evolving stakeholder needs, the identification of higher priority use cases, or unforeseen shifts in the market. The IEDR roadmap will need to evolve over Phase 2 to ensure use cases remain relevant and of the highest value to stakeholders in a rapidly evolving industry. While updates may be required, the IEDR Program Team conducted extensive stakeholder engagement that supported the selection of use cases for Phase 2, and the Program Team is confident that the final use case count will meet the IEDR Order mandate of 40-50 deployed use cases by the end of Phase 2.

This stakeholder engagement is summarized below.

For a complete list of all proposed use cases for Phase 2, please see Table 6 below. Please see the Appendix A for detailed information on each use case.

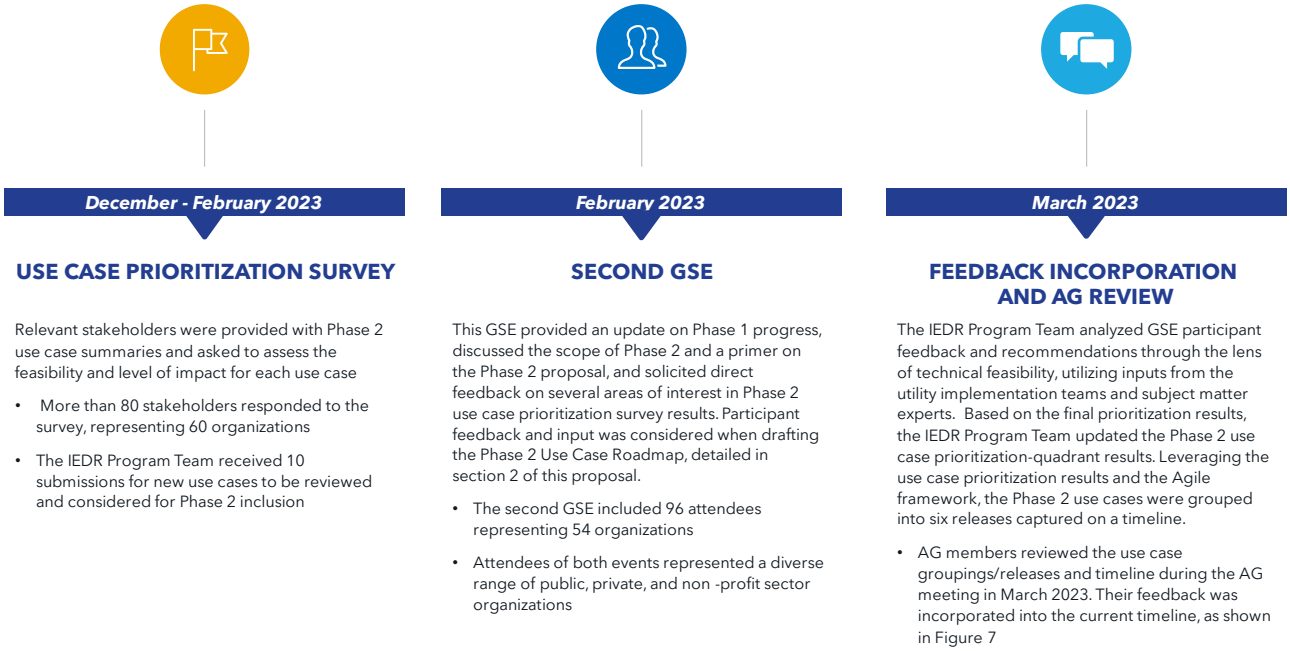
Table 6. Alphabetized Phase 2 Use Case Titles

#	**Phase 2 Use Cases Titles**
1	Accelerate Distributed Energy Resources (DER)/Commodity Installation Implementations
2	Accelerated Distributed Energy Resource (DER) Siting
3	Accelerating Electric Vehicle Supply Equipment (EVSE) Siting and Program Opportunities
4	Accessible Distributed Energy Resources (DER) Interconnection (Hosting Capacity) Information
5	Aggregated Customer Data Analysis for Improved Energy Efficiency Programs
6	Building Electrification Site Identification
7	Customer-Initiated Customer Usage and Billing Data Sharing
8	Customer Meter Data Access upon Enrollment in Demand Response (DR) and Distributed Energy Resources (DER) Programs
9	Determine Customer Site Hosting Capacity
10	Developing and Implementing More Effective Clean Energy Strategies and Programs
11	Distributed Energy Resources (DER) Registry
12	Efficient and Effective Access to Existing Customer Billing Data
13	Electricity Emissions Data for Improvement of Greenhouse Gas (GHG) Emissions Regulation
14	Enable Real-Time Access to Smart Meter Data via Zigbee/Wi-Fi
15	Enable Whole-Building Energy Consumption Analysis
16	Enhance Identification of Heating, Ventilation, and Air Conditioning (HVAC) Energy Efficiency Opportunities
17	Enhanced Community-Distributed Generation (CDG) Customer Data Coordination
18	Enhancing the Implementation of Customer Time-of-Use Plans for Electric Vehicle (EV) Charging
19	Explore Aggregated Usage Data Combined with Other Data to Find New Customer Target Groups for Distributed Energy Resources (DERs)
20	Facilitate DER Wholesale Services
21	Implementing Community Choice Aggregation (CCA) Programs
22	Improving Access to Customer Data for Distributed Energy Resources (DERs)
23	Improving Reliability Benchmarking for Utility Operational Performance
24	Informing and Enhancing Utility Programs to Support Disadvantaged Communities (DACs)
25	Performance Evaluation of Distributed Energy Resources (DERs)
26	Rate/Tariff Data Access Part 1 and 2
27	Reducing Energy Cost Burden for Low- to Moderate-Income (LMI) Households
28	Reduced Sales Costs for Distributed Energy Resources (DERs) Developers Through Comprehensive Customer Data Access
29	Renewable Metrics to Establish Renewable Gas Program
30	State of Distributed Energy Resources (DER) Dashboard
31	Unlocking and Operating Flexible Demand Response (DR) Programs at Scale

2.1.1 Phase 2 Use Case Roadmap—Stakeholder Engagement

To create a development timeline aligned to stakeholder and end-user criteria and needs and further prioritize Phase 2 use cases, the IEDR Program Team launched the Phase 2 Use Case Prioritization Survey, collaborated closely with the AG and Steering Committee, and facilitated stakeholder events, which are described in greater detail below in Figure 6.

Figure 6. Phase 2 Use Case Roadmap Stakeholder Engagement Timeline

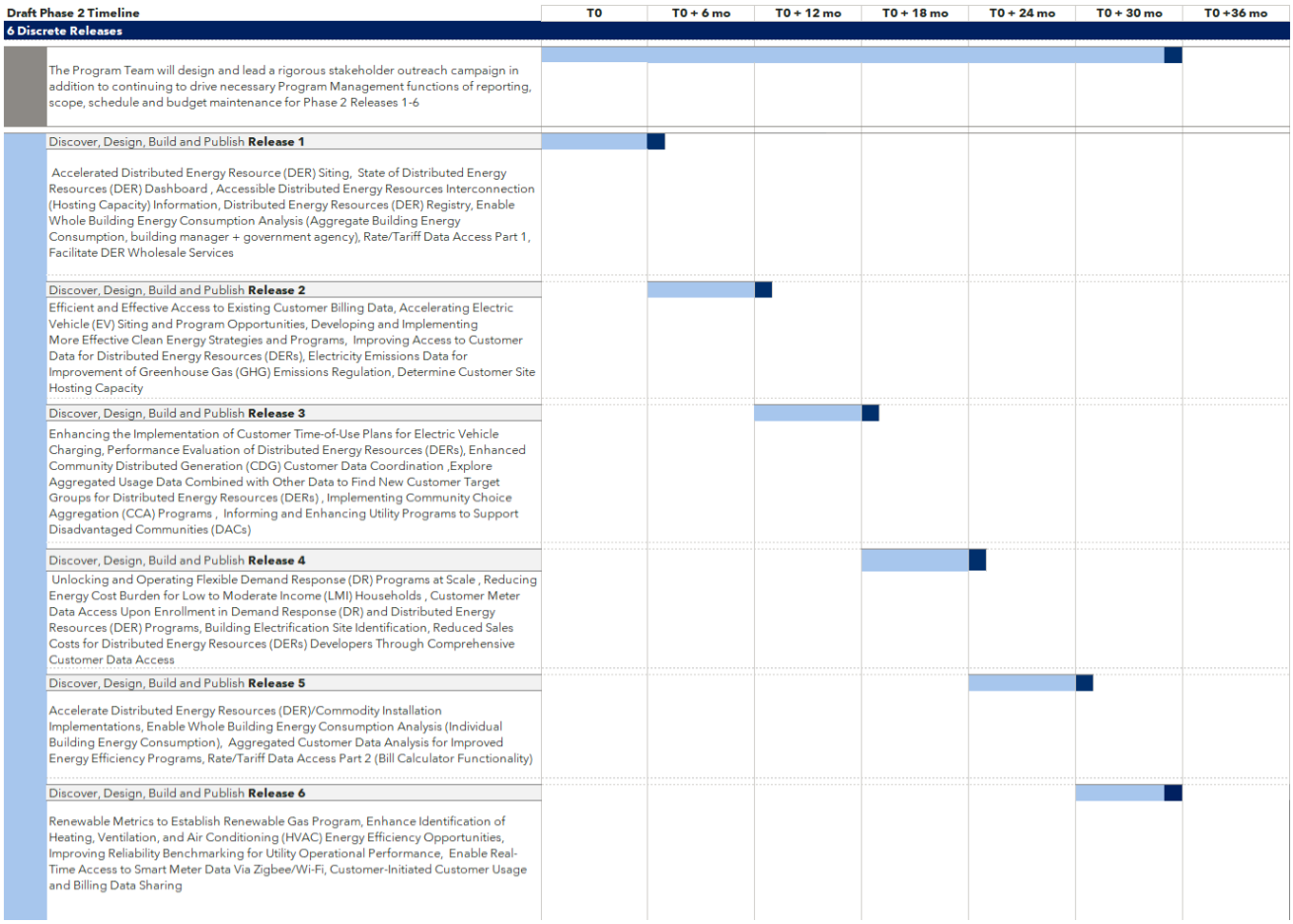


2.2 Proposed Use Case Roadmap

As mentioned above, Figure 7 captures the envisioned Phase 2 releases and timeline based on stakeholder input, AG feedback, and other relevant considerations. This initial timeline assumes a six-month completion timeframe for each release at the beginning of Phase 2 (assumed Q4 2023) through July 2026.

The IEDR Program Team will design and lead a rigorous stakeholder outreach campaign and continue to drive necessary program management functions of reporting, scope, schedule, and budget maintenance for Phase 2 Releases 1 through 6.

Figure 7. Draft Phase 2 Timeline and Use Case Roadmap



2.3 Data Vision and Proposed Acquisition Sequence

Due to the complex and wide-ranging scope of Phase 2 data needs, a vision statement is needed to serve as a goal to reference and work toward. The vision statement describes the proposed value of the data required in the system and the guidelines that should govern data acquisition and incorporation. The vision statement is provided below.

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*To support the development of a fully featured and fully operational platform, Phase 2 of IEDR should **prioritize the accelerated acquisition/transfer of all data** identified by program stakeholders as necessary across remaining use cases. Considering the data already made available to support use cases in Phase 1, the first two themes of Phase 2 releases will be structured so that all remaining data needs will be addressed. Incorporation of this data into the IEDR platform will adhere to **standardized data quality and integrity specifications and follow all privacy and security requirements** contained in the DAF as adopted by the PSC.*

The IEDR Program Team performed an initial analysis of the data needs for each use case, as shown in Tables 4 and 5, categorized by utility and non-utility data type. Use case requirements will drive standardized data specifications. The utility data needs have been communicated directly to the

utilities that informed their budget estimates, which will be captured in separate filings. The tables below and the timeline in Figure 7 assume that the appropriate data transfer mechanisms will be in place between the utilities and the IEDR during Phase 2.

Regarding non-utility data needs, as development begins in Phase 2 in the future, additional non-utility data acquisition may be required based on the development and discovery of additional use cases. These data needs align with the Commission Order.

Table 7. High-Level Net-New Utility Data Access Needs by Phase 2 Themes

Expand Phase 1 Successes	**Accelerate Climate Action**	**Deliver Advanced Capabilities**
~Q1 2024–Q4 2024	**~Q1 2025–Q4 2025**	**~Q1 2026–Q3 2026**

• Coordinated Electric System Interconnection Review (CESIR) analysis
• Energy Storage Hosting Capacity Analysis
• EV Loading-Serving Capacity Analysis
• Distributed Generation (DG) Cost Sharing
• Location System Relief Value Analysis
• Information not specified in Appendix B of DPS staff's report required for the NYISO Meter Service Entity Meter Inventory process, including calibration testing information and dates of last test, potential transformers/current transformers equipment installed
• Demand-side management (DSM) (including DR) program enrollment or exclusions, DER type compatible with a DR program available within a utility territory
• Meter-to-building mapping data (where available) from utilities, derived from address data by IEDR, verified by IEDR users
• Customer-consented access to customer statement instances with limited metadata such as bill issue dates and URL references to access PDF bill images
• Complete set of tariff data parameters for IOU delivery and supply rates and rate eligibility requirements
	• DR event conditions (date, time, duration, dispatch instruction, participation instructions), opt-outs, and overrides per event per device type
	• Structured line-item level bill data, including but not limited to: CDG credits applied in dollars and kWh, specifically payment and other transaction details, and utility account CDG activity
	• OMS (outage management system) data with granular location data
	• Utility programs and incentives, prioritizing those for Disadvantaged Communities (DACs). Including: program eligibility requirements, incentive amounts per applicant, historical enrollment and incentives/benefits authorized via utility programs
		• Pipeline location/type, pipeline pressure
		• Standardized reliability metric data from all utilities, outage causes, major storm exclusion events, number of customers/hours affected
		• Where available from automated meter reading (AMR) /advanced metering infrastructure (AMI) meters, billing-quality 15-, 30-, or 60-minute-interval usage data (that has undergone the utility's validation, estimation, and edit process) available at <=12-hour latency for wholesale service reconciliation purposes including DR Aggregators
		• AMI meter provisioning to enable <=8 second interval customer authorized real time usage data access for registered ESEs via wireless Zigbee or Wi-Fi meter device pairing
		• Where available — depending on the meter — meter radio provisioning for consented ESE real time access to other timeseries data such as power quality
		• IEDR facilitates a standardized authorization process across NYS utilities and user community engagement on real time data access. IEDR does not itself access <=8 second interval data or real time data but instead serves to help provision access for authorized ESEs who will either store the data on a local device or upload it to a customer authorized cloud service for analysis
		• Utility inputs on methods used for deriving Representative Load Profiles from utility-provided 15-, 30-, and 60-minute interval customer usage data. Review of and feedback on methods adopted by the Development Team to generate Representative Load Profiles. This includes:
		  ○ Analytical methods used: e.g., clustering, outlier detection and handling.
		  ○ Sample fifteen-minute or hourly utility customer energy consumption AMI usage patterns of residential premises with certain characteristics for the Development Team to use as baseline for quality assurance testing. For example
		  ▪ Typical usage profiles within a rate
		  ▪ Aggregate whole building usage profiles of properties with (in)efficiently functioning heating metric thresholds

Table 8. High-Level Net-New Non-Utility Data Needs by Phase 2 Themes

Expand Phase 1 Successes	**Accelerate Climate Action**	**Deliver Advanced Capabilities**
~Q1 2024–Q4 2024	**~Q1 2025–Q4 2025**	**~Q1 2026–Q3 2026**

• Machine readable access to New York State specific incentives to be used for customer quotes that include savings
• DAC criteria data, spatial DAC area information, and identification of DACs
• The entirety of New York Independent System Operator (NYISO) DER information requirements
• Existing buildings, forecasted new buildings, and forecasted building modifications
• Existing EV fleet information
• Utility customer demographic data and historical weather
	• Energy usage customer demographics and premise characteristics displayed as a heatmap by zip code +4
	• Daily confidence intervals for the presence of existing DER by type, segmented at a minimum by "Confirmed via OEM," "Detected by disaggregation with high confidence," "Detected by disaggregation with medium confidence," and "not present or low confidence detection"
	• Peak EV charging day/times, charging patterns, adoption trends, ownership trends at the community level, patterns, expenditures for EV charging throughout the day, the time it takes for EVs to charge
	  ◦ Customer housing type
	  ◦ Non-utility weatherization assistance program data
	  ◦ Localized and time-based generator-specific historical and projected generation fuel mix
	• Greenhouse Gas (GHG) carbon dioxide equivalent (CO_2e) global warming potential (GWP) conversion factors per GHG used by different applications and studies (E Grid, NYC LL97)
		• Tree density
		• Flood plain information
		• Building attributes related to energy efficiency
		• Low carbon fuel (LCF) type/source, volume, British thermal unit (BTU) content, percentage blend, carbon intensity (CI) score, baseline, and LCF blend emissions

2.4 Identified Phase 2 Risks

The IEDR Order expresses an expectation that IEDR development will accelerate in Phase 2, with nearly 80% of all use cases being addressed during that Phase. While the IEDR Program has established a solid foundation during Phase 1, two significant risks remain that have the potential to threaten or delay the achievement of the Order's objectives: utility data availability, and implementation of the Data Access Framework Order.

First, utility data represents a significant segment of the total data required to enable Phase 2 use cases. As described earlier in this Proposal, the IEDR Program has engaged early and often with jurisdictional and non-jurisdictional utilities to identify effective means of making necessary data available for IEDR development. While some transfers of data have begun, the Joint Utilities have also identified issues that they believe limit their ability or necessity to make data available. Issues related to customer data were the subject of a petition[7] by the JU to the PSC seeking clarification.

[7] State of New York Department of Public Service, "Case 20-M-0082-Proceeding on Motion of the Commission Regarding Strategic Use of Energy Related Data" Joint Utility Petition Regarding Sharing Data with the Integrated Energy Data Resource. December 1, 2022
http://documents.dps.ny.gov/public/Common/ViewDoc.aspx?DocRefId=%7b43298F6A-3CA4-435F-BC9D-6DEF6F575836%7d

Additional issues related to electrical infrastructure data have also been identified during meetings with utilities.

A transparent, streamlined process and agreement for data sharing by the utilities, and storage and maintenance by the IEDR, will be key for timely releases to address the uses cases currently planned for Phase 2. Prolonged negotiations, intermittent emergence of new issues, or additional future petitions for clarification of technical (cyber) or legal (privacy) concerns about data transfer would likely result in delays in issuing new releases of the platform to address uses cases as planned in the Phase 2 roadmap.

Second, the timely implementation of the Data Access Framework (DAF) Order is important to maximize the value of the IEDR. Reliable, responsible access to the IEDR, enabled through the DAF, will encourage IEDR's broader adoption and use. If IEDR users are required to navigate a series of Data Sharing Agreements, Non-Disclosure Agreements, and other administrative requirements aligned to individual utilities, it would limit the ease of use of the IEDR and would likely have a chilling effect on user acceptance and repeat use.

3 Phase 2 Core Program Costs

Proposed costs associated with Phase 2 have been broken out into core and non-core program costs. The costs associated with the Program Manager (Deloitte), the Development Team (E Source), and the Utility Data Advisor (Pecan Street) comprise the core program costs. Table 6 shows core program costs listed by year and program contributor. Table 7 lists the licensing, travel, and other direct costs (ODCs) by year and program contributor. The Program Manager's costs have been front-loaded to align with the expectation of providing more support in the first half of Phase 2. Anticipated Phase 2 IEDR core program costs total $36,386,193.75.

In Phase 2, the Program Manager will focus on (1) managing the entire program and associated budget, plans, and schedule; (2) leading all the stakeholder engagements and strategic communications; (3) serving as a strategic advisor to NYSERDA to persistently and proactively identify ways to enhance and position the IEDR as the one-stop-shop energy-data platform in New York State enabling and supporting various current and emerging regulation and grant data needs, and; (4) supporting the Development Team as needed in further defining and detailing the Phase 2 use cases.

The Development Team will focus on and prioritize all development activities for the IEDR platform based on the Phase 2 use case roadmap. The Development Team will design, build, and operate the IEDR platform. Throughout Phase 2, the team will incorporate use cases listed in Section 2 of this proposal (including designing, testing, and deploying), reaching the use case count between Phase 1 and Phase 2 established by the IEDR Order. The team will continue to identify additional use cases emerging from the user experience of released iterations of the platform. As use cases are released, the Development Team will perform all operating functions to ensure all functionality and the performance specified for each use case.

As the Utility Data Advisor, Pecan Street will continue providing subject-matter expertise to support DPS staff. Although there is a planned reduction in Pecan Street's anticipated level of activity in Phase 2, continued support will be provided in (1) assisting DPS staff in reviewing each utility's data

quality, integrity, standardization, and accessibility of data sets required to enable IEDR use cases; (2) advising DPS staff on matters concerning the *DAF* as related to the IEDR development process, and; (3) identifying and tracking risks related to utility data, systems, and IEDR integration and proposing mitigation strategies and solutions whenever possible.

In Phase 2, the Program Sponsor will focus on (1) Providing the means and methods for expending the PSC directed funding related to the program and reporting of such expenditures and IEDR Program progress; (2) Ensuring robust stakeholder engagement throughout the life of the IEDR Program through multiple means of engagement and communication; (3) Monitoring adherence to the IEDR Program Charter by all program participants; (4) Helping the Program Manager investigate and resolve issues that could negatively affect the program's costs, schedule, or benefits; (5) work with the Program Manager to strategically grow the IEDR user base and coordinate IEDR development with existing and future IT resources to maximize the benefits derived from the platform and develop statewide resources cost effectively.

To support a greater focus on the Climate Act's goals of driving benefits to Disadvantaged Communities (DAC), NYSERDA is requesting dedicated administrative funds reserved for contracting with or reimbursing organizations supporting DACs and that possess insights critical to advancing DAC objectives. Specifically, this funding would be used for paid participation in requirements gathering workshops as well as user acceptance testing (UAT) focused on features designed to drive benefits to DACs. This funding will ensure that DAC use cases and functionality are prioritized, that IEDR DAC use cases are representative of end user needs, and that DAC stakeholders and subject matter experts are compensated for their time.

Table 9. Comprehensive Total Costs of Phase 2

Role	2024	2025	2026	Total
Program Manager	$2,949,057.67	$2,414,651.76	$2,136,204.21	$7,499,913.64
Development Team	$9,703,088.00	$8,806,442.40	$6,614,607.51	$25,124,137.91
Utility Data Advisor	$156,900.00	$156,900.00	$156,900.00	$470,700.00
Program Sponsor	$1,058,395.81	$1,096,512.13	$1,136,534.26	$3,291,442.20
Total	**$13,867,441.48**	**$12,474,506.29**	**$10,044,245.98**	**$36,386,193.75**

Table 10. Proposed Total Labor Costs of Phase 2

Role	2024	2025	2026	Total
Program Manager	$2,929,057.67	$2,394,651.76	$2,116,204.21	$7,439,913.64
Development Team	$6,233,688.00	$5,163,572.40	$2,789,594.01	$14,186,854.41
Utility Data Advisor	$151,900.00	$151,900.00	$151,900.00	$455,700.00
Program Sponsor	$762,326.33	$800,442.65	$840,464.79	$2,403,233.77
Total	**$10,076,972.00**	**$8,510,566.81**	**$5,898,163.01**	**$24,485,701.82**

Table 11. Proposed Total Licensing, Travel, And ODCs of Phase 2

Role	2024	2025	2026	Total
Program Manager	$20,000.00	$20,000.00	$20,000.00	$60,000.00
Development Team	$3,469,400.00	$3,642,870.00	$3,825,013.50	$10,937,283.50

Utility Data Advisor	$5,000.00	$5,000.00	$5,000.00	$15,000.00
Total	**$3,494,400.00**	**$3,667,870.00**	**$3,850,013.50**	**$11,012,283.50**

Table 12. Proposed Program Manager Labor Costs by Task

Task	2024	2025	2026	Amount
Strategic Communication and Program Integration	$297,596.55	$238,077.24	$208,317.58	$743,991.36
Stakeholder Engagement and Management	$595,193.09	$476,154.47	$416,635.16	$1,487,982.73
Program Schedule, Budget, Reporting	$595,193.09	$476,154.47	$416,635.16	$1,487,982.73
Technical Oversight and Phase 2 Use Case Support	$595,193.09	$476,154.47	$416,635.16	$1,487,982.73
Risk and Change Management	$446,394.82	$357,115.85	$312,476.37	$1,115,987.05
Total	**$2,975,965.45**	**$2,380,772.36**	**$2,083,175.82**	**$7,439,913.64**

Table 13. Program Manager ODCs

Program Manager	2024	2025	2026	Total
Travel	$20,000	$20,000	$20,000	$60,000

Table 14. Proposed Development Team Labor Costs by Task

Task	2024	2025	2026	Total
Project Management	$437,600.00	$370,860.00	$194,701.50	$1,003,161.50
UCG Engagement	$643,040.00	$636,762.00	$334,300.05	$1,614,102.05
Requirements Development and Documentation	$1,185,448.00	$1,218,260.40	$639,586.71	$3,043,295.11
Development, Configuration, Integration Testing	$3,385,400.00	$2,522,520.00	$1,324,323.00	$7,232,243.00
User Acceptance Testing	$311,800.00	$265,230.00	$139,245.75	$716,275.75
System Administration and Operation	$270,400.00	$149,940.00	$157,437.00	$577,777.00
Total	**$6,233,688.00**	**$5,163,572.40**	**$2,789,594.01**	**$14,186,854.41**

Table 15. Proposed Development Team ODCs (software licensing)

Development Team	2024	2025	2026	Total
Software Fees	$3,469,400	$3,642,870	$3,825,014	$10,937,284

Table 16. Proposed Utility Data Advisor Labor Costs Listed by Supporting Position

Task	2024	2025	2026	Total
Project management and cross team communication and coordination	$14,690.00	$14,690.00	$14,690.00	$44,070.00
Support DPS and Utility Coordination Group	$51,415.00	$51,415.00	$51,415.00	$154,245.00
Review Utility IEDR implementation plans (project, budgets, timelines, etc.)	$58,760.00	$58,760.00	$58,760.00	$176,280.00
Track Utility risks, issues, and relevant documentation	$22,035.00	$22,035.00	$22,035.00	$66,105.00
Total	**$146,900.00**	**$146,900.00**	**$146,900.00**	**$447,000.00**

Table 17. Proposed Utility Data Advisor ODCs

Utility Data Advisor	2024	2025	2026	Total
Travel	$5,000	$5,000	$5,000	$15,000

Table 18. Proposed Program Sponsor Budget

Task	2024	2025	2026	Total
Labor	$762,326.33	$800,442.65	$840,464.79	$2,403,233.77
In-person Events and Travel	$19,800.00	$19,800.00	$19,800.00	$59,400.00
DAC Stakeholder Engagement	$66,000.00	$66,000.00	$66,000.00	$198,000.00
Additional Support Services	$210,269.48	$210,269.48	$210,269.48	$630,808.44
Total	**$1,058,395.81**	**$1,096,512.13**	**$1,136,534.26**	**$3,291,442.20**

4 Phase 2 Non-Core Program Costs

The Phase 2 non-core program costs are composed of the anticipated Phase 2 costs for jurisdictional utilities, including:

- Central Hudson Gas & Electric Corporation
- Consolidated Edison Company of New York, Inc.
- Liberty Utilities (St. Lawrence Gas) Corp.
- National Fuel Gas Distribution Corporation
- Niagara Mohawk Power Corporation d/b/a National Grid (NMPC), The Brooklyn Union Gas Company d/b/a National Grid NY (KEDNY), and KeySpan Gas East Corporation d/b/a National Grid (KEDLI) (collectively, "National Grid")
- New York State Electric & Gas Corporation
- Orange & Rockland Utilities, Inc.
- Rochester Gas and Electric Corporation

In 2020, the Utility IEDR Implementation Teams submitted estimated costs for the entire IEDR Program (including Phase 1 and Phase 2) in response to the DPS staff Interrogatory/Document Request No. DPS-X1-9 Utility Cost Estimates for an Integrated Energy Data Resource Implementation (2020 IR).

Following from the instructions within the IEDR Order, "Given the need for the IEDR Phase 2 Proposal to include details on the efforts and investments necessary at each utility to implement Phase 2, the Utility IEDR Implementation Teams shall provide such input to NYSERDA to be incorporated into the report, through the Utility Coordination Group process.", the IEDR Program Team engaged with the jurisdictional utilities starting in Q4 2022 to support the submission of updated cost estimates for utility activities in Phase 2.

The IEDR Program Team used the 2020 IR as a starting point to create an updated request for Phase 2 budget estimates from the utilities titled "IEDR Phase 2 Utility Budget Instructions" (Appendix B). The IEDR Program Team also created an "IEDR Phase 2 Use Case Summaries and High-Level Data Requirements" document (Appendix C) to supplement the "IEDR Phase 2 Utility Budget Instructions" and provide additional information for the jurisdictional utilities to utilize while calculating their estimated Phase 2 costs. The IEDR Steering Committee reviewed and validated these materials.

The Phase 2 utility budget materials (including the "IEDR Phase 2 Utility Budget Instructions" and the "IEDR Phase 2 Use Case Summaries and High-Level Data Requirements") were shared with the utilities on December 20, 2022.

The jurisdictional utilities were instructed to submit updated cost estimates for Phase 2 only and to base their estimates on current and planned Phase 1 spend and deployment, current IEDR platform architecture, overall program timeline, and the "IEDR Phase 2 Use Case Summaries and High-Level Data Requirements."

In addition, utility respondents were encouraged to thoroughly read the DPS staff whitepaper, "Recommendation to Implement an Integrated Energy Data Resource" (particularly Appendix B in this whitepaper), and "IEDR Phase 2 Use Case Summaries and High-Level Data Requirements" to inform their responses. Assumptions regarding Phase 2 scope, duration, and approach were also provided.

The key assumptions provided by the IEDR Program Team to the jurisdictional utilities include the following:

- Program Phase 2 will expand and enhance the initial IEDR to incrementally enable 40 additional use cases.
- Implementing Phase 2 will require each utility to periodically compile and deliver additional distinct data types to what they currently deliver for Phase 1.
- The proposed Phase 2 use case summaries and high-level data requirements will be prioritized, refined, and built out into a Phase 2 Development Roadmap by the end of 2023.
- Sample data sets and production data flows supporting Phase 2 use case requirements will be required according to the agreed-upon Phase 2 Development Roadmap milestones to be determined by the end of 2023.
- Phase 2 will be completed in 30 to 36 months.
- All IEDR data elements will be collected, stored, and managed in a centralized platform. This centralized platform will be separate from NYSERDA's and the utilities' systems.
- Depending on data type and use case requirements, utility-provided data sets in the IEDR may be updated periodically. It is expected that most updates will occur weekly or monthly.
- Utilities may provide their respective data sets in their native form unless an agreed-upon alternative form brings mutual benefit to the IEDR program and ease of data production for the utility. The IEDR will integrate and normalize any data provided in a form required to support the IEDR use cases.
- All utilities will push their data to the IEDR through a secure standards-based interface such as SFTP or HTTPS and comply with a standard schedule agreed upon and communicated through the Phase 2 Development Roadmap. The interface and schedule standards will apply to all IEDR data sources.
- The utility will validate all data before they are delivered to the IEDR to ensure accuracy and quality to the extent possible.
- Each utility will determine and apply its own means and methods to compile its data and deliver those data to the IEDR platform through the agreed-upon interface.
- IEDR user access to utility-provided data in the IEDR will be governed according to the policies established in the DPS staff DAF whitepaper.

After additional discussions with the Utility IEDR Implementation Teams and given the nature of the jurisdictional utilities' data and confidential information, the decision was made for each utility to separately file their Phase 2 budgets directly with the Commission at the same time as this proposal is filed. The jurisdictional utilities' Phase 2 budget filings should be referred to for further details.

5 Conclusion

To support its nation-leading climate commitments, New York State has recognized the essential role that data access will play in achieving economy-wide decarbonization. The IEDR Program represents New York's commitment to implementing an authoritative digital platform to aggregate, integrate, and provide analysis of valuable energy data to support these commitments and other valuable objectives. The aggregated data sets available through IEDR will for the first time provide policy makers, investors, communities, and developers publicly available information to comprehensively inform future policies, investments, and business models. This "democratizing" of energy data through the IEDR Program is an example for other states as the IEDR continues to demonstrate value to a wide range of stakeholders.

The IEDR Program is meeting Phase 1 requirements and is positioned for success in Phase 2. Through extensive stakeholder engagement, the program has confirmed the value of responsible, reliable data access to a broad range of stakeholders. The Program successfully launched an IPV months before the end of Phase 1 and has been adding data and functionality continuously since, increasing the number of use cases addressed by the IEDR. Phase 1 has set the foundation for the Program; Phase 2 will build on this foundation and maximize the value to stakeholders as it incorporates and develops more use cases and valuable energy data sources. The priorities of stakeholders are reflected in the Phase 2 Data and Use Case Roadmap presented in this proposal. These identified priorities alone signal the broad and deep value that stakeholders see in the IEDR, and their excitement for its continued development.

The value of data access enabled by the IEDR is likely to grow substantially in Phase 2. The implementation of the Climate Act in NY, and the scale of investment in state-available programs driven by IIJA and IRA implementation will only make the data and analytics of the IEDR more valuable. As the IEDR demonstrates value through adoption, the data it provides will enable new and previously unanticipated applications by users. A virtuous cycle can emerge in which IEDR-provided data helps expand decarbonization activities, which themselves generate more data that is valuable to IEDR users.

The IEDR Program's plan for moving forward to accomplish Phase 2 of IEDR development is sound. The proposed core program budget is justified by the scope of technical activities expected in Phase 2. The program has identified specific risks (i.e., utility data availability and DAF Order implementation) that may affect its ability to address the use cases in the sequence proposed but has made contingency plans to continue IEDR development and creation of stakeholder value while these issues are addressed. As Program Sponsor, NYSERDA recommends approval of the IEDR Phase 2 Proposal, including the recommended IEDR Phase 2 budgets for the Program Sponsor, Program Manager, Utility Data Advisor, and Development Team.

Proposed IEDR Aggregated Phase 2 Use Case Summaries

Contents

Electricity Emissions Data for Improvement of Greenhouse Gas (GHG) Emissions Regulation

SUMMARY

This use case will support regulatory and local NY government agencies' emission regulation efforts by providing information on historic and projected carbon intensity of the electric grid serving municipalities statewide at various time intervals. Access to this information and ability for end users to complete secondary analysis will allow for

- more precise quantification of GHG emissions
- greater compliance with the local laws (like Building Performance Standard)
- and greater compliance with the regulations of New York City and its climate goals.

End users could also use emissions data to weigh investments in specific energy efficiency, distributed energy resource (DER), electrification, and renewable energy projects.

HIGH-LEVEL DATA NEEDS AND REQUIREMENTS

Historic average and marginal CO2 intensity of the electricity serving each municipality over multiple time intervals, municipality zones, and NYISO zone are needed. In addition, future projections of average CO2e intensity of electricity serving each municipality over multiple time intervals, and additional data on seasonal and peak and off-peak emissions factors will be necessary.

To implement this use case will require:

- Historic CO2 and emissions factor data displayed dynamically over different time intervals in a combination of visuals (table, chart, or bar format)
- Projections of seasonal emission factors, peak and off-peak periods displayed in a combination of visuals (chart, bar chart)
- Ability for end users to download and manipulate data provided easily for secondary analysis
- Charts indicating projected seasonal marginal emissions factors, projected marginal emissions for daily peak and off-peak periods, and both average and marginal projections showing CO2e intensity in time frames that can be defined dynamically at various levels of time granularity.

Enhancing the Implementation of Customer Time-of-Use Plans for Electric Vehicle (EV) Charging

SUMMARY

Energy service companies (ESCOs) will be able to utilize the IEDR to enhance and streamline the implementation of time-of-use rate plans for customer EV charging that will incentivize customers to charge their EVs during non-peak hours and help reduce stress on the grid during peak energy usage periods.

HIGH-LEVEL DATA NEEDS AND REQUIREMENTS

Anonymized 15-minute utility customer energy consumption data; utility customer and account data (including energy consumption and billing cost); EV charging patterns; EV adoption trends

To implement this use case will require:

- An understanding of EV ownership trends at the community level, patterns, and expenditures for EV charging throughout the day

- Ability to show savings and benefits to customers and reductions in stress on the grid. Ability to see changes to registered customers' charging behavior throughout the day
- Ability to understand where people are recharging vehicles, how long it takes, peak days / times.

Developing and Implementing More Effective Clean Energy Strategies and Programs

SUMMARY

Regulatory or government agencies (e.g., NYSERDA, City of New York, EPA) will be able to better understand customer energy use across sectors and various attributes or characteristics to

- conduct measurement and verification of program savings
- assess market baselines
- monitor market progress, and
- assess clean energy potential.

This will enable end users to design the most effective strategy and programs.

HIGH-LEVEL DATA NEEDS AND REQUIREMENTS

Identification of disadvantaged communities, anonymized utility customer and account data (including energy consumption and billing cost); installed, queued, and forecasted distributed energy resources (DERs); existing buildings; forecasted new buildings; forecasted building modifications; fuel type

To implement this use case will require:

- Availability of whole building energy consumption.
- Access to utility consumption data and/or consumption data trends for participants and nonparticipants in public programs.
- Distribution of fuels by fuel type and sector.
- Understanding of energy use intensity (EUI) (e.g., Total site energy use per sq. ft. for commercial and residential properties).

Informing and Enhancing Utility Programs to Support Disadvantaged Communities (DACs)

SUMMARY

This use case will support New York State (NYS) utilities to enhance the design and implementation of programs in disadvantaged communities by

- enabling utilities to identify the number of customers within a service territory likely to meet certain program eligibility criteria
- improving marketing and targeting of program offerings within DACs and improving the implementation and budgeting of programs to support environmental justice and low to moderate income households.

HIGH-LEVEL DATA NEEDS AND REQUIREMENTS

DAC criteria, non-utility weatherization assistance program data, customer account data, and data on available utility programs need to be consolidated in one place to identify customers in DACs and eligible programs for those customers, as well as new programs where it would be most beneficial.

To implement this use case will require:

- geographic display of DACs by census tract
- ability to apply various indicators or criteria related to DAC designation that may inform specific programs
- data on available utility programs and eligibility requirements
- utility customer data, such as historical enrollment in utility programs and heating fuel source

Reducing Energy Cost Burden for Low to Moderate Income (LMI) Households

SUMMARY

This use case will support state and local government and DER providers to identify potential customers who could most benefit from reduced energy costs, as well as better understand what interventions will most effectively reduce those costs by providing access to more granular energy consumption and cost data for utility customers. A more detailed understanding of cost data, including the ability to disaggregate data by fuel type, rate classification, geography, disadvantaged community criteria metrics, will allow state and local governments to help building owners and utility customers most in need make energy efficiency upgrades that reduce utility costs, identify bill assistance opportunities, and connect those customers with useful policies and programs. Being able to monitor these costs on an ongoing basis will help achieve environmental justice and equity goals.

Over time, stakeholders can use the data available from this use case to help grow the market for energy efficiency solutions. A more detailed understanding of the barriers facing cost burdened customers may also help energy efficiency providers and DER developers develop innovative approaches to reaching this underserved population. Individual, unconsented customer information would not be available as part of this use case.

HIGH-LEVEL DATA NEEDS AND REQUIREMENTS

utility customer and account data (including energy consumption and billing cost) utility customer demographic data, energy consumption type, building information (including tax lot number), rate class.

To implement this use case will require:

- Access to energy consumption data and total energy cost at the building level
- Ability to see consumption and cost data by month and changes over time.
- Ability to disaggregate data by fuel type, rate classification, geography, disadvantaged community criteria metrics

Accelerated Distributed Energy Resource (DER) Siting

SUMMARY

This use case will support local governments and community solar developers who want to accelerate the process for identifying, selecting, and negotiating site agreements for community solar projects in order to deploy available capital more quickly and increase the amount of clean energy available to NY electricity customers. In addition to electrical infrastructure information which will be foundationally covered in the IEDR Phase 1 release, these end users need environmental, community, and property data to be able to reliably identify feasible sites for solar development. This use case provides enhancements to electrical infrastructure data functionality provided in IEDR Phase 1 release, like more granular data on substation-bank level constraints, historical/archived hosting capacity data, and consolidated non-utility data in one central, public location. End users can download original datasets and employ built-in IEDR functionality to run analyses on available data to find areas of most feasible solar development. The IEDR will serve as

a one-stop shop for standardized DER data and will operationalize the demand flexible marketplace.

HIGH-LEVEL DATA NEEDS AND REQUIREMENTS

Additional electrical infrastructure data from utilities, up to date NYS environmental, community, and property data are necessary for this use case. The IEDR will also need to generate more tailored datasets based on data source information to meet end user needs most accurately.

To implement this use case will require:

- Provide data and to enable end users to assess the community's proclivity towards solar including zoning laws, solar moratoriums, and the impact on disadvantaged communities.
- Provide data to enable end users to assess specific parcels of land to understand size, ownership, taxes, title, road access and other property features.
- Provide data to enable end users to assess land across the state for environmental and physical factors to determine where a solar farm could be installed.
- Enhance existing electrical infrastructure data
- Functionality to view, manipulate and select data geospatially based on end user feasibility criteria

Improving Reliability Benchmarking for Utility Operational Performance

SUMMARY

This use case will improve NY utilities' system planning and reliability performance by enabling the comparison of detailed reliability data across utilities. This will make the analysis of utility system design standards and the identification of collaboration opportunities more efficient. With data on reliability metrics like System Average Interruption Duration Index (SAIDI), System Average Interruption Frequency Index (SAIFI), Customer Average Interruption Duration Index (CAIDI), and corresponding thresholds, utilities will be able to accurately benchmark their reliability performance and compare impacts of extreme weather events against other utilities in New York. In addition, with access to weather information from all utilities, each utility could improve their forecasting for event impact.

HIGH-LEVEL DATA NEEDS AND REQUIREMENTS

Geospatial data for reliability metrics including SAIDI, SAIFI, and CAIDI at system level, metric thresholds, outage causes, flood plain information, major storm exclusion events, and weather information per utility service area (number of systems affected, number of customers served, number of customers/hours impacted, tree density, likelihood of outage)

To implement this use case will require:

- Up to date, standardized reliability metric data from all utilities that can be displayed geospatially across utility service areas
- Up to date, standardized data from all utilities on outage causes, major storm exclusion events and weather information
- Method of displaying data in one central location in IEDR (dashboard, embedded data table etc.) that is easy to navigate, can be exported and used in subsequent analysis easily

Renewable Metrics to Establish Renewable Gas Program

SUMMARY

The use case will help utilities quantify, differentiate, and track various low-carbon fuels (LCFs) to manage the development of LCF production projects, pipeline injection points, and pipeline

blending of LCFs.

More specifically this use case will enable utilities to track types and volumes of LCF pipeline blending, quantify amount of natural gas displaced by LCF's, and assess the associated emissions benefits.

HIGH-LEVEL DATA NEEDS AND REQUIREMENTS

Pipeline location/type, pipeline pressure, fuels accepted, capacity (refreshed annually), LCF type/source, volume, BTU content, % blend, CI score, baseline & LCF blend emissions.

To implement this use case will require:

- The ability to locate pipeline injection points by zip code or county
- The ability to select a pipeline and view detailed information including capacity, LCF type, % blend, etc.

Implementing Community Choice Aggregation (CCA) Programs

SUMMARY

This use case will better enable local governments to plan and implement effective CCA programs. "CCA programs allow local governments to procure power on behalf of their residents, businesses, and municipal accounts from an alternative supplier while still receiving transmission and distribution service from their existing utility provider. CCAs are an attractive option for communities that want more local control over their electricity sources, more green power than is offered by the default utility, and/or lower electricity prices. By aggregating demand, communities gain leverage to negotiate better rates with competitive suppliers and choose greener power sources." Source: Community Choice Aggregation | US EPA

HIGH-LEVEL DATA NEEDS AND REQUIREMENTS

Aggregated community energy consumption by zip code or county, electricity total consumption, natural gas total consumption, installed capacity (ICAP) capacity tags, CCA eligibility. Customer-specific contract information for all eligible customers.

To implement this use case will require:

- The ability to view aggregated energy consumption per town/village/city
- The ability to view ICAP tags and CCA eligibility.
- Detailed customer information can be requested for eligible customers who did not opt-out once the initial opt-out period has closed.

Enhanced Community Distributed Generation (CDG) Customer Data Coordination

SUMMARY

This use case will enhance the coordination between distributed energy resource (DER) developers and their customers by streamlining access to their established customers' consumption and billing data, as well as CDG-specific utility account activity. DER developers will be able to

- review and maintain site allocations to maximize savings and CDG benefits for subscribers,
- audit account-level CDG activity to ensure proper CDG program management,
- bill the subscriber for CDG-related products more accurately, and
- maintain subscriber's insight into benefits and savings CDG participation.

HIGH-LEVEL DATA NEEDS AND REQUIREMENTS

Utility customer and account data (including energy consumption and billing cost). More specifically this includes, account number, rate class, load profile, avg. demand, housing type historical consumption and total amount billed. In addition, CDG credits applied in dollars and kWh, bank activity, read and bill dates) and utility account CDG activity are necessary.

To implement this use case will require:

- Close collaboration with utilities to create an efficient and secure consent process to share current and established customers' utility data
- Customer data coincident with bill cycle

Explore Aggregated Usage Data Combined with Other Data to Find New Customer Target Groups for Distributed Energy Resources (DERs) Use Case

SUMMARY

Users (ESE, DER developers, Aggregators, EVSE) need access to aggregated customer data to identify target customer types (i.e., service class, EV adoption, etc.) and locations (i.e., zip code, county) which will lower their customer acquisition costs. Users need to be able to view various types of network data (i.e., reliability, hosting capacity, installed DER) to determine target locations to more efficiently and effectively engage customers with their various clean energy products and services. Rate and Tariff eligibility criteria helps users discover customer segments with potential savings. Combining these three data sets in one centralized location and experience will enable users to identify priority geographies and customer types for their business development and marketing efforts.

Data Input:

- Network data (data source: utility)
  - Reliability data (System Average Interruption Duration Index (SAIDI) and System Average Interruption Frequency Index (SAIFI))
  - Local system needs
  - Hosting Capacity
  - Installed DERs
- Customer data (data source: utility)
  - Aggregate load profiles
  - Aggregate DER installed
  - Aggregate EV adoption
- Building (data source: NYSERDA, county, NYS tax etc.)
  - TBD - building types
- Rate and Tariff data (data source: utility)
  - Rate and tariff eligibility criteria
- Non Utility Data

- Census

Example Data output

- Aggregated Customer data by Tension Type
- Time of Use (TOU) rate periods for customers on a given TOU rate and aggregated potential load shift

User needs

- Interface: geospatial (i.e., customer to network need); tabular
- Search/filter: customer data attributes such as peak load, load profile, EV adoption, DER adoption and other attributes from the harmonized data sets.
- Export: download Excel, CSV; API

Reduced Sales Costs for Distributed Energy Resources (DERs) Developers Through Comprehensive Customer Data Access Use Case

SUMMARY

Users (ESE, DER developers, Aggregators, EVSE) need access to consented customer data to provide potential customers with quantifiable benefits their clean energy product/service will offer them. Users need to be able to view network related data (i.e., reliability data, hosting capacity, etc.) to determine target locations and product and services offerings to effectively engage customers. Rate and Tariff eligibility criteria will help users refine analysis and proposals to customers with their potential savings. Users who work with customers to gain their authorization to access the customer's data will be able to combine these three data sets together in a centralized location as they engage with prospective customers; this streamlined experience will save time and resources and improve the quality of proposals to customers.

Data input

- Network data (data source: utility)
  - reliability data at granular location (System Average Interruption Duration Index (SAIDI) and System Average Interruption Frequency Index (SAIFI))
  - local system need
  - Hosting Capacity
  - Installed DERs
- Customer data (data source: utility) **All Consented**
  - Customer account details (contact, address); (interval) consumption; service class, rate; Building ID
  - Load profile
  - DER installed
  - EV adoption
- Building data (data source: County)
  - Details (type)
- Rate and tariff data (data source: utility)
  - Rate and tariff eligibility criteria

User needs

- Interface: geospatial (i.e., customer to network need); tabular
- Navigation: Search/filter customer data attributes
- Export: download Excel, CSV; API

Customer-Initiated Customer Usage and Billing Data Sharing

SUMMARY

Users who are interested in saving on bills or transitioning to clean energy need to connect with ESEs who can provide them with products and services. Customers want to connect with companies and other organizations that can help them transition to clean energy. They want to gain a quick perspective on the programs available to them and proactively share their data to get quotes and guidance from multiple sources.

A variety of scenarios exist for users to connect with those service providers. For example, users may access a directory of service providers via NYSERDA's website or meet someone campaigning outside their grocery store. Rather than connecting directly with service providers, they may choose to connect via a trusted resource such as a community-based organization (CBO) who will connect with ESEs on their behalf. By allowing users to permission trusted resources to share their data and contact information with the ESE, multiple communication trips towards generating customer tailored estimates and comparing those estimates would be eliminated.

NOT INCLUDED IN THIS USE CASE

- The IEDR platform, per forthcoming data privacy regulation, will not use customer contact information shared by utilities for outreach initiated by ESEs. Customer contact information is only used for customer authentication. Whether or not customers themselves wish to share their contact information or other privacy sensitive information with assisting organizations such as CBOs and whether they will allow them to share with others will be up to the customer themselves.
- Sharing of whole building or other building level or use level de-identified data without customer consent.
- To give researchers and others access to customer usage Representative Load Profiles (RLP) will be made available to generate estimates of a "representative" customer for a given segment.

REQUIREMENT DEVELOPMENT NEEDS

- A variety of customer users need to provide extensive input to user experience and any data privacy concerns to assure informed consent.
- A variety of community-based organizations (CBOs, ESEs) that will not be registered with DPS but that work with other ESEs that are, should be consulted to ensure good user experience for CBOs and ESEs.
- Explore ways to encourage user input to report success following from data sharing as stories to inspire CBOs, ESEs and other customers in the state

DATA TRANSFER NEEDS

- Ability for customers and their chosen service providers or trusted assistant organization to verify mapping of service points to buildings
- Ability for customers to provide any additional information needed for modeling, with the option to share back to IEDR as well.
- Ability for customers to permission trusted parties to access and share the data for their apartment or building on their behalf — *note that this will require "Nth Party"/Agent access being finalized and approved as part of DAF*
- Ability for customers to start their user journey on the IEDR platform or elsewhere
- Ability for customer users to share a "de-identified" version of their data that does not contain any customer identifiers or exact address.

- Minimum one year of historical customer data for the purpose of generating a quote

HIGH-LEVEL DATA NEEDS

- Customer usage, billing, service class and rate
- Inputs needed for rate eligibility criteria
- Energy Program and incentive information with structured eligibility requirements

Accelerating Electric Vehicle (EV) Siting and Program Opportunities

SUMMARY

This use case will enable utilities, EV charger infrastructure providers, government agencies, or community organizations, to accelerate and scale the process for identifying sites/opportunities for development of a variety of EV charger offerings and programs. For energy service companies (ESCOs), the provision of customers' 15-minute utility customer energy consumption data will support their provision of lower priced time-of-use (TOU) energy plans for EV owners and the provision of lower energy rates during the evenings and weekends. This can save EV owners money and lead to customer led behavior that decreases grid stress in peak times. For utilities, access to existing fleet information, business sustainability and electrification goals, traffic patterns, existing EV infrastructure and registration information, site zoning, and new construction details allows for more efficient, customer-based and informed EV siting, fleet acceleration, and EV adoption propensity models.

In addition, providing data on insights on consumer buying patterns of EVs, models of consumer driving/recharging patterns, real estate (land/ multi-family housing (MFH)) information, building energy use (if MFH), and feeders with the greatest EV capacity allow government agencies and community organizations to target and site needed electric vehicle supply equipment (EVSE) in the low and moderate income (LMI) and disadvantaged community (DAC) areas, deploy available capital more quickly and increase the charging infrastructure in NY state and achieve policy goals (e.g., ensuring access for DACs and LMI Customers).

HIGH-LEVEL DATA NEEDS AND REQUIREMENTS

This use case will require 15-minute utility customer energy consumption data, spatial DAC area information, existing fleet information, electrical infrastructure information, like electrical infrastructure proximity and service capacity, business sustainability and electrification goals at the site level, and spatial EV siting data (parking lots, EV registration, installed EVSE equipment, site zoning, new construction, and electrical infrastructure).

To implement this use case will require:

- Visually clear and concise graph or chart highlighting the discount or reduced energy charges during the evenings and weekends when EV customers may be charging their vehicle
- DAC data, existing fleet information, and Business Sustainability and Electrification Goals presented in a tabular and spatial format (where applicable) that is downloadable in Excel or CSV format to further facilitate data analysis.
- EVSE siting data represented as tabular data with spatial relation so that the utilities can identify where suitable EVSE sitting opportunities areas are located. The information should also be downloadable in Excel or CSV format so that the utilities can easily download and conduct analysis on the data.

Building Electrification Site Identification

SUMMARY

This use case will support government agencies, community organizations and building electrification providers' efforts to identify, evaluate, and select opportunities for building electrification by providing the most relevant up to date data publicly in one location. End users can use information provided to

- upgrade existing electrification assessment platforms and
- estimate potential savings from switching to/implementing an energy measure for a specific project or portfolio of projects.

This will then help them identify the most eligible buildings, with the end goal of decreasing the amount of fossil fuels used in NY buildings.

This use case will achieve these goals by providing access to granular information regarding hosting and load capacity, such as substation load factor and historical/forecasted hosting capacity. Additional information on circuit average loads and peaks updated on a monthly cadence will also be included, so that end users can determine the degree to which a customer site is connected to the distribution system operator's (DSO) network. Lastly this use case will provide customer/property class data, tariff ID, climate zone, as well as baseload energy solution load shape data refreshed at least annually.

HIGH-LEVEL DATA NEEDS AND REQUIREMENTS

Five categories are needed:

- Hosting capacity data
- Service capacity data — Service address, current service capacity, maximum available capacity
- Distribution Type Data — Electric distribution type, circuit ID, circuit voltage, circuit load
- Building data — Building year of construction, building type, building size (square feet), available outdoor area, building height, building location information, service address, fuel type and utility consumption for all fuel types
- Data specific to utility upgrades / projects specific to the building — Scheduled upgrade start/end date, utility upgrade plans, retrofit project data

To implement this use case will require:

- Data on circuit/distribution details for a building at a level of detail that allows end users to determine feasibility of electrification (e.g., heat pumps).
- Property/building data at a level of detail that allows end users to predict whether the building is a good fit for building electrification and to estimate costs.
- Information on planned dates planned dates for local distribution upgrade / recent requests to utilities for service upgrades related to specific buildings
- Data displayed either as files via system interface, an API and/or tabular format

Enable Whole Building Energy Consumption Analysis

SUMMARY

This use case will support building manager / property management company / product service providers' ability to participate in efforts to benchmark energy efficiency and comply with local regulations / laws through access to whole building energy data across all types / sizes of buildings, including those that require customer consent. To achieve that goal, this use case will enable

analysis of prior year energy consumption data for all fuel types used in a given building, as well as the ability to aggregate these individual meter-readings into total energy consumption by fuel and property type. Start and end read dates and unique utility identifiers will be useful for indexing individual meter and consumption information. In addition, specifically for small buildings, end users will be able to dive deeper into which buildings create the most emissions and which retrofitting options would be most ideal using provided current distributed energy resource (DER) deployment by building data.

HIGH-LEVEL DATA NEEDS AND REQUIREMENTS

Unique utility identifiers, measured interval consumption by fuel type, synthesized interval consumption by fuel type, interval length, interval start date/time, meter ID, meter location, meter to service address mapping, service address to billing address mapping, building size, facility type, rate class, and customer load profiles.

To implement this use case will require:

- Ability to search by address/building ID to view whole building energy consumption data (aggregated) for buildings of any size (including small buildings)
- Ability to filter consumption by different fuel types (electricity, gas, etc.) and facility types
- Ability to choose an interval length, dates, frequency, etc. (request is at least monthly, but would prefer to get more granular)
- Access to energy consumption data that spans multiple years
- Ability to view consumption data for all the buildings that end user manages
- Ability to confirm that meter to building mapping is accurate and consistent
- Ability to view current DER deployment by building

Rate/Tariff Data Access Part 1 and 2

SUMMARY

This use case will support government agencies, energy service companies (ESCOs or distributed energy resource (DER) developers' efforts to help customers generate savings through demand response (DR) programs and DER installations through access to utility rate tariffs / rate books in a machine-readable format initially, and then through more advanced functions like a bill calculator or historical tariff rate information. End users should be able to easily understand and perform secondary analyses on the key rate information based on clear up-to-date documentation of which tariffs apply to that region / rate class. This use case also supports up-to-date accurate tariff and rate information and analyses being provided equitably to the public, as there is a large access barrier to this information currently (labor intensive and requires specialized subject knowledge).

HIGH-LEVEL DATA NEEDS AND REQUIREMENTS

Digitized tariff book information from all utilities, tariff, and rate generation logic from utilities, understanding of key tariff/rate data fields most important to end users when designing more complex tariff/rate functionality, historical rate and tariff information

To implement this use case will require:

- Current standardized tariff and rate information displayed in a consistent structure across all 7 regulated utilities
- Ability to download dataset in a format that is compatible for secondary analysis
- Dynamic functionality like a bill calculator that provide analysis per end user input

Part 1 entails Rate and Tariff Data functionality around complete parameter access and builds upon functionality in Phase 1. Part 2 encapsulated the more advanced components including supplier tariff data and the bill estimator feature.

Accelerate Distributed Energy Resources (DER)/Commodity Installation Implementations

SUMMARY

This use case supports DER developers, DER owners, utilities, organizations that site DERs (e.g., land trust) and energy service companies (ESCOs) to validate data requirements for the successful scoping and implementation of an economically viable commodity and DER combination project under the Value of Distributed Energy Resources (VDER) tariffs within NYS. In addition, this use case will provide end users with information to evaluate pricing structures. For instance, ESCOs require the following information: electric service point details, NYISO market details, utility tariff details. End users will also have information on the value difference between the current installed capacity (ICAP) tags and the previous year and the future value in order to properly bill and administer the product. Electronic Data Interchange (EDI) transactions would provide clarity to the type of data being provided by using a meter type/or data type identifier.

HIGH-LEVEL DATA NEEDS AND REQUIREMENTS

Utility customer and account data (including energy consumption and billing cost). More specifically this includes customer name, address, account ID, tax exemption status, monthly billed demand, and service charge. In addition, Electric Service Point Details (e.g., service point ID, service class, service voltage, Interval Data, Utility Tariff Details, Net meter Accounts (EDI transactions to include consumption, generation, net usage), VDER and net meter credits at the account level should be provided.

To implement this use case will require:

- Ability to view electric service point details such as service class, voltage, meter ID, and other pricing structure-relevant information in a tabular format
- Ability to properly bill and administer product including value difference +/- between ICAP tags and previous year
- Ability to view VDER/net meter tracking of banked and customer disbursed credits

Accessible Distributed Energy Resources (DER) Interconnection (Hosting Capacity) Information

SUMMARY

This use case will support DER developers, DER owners and utilities to better understand and accelerate the interconnection approval process for planned / installed DER systems, so that DER projects can deliver clean energy to customers as soon as possible. Accelerating the interconnection process also includes a clearer understanding and evaluation of the process of siting the location of a DER installation. These goals could be achieved by enhancing existing hosting capacity maps through standardization, the addition of interconnection approval time and interconnection cost information, and the inclusion of utility upgrade project information, and the corresponding forecast of hosting capacity updates.

HIGH-LEVEL DATA NEEDS AND REQUIREMENTS

Standardized hosting capacity information, geospatially compatible utility upgrade project data, interconnection cost and approval time data, and up-to-date granular underlying substation and electrical grid data that can be displayed geospatially.

To implement this use case will require:

- Geospatially represent interconnection cost and approval time data on an interactive map or dashboard
- Geographically represent clear, consolidated, and up-to-date utility upgrade project data
- Visually display standardized hosting capacity information from all 7 utilities
- Ability for end users to filter and narrow results based on most important criteria

Distributed Energy Resources (DER) Registry

SUMMARY

This use case will enable NY DER aggregators, DER developers, government agencies and utilities to monitor and evaluate the state of DER deployment, more efficiently accelerate new projects based on insights gained from information on existing projects, and more successfully participate in the wholesale energy market through aggregation more accurately. By providing data that allows for a greater understanding of all installed and planned DERs in New York, this use case will also contribute to increased equitable and public access of energy data in one central location.

HIGH-LEVEL DATA NEEDS AND REQUIREMENTS

Current and historical installed and planned DER data, with key fields like DER type, location, energy generation, name of organization involved, timeline of development, will need to be standardized across all sources and consolidated and visualized geographically in one location at an individualized and aggregated level. Certain elements of this data may not currently be available for privacy or process reasons and additional effort may be required to collaborate with stakeholders and generate this data.

To implement this use case will require:

- Geographic display of current and historical installed and planned DERs at point and aggregated levels
- Inclusion of energy generation information per DER that enables wholesale energy market participation
- Up to date, standardized data on all installed and planned DERs

Customer Meter Data Access Upon Enrollment in Demand Response (DR) and Distributed Energy Resources (DER) Programs

SUMMARY

This use case would provide an alternative, centralized method for accessing meter data for customers that have already authorized a DER service provider to act as an aggregator on their behalf. Access to tariff, rate, and program information in a machine-readable and standardized format would be very helpful for rapidly presenting to potential partners the value stack in New York as well as restrictions on certain programs and technology types.

Information on the distribution network such as voltage levels, and transmission network, such as the NYISO's load zones are critical for enrollment and proper documentation in DR programs in New York. This information is not straightforward to access and understand.

The IEDR should enable seamless integration with utility data such that authorized meter data is available in a standardized format in a timely manner. Data access is a key concept, specifically access for meters that have already granted authorization to manage their participation in demand response or DER programs.

HIGH-LEVEL DATA NEEDS AND REQUIREMENTS

- Energy: Information on usage, such as meter reading and its associated data.
- System: Information on grid infrastructure and operations, such as the network location of feeders, transformers, substations.
- Tariff / Rate: Information on rates, incentives, and programs available to customers based on energy use and other factors.

To implement this use case will require:

- DER provider using the DER must have the ability to access up-to-date data for existing customers that have already granted authorization to their utility data.
- Transition support effort for ESEs that have existing customer data authorizations in place (for example for accessing bill data through web extraction) in order to minimize their time and effort spent transitioning.

Improving Access to Customer Data for Distributed Energy Resources (DERs)

SUMMARY

This use case will provide analytics, such as DER detection and propensity to use DERs, to improve access to the raw data within the IEDR to allow for all organizations to make use of this data, not just those with the technology and the staff to do the analyses. Users will utilize data on demographics, premise characteristics, utility provider / fuel used, energy use and cost, and historical weather of energy users by geography to analyze energy users by segment and individually to create personalized DER / demand response (DR) offers. Stakeholders will employ this use case with high frequency to inform frequent and recurring business activities such as:

- End-use detection analysis to avoid offering DERs to energy users who likely already have DERs and / or offer upgraded DERs and related services to those who already have DERs
- DR program enrollment to assess what programs energy users are enrolled in and the effectiveness of those programs to inform the development of new programs or offer competitive DR program alternatives to energy users.
- Propensity analysis to determine with what DER / DR offer to approach energy users by segment and individually.

HIGH-LEVEL DATA NEEDS AND REQUIREMENTS

Customer ZIP code+4; utility provider; utility customer and account data (including energy consumption and billing cost). This includes advanced metering infrastructure (AMI) 15 min utility customer energy consumption data, day after and 12-month historic data). In addition, fuel type; demographic; historical weather; premise characteristics; presence of existing DER by type; demand-side management (DSM) (including DR) program enrollment or exclusions; customer rate codes and conditions; daily update of all fields for any changes should be provided

To implement this use case will require:

- DER type compatible with a DR program available within a utility territory.
- Rate code by customer and associated conditions of rate including exclusions.
- Propensity score grouped to be Low/Medium/High segment based on score ranges.
- DER type / make / model, demographic averages / max / min, premise type by zipcode+4.

Determine Customer Site Hosting Capacity

SUMMARY

The use case will provide state agencies with customer site load and hosting capacity data that can be used in conjunction with existing data from IEDR Phase 1 release (substation, feeder level hosting capacity, and planned and installed distributed energy resources (DER) data) to plan and evaluate potential DER sites more efficiently and effectively. By using existing data in IEDR system from IEDR Phase 1 in addition to data mentioned above, end users should be able to dynamically view, and query estimated hosting/load capacities for customer sites, circuits, and substations whereby estimated hosting capacity is provided for all service points and all relevant levels of aggregation.

HIGH-LEVEL DATA NEEDS AND REQUIREMENTS

For customer site loads and hosting capacity data, the following are required: local energy value, local capacity value, measured utility customer energy consumption data, synthesized consumption data, hosting capacity at service location, service voltage, number of phases, load factor

Some potential key implementation requirements:

- The IEDR user interface should also utilize an interactive screen for entering potential DER loads at a given site and recalculating available integration capacity. In this setting, the user should be able to add discreet DER load and receive summary hosting capacity data at the sites, circuits, and substation levels.
- Up to date, actionable customer site load and hosting capacity data that can be spatially represented

State of Distributed Energy Resources (DER) Dashboard

SUMMARY

This use case will support trade associations and state agencies to better understand key areas of distributed energy resources (DER) concern, trends, rates of change, etc. Insights will inform and influence how and where to focus collective efforts as interconnection challenges become more and more frequent. Disadvantaged communities (DAC) data could be incorporated to better understand and forecast potential disparities in equitable access to clean, renewable, and affordable energy–and monitor progress towards achieving Climate Leadership and Community Protection Act (CLCPA) goals.

HIGH-LEVEL DATA NEEDS AND REQUIREMENTS

Installed and queued distributed energy resources (DERs), penetration ratio, average and total hosting capacity available, utility upgrade plans/projections, Coordinated Electric System Interconnection Review (CESIR) analysis will be required.

Some potential key implementation requirements:

- Ability to utilize the designation of DACs as a disaggregate to better identify, understand, and utility data trends to inform decisions.
- Ability for users to access and manipulate underlying DAC criteria to conduct deeper analyses. (e.g., energy cost burden, population density)

Unlocking and Operating Flexible Demand Response (DR) Programs at Scale

SUMMARY

This use case will support demand response providers to develop more successful DR programs, where providers can increase the number of customers enrolled, thus improving the reliability of the electric grid, and helping to achieve clean energy goals. This use case will provide access to customer demographics, premise characteristics, utility providers/fuels used by energy users geographically and energy billing rates compatible with DR programs by utility. Information on residential energy users who have distributed energy resources (DERs) will be used to design DR programs and enroll participants while information on energy users with DERs enrolled in a DR program will be used to understand scale and approach with other DR program offers.

Data on residential energy users who have the highest propensity for enrolling in DR programs and what DR programs are available in their geography will be used to combine DER purchases with applicable DR program(s). Demographic data, premise characteristics, and utility provider(s) / fuel(s) used by energy users ordered geography can enable DR programs to be designed with the incorporation of DER sales. Energy billing rates will be used in DR program design and data on which energy users are enrolled in which rates and which rates would be optimal when combined with available DR programs will inform the sale of DERs combined with DR enrollment at scale.

HIGH-LEVEL DATA NEEDS AND REQUIREMENTS

- Propensity by DER type with confidence interval, segmented at a minimum by Low, Medium, High.
- Presence of existing DER by type, with confidence interval, segmented at a minimum by "Confirmed via OEM", "Detected by disaggregation with high confidence", Detected by disaggregation with medium confidence", "not present or low confidence detection".
- Reported by customer (privileged information), and heatmap by zipcode+4.
- Daily accuracy of program enrollments and rate code.

Some potential key implementation requirements:

- A spatial map displaying a heatmap by zipcode+4 and individual customer for privileged data
- Up-to-date, accurate data displayed as a readable table, list via CSV on standard website link, and JSON via API.

Performance Evaluation of Distributed Energy Resources (DERs)

SUMMARY

This use case supports DER developers in their efforts to optimize DER performance by providing data on peak load shift / reduction by DER and DER effect on individual users' Time of Use rate

and other dynamic billing rates. With this information, end users can extrapolate the following analysis and key insights on DER performance: DER effect on geographies with load constraints, DER interconnection with rate optimization, DER performance during load shedding/ other grid events, and the average and range of customer opt-out and override rates by DER type for participation in events. These analyses will inform program evaluation, reporting and improvement, including DR program and rate design adjustments.

HIGH-LEVEL DATA NEEDS AND REQUIREMENTS

For this use case the following are needed, peak load shift / reduction by DER, DER effect on individual users' time-of-use (TOU) and other dynamic billing rates, runtime data from participating DERs by device by customer, event conditions (date, time, duration, dispatch instruction, participation instructions, weather conditions), advanced metering infrastructure (AMI) data (15 minute where available), opt-out and over-rides per event per device type

Some potential key implementation requirements:

- Information should be presented spatially on a map (heatmap by zipcode+4 and individual customer for privileged data), readable table, list via CSV on standard website link, and JSON via API.
- Data should be produced annually to include hourly device data reports, event reports, and aggregated program reports.

Facilitate DER Wholesale Services

SUMMARY

This use case will support service providers in their efforts to facilitate registration with NYISO for participating in existing and planned wholesale market participation models, as well as updating this information (ex. Transmission Node applicable to a customer's location) on an as needed basis (NYISO intends to update this information annually).The service provider will use the billing quality data provided to comply with NYISO settlement requirements and avoid the need to install duplicative private metering to supply the data. The service provider will be able to obtain interval data for each account registered with NYISO as part of an aggregation for submission by the service provider to the NYISO to comply with settlement data submission requirements. The NYISO will use the data provided to operate its distributed energy resource (DER) programs and markets. The IEDR can make the data available to other relevant stakeholders as necessary.

Through this use case, the IEDR could function as a single point through which utilities can communicate any potential reliability/safety risks to the distribution system by an aggregation participating in NYISO's market. In addition, the IEDR could also serve as a method by which intra-day notices are disseminated to aggregators of distribution system issues impacting a DER aggregation's wholesale market schedule and delivery.

HIGH-LEVEL DATA NEEDS AND REQUIREMENTS

- Accurate billing quality hourly interval data (kWh usage) provided less than 12 hours after the end of the prior day, with historical data provided for 1 year
- Substation Details (particularly NYISO Load Zone, Sub-Zone, Transmission Owner, and Transmission Node), Electric Service Point Details (including voltage levels), Electric Customer Details (including rate type)
- Electric Meter Details (including information not specified in Appendix B of DPS Staff's Report required for NYISO Meter Service Entity Meter Inventory process, including calibration testing information and dates of last test, potential transformers/ current transformers equipment installed)

- Installed DER Details
- Billing quality hourly interval kWh usage data (in Hour Beginning format) with raw data published for each interval as soon as the utility can make it available, and billing-quality data (that has undergone the utility's Validation, Estimation and Edit process) available less than 12 hours after the end of the prior day, with historical data provided for 1 year.

Some potential key implementation requirements:

- Raw data in XML, CSV, JSON via API formats
- Usage data in compliance with Green Button Connect
- Ability to view customer accounts mapped by NYISO transmission node
- Access to customer bills in PDF form as well as in table format (with ability to export for multiple customer accounts)
- Interval data should be displayed in tabular form, with an ability to export/download to csv.
- Billing data should be in both PDF and exportable table formats.
- Where utility metering capable of reading instantaneous demand and that information can be made available to service providers through the IEDR, that should be considered.

Efficient and Effective Access to Existing Customer Billing Data

SUMMARY

Current access to bill data is problematic as the only way to access bill image PDFs is through a customer online account, which brings risks. Currently, energy mangers are only able to access customer bill data once a customer has signed their energy contract. At this point, the energy manager can then share data access with a data provider. This use case would support community solar developers and energy service companies (ESCOs) by granting access electronically for a list of properties at the time of energy manager and data services contract signing, with no additional action required on behalf of the customer after that for the data services provider to access data for those properties at a later point within the authorized timeframe.

Currently, separate actions are required for each customer account at the time of the authorization request. Ideally, customer consent can be granted both in advance and at the moment of the request, and it should be possible to grant access via mobile phone. This use case would help improve the timeliness of bill payment, reduce late fees, and verify customer savings.

HIGH-LEVEL DATA NEEDS AND REQUIREMENTS

Unique property ID, service points, address, meter IDs, GBC usage summary representing bill, service period start and duration for the Usage Point, reference to the bill image applicable, unique invoice ID, bill issuance date, amount due, due date, date on which the next bill is expected, an indication of whether the bill replaces any preceding bill (and if so a reference to the invoice ID).

To implement this use case will require:

- Less than 2 hours latency from bill issuance by the utility ongoing access with >95% uptime (as bill payment depends on this)
- Complete set of data representing usage, charges, and transaction data, with 100% accurate, machine-readable representation of all elements from customer bills.
- Relationship between unique property ID, service points, addresses, meters, accounts billed, and bill images.

Enable Real-Time Access to Smart Meter Data Via Zigbee/Wi-Fi

SUMMARY

This use case will support distributed energy resources (DER) aggregators efforts to improve their offerings and more optimally engage their customers and their smart devices. The granular information is useful in a variety of ways, for example by using disaggregation techniques to identify what devices and appliances are consuming electricity at a given point in time. Real-time usage data at intervals of a few seconds will be extremely valuable for demand response and customer engagement in time of use programs. Customers have paid for this capability in their meters and want to be empowered to enable secure real-time access to their chosen service providers and devices that can provide products and services tailored to their needs. This connectivity can also be bidirectional, where a utility can receive real-time information from devices using the same protocol and aggregators can, given utility signals, remote control devices to participate in for example demand response or voltage regulation.

HIGH-LEVEL DATA NEEDS AND REQUIREMENTS

Ability for IEDR to provision radio connectivity via:
AMI 1.0: Zigbee
AMI 2.0: Wi-Fi via 2030.50

Types of authorizations can be phased along directionality of data flow and purpose of interactions

1. Authorization requested by ESEs from customers or their authorized representatives for real time (<8s interval with <5s latency) energy usage information from smart meters including consumption, power quality, and other time series data available from the given meter interface. Usage data is either sent to a local device or to a cloud service for further processing
2. Authorization requested by ESEs from customers or their authorized for bidirectional connectivity to devices such as inverters and other devices that can perform grid support such as voltage regulation

Some potential key implementation requirements:

- The IEDR would serve as a single gateway for service providers to request access for their customers' real-time usage data across NY state territories.
- A management dashboard is needed for cloud service and device pairing and data access authorization, authorization request status, error messages, revoking authorizations, etc.
- Utilities need to enable meter radio provisioning
- Each utility will need to provide its own support for the connectivity itself, IEDR will only support ESE registration, education, and authorizations.
- Rather than developing and supporting real time data access authorizations and device pairings, IEDR could serve to help utilities implement standardized processes and limit functionality to ESE registration, education, and hyperlinks to each utility's website section for real time data access authorizations.

Enhance Identification of Heating, Ventilation, and Air Conditioning (HVAC) Energy Efficiency Opportunities

SUMMARY

Seasonal weather patterns and sudden shifts in temperature can lead to inconsistent, high-energy bills and create consumer confusion, resulting in customer dissatisfaction. Inefficient or faulty heating and cooling systems can greatly exasperate that situation. This use case will support Energy Service Companies (ESCOs) in their efforts to detect anomalies with customers' heating and cooling systems early and provide customers with solutions to repair their inefficient system,

which will reduce their electric consumption and alleviate strain on New York's electrical grid. To meet this goal, the IEDR will provide accurate and timely access to utility customers' current and historical 15-minute energy consumption advanced metering infrastructure (AMI) usage data. Using this data ESCOs can then apply algorithms to the data that analyze usage patterns and identify faults or inefficiencies with heating, ventilation and air conditioning (HVAC) systems located at the customer's premise and compare usage patterns of residential customers' systems/appliances to the expected usage of properly functioning systems/ appliances to detect inefficiencies or anomalies.

HIGH-LEVEL DATA NEEDS AND REQUIREMENTS

This use case should compare 15-minute utility customer energy consumption AMI usage patterns of residential premises that have efficient properly functioning heating and cooling systems, with the usage patterns of residential premises that have inefficient heating and cooling systems. The interval data analysis should also be reviewed by season (summer, fall, winter, spring). The data could be broken out by premise size, zip code, or city to account for New York's different weather patterns throughout the state.

Some potential key implementation requirements:

- Create a customer facing graph that highlights how much more electricity a customer with an inefficient heating and cooling system is using compared to a similarly sized residence that has an efficient heating and/or cooling system.
    - The comparison could be broken out by zip code or city to account for New York's different weather patterns.
- Analyze and aggregate the 15-minute utility customer energy consumption AMI usage patterns of premises with efficient heating and/or cooling systems vs. premises with inefficient heating and/or cooling systems. (ESCOs, if needed, can assist IEDR with analyzing the interval data and identifying what are efficient heating and cooling system usage patterns.)
- The 15-minute utility customer energy consumption AMI data should be provided as accurately (99% accuracy) and timely (within 1-2 days of read date) as possible.

Aggregated Customer Data Analysis for Improved Energy Efficiency Programs

SUMMARY

IEDR users, like utilities, state and local government agencies, and other energy efficiency (EE) program providers, will be able to access and analyze aggregated customer data to understand historical participation in energy efficiency programs and various trends and insights related to program participation that can help to inform the design and implementation of new energy efficiency programs and services. To assess what energy users may have a high, medium, or low propensity for participating in specific energy efficiency programs, the IEDR will provide:

- customer energy use and cost data by fuel type and related similar efficient premise comparison analytics,
- an analysis of utility customer program participation to determine whether energy users already have participated in energy efficiency programs, rebates, and incentives, and
- information on what energy users have interacted with EE program, rebate, and incentive information.

HIGH-LEVEL DATA NEEDS AND REQUIREMENTS

Customer zip code, historical energy use (15-min utility customer energy consumption advanced metering infrastructure (AMI)), fuel type, energy billing data, demographic, historical weather,

energy efficiency program enrollment or exclusions.

To implement this use case will require:

- AMI data aggregated by season and fuel type.
- Ability to see energy fuel(s) used by geography.
- Confidence intervals associated with propensity analysis and the presence of existing technology by type.

Glossary

AMI: Advanced metering infrastructure
CAIDI: Customer Average Interruption Duration Index. This is a utility service reliability metric that describes the average time required to restore service
CCA: Community choice aggregation
CDG: Community distributed generation
CESIR: Coordinated Electric System Interconnection Review
CLCPA: Climate Leadership and Community Protection Act
DACs: Disadvantaged Communities
DER: Distributed energy resource
DR: Demand response
DSM: Demand-side management
DSO: Distribution system operator
EDI: Electronic Data Interchange
ESCOs: Energy Service Companies
EUI: Energy use intensity
EV: Electric Vehicle
EVSE: Electric vehicle supply equipment.
GHG: Greenhouse gas
ICAP: Installed capacity
LCF: Low-carbon fuels
LMI: Low and moderate income
MFH: Multi-family housing
SAIDI: System Average Interruption Duration Index. This is a utility service reliability metric that describes the total duration of the average customer interruption
SAIFI: System Average Interruption Frequency Index. This is a utility service reliability metric that describes how often the average customer experiences an interruption
TOU: Time of use
VDER: Value of Distributed Energy Resources. This is a newer method for excess solar energy compensation designed to more accurately compensating renewable energy generation in regard to environment and electrical grid benefits. With VDER users receive a monetary credit that can roll over into future billing cycles

Proceeding on Motion of the Commission Regarding Strategic Use of
Energy Related Data
Case No. Case 20-M-0082

Release Date:	December 20, 2022
Due Date:	January 31, 2023
Subject:	Updated Utility Cost Estimates for Phase 2 of the Integrated Energy Data Resource (IEDR) Implementation

Instructions:

Updated utility cost estimates are required for Phase 2 of the Integrated Energy Data Resource (IEDR) Program. These updated cost estimates are for Phase 2 only and should be based on current and planned Phase 1 spend and deployment, current IEDR platform architecture, overall program timeline, and Phase 2 use case summaries and high-level data requirements (attached). The Phase 2 implementation is expected to evolve and change from what will be implemented during Phase 1.

The IEDR Program goals and approach are discussed in the Department of Public Service Staff Whitepaper: Recommendation to Implement an Integrated Energy Data Resource (IEDR Whitepaper). In addition, a document containing proposed Phase 2 use case summaries and high-level data requirements has been attached to this document. Utility respondents are encouraged to thoroughly read the whitepaper and the attached document to inform their responses.

For the purposes of this activity, respondents should assume the following:

Scope

- *The IEDR Program will develop, implement, and operate fifty distinct IEDR use cases serving the eleven user categories listed in Section 5.6.2 of the IEDR Whitepaper.*
- *Program Phase 1, the initial IEDR implementation, will enable ten of the highest-priority uses cases.*
- *Program Phase 2 will expand and enhance the initial IEDR to incrementally enable an additional forty use cases.*
- *Implementing Phase 2 will require each utility to periodically compile and deliver additional distinct data types to what they're currently delivering for Phase 1.*
- *The attached proposed Phase 2 use case summaries and high-level data requirements will be prioritized, refined, and built out into a Phase 2 Development Roadmap by the end of 2023.*
- *Sample data sets and production data flows supporting Phase 2 use case requirements will be required according to the agreed upon Phase 2 Development Roadmap milestones to be determined by the end of 2023.*

Duration

- *The total duration for enabling 50 IEDR use cases will be approximately 60 months (encompasses both Phase 1 and Phase 2).*
- *Phase 1 will be completed in 24 – 30 months. Phase 1 is targeted to complete by the end of 2023.*
- *Phase 2 will be completed in 30 – 36 months.*

- *Operation of the utility's IEDR data feeds will persist for the life of the IEDR (multiple decades).*

Approach

- *All IEDR data elements will be collected, stored, and managed in a centralized platform. This centralized platform will be separate from NYSERDA's and the utilities' systems.*
- *Depending on data type and use case requirements, utility-provided datasets in the IEDR may be updated periodically as needed. It is expected that most updates will occur weekly or monthly.*
- *Utilities may provide their respective datasets in their native form unless there is an agreed upon alternative form that brings mutual benefit to the IEDR program and ease of data production for the utility. The IEDR will integrate and normalize any data provided in a form that is required to support the IEDR use cases.*
- *All utilities will push their data to the IEDR through a secure standards-based interface such as SFTP or HTTPS and in compliance with a standard schedule that is agreed upon and communicated through the Phase 2 Development Roadmap. The interface and schedule standards will apply to all IEDR data sources.*
- *All data will be validated by the utility before they are delivered to the IEDR to ensure accuracy and quality to the extent possible.*
- *Each utility will continue to maintain an IEDR implementation support group, led by a senior member of the utility's management team, to plan and coordinate the utility's IEDR-related activities with the overall IEDR Program Manager.*
- *Each utility will determine and apply its own means and methods to compile its data and deliver those data to the IEDR platform through the agreed upon interface.*
- *A flexible and iterative use case development process will facilitate and incorporate ongoing stakeholder inputs.*
- *The requirements for IEDR data do not necessitate AMI deployment. However, utility-provided data will thoroughly characterize all of the utility's customer metering assets, including all deployed AMI endpoints.*
- *IEDR user access to utility-provided data in the IEDR will be governed according to the policies established in Staff's Data Access Framework Whitepaper.*

For purposes of items 1 – 5 below, refer to and populate the budget table (or a similar one) provided on page 4. For each cost estimate, describe the methodology (for example, the number of FTEs assumed within the calculations for labor cost categories), assumptions, opportunities, constraints, and risks used to arrive at the estimate.

1. Managing the Utility's Internal IEDR Data Sourcing Program

Provide and explain the estimated cost to:

a. *Develop and execute the utility's strategy for building and operating resources and processes to enable its Phase 2 data sourcing obligations to the IEDR;*
b. *Participate in the IEDR Program Utility Coordination Group to help inform and guide Phase 2 of the IEDR Program lifecycle;*
c. *Develop and manage the utility's Phase 2 schedule for performing its IEDR-related activities;*
d. *Develop and manage the utility's Phase 2 budget for its IEDR-related expenditures;*
e. *Timely procure all equipment, software, materials, facilities, network services, platform services, and other elements needed to implement the utility's portion of the Phase 2 IEDR;*
f. *Plan, design, deploy, test, commission, and operate the utility-specific Phase 2 IEDR*

elements that are not part of the central IEDR platform;

g. *Identify and mitigate the utility's program risks; and,*
h. *Prepare and present periodic IEDR implementation reports to the overall IEDR Program Manager.*

2. Develop and Integrate Incremental Architecture and Detailed Designs and Specifications for the Utility's Phase 2 IEDR Data Sourcing Resources and Processes

For the purposes of this activity, refer to the attached document "IEDR Phase 2 Use Case Summaries and High Level Data Requirements".
Provide and explain the estimated cost to determine the utility-specific requirements for enabling proposed Phase 2 IEDR use cases, considering all applicable utility-specific requirements concerning confidentiality and system security, as established in the Data Access Framework for Strategic Use of Energy - Related Data.

In addition, provide and explain the estimated cost to develop Phase 2 IEDR-related designs and specifications to inform the implementation of the utility's Phase 2 IEDR-related resources and processes. Such IEDR-related designs and specifications shall include descriptive text, specifications, tables, diagrams, configuration parameters, data definitions, data schemas, computer code, operating procedures, and other work products.

3. Deploy and Integrate the Utility's Phase 2 IEDR Data Sourcing Resources and Processes

Provide and explain the estimated cost to acquire, deploy, configure, integrate, test, and activate all the elements needed to implement the utility's Phase 2 IEDR data sourcing capabilities fully.

4. Commission and Execute Technical Test Cases to Validate IEDR and Utility System Integrations and Functionality

Provide and explain the estimated cost to, in consultation with the IEDR Development Team, design, enable, perform, and document rigorous technical test cases that will validate IEDR and utility system integrations and functionality.

5. Operate and Manage the Utility's Phase 2 IEDR Data Sourcing Resources and Processes

Provide and explain the estimated annual and total costs to perform all of the administrative and operating functions needed to achieve the functionality and performance specified for the proposed Phase 2 use cases, including, but not limited to, coordinating operations planning and scheduling with the core IEDR's system operator, system administration, process control, performance monitoring, system maintenance, access control, problem detection, problem resolution, change management, testing, and reporting.

6. Opportunities

Identify and characterize any opportunities to:

a. *Incorporate additional benefits for the IEDR and utilities within the platform (for example, increased automation) and explain any budget impacts;*
b. *Reduce the utility's Phase 2 IEDR-related costs;*
c. *Reduce the time needed to implement the utility's Phase 2 IEDR related capabilities*

7. Constraints

Identify and characterize any constraints that, if unresolved, would:
a. Increase the utility's Phase 2 IEDR-related costs;
b. Increase the time needed to implement the utility's Phase 2 IEDR related capabilities

8. Risks

Identify, characterize, and recommend steps to mitigate any risk(s) that, if unmitigated, could:
a. Increase the utility's Phase 2 IEDR-related costs;
b. Increase the time needed to implement the utility's Phase 2 IEDR related capabilities.

Response:

Three items are needed in the response:

1) Population and completion of a Phase 2 Budget Table (the example shown below can be used), which covers items 1 – 5 above

- *If a cost category is not applicable, please mark "N/A" in the corresponding row*

2) Description of the methodology used to calculate each cost estimate (for example, the number of FTEs assumed within the calculations for labor cost categories)

3) Description of assumptions, opportunities, constraints, and risks used to arrive at each cost estimate

1) Example Phase 2 Budget Table

Phase 2 Implementation Phase	Cost Category	PHASE 2		
		Year 1	Year 2	Year 3
Design (Requirements Gathering, Functional Design, Technical Design)	Labor - Internal			
	Labor or Services - Vendor			
	Hardware			
	Software			
Build	Labor - Internal			
	Labor or Services - Vendor			
	Hardware			
	Software			
Test (Unit Testing, Integration Testing, Operational Readiness Testing)	Labor - Internal			
	Labor or Services - Vendor			
	Hardware			
	Software			
Deploy	Labor - Internal			
	Labor or Services - Vendor			
	Hardware			
	Software			
Infrastructure and Cybersecurity	Labor - Internal			
	Labor or Services - Vendor			
	Hardware			

	Software			
Operations, Maintenance, and Support	Labor - Internal			
	Labor or Services - Vendor			
	Hardware			
	Software			
Project Management and Program Governance	Labor - Internal			
	Labor or Services - Vendor			
	Hardware			
	Software			
Other Costs	Contingency			
	Travel and Incidental			
	Technical Training			
	Other?			
	Total:			

2) Description of the methodology used to calculate each cost estimate

Response to be entered here

3) Description of assumptions, opportunities, constraints, and risks used to arrive at each cost estimate

Response to be entered here

Documents Attached:

Response by: XX
Title: XX
Date of Response: January XX, 2023

IEDR Phase 2 Use Case Summaries and High-Level Data Requirements

IEDR Phase 2 Use Cases

Please note that these use cases summaries and high-level data requirements have not been refined and finalized yet and may change once Phase 2 development begins and they become design and development ready. These use cases have been summarized from direct stakeholder-provided content and may contain varying levels of detail in the summaries and data requirements. In addition, these use cases are not listed according to priority or anticipated implementation sequence/timing. Some use cases may seem very similar to Phase 1; these use cases are included in this list because they will be enhanced and/or built upon in Phase 2 based on stakeholder feedback. These high-level data requirements further contextualize data represented in the Notice of Utility Data Requirements (UDR) that was sent out in February 2022, as well as highlight where additional data might be needed.

Utility data requirements listed in the Potential Data Sources for High-Level Data Needs and Requirements tables that have been requested for Phase 1 are noted with an asterisk. Additionally, the "Both" column in the Potential Data Sources for High-Level Data Needs and Requirements tables includes potential calculations that may occur within the IEDR.

The IEDR program team recognizes that, based on the utilities' responses to the UDR, not all utilities may be able to provide the requested data under current conditions. However, the IEDR program team is looking to understand what's needed at each utility and the expected budget impacts to enable Phase 2 data delivery if utilities were able to meet all Phase 2 high-level data needs and requirements.

Informing and enhancing utility programs to support disadvantaged communities (DACs)

END USERS

Utilities

SUMMARY

This use case will support New York State (NYS) utilities to enhance the design and implementation of programs in disadvantaged communities by

- enabling utilities to identify the number of customers within a service territory likely to meet certain program eligibility criteria,
- improving marketing and targeting of program offerings within DACs, and
- improving the implementation and budgeting of programs to support environmental justice and low to moderate income (LMI) households.

HIGH-LEVEL DATA NEEDS AND REQUIREMENTS

Potential Data Sources for High-Level Data Needs and Requirements		
Utilities	**Non-Utilities**	**Both**
Customer account data*	DAC criteria	Heating fuel source*

Utility programs available for DACs and program eligibility requirements	Geographic display of DACs by census tract	
Historical enrollment in utility programs	Non-utility weatherization assistance program data	

Reducing energy cost burden for LMI households

END USERS

State and local government, distributed energy resource (DER) developers

SUMMARY

This use case will support state and local government and DER developers to identify potential customers who could most benefit from reduced energy costs, as well as better understand what interventions will most effectively reduce those costs by providing access to more granular energy consumption and cost data for utility customers. A more detailed understanding of cost data, including the ability to disaggregate data by fuel type, rate classification, geography, and disadvantaged community criteria metrics, will allow state and local governments to help building owners and utility customers most in need make energy efficiency upgrades that reduce utility costs, identify bill assistance opportunities, and connect those customers with useful policies and programs. Being able to monitor these costs on an ongoing basis will help achieve environmental justice and equity goals. Over time, this will help grow the market for energy efficiency solutions. A more detailed understanding of the barriers facing cost burdened customers may also help energy efficiency providers and DER developers develop innovative approaches to reaching this underserved population.

Individual, unconsented customer information would not be available as part of this use case.

HIGH-LEVEL DATA NEEDS AND REQUIREMENTS

Potential Data Sources for High-Level Data Needs and Requirements		
Utilities	**Non-Utilities**	**Both**
Customer account data (such as billing costs)*	Building information (including tax lot number)	Utility customer demographic data*
Energy consumption data*	DAC criteria and metrics	Total energy cost at the building level
Rate classification*	Geographical features	Fuel type*

Electricity emissions data for improvement of greenhouse gas (GHG) emissions regulation

END USERS

Regulatory and local NY government agencies

SUMMARY

This use case will support regulatory and local NY government agencies' emissions regulation efforts by providing information on historic and projected carbon intensity of the electric grid serving municipalities statewide at various time intervals. Access to this information and ability for end users to complete secondary analysis will allow for

- more precise quantification of GHG emissions,
- greater compliance with the local laws (like Building Performance Standard), and
- greater compliance with the regulations of New York City and its climate goals.

End users could also use emissions data to weigh investments in specific energy efficiency, distributed energy resource, electrification, and renewable energy projects.

HIGH-LEVEL DATA NEEDS AND REQUIREMENTS

Potential Data Sources for High-Level Data Needs and Requirements		
Utilities	**Non-Utilities**	**Both**
N/A	Historic average and marginal CO2 intensity of the electricity serving each municipality over multiple time intervals	NYISO zone*
	Municipality zones	Data on seasonal and peak and off-peak emissions factors
	Future projections of average CO2e intensity of electricity serving each municipality over multiple time intervals	
	Historic CO2 and emissions factor data displayed dynamically over different time intervals in a combination of visuals (table, chart or bar format)	
	Charts indicating projected seasonal marginal emissions factors, projected marginal emissions for daily peak and off-peak periods, and both average and marginal projections showing CO2e intensity in time frames that can be defined dynamically at various levels of time granularity	

Developing and implementing more effective clean energy strategies and programs

END USERS

Regulatory or local government agencies

SUMMARY

Regulatory or government agencies (e.g., NYSERDA, City of New York, EPA) will be able to better understand customer energy use across sectors and various attributes or characteristics to

- conduct measurement and verification of program savings,
- assess market baselines,
- monitor market progress, and
- assess clean energy potential.

This will enable end users to design the most effective strategy and programs.

HIGH-LEVEL DATA NEEDS AND REQUIREMENTS

Potential Data Sources for High-Level Data Needs and Requirements		
Utilities	**Non-Utilities**	**Both**
Utility customer and account data (including energy consumption and billing cost)*	Identification of disadvantaged communities	Installed, queued, and forecasted DERs*
Whole building energy consumption*	Existing buildings	Utility customers that participate in public programs*
	Forecasted new buildings	Distribution of fuels by fuel type and sector*
	Forecasted building modifications	Fuel type*
	Energy use intensity (EUI) (e.g., Total site energy use per sq. ft. for commercial and residential properties)	

Accelerated DER siting

END USERS

Local government, DER developers

SUMMARY

This use case will support local governments and community solar developers who want to accelerate the process for identifying, selecting, and negotiating site agreements for community solar projects in order to deploy available capital more quickly and increase the amount of clean energy available to NY electricity customers. In addition to electrical infrastructure information, which will be foundationally covered in the IEDR Phase 1 release, these end users need environmental, community, and property data to be able to reliably identify feasible sites for solar development. This use case provides enhancements to electrical infrastructure data functionality

provided in the IEDR Phase 1 release, like more granular data on substation-bank level constraints, historical/archived hosting capacity data, and consolidated non-utility data in one central, public location. End users can download original datasets and employ built-in IEDR functionality to run analyses on available data to find areas of most feasible solar development. The IEDR will serve as a one-stop shop for standardized DER data and will operationalize the demand flexible marketplace.

HIGH-LEVEL DATA NEEDS AND REQUIREMENTS

Potential Data Sources for High-Level Data Needs and Requirements		
Utilities	**Non-Utilities**	**Both**
Enhanced existing electrical infrastructure data (for example, more granular data on substation-bank level constraints)*	Up to date NYS land, parcel, environmental, community and property data (zoning laws, solar moratoriums, DAC impacts, etc.)*	N/A

Enhancing the implementation of customer time-of-use plans for electric vehicle (EV) charging

END USERS

Energy service companies (ESCOs), utilities

SUMMARY

ESCOs and utilities will be able to utilize the IEDR to enhance and streamline the implementation of time-of-use rate plans for customer EV charging that will incentivize customers to charge their EVs during non-peak hours and help reduce stress on the grid during peak energy usage periods.

HIGH-LEVEL DATA NEEDS AND REQUIREMENTS

Potential Data Sources for High-Level Data Needs and Requirements		
Utilities	**Non-Utilities**	**Both**
15-minute utility customer energy consumption data*	EV charging patterns	Peak EV charging day / times
utility customer and account data (including energy consumption and billing cost)*	EV adoption trends	EV charging locations*
	EV ownership trends at the community level, patterns, and expenditures for EV charging throughout the day	
	Time it takes for EVs to charge	

Improving reliability benchmarking for utility operational performance

END USERS
Utilities

SUMMARY
This use case will improve NYS utilities' system planning and reliability performance by enabling the comparison of detailed reliability data across utilities. This will make the analysis of utility system design standards and the identification of collaboration opportunities more efficient. With data on reliability metrics like System Average Interruption Duration Index (SAIDI), System Average Interruption Frequency Index (SAIFI), Customer Average Interruption Duration Index (CAIDI), and corresponding thresholds, utilities will be able to accurately benchmark their reliability performance and compare impacts of extreme weather events against other utilities in New York. In addition, with access to weather information from all utilities, each utility could improve their forecasting for event impact.

HIGH-LEVEL DATA NEEDS AND REQUIREMENTS

Potential Data Sources for High-Level Data Needs and Requirements		
Utilities	**Non-Utilities**	**Both**
Metric thresholds; Up to date, standardized reliability metric data from all utilities	Weather information	Likelihood of outage
Outage causes	Tree density	Utility service areas*
Major storm exclusion events	Flood plain information	
Number of customers served*		
Number of customers/hours impacted		
Number of systems affected		
Geospatial data for reliability metrics including SAIDI, SAIFI, and CAIDI at system level		

Metrics to establish renewable gas program

END USERS
Utilities

SUMMARY
The use case will help utilities quantify, differentiate, and track various low-carbon fuels (LCFs) to manage the development of LCF production projects, pipeline injection points, and pipeline blending of LCFs.

More specifically this use case will enable utilities to track types and volumes of LCF pipeline blending, quantify amount of natural gas displaced by LCF's, and assess the associated emissions benefits.

HIGH-LEVEL DATA NEEDS AND REQUIREMENTS

Potential Data Sources for High-Level Data Needs and Requirements		
Utilities	**Non-Utilities**	**Both**
N/A	Fuels accepted	Pipeline location/type
	Capacity (refreshed annually)	Pipeline pressure
	LCF type/source	
	Volume	
	BTU content	
	% blend	
	CI score	
	Baseline and LCF blend emissions	
	Zip code and county lines	

Implementing Community Choice Aggregation (CCA) programs

END USERS

Local governments

SUMMARY

This use case will better enable local governments to plan and implement effective CCA programs. "CCA programs allow local governments to procure power on behalf of their residents, businesses, and municipal accounts from an alternative supplier while still receiving transmission and distribution service from their existing utility provider. CCAs are an attractive option for communities that want more local control over their electricity sources, more green power than is offered by the default utility, and/or lower electricity prices. By aggregating demand, communities gain leverage to negotiate better rates with competitive suppliers and choose greener power sources." Source: Community Choice Aggregation | US EPA

HIGH-LEVEL DATA NEEDS AND REQUIREMENTS

Potential Data Sources for High-Level Data Needs and Requirements

Utilities	Non-Utilities	Both
Electricity total consumption*	Customer-specific contract information for all eligible customers	Installed capacity (ICAP) tags*
Natural gas total consumption*	CCA eligibility	Aggregated community energy consumption by zip code or county*
Customer account information*		

Enhanced community distributed generation (CDG) customer data coordination

END USERS

DER developers

SUMMARY

This use case will enhance coordination between DER developers and their customers by streamlining access to their established customers' consumption and billing data, as well as CDG-specific utility account activity. DER developers will be able to

- review and maintain site allocations to maximize savings and CDG benefits for subscribers,
- audit account-level CDG activity to ensure proper CDG program management,
- bill the subscriber for CDG-related products more accurately, and
- maintain subscribers' insight into benefits and savings CDG participation.

HIGH-LEVEL DATA NEEDS AND REQUIREMENTS

Potential Data Sources for High-Level Data Needs and Requirements		
Utilities	**Non-Utilities**	**Both**
CDG credits applied in dollars and kWh. More specifically: • Bank activity • Read and bill dates	Housing type	Utility customer and account data (including energy consumption and billing cost)*. More specifically: • Account number • Rate class • Load profile • Average demand • Historical consumption and total amount billed
Utility account CDG activity		

Identifying and engaging new customers for DERs

END USERS

DER developers, DER owners, DER operators, DER aggregators

SUMMARY

Customer acquisition is a high cost of doing business for service providers. This use case would help to substantially lower those acquisition costs by identifying potential customers to qualified service providers while preserving a customer's anonymity. Lowering the cost of customer acquisition for qualified service providers will lower the prices that companies can offer to customers, as well as improve customer benefits and allows more customers to participate, which in turn drives scale that can lead to further cost reductions.

If a qualified service provider identifies an anonymous load profile that could be improved by a particular technology or service, the service provider can request that the IEDR contact the customer or relay information to a customer. The identity of the customer will not be revealed until the customer responds affirmatively to the IEDR or to the service provider. Average load profiles for specific types of customers can help service providers develop solutions for customers in different situations and with different needs. Identifying customers in lower reliability areas (or relaying offers from qualified service providers to them) can help identify customers in the greatest need of backup or other onsite energy sources.

HIGH-LEVEL DATA NEEDS AND REQUIREMENTS

Potential Data Sources for High-Level Data Needs and Requirements		
Utilities	**Non-Utilities**	**Both**
Reliability events with granular location data	N/A	Customer load profiles*
Location of customer connection to system and areas of locational system need*		Identification of customers by service class, location, building type, DER, and/or EV adoption*
Customer account and contact information*		Hourly load profiles for 24-hour periods*
Locational System Average Interruption Duration Index (SAIDI) and System Average Interruption Frequency Index (SAIFI) data		Number of customers contained in an average if an averaged load profile is provided for a subset of customers*
		Peak demand*
		Hourly utility customer energy consumption data*

Accelerating EV charger siting and program opportunities

END USERS

Utilities, EV charger infrastructure providers, government agencies, community organizations

SUMMARY

This use case will enable utilities, EV charger infrastructure providers, government agencies, or community organizations to accelerate and scale the process for identifying sites/opportunities for development of a variety of EV charger offerings and programs. For ESCOs, the provision of customers' 15-minute utility customer energy consumption data will support their provision of lower priced time-of-use (TOU) energy plans for EV owners and the provision of lower energy rates during the evenings and weekends. This can save EV owners money and lead to customer led behavior that decreases grid stress in peak times. For utilities, access to existing fleet information, business sustainability and electrification goals, traffic patterns, existing EV infrastructure and registration information, site zoning, and new construction details allows for more efficient, customer-based and informed EV siting, fleet acceleration, and EV adoption propensity models.

In addition, providing data on insights on consumer buying patterns of EVs, models of consumer driving/recharging patterns, real estate (land/multi-family housing (MFH)) information, building energy use (if MFH), and feeders with the greatest EV capacity allow government agencies and community organizations to target and site needed electric vehicle supply equipment (EVSE) in the LMI and DAC areas, deploy available capital more quickly, increase the charging infrastructure in NYS, and achieve policy goals (e.g., ensuring access for DACs and LMI customers).

HIGH-LEVEL DATA NEEDS AND REQUIREMENTS

Potential Data Sources for High-Level Data Needs and Requirements		
Utilities	**Non-Utilities**	**Both**
15-minute utility customer energy consumption data*	Spatial DAC area information	Spatial EV siting data (parking lots, EV registration, installed EVSE equipment, site zoning, new construction, and electrical infrastructure)*
Energy charges*	Existing fleet information	
Electrical infrastructure information, like electrical infrastructure proximity and service capacity*	Business sustainability and electrification goals at the site level	

Building electrification site identification

END USERS

Government agencies, community organizations, building electrification providers

SUMMARY

This use case will support government agencies', community organizations', and building electrification providers' efforts to identify, evaluate, and select opportunities for building electrification by providing the most relevant up to date data publicly in one location. End users can use information provided to

- upgrade existing electrification assessment platforms and
- estimate potential savings from switching to/implementing an energy measure for a specific project or portfolio of projects.

This will then help them identify the most eligible buildings, with the end goal of decreasing the amount of fossil fuels used in NYS buildings.

This use case will achieve these goals by providing access to granular information regarding hosting and load capacity, such as substation load factor and historical/forecasted hosting capacity. Additional information on circuit average loads and peaks updated on a monthly cadence will also be included, so that end users can determine the degree to which a customer site is connected to the distribution system operator's (DSO) network. Lastly this use case will provide customer/property class data, tariff ID, climate zone, as well as baseload energy solution load shape data refreshed at least annually.

HIGH-LEVEL DATA NEEDS AND REQUIREMENTS

Potential Data Sources for High-Level Data Needs and Requirements		
Utilities	**Non-Utilities**	**Both**
Hosting capacity data*	N/A	Property/building data*: • unique building ID • building year of construction • building type • building size (square feet) • available outdoor area • building height • building location information • service address • fuel type • utility consumption for all fuel types

Service capacity data*: • service address • current service capacity • maximum available capacity		Data specific to utility upgrades/projects specific to the building*: • scheduled upgrade start/end date • utility upgrade plans • retrofit project data
Circuit/distribution type data*: • electric distribution type • circuit ID • circuit voltage • circuit load		

Enable whole building energy consumption analysis

END USERS

Building managers, property management companies, product service providers

SUMMARY

This use case will support building managers', property management companies', and product service providers' ability to participate in efforts to benchmark energy efficiency and comply with local regulations/laws through access to whole building energy data across all types/sizes of buildings, including those that require customer consent. To achieve that goal, this use case will enable analysis of prior year energy consumption data for all fuel types used in a given building, as well as the ability to aggregate these individual meter readings into total energy consumption by fuel and property type. Start and end read dates and unique utility identifiers will be useful for indexing individual meter and consumption information. In addition, specifically for small buildings, end users will be able to dive deeper into which buildings create the most emissions and which retrofitting options would be most ideal using provided current DER deployment by building data.

HIGH-LEVEL DATA NEEDS AND REQUIREMENTS

Potential Data Sources for High-Level Data Needs and Requirements		
Utilities	**Non-Utilities**	**Both**
Measured interval consumption by fuel type*	Building size	Customer load profiles*
Interval length*	Facility type	Current DER deployment by building
Interval start date/time*	Unique utility identifiers	Synthesized interval consumption by fuel type*
Meter ID*	Building ID	Address*
Meter location*		

Meter to service address mapping*		
Service address to billing address mapping*		
Rate class*		

Rate/tariff data access

END USERS

Government agencies, ESCOs, DER developers, building/property managers, utility customers

SUMMARY

This use case will support government agencies', ESCOs', or DER developers' efforts to help customers generate savings through demand response (DR) programs and DER installations through access to utility rate/tariff books in a machine-readable format initially, and then through more advanced functions like a bill calculator or historical rate/tariff information. End users should be able to easily understand and perform secondary analyses on the key rate information based on clear up-to-date documentation of which tariffs apply to that region/rate class. This use case also supports up-to-date and accurate tariff and rate information and analyses being provided equitably to the public, as there is a large access barrier to this information currently (labor intensive and requires specialized subject knowledge).

HIGH-LEVEL DATA NEEDS AND REQUIREMENTS

Potential Data Sources for High-Level Data Needs and Requirements		
Utilities	**Non-Utilities**	**Both**
N/A	N/A	Historical rate and tariff information*
		Tariff and rate generation logic*
		Digitized tariff book information from all utilities*

Accelerate DER/commodity installation implementations

END USERS

DER developers, DER owners, utilities, organizations that site DERs (e.g., land trust), ESCOs

SUMMARY

This use case supports DER developers, DER owners, utilities, organizations that site DERs (e.g., land trust), and ESCOs to validate data requirements for the successful scoping and implementation of an economically viable commodity and DER combination project under the Value of Distributed Energy Resources (VDER) tariffs within NYS. In addition, this use case will provide end users with information to evaluate pricing structures. For instance, ESCOs require the

following information: electric service point details, NYISO market details, and utility tariff details. End users will also have information on the value difference between the current installed capacity (ICAP) tags and the previous year and the future value in order to properly bill and administer the product. Electronic Data Interchange (EDI) transactions would provide clarity to the type of data being provided by using a meter type/or data type identifier.

HIGH-LEVEL DATA NEEDS AND REQUIREMENTS

Potential Data Sources for High-Level Data Needs and Requirements		
Utilities	**Non-Utilities**	**Both**
Utility customer and account data (including energy consumption and billing cost)*. More specifically: • Customer name • Address • Account ID • Monthly billed demand • Service charge	N/A	Utility customer tax exemption status
Electric Service Point Details*. More specifically: • Service point ID • Service class • Service voltage • Meter ID • Interval data • Utility tariff details • Net meter accounts (EDI transactions to include consumption, generation, net usage) • VDER and net meter credits at account level		Value difference +/- between ICAP tags and previous year's data

Accessible DER interconnection (hosting capacity) information

END USERS

DER developers, DER owners, utilities

SUMMARY

This use case will support DER developers, DER owners, and utilities to better understand and accelerate the interconnection approval process for planned/installed DER systems, so that DER projects can deliver clean energy to customers as soon as possible. Accelerating the interconnection process also includes a clearer understanding and evaluation of the process of siting the location of a DER installation. These goals could be achieved by enhancing existing hosting capacity maps through

- standardization,

- the addition of interconnection approval times and interconnection cost information,
- the inclusion of utility upgrade project information, and
- the corresponding forecast of hosting capacity updates.

HIGH-LEVEL DATA NEEDS AND REQUIREMENTS

Potential Data Sources for High-Level Data Needs and Requirements		
Utilities	**Non-Utilities**	**Both**
Standardized hosting capacity information*	N/A	Interconnection cost and approval time data*
Geospatially compatible utility upgrade project data*		
Granular underlying substation and electrical grid data that can be displayed geospatially*		

DER registry

END USERS

DER aggregators, DER developers, DER owners, DER operators, government agencies, the NYISO, utilities

SUMMARY

This use case will enable DER aggregators, DER developers, DER owners, DER operators, government agencies, the NYISO, and utilities to monitor and evaluate the state of DER deployment, accelerate new projects more efficiently based on insights gained from information on existing projects, and more successfully participate in the wholesale energy market through aggregation more accurately. By providing data that allows for a greater understanding of all installed and planned DERs in New York, this use case will also contribute to increased equitable and public access of energy data in one central location.

HIGH-LEVEL DATA NEEDS AND REQUIREMENTS

Potential Data Sources for High-Level Data Needs and Requirements		
Utilities	**Non-Utilities**	**Both**
N/A	All of the NYISO's DER information requirements	Current and historical standardized installed and planned DER data*. More specifically: • DER type • Location • Energy generation • Name of organization involved

		• Timeline of development

Customer meter data access upon enrollment in DR and DER programs

END USERS

DER developers, DER owners, DER operators, DER aggregators

SUMMARY

This use case would provide an alternative, centralized method for accessing meter data for customers that have already authorized a DER service provider to act as an aggregator on their behalf. Access to tariff, rate, and program information in a machine-readable and standardized format would be very helpful for rapidly presenting the value stack in New York to potential partners as well as restrictions on certain programs and technology types.

Information on the distribution network, such as voltage levels, and transmission network, such as the NYISO load zones and transmission nodes, is critical for enrollment and proper documentation in DR programs in New York. This information is not straightforward to access and understand.

The IEDR should enable seamless integration with utility data such that authorized meter data is available in a standardized format in a timely manner. Data access is a key concept, specifically access for meters that have already granted authorization to manage their participation in demand response or DER programs.

HIGH-LEVEL DATA NEEDS AND REQUIREMENTS

Potential Data Sources for High-Level Data Needs and Requirements		
Utilities	**Non-Utilities**	**Both**
Customer information on energy usage, such as meter reading and its associated data*	N/A	Information on rates, incentives, and programs available to customers based on energy use and other factors*
Information on grid infrastructure and operations*. This includes but is not limited to: • Network location of feeders, transformers, substations		

Improving access to customer data for DERs

END USERS

DER developers, DER operators, DER aggregators, ESCOs, local governments

SUMMARY

This use case will provide analytics, such as DER detection and propensity to use DERs, to improve access to the raw data within the IEDR to allow for all organizations to make use of this data, not just those with the technology and the staff to do the analyses. Users will utilize data on demographics, premise characteristics, utility provider, fuel used, energy use and cost, and historical weather by geography to analyze energy users by segment and individually to create personalized DER and DR offers. Stakeholders will employ this use case with high frequency to inform frequent and recurring business activities such as:

- End-use detection analysis to avoid offering DERs to energy users who likely already have DERs and/or offer upgraded DERs and related services to those who already have DERs.
- DR program enrollment to assess what programs energy users are enrolled in and the effectiveness of those programs to inform the development of new programs or offer competitive DR program alternatives to energy users.
- Propensity analysis to determine with what DER/DR offer to approach energy users by segment and individually.

HIGH-LEVEL DATA NEEDS AND REQUIREMENTS

Potential Data Sources for High-Level Data Needs and Requirements		
Utilities	**Non-Utilities**	**Both**
Utility provider*	Utility customer demographic data	Presence of existing DER by type (including make and model)*
Utility customer and account data (including energy consumption and billing cost)*. More specifically: • Advanced metering infrastructure (AMI) 15-minute utility customer energy consumption data • Day after and 12-month historic data	Historical weather	Customer zip code +4*
Premise characteristics*	Propensity score grouped to be Low/Medium/High segment based on score ranges	Fuel type*
Demand-side management (DSM) (including DR) program enrollment or exclusions		
Customer rate codes and conditions*		

DER type compatible with a DR program available within a utility territory		

Determine customer site hosting capacity

END USERS

DER developers, DER operators, DER aggregators

SUMMARY

This use case will provide DER developers, DER operators, and DER aggregators with customer site load and hosting capacity data that can be used in conjunction with existing data from the IEDR Phase 1 release (substation, feeder level hosting capacity, and planned and installed DER data) to plan and evaluate potential DER sites more efficiently and effectively. By using existing data in the IEDR system from IEDR Phase 1 in addition to the data mentioned above, end users should be able to dynamically view and query estimated hosting/load capacities for customer sites, circuits, and substations whereby estimated hosting capacity is provided for all service points and all relevant levels of aggregation.

HIGH-LEVEL DATA NEEDS AND REQUIREMENTS

Potential Data Sources for High-Level Data Needs and Requirements		
Utilities	**Non-Utilities**	**Both**
N/A	N/A	Customer site loads and hosting capacity data*. More specifically: • Local energy value • Local capacity value • Measured utility customer energy consumption data • Synthesized consumption data • Hosting capacity at service location • Service voltage • Number of phases • Load factor

State of DER dashboard

END USERS

Trade associations and state agencies

SUMMARY

This use case will support trade associations and state agencies to better understand key areas of DER concern, trends, rates of change, etc. Insights will inform and influence how and where to focus collective efforts as interconnection challenges become more and more frequent. DAC data could be incorporated to better understand and forecast potential disparities in equitable access to clean, renewable, and affordable energy and monitor progress towards achieving Climate Leadership and Community Protection Act (CLCPA) goals.

HIGH-LEVEL DATA NEEDS AND REQUIREMENTS

Potential Data Sources for High-Level Data Needs and Requirements		
Utilities	**Non-Utilities**	**Both**
Average and total hosting capacity available*	DAC criteria data	Installed and queued DERs*
Utility upgrade plans/projections*		Penetration ratio
Coordinated Electric System Interconnection Review (CESIR) Analysis		

Unlocking and operating flexible DR programs at scale

END USERS

Demand response providers

SUMMARY

This use case will support demand response providers to develop more successful DR programs, where providers can increase the number of customers enrolled, thus improving the reliability of the electric grid, and helping to achieve clean energy goals. This use case will provide access to customer demographics, premise characteristics, utility providers and fuels used by energy users geographically, and energy billing rates compatible with DR programs by utility. Information on residential energy users who have DERs will be used to design DR programs and enroll participants, while information on energy users with DERs enrolled in a DR program will be used to understand scale and approach with other DR program offers.

Data on residential energy users who have the highest propensity for enrolling in DR programs and what DR programs are available in their geography will be used to combine DER purchases with applicable DR program(s). Demographic data, premise characteristics, and utility provider(s) and fuel(s) used by energy users ordered geography can enable DR programs to be designed with the incorporation of DER sales. Energy billing rates will be used in DR program design. Data on which energy users are enrolled in which rates and which rates would be optimal when

combined with available DR programs will inform the sale of DERs combined with DR enrollment at scale.

HIGH-LEVEL DATA NEEDS AND REQUIREMENTS

Potential Data Sources for High-Level Data Needs and Requirements		
Utilities	**Non-Utilities**	**Both**
Reported by customer (privileged information) and heatmap by zipcode+4	Propensity by DER type	Presence of existing DER by type*
Daily accuracy of program enrollments and rate code	Confidence intervals for propensity by DER type, segmented at a minimum by Low, Medium, High	Confidence intervals for presence of existing DER by type, segmented at a minimum by "Confirmed via OEM", "Detected by disaggregation with high confidence", "Detected by disaggregation with medium confidence", and "not present or low confidence detection"

Performance evaluation of DERs

END USERS

DER developers, DER owners, DER operators, DER aggregators, utilities, the NYISO

SUMMARY

This use case supports DER developers in their efforts to optimize DER performance by providing data on peak load shift/reduction by DER and DER effect on individual users' Time of Use rate and other dynamic billing rates. With this information, end users can extrapolate the following analysis and key insights on DER performance:

- DER effect on geographies with load constraints,
- DER interconnection with rate optimization,
- DER performance during load shedding/other grid events, and
- the average and range of customer opt-out and override rates by DER type for participation in events.

These analyses will inform program evaluation reporting and improvement, including DR program and rate design adjustments.

HIGH-LEVEL DATA NEEDS AND REQUIREMENTS

Potential Data Sources for High-Level Data Needs and Requirements		
Utilities	**Non-Utilities**	**Both**
Peak load shift/reduction by DER	Weather conditions per event	N/A

DER effect on individual users' time-of-use (TOU) and other dynamic billing rates		
Runtime data from participating DERs by device by customer		
Event conditions (date, time, duration, dispatch instruction, participation instructions)		
Advanced metering infrastructure (AMI) data (15 minute where available)*		
Opt-out and over-rides per event per device type		

Facilitate IEDR wholesale services

END USERS

Service providers

SUMMARY

This use case will support service providers in their efforts to facilitate registration with NYISO for participating in existing and planned wholesale market participation models, as well as updating this information (ex. Transmission Node applicable to a customer's location) on an as needed basis (NYISO intends to update this information annually). The service provider will use the billing quality data provided to comply with NYISO settlement requirements and avoid the need to install duplicative private metering to supply the data. The service provider will be able to obtain interval data for each account registered with NYISO as part of an aggregation for submission by the service provider to the NYISO to comply with settlement data submission requirements. The NYISO will use the data provided to operate its DER programs and markets. The IEDR can make the data available to other relevant stakeholders as necessary.

HIGH-LEVEL DATA NEEDS AND REQUIREMENTS

Potential Data Sources for High-Level Data Needs and Requirements		
Utilities	**Non-Utilities**	**Both**
Substation details (particularly, Sub-Zone, Transmission Owner, and Transmission Node)*	N/A	NYISO Load Zone*
Electric service point details (including voltage levels)*		Installed DER details*
Electric customer details (including rate type)*		Accurate billing quality hourly interval data (kWh usage) provided less than 12 hours after the end of the prior day, with historical data provided for 1 year

Electric meter details. More specifically: • Information not specified in Appendix B of DPS Staff's Report required for NYISO Meter Service Entity Meter Inventory process, including calibration testing information and dates of last test, potential transformers/ current transformers equipment installed		Billing quality hourly interval kWh usage data (in Hour Beginning format) with raw data published for each interval as soon as the utility can make it available*
Billing-quality data (that has undergone the utility's Validation, Estimation and Edit process) available less than 12 hours after the end of the prior day, with historical data provided for 1 year		

Efficient and effective access to existing customer billing data

END USERS

Community solar developers, state and local government agencies, ESCOs

SUMMARY

Current access to bill data is problematic as the only way to access bill image PDFs is through a customer online account, which brings risks. Currently, energy managers are only able to access customer bill data once a customer has signed their energy contract. At this point, the energy manager can then share data access with a data provider. This use case would grant access electronically for a list of properties at the time of energy manager and data services contract signing, with no additional action required on behalf of the customer after that for the data services provider to access data for those properties at a later point within the authorized timeframe.

Currently, separate actions are required for each customer account at the time of the authorization request. Ideally, customer consent can be granted both in advance and at the moment of the request, and it should be possible to grant access via mobile phone. This use case would help improve the timeliness of bill payment, reduce late fees, and verify customer savings.

HIGH-LEVEL DATA NEEDS AND REQUIREMENTS

Potential Data Sources for High-Level Data Needs and Requirements		
Utilities	**Non-Utilities**	**Both**
Unique property ID*	N/A	N/A
Service points*		
Address*		

Meter IDs*		
GBC usage summary representing bill*		
Service period start and duration for the usage point*		
Reference to the bill image applicable*		
Unique invoice ID*		
Bill issuance date*		
Amount due*		
Due date*		
Date on which the next bill is expected*		
An indication of whether the bill replaces any preceding bill (and if so a reference to the invoice ID)*		

Enhance identification of heating, ventilation, and air conditioning (HVAC) energy efficiency opportunities

END USERS

ESCOs

SUMMARY

Seasonal weather patterns and sudden shifts in temperature can lead to inconsistent, high-energy bills and create consumer confusion, resulting in customer dissatisfaction. Inefficient or faulty heating and cooling systems can greatly exacerbate that situation. This use case will support ESCOs in their efforts to detect anomalies with customers' heating and cooling systems early and provide customers with solutions to repair their inefficient system, which will reduce their electric consumption and alleviate strain on New York's electrical grid. To meet this goal, the IEDR will provide accurate and timely access to utility customers' current and historical 15-minute energy consumption AMI usage data. ESCOs can then apply algorithms to the data that analyze usage patterns and identify faults or inefficiencies with HVAC systems located at the customer's premise and that compare usage patterns of residential customers' systems/appliances to the expected usage of properly functioning systems/appliances to detect inefficiencies or anomalies.

HIGH-LEVEL DATA NEEDS AND REQUIREMENTS

Potential Data Sources for High-Level Data Needs and Requirements		
Utilities	**Non-Utilities**	**Both**
15-minute utility customer energy consumption AMI usage patterns of residential premises that have	Building attributes related to energy efficiency	Interval data organized by season (summer, fall, winter, spring) and broken out by

efficient properly functioning heating		premise size, zip code, or city to account for New York's different weather patterns throughout the state*
Energy usage patterns of residential premises that have inefficient heating and cooling systems		

Aggregated customer data analysis for improved energy efficiency (EE) programs

END USERS

Utilities, state and local government agencies, and other EE program providers

SUMMARY

IEDR users will be able to access and analyze aggregated customer data to understand historical participation in energy efficiency programs and various trends and insights related to program participation that can help inform the design and implementation of new energy efficiency programs and services. To assess which energy users may have a high, medium, or low propensity for participating in specific energy efficiency programs, the IEDR will provide:

- customer energy use and cost data by fuel type and related similar efficient premise comparison analytics,
- an analysis of utility customer program participation to determine whether energy users already have participated in energy efficiency programs, rebates, and incentives, and
- information on which energy users have interacted with EE program, rebate, and incentive information.

HIGH-LEVEL DATA NEEDS AND REQUIREMENTS

Potential Data Sources for High-Level Data Needs and Requirements		
Utilities	**Non-Utilities**	**Both**
Historical energy use (15-min utility customer energy consumption AMI)*	Demographic data	Energy efficiency program enrollment or exclusions
Energy billing data*	Historical weather	Presence of existing technology by type
	Confidence intervals associated with propensity analysis	Customer zip code*
	Building attributes related to energy efficiency	Fuel type*

Glossary

AMI: Advanced metering infrastructure

CAIDI: Customer Average Interruption Duration Index. This is a utility service reliability metric that describes the average time required to restore service.

CCA: Community choice aggregation

CDG: Community distributed generation

CESIR: Coordinated Electric System Interconnection Review

CLCPA: Climate Leadership and Community Protection Act

DACs: Disadvantaged communities

DER: Distributed energy resource

DR: Demand response

DSM: Demand-side management

DSO: Distribution system operator

EDI: Electronic Data Interchange

ESCOs: Energy service companies

EUI: Energy use intensity

EV: Electric vehicle

EVSE: Electric vehicle supply equipment

GHG: Greenhouse gas

ICAP: Installed capacity

LCF: Low-carbon fuels

LMI: Low and moderate income

MFH: Multi-family housing

SAIDI: System Average Interruption Duration Index. This is a utility service reliability metric that describes the total duration of the average customer interruption.

SAIFI: System Average Interruption Frequency Index. This is a utility service reliability metric that describes how often the average customer experiences an interruption.

TOU: Time of use

VDER: Value of Distributed Energy Resources. This is a newer method for excess solar energy compensation designed to more accurately compensate renewable energy generation in regard to environment and electrical grid benefits. With VDER, users receive a monetary credit that can roll over into future billing cycles.