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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

Identifying and Engaging New Customers for Distributed Energy Resources (DERs)

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

Customer contact information; hourly utility customer energy consumption data; customer load profiles; Identification of customers by service class, location, building type, DER, and/or electric

vehicle (EV) adoption; reliability events with granular location data; hourly load profiles for 24-hour periods; number of customers contained in an average if an averaged load profile is provided for a subset of customers; location of customer connection to system and areas of locational system need; locational System Average Interruption Duration Index (SAIDI) and System Average Interruption Frequency Index (SAIFI) data.

In addition, robust consumer protection and transparent marketing practices should be completed prior to service providers receiving IEDR access.

To implement this use case will require:

- Hourly customer usage associated with customers with specific attributes, such as service class, location, building type, DER, EV adoption
- Location of customer connection to system and areas of locational system need
- Ability to search usage data for patterns, such as peaky usage and low load factor
- Ability to create averages of usage patterns for all customers that match certain search criteria
- Ability to identify abnormal usage patterns for customer types or building types
- Types of customer load profiles to be searched (service class, location, building type, type of DER employed, with an EV, business type)
- Matching criteria for load profiles (load factor greater than or less than x, total consumption greater or less than x, peak demand greater or less than x, coincident peak demand greater or less than x, ratio of off-peak consumption to peak consumption greater or less than x)

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

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

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.

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 IEDR 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.

Customer Load Energy Analysis "apps" On Their Smart Meter

SUMMARY

This use case will support distributed energy resources (DER) aggregators efforts to improve their offerings by knowing what devices and appliances are consuming electricity. Real-time usage data at intervals of a few seconds will be extremely valuable for demand response. Once successful in deploying an application to a customer's meter, the IEDR should enable the DER developer to receive, directly from the customer's meter over their home or business Wi-Fi connection, the following two pieces of information:

- The customer's real-time energy usage data
- Disaggregation of usage into devices and appliances (e.g., "your water heater is 20% of your total bill"). Disaggregation is performed on the meter itself, with only the results being transmitted directly to the DER provider.

HIGH-LEVEL DATA NEEDS AND REQUIREMENTS

Outside of interacting with the utilities' advanced metering infrastructure (AMI) systems, there is no customer data the IEDR itself needs to analyze for this use case.

Some potential key implementation requirements:

- A management dashboard is needed to manage customers' app authorizations, app loading status, error messages, etc.
- The IEDR would serve as an important centralized administrator to deploy the app over the utility's AMI network once the customer has granted permission.

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.