

STATE OF NEW JERSEY BOARD OF PUBLIC UTILITIES

Advanced Metering Infrastructure (AMI) Data Transparency, Privacy & Billing Docket No. EO20110716

September 30, 2022

UtilityAPI, Inc.

Comments Regarding AMI Data Transparency, Privacy & Billing

UtilityAPI appreciates the opportunity to provide feedback on the straw proposal regarding AMI Data Access. It is encouraging to see that the New Jersey Board of Utilities has set a clear standard on how straw data access and privacy should be planned and its benefits delivered to the customers of New Jersey utilities.

In the proposal submitted, we are gratified that data access and privacy plans include more access to data. UtilityAPI has extensive technical experience in developing, hosting and administering data exchange platforms for thousands of users. With that experience in mind, UtilityAPI offers the following focal points for a successful and customer-focused implementation of the GBC standard.

GREEN BUTTON CONNECT USE CASES

UtilityAPI offers a best-in-class Green Button Connect implementation. We support requiring Green Button Connect implementation for electric distribution companies (EDCs). Built on our Data Access Platform, we offer standardized, Green Button Alliance-certified, UL-tested, reasonably priced Green Button Connect My Data (GBCMD) and Green Button Download My Data (GBDMD) solutions. Our products comply with NAESB REQ.21 (OpenESPI) and enhancements made by the Green Button Alliance's OpenADE working group.

We have the only full-featured product in the U.S. tested by UL and certified as compliant by the Green Button Alliance. Our platform can be easily embedded into most existing utility Meter Data Management (MDM) systems or utility vendor platforms. UtilityAPI has successfully implemented Green Button Connect (i.e. OpenESPI) at multiple utilities including Fort Collins, National Grid NY, Silicon Valley Clean Energy and Peninsula Clean Energy in California.

Fort Collins Utilities, Colorado

In response to a state mandate requiring transparency for energy and water efficiency for 5,000 square feet and above commercial and multi-family buildings, the City of Fort Collins and Fort Collins Utilities launched the *Building Energy and Water Scoring Program*. Fort Collins Utilities began its public involvement process to explore benchmarking policies in 2017, knowing that nearly 2,500 existing commercial (non-industrial) buildings account for over 50% of our community's energy use and resulting carbon emissions.

With the aim of controlling costs and minimizing utility staff time, Fort Collins Utilities chose to partner with UtilityAPI to implement their program. Fort Collins was the first utility to automate data sharing for the purpose of benchmarking. They worked with UtilityAPI to develop a certified Green Button Connect platform that reports both back to the city and directly into the EPA's ENERGY STAR® Portfolio Manager®. By matching utility premise to a unique building identifier, UtilityAPI enabled Fort Collins to streamline the customer experience, leading to more customer-friendly services while complying with building performance standards policy.

National Grid, New York

Green Button Connect functionality is required by all the utilities in the state of New York. National Grid New York chose UtilityAPI to build its Green Button Connect as a white-labeled solution.

The National Grid New York Green Button Connect is now enrolling third parties in beta (testing) mode. When it launches full service, it will be the first certified Green Button Connect at an investor-owned utility. As a result of the challenges being faced, the state of New York is setting the bar higher and considering increasing the requirements for the share of energy usage data. National Grid is fully prepared for every requirement which will be set by the regulators. UtilityAPI's National Grid Green Button Connect solution will enable them to be fully compliant with changing and evolving regulatory requirements in the state.

Silicon Valley Clean Energy, California

Silicon Valley Clean Energy (SVCE) aimed to make starting and monitoring clean energy projects much easier. Similar to National Grid, SVCE chose UtilityAPI. UtilityAPI literally wrote the data exchange standards for GBC the company that literally wrote the data exchange standards for Green Button Connect and UtilityAPI is a member of the Green Button Alliance, a non-profit that fosters the development, compliance, and adoption of the Green Button standard. UtilityAPI helped SVCE achieve both of those goals by providing instant, authorized, and secure access to standardized energy data.

SVCE white-labeled UtilityAPI's GBC platform was named as their own "Data Hive". Data Hive helps reduce friction in the market by addressing both the costs and the hassle of giving and receiving authorized access to customer data.

Peninsula Clean Energy, California

Peninsula Clean Energy and Silicon Valley Clean Energy are a community choice aggregator (CCA). In other words, the utilities supply energy for their communities, but they do not run the distribution network, which is run by Pacific Gas & Electric. PCE also preferred to work with UtilityAPI and UtilityAPI helped them offer data exchange services to third parties, businesses, and customers within their territory.

With UtilityAPI, they can now offer one single platform solution that lets commercial customers access the data they need for their ESG reporting, while also allowing small, innovative third parties to get consent-driven authorized access to the customer data they need to do their work. This use case clearly indicates the efficiency of UtilityAPI GBC solution and helps those commercial customers accomplish their mission in terms of ESG reporting.

STANDARD CUSTOMER PRIVACY AND CYBERSECURITY REQUIREMENTS

Green Button Connect builds on internet security best practices that many industries use for secure electronic communication and consent processes.

Encryption

First, all connections between the utility customer, the utility, and third parties are encrypted using Transport Layer Security (TLS), commonly known when used in web browsers as "https" (e.g. the green lock in the address bar). This communication encryption protocol is widely considered to be the most secure means of communicating over the internet, offering both confidentiality and message integrity.

Customer Consent with OAuth

Second, the customer consent process that is mandated in Green Button Connect is built on the Open Authorization 2.0 (OAuth 2.0) protocol, also widely used in many enterprise and consumer sectors for establishing user authorization and consent for third parties. For example, many enterprise financial

software platforms use OAuth 2.0 to obtain authorized API tokens for accessing private customer financial data.

Build on Existing Best Practices Instead of Inventing New ones

TLS and OAuth 2.0 are the security backbones of Green Button Connect, which ensure that the standard is fully aligned with modern internet cybersecurity best practices. Adopting these commonly used standards also eliminates the need to independently reinvent the wheel for securing private customer utility data.

USAGE AND BILLING DATA

Data fields contained within the GBC standard can be broken down into two distinct buckets: Usage data and billing data.

Billing data refers to information generally contained on bills and having to do with payments including, what rate(s) the customer is on, what retail provider the customer uses, billing cycle dates, account number(s), meter number(s), payment history, and line items of costs such as volumetric charges, delivery charges, demand charges, taxes, fees, etc.

Usage data includes electric or natural gas usage in kilowatt-hours, cubic feet or therms, containing both “register reads,” which represents the overall usage to date, equivalent to the dial positions of an older, analog meter, and “interval reads,” also known as a “load profile,” which is time-series energy use typically in hourly or 15-minute periods.

Our recommendation for both billing and usage data is that utilities should support up to four (4) years of historic usage data, or the length of the time the customer has been at the premise in question, whichever is less.

CONSENT-BASED SHARING OF PERSONALLY IDENTIFIABLE INFORMATION (PII)

In the most recent major update to the Green Button standard, technically called the Open Energy Service Provider Interface (OpenESPI), the supported data fields and file formats were significantly expanded to include customer, account, and service details. This set of data fields is called the Retail Customer section of the Green Button standard and allows for the secure and standardized transfer of non-anonymous customer information with that customer's consent.

With Retail Customer data, an authorized third party recipient of customer data can match up various usage data feeds to the address/location, customer name, meter number, and other real-life customer details. Prior to the Retail Customer update, figuring out which usage data feeds matched which real-life customer locations and meters was not possible because usage data feeds did not contain any customer personally identifiable information (PII).

A GOOD USER EXPERIENCE IS CRITICAL TO SUCCESS

Based on UtilityAPI's experience of providing thousands of customers with data sharing services, the two most important components of a good user experience are that it is (1) easy to understand and (2) simple to use. Unfortunately, most data sharing platforms have not prioritized a seamless and simple user

experience. Complicated user experiences mean that people won't use the platform; customers and third parties won't share data.

Poor user experiences can mar data sharing for both utility customers and third parties. For utility customers, a consent process that requires many mouse clicks or required fields to fill out, contains complex language that many utility customers would not understand, or fails to provide scope parsing so third parties can pre-select the authorization scope they need, will result in confused, frustrated, or annoyed customers who abandon the consent process before completion.

Based on our seven years experience serving the third-party community, we know what factors will discourage third party usage — and as a result of that, low customer engagement. Quite simply, they are

- Onerous registration and onboarding processes (for example, lots of back-and-forth emails)
- Significant technical expertise or connectivity testing required
- Lack of test or sandbox environments

This user experience (UX) challenge was clearly identified in the State of California, following the roll out of uncertified Green Button Connect implementations at the three investor-owned utilities (IOUs). Customer adoption of GBC for the demand response market was initially quite low. At the time, it was thought that the market was not interested in such functionality. In response, the California Public Utility Commission created the Customer Data Access Committee (CDAC), convening the IOUs and third party demand response providers (DRPS) to study the matter.

Through the CDAC's work, it became clear that market interest was high; poor UX, however, was blocking fuller use of the GBC systems for providing authorized customer data access to the DRPS. As part of the committee, UtilityAPI proposed three technical solutions that could be implemented to solve the UX challenges and increase utilization of the GBC platforms at the IOUs.

Before implementing UtilityAPI's proposed solutions, GBC usage for demand response customers was under 1000 in Q2 of 2016. Between Q3 of 2016 and Q1 of 2018, the 3 IOUs worked to implement the updated UX solutions. After full adoption of the new UX framework, GBC usage for DRPs leapt to over 100,000 authorizations.

Put plainly, UX fixes in the California market resulted in a 100x increase in utilization of the platforms. It is clear from this example that UX is critical to success. For more details please see the following white paper released by the CPUC CDAC: https://utilityapi.com/static/resources/UtilityAPI_CPUC-CDAC_Whitepaper.pdf. This case study was also presented by the Green Button Alliance and UtilityAPI to the New York State Department of Public Service in February of 2019. Slides from that presentation can be found here: <https://documents.dps.ny.gov/public/Common/ViewDoc.aspx?DocRefId={67C9AFC8-0CCD-4194-BC34-DDB4A23FC73D}>

THE POWER OF SPEED

Beyond user experience, in order to have robust data sharing, a GBC platform must deliver data in a timely way. Many use cases for data sharing rely on “in the moment” exchange of the data, which we define as delivery within 90 seconds. Below are a few of the many examples of how “in the moment” data sharing is crucial for the third party and customer.

The first example is phone sales. Solar and energy efficiency vendors often use phone calls to educate a potential customer on the energy and cost savings of a project. With “in the moment” data sharing, customers can authorize data sharing during those phone calls allowing the vendor to provide a quick analysis to the customer and give them an immediate price and energy savings quote.

The same is true for websites. A solar modeling tool using “in the moment” data can return a quote to a customer in real-time, allowing a customer to decide to go solar in one visit to the website. When data delivery takes many days, customers and third parties are not able to take advantage of consumer experiences available in all other modern industries. Customers have rightly become accustomed to “in the moment” data on popular shopping sites such as Amazon. Delayed energy data means the same customer must re-engage days or weeks later to decide on energy saving solutions. Viewed in aggregate, the delays in energy data delivery amount to a massive slow down for deploying energy and money saving projects.

Another example is a kiosk at a home improvement store. A customer is able to enter information about themselves to the kiosk and authorize the data sharing. With “in the moment” data sharing the kiosk can do a quick analysis and then let the customer know that the upgrades they need for their home are available in aisle 3. With delayed data, the kiosk cannot make recommendations in a timely manner for the customer while they are in the store.

Finally, “in the moment” data is crucial for measurement and verification of energy upgrades. If timely data is available, it is a powerful tool for energy management providers to receive regular updates and information on energy and cost savings. With delayed data energy managers are much more likely to install sub meters or instill regular site visits to verify operations. Both balloon the costs of services for the end customer.

SIX PRINCIPLES FOR GOOD DATA SHARING

Secure, synchronous access to comprehensive, accurate and clear energy usage and billing data is fundamental to fulfilling commitments to clean energy policy locally, nationally and globally.

Standardization will enhance the growth of new energy technologies providing products and services and encourage the growth of data sharing platforms that meet the needs of the market.

This includes standardized processes for customer authorization to share data that address privacy and security concerns. All data that is shared externally is done with explicit consent of the customer. Data is cleaned and organized in a manner that is API accessible, and certified compliant with the Green Button Connect standard.

We are happy to share our six guiding principles to improve access to energy billing and usage data:

- 1. Full Data Set:** Standardize availability of a requisite set of data for historical and ongoing data access.
- 2. Synchronous Data:** Once a data request is authorized and authenticated, data is delivered on demand, upon authorization, (e.g. data begins streaming within 90 seconds of request).
- 3. Instant, Digital Authorization:** A digital signature (including click-through) is valid for authorizing data sharing.

4. Instant, Consumer-Centric Authentication: A third party will not be held to a higher authentication standard than the utility holds itself. Accordingly, the utility will authenticate using consumer-centric login credentials, for example, zip code and account # or online account username and password.

5. Seamless Click-through: A utility account holder will be allowed to begin and end the clickthrough process on the third-party website. This may happen without any requirement to log in to any other site/process during this flow (e.g. can be a simple checkbox) or may allow the user to remain in the third party website flow, even in various authentication scenarios (login, signup, forgotten password, etc.), as in the case of OAuth or open authorization protocols. The click-through process should be designed to be one-click and the third party may lead the customer request for the types of data and the time frame of data sharing. The customer may approve or reject such a request at their discretion.

6. Strong Security Protocols: Adopt strong security protocols. Data security can accommodate cloud-based systems.

CLEAR DOCUMENTATION AND PROCESSES ENCOURAGE INNOVATION

Because GBC requires that a third party company register with the data custodian (i.e., the utility) prior to being able to request data from utility customers, the time and resources it takes to become registered and onboarded are critical factors in the utilization of a GBC platform by third parties. If the registration process is unclear, too long, or poorly documented, third parties will give up part-way through the registration, or not even attempt to become registered at all.

For third parties looking to integrate the GBC API into their software platforms, tools, apps, and websites, not having proper integration and API documentation along with a test environment has, in our experience, resulted in a significantly more technical support requests, higher total development costs for the third parties, and delayed launches for integrated products, if not outright abandonment of these new products. Lack of documentation and processes hinder true innovation.

Unnecessarily difficult technical requirements and connectivity testing steps during the registration and onboarding process have effectively blocked many small, local businesses who may not have access to technical resources (e.g. no software engineering team on staff) from getting through registration and participating in programs that require Green Button Connect data access.

99.9% UPTIME, 90 SECOND DATA TRANSFER AND TRANSPARENCY ABOUT ERRORS WILL ENCOURAGE OPTIMUM USAGE

For Green Button Connect, focus on two major performance standards. First, the consent process for utility customers should be a consumer-facing web portal that needs to work nearly all the time, just like other trusted portals that consumers use (e.g. their bank's website). Current web portal best practices expect 99.9% uptime.

Second, when a customer has granted authorization, the third party data transfer performance is critical in allowing the third party to get the authorized dataset and provide the analysis the customer is expecting. Fast, reliable initial data transfer within 90 seconds is the default expectation; however if occasionally things go wrong, and data takes longer than that, or fails to transfer, the third party should get to see what the problem was. Disclosure of the type of error (e.g. OAuth redirect errors, proper HTTP response codes, etc.), documentation on how various errors are resolved, and prompt replies from technical support are all important to meeting performance expectations of third parties.

Third parties understand that errors and downtime occasionally happen, but transparency about issues and good communication are critical to earning the industry's trust. The lack of reliability, lack of transparency and/or poor communication cause third parties to abandon the platform.

We strongly believe that the New Jersey Board of Utilities are on the right path and our successful Green Button Connect use cases above merit serving as a guideline for the State of New Jersey.

If you have any questions or concerns, please do not hesitate to contact us.

Yours respectfully,

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