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VIA EMAIL AND ELECTRONIC FILING
Aida Camacho-Welch
Secretary
Board of Public Utilities
44 South Clinton Avenue, 9th Floor
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Re: STRAW PROPOSAL ON ADVANCED METERING INFRASTRUCTURE DATA TRANSPARENCY, PRIVACY & BILLING
(BPU Docket No. EO20110716)

Dear Secretary Camacho-Welch:

On behalf of ENGIE Resources, NRG Energy, and Vistra ("Competitive Suppliers"), we submit these comments regarding the Board's Straw Proposal on Advanced Metering Infrastructure Data Transparency, Privacy and Billing. We applaud the effort that Board Staff put into developing this comprehensive straw proposal. Each of the third party suppliers ("TPSs") we represent are committed to delivering innovative products and services that empower New Jersey customers to take control of their energy consumption. However, their ability to do so really hinges on timely and efficient access to customer near real-time interval usage data which can only be achieved with the adoption of standardized data access requirements. The retail suppliers we represent are also committed to actively participating in this stakeholder process to ensure standardized data exchange and to work quickly toward a resolution of issues with participating stakeholders.

CUSTOMERS OWN THEIR AMI DATA

The Competitive Suppliers enthusiastically agree with Board Staff's recognition that customers own all data generated by their AMI meters and that each Electric Distribution Company ("EDC") should be required to adopt a clear statement regarding this in their Data Access Plans and minimum filing requirements ("MFR") compliance filing. The interval usage data generated by

AMI meters belongs to the customer – after all, the customer used the electricity, paid for the electricity, is paying for the AMI meter investment, and the customer's own electricity usage generated the data. Customers alone should control the access to their usage data. We agree with Board Staff's statement that "customers should be able to share their AMI data with energy services providers, including utility contractors and TPSs, with a minimum of hassle…" We further agree with Board Staff's statement regarding "data portability" - that "customers have the right to move their energy-related data from one energy services provider to another." In addition, the Competitive Supplier agree that each individual customer owns all of the data generated by their AMI meter. As such, the customer has the right to designate who it wants to share its data with including Third Party Suppliers or other third-party organizations.

We recommend that the Board include a requirement that utilities may not charge a fee to the customer or to the third party with whom the customer wishes to share their AMI data, including TPSs, DER aggregators, and other energy services companies.[1] This is the data of the future and the only way that customers will realize the full benefits of this data is for it to be widely available to the suppliers of the customers' choice and at no additional cost to the customer or their chosen service supplier.

REAL TIME ACCESS TO AMI DATA IS CRITICAL

We strongly agree with Board Staff that "[r]eal-time access is critical to allowing customers to understand how their daily actions affect their electricity consumption." We also agree with Staff's proposal to define "real-time" and "near real-time" as a requirement that utilities make all data available no later than 24 hours after the meter readings are captured, and sooner, if possible. The data provided by the utilities should be Billable Quality Interval Usage Data ("BQIU data") which requires the utilities to verify the accuracy of the data prior to sharing it with the customer

[1] We are aware that PSE&G currently provides suppliers with access to the interval usage data available for commercial and industrial customers who have meters capable of providing hourly usage. However, the form of data access and requirements for access are unworkable in an era where AMI data is the new standard and they are fundamentally different from what the Market Participants are seeking here. PSE&G's Third Party Supplier Electric Operating Manual provides that: "A TPS can request interval data by contacting via e-mail TPSupplier@pseg.com. Interval usage requests may be charged $40 per meter. The TPS must obtain and retain a letter of authorization from the customer for this data." PSE&G TPS User Manual, p. 22, November 2016. TPSs should not be required to pay for a customer's interval usage data that the customer authorizes the TPS to obtain. As noted above, the data does not belong to PSE&G – it belongs to the customer and customers are paying for these AMI meter investments. Moreover, LOA requirements are overly burdensome. Customers should be permitted to authorize a supplier to obtain their IU data as part of the contracting documents executed to enroll for TPS service.

and third parties. We also agree with Staff's proposal that the utilities support the sharing of data to home area networks on a sub-15 second basis.

AMI provides the platform to offer highly granular data on each individual customer's energy usage in order for utilities, third-party suppliers, and other service providers to build customized load management programs, pricing and payment plans and other innovative services that can empower customers to effectively control their energy usage and costs.[2] New Jersey's TPSs need to be able to retrieve their customers' real-time or near real-time BQIU data as fast as possible each day so they can quickly load that data into their systems and present it to their customers promptly. This is especially true for residential customers. The key to offering products and services that effectively enable customers to change their behavior and shift their energy consumption is communicating information about their consumption in as near real-time as possible so customers are able to make connections between their electricity usage and what they were doing during that time. Moreover, customers have come to expect instant access to timely information in all aspects of their lives - from the number of steps they take in a day, to watching movies on demand, to same day shipping of the products and services that they buy. The older the provided BQIU data, the less valuable and useful it is for motivating the customers to take action. The only way that TPSs can effectively engage their customers is to require that the EDCs provide access to customers' AMI data as quickly as possible. When suppliers have real-time or near real-time access to BQIU data, they can deliver value-added products and services to customers that also benefit the grid and help the state achieve its clean energy goals. Examples of the type of customer engagement that would be enabled by real-time access to BQIU data include alerting customers to high bills or high usage through text messaging and providing weekly email summaries of daily or hourly usage that inform customers about their high usage days and/or times of day.

THE COMPETITIVE SUPPLIERS STRONGLY SUPPORT FIVE MINUTE METER BQIU DATA WITH WATT LEVEL PRECISION

We wholeheartedly support Board Staff's recommendation that the standard data access plan require the EDCs to collect 5-minute meter BQIU data at watt level precision. Watt level precision is important because residential customers consume energy at a much lower rate than larger commercial and industrial customers. A residential customer may use as little as 750 kilowatt

[2] Advanced Energy Economy, *Advanced Metering: Connectivity for the Modern Grid* (July 19, 2018 (Updated)).

hours ("kWh") in a billing period. When you are trying to see and understand how much electricity such a customer uses each hour of that period, there will be many hours that register in watts. It is essential that the BQIU data provided to TPSs is measured at the watt level so that these customers' usage can be properly analyzed, and products designed to meet these customers' needs.

GREEN BUTTON CONNECT IS NOT A VIABLE OPTION FOR AMI DATA SHARING

We are pleased to see that Board Staff recognizes the limitations of Green Button Connect as a method of sharing customers' AMI data with TPSs and other third parties. Green Button Connect is best suited to providing individual customers with access to their own IU data. It is not viable for TPSs serving tens of thousands of customers to obtain their customers' BQIU data all at one time, every single day. Green Button Connect is a manual process that requires users to request IU data one customer account at a time or in small batches. Moreover, because these data requests go through a third party vendor, the response speed and processing of that data can be slow and cumbersome. Also, the number of data requests required to meet a TPS's daily data needs can lead to security concerns over network traffic accessing data. As an example, NRG subsidiary Reliant Energy operating in Texas offers Green Button Connect as a way to supplement the usage graphs that it provides to customers, but Reliant gets its data used for billing, load forecasting, etc. directly from the ERCOT smart meter portal in batch CSV files. We have no objection to the EDCs continuing to enable Green Button Connect as a means for customers to access their own data, but we urge the Board to require the EDCs to implement our recommended data sharing solution described below since Green Button is not a viable alternative for TPSs.

AMI DATA SHOULD BE SHARED WITH TPSs USING FLAT CSV FILES THROUGH A SECURE WEB PORTAL AS WELL AS ELECTRONIC DATA INTERCHANGE (EDI)

We strongly recommend that the EDCs' Data Access Plans include a process for TPSs to access their customers' BQIU data on a rolling 24-hour basis. The data must be made available daily and a supplier must be able to access the data for all of its customers at one time. At a minimum, the Plan should enable TPSs to access their customers' interval usage data through the Electronic Data Interchange ("EDI") as well as through the EDCs' existing secure supplier web portals via flat files (i.e., "batch CSV" or Tab-delimited files). EDI is utilized by EDCs and TPSs today to transact business. EDI is capable of providing customers' historical interval usage ("HIU") data and many other utilities that have deployed smart meters enable access to HIU data via EDI. However, while EDI may be appropriate for obtaining some customers' data – primarily large commercial and

industrial customers' data – it is quite costly and is not capable of transmitting BQIU usage data. An efficient and low cost means of providing BQIU data is via flat files (i.e., "batch CSV" or Tab-delimited files) accessible through a web portal. Such files can be created by EDCs for each certified supplier on its system using the supplier's DUNS number to query its system. The creation of these daily files can and should be automated by the EDCs. TPSs can similarly program their systems to automatically access their customer files each day. By enabling such system-to-system communication, the need for manual intervention is minimized or even eliminated. The data files provided through this system-to-system solution must include all of the 24-hour old BQIU data for all of the customers being served by the supplier. Each row in the file would contain data for a specific customer, while each column in the file contains the usage for each 5 minute interval. The CSV files typically contain a rolling 10 days' worth of 24 -hour old (or less) BQIU data. A new file for each supplier would be added to the web portal daily. These data files should be provided to suppliers via the EDC's existing secure supplier web portals.[3] Suppliers would log into the EDC's supplier web portals using the EDC-assigned username and password, download their data file(s), and begin the work necessary to translate that data into useful information for their customers. Only suppliers that are licensed by the Board and certified to do business with the EDCs have access to the supplier portal and a supplier would only be able to access the near real-time BQIU data for its own customers.[4]

It is unlikely that a single data access solution will be sufficient to meet the needs of all market participants. A variety of solutions can and should be adopted in New Jersey to meet various needs in the market. For example, the Pennsylvania Public Utility Commission ("PAPUC") directed its EDCs to work through its Electronic Data Exchange Working Group process to develop Electronic Data Interchange transactions to fully achieve the capabilities of smart meter technology. Specifically, the PAPUC directed that all EDCs provide customers and their designated representatives with data access that fulfills the requirements of open, non-proprietary, two-way

[3] See Smart Meter Procurement and Installation, Docket No. M-2009-2092655, Pennsylvania Web Portal Work Group Technical Implementation Standard – System-to-System Rolling 10-Day, filed by the Electronic Data Exchange Working Group with the Pennsylvania Public Utility Commission on April 12, 2016. This report starts on page 48 of the 78-page PDF, which is available at this link: http://www.puc.state.pa.us/pcdocs/1431402.pdf

[4] We do not think that each utility should provide the data in the format preference of the customer or the customer's agent since the customer is unlikely to understand the technology requirements of the third party with whom the customer wishes to share his/her data. Such an approach runs the risk that a TPS will not receive the data in the format it needs even though the customer has consented to sharing that data. A standardized approach to data sharing would be much less confusing.

access for electric suppliers and third parties, such as conservation and load management service providers, and full electronic access for customers and their representatives to meter data upon customer consent. The PAPUC has also defined "bill quality data" for the purpose of functionally being able to bill using it and requires such interval data to be shared within 24 to 48 hours of daily meter reads. In addition, the PAPUC directed the work group to develop standardized solutions for the acquisition of historical interval usage and BQIU data via a secure web-portal and those solutions were approved and implemented in 2017.[5] These solutions included a requirement for flat .CSV batch files with a rolling 10-days' worth of IU data delivered through the EDCs' supplier portals daily, an API solution capable of retrieving real time and historical interval usage,[6] and an EDI solution. All of these solutions were implemented by the Pennsylvania EDCs.

In addition to examples in neighboring states, a wealth of resources exists on best practices for customer energy data access. NARUC also has a list of resources on the topic.[7] Among them is an Advanced Energy Economy ("AEE") report, *Access To Data: Bringing the Electricity Grid into the Information Age*, which demonstrates that energy data must be available in three basic ways to allow customers the greatest control and benefits:

> (1) a standardized data exchange to provide individual customer data to customers and customer-authorized third parties;
> (2) in states with retail competition, bill-quality interval data, through comma-separated values files (.CSV) and Electronic Data Interchange; and
> (3) aggregated, anonymized customer data, system data, and grid planning data made available on an as-requested basis,

as part of broader efforts to make such data continuously available so that the market can better develop customer offerings and propose solutions that the utility may not realize are available.[8]

We do not believe that a Statewide data warehouse, as several other states, including New York, New Hampshire and Texas have opted for, would be the right solution for data sharing. It

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[5] *See* Pennsylvania Public Utility Commission, Smart Meter Procurement and Installation, Docket No. M-2009-2092655, Final Order (December 5, 2012).

[6] API (application programming interface) is a computing interface that defines interactions between multiple software intermediaries.

[7] National Association of Regulatory Utility Commissions, NARUC-NASEO Task Force on Comprehensive Electricity Planning – Resources, Topic 1- Data Access, available at https://www.naruc.org/taskforce/topic-1-data-access/.

[8] Advanced Energy Economy, Access To Data: Bringing the Electricity Grid into the Information Age, p. 1 (April 9, 2018 (Updated)) available at https://info.aee.net/hubfs/Access%20to%20Data_FINAL_4.9.18.pdf.

would take a lot longer for the EDCs to agree on the architecture of a centralized data repository and it is likely to be much more expensive to implement.

THE EDCs SHOULD SETTLE CUSTOMER ACCOUNTS USING ACTUAL AMI DATA

We also strongly support Board Staff's proposal to require EDCs to settle customer accounts using actual AMI customer data instead of estimates and to require EDCs to establish the customer's Peak Load Contribution ("PLC") based on each customer's individual AMI hourly peaks rather than determining average "usage profiles" from a group of test customers. Load settlement and individual customer PLC calculation based on IU data are essential to aligning the economic incentives that drive customer behavior. Historically, and today, the utilities prescribe the amount of electricity that a supplier must deliver in each hour of the day for each customer. The utilities determine the amounts by developing an average use "profile" from a group of "test customers." They also calculate PLCs and capacity tags based on these profiles. Third party suppliers supply electricity to the average profile, not to the actual use of their individual customers. What this means in practice is that TPSs' costs are not reduced even when they offer a customer a price incentive to reduce power consumption during certain peak hours of the day and the customer responds to that incentive and reduces usage. This is because the TPS must continue to supply electricity to the average customer profile and still pay the associated capacity tag during that period the customer reduced his/her use. The supplier must charge a price sufficient to cover the cost of that supply (including capacity) at the higher priced peak period. Unless and until a TPS can reduce its supply costs to match the customers' reduction in usage during peak hours, customers will not see the benefit of changing their behavior to shift their usage to lower cost periods. AMI meters enable EDCs to settle all customer load (i.e., third party TPS' customer load and Basic Generation Service customer load) at PJM and calculate individual customer capacity tags based on interval usage data. A customer needs to be able to see that a change in his/her behavior results in a lower monthly energy bill and that can only occur if his/her actual usage is used to determine how much electricity supply is needed for each hour of every day. EDCs must be required to settle all load at PJM and calculate individual customer PLCs based on the interval usage data collected by its new AMI meters in order for customers to realize the value of their AMI investment.

The electric utilities in Delaware, the District of Columbia, and Texas, among others, settle all load at ISOs based on customers' near real-time BQIU data. And, most of the utilities in Pennsylvania and Maryland, notably Baltimore Gas and Electric Company, Duquesne Light

Company, the Pennsylvania based First Energy utilities and PP&L Electric Utilities Corporation, along with Con Edison in New York, calculate individual customer PLCs based on that data and routinely provide updates to suppliers.

SUPPLIER CONSOLIDATED BILLING OPTION

We applaud Staff's recognition that supplier consolidated billing ("SCB") provides opportunity for increased customization of energy services and improved customer services and engagement. The Board should direct that SCB be implemented and operational by the time AMI meters are deployed so that TPSs have the ability to bill for the new products and services enabled by the IU data collected from the AMI meters. Simply put, SCB facilitates the provision by TPSs of the innovative products and services enabled by AMI data. Today, EDCs handle all of the billing for customers being served by TPSs utilizing utility consolidated billing. Suppliers are limited in what they can put on the utility bill to the space dictated in EDCs' Third Party Supplier Manuals. Such limits inhibit the types of price plans and products a supplier can offer to customers. The types of products that AMI data enable necessarily require significantly more space on the bill to effectively communicate the value the customer receives. For example, a supplier offering time varying pricing will need to be able to demonstrate to the customer how many kilowatt hours the customer used in the different price periods so that the customer can see that when they shift their usage they save. Such information simply cannot be communicated in just a few lines of character limited text. Similarly, a TPS offering a product that includes a demand response rebate needs to be able to communicate that credit directly and effectively to the customer on the bill. Without the ability to issue consolidated bills, suppliers' efforts to leverage customers' significant investment in smart meters would be hampered. In order for suppliers to offer these new products to their customers, they must have the ability to handle their customers' billing services so that they can demonstrate through the presentation of the charges and other information on the bill exactly what benefits are accruing to the customer through the selection of an innovative product offering.

Dual billing whereby the EDC and the supplier each issue their own bill is insufficient for several reasons. First, customers desire the convenience of a single bill that includes all electricity-related charges. Choice is about giving customers what they want, and customers overwhelmingly have expressed a desire for simplicity. Second, dual billing creates confusion. Customers cannot be expected to understand that they are required to pay two energy bills covering the same period of time and the same usage from two separate energy companies. While we make every effort to

educate our customers so that they understand the difference between supply and delivery, the reality is that a large number of them are still confused when they receive their bill. And a customer who has any doubts about paying two separate bills is more likely to pay the bill from the monopoly utility that has always billed them before they pay a TPS – even though the customer chose that supplier. Third, dual billing does not address the inherent inequities of allowing the utility to be the only entity that is able to offer consolidated billing services. Such an imbalance creates the impression for customers that the utility is somehow superior, even though such an impression may be far from the truth. In short, dual billing is not a viable alternative for suppliers interested in offering products and services that leverage the AMI data that will become available and they should be afforded the opportunity to offer a supplier consolidated bill.

DATA PRIVACY AND NEW JERSEY COMMON RELEASE FORM

We agree that there should be a uniform set of data privacy standards that are standardized across all utilities to allow customers to easily understand what set of data they are giving consent to be released. However, we do not agree with Board Staff's proposal that all access to customer data should occur through the protocols of the proposed "New Jersey Common Release Form" (NJ-CRF). Customers should be free to grant access to their data to their chosen TPS in the same way they grant access to their chosen TPS to switch their electricity service and obtain their usage data from the utilities in order to calculate their supply charges. By making IU the standard data, customers should be allowed to continue following their familiar TPS enrollment processes without extra steps for the customer to fully utilize their meter data for their existing or newly chosen supplier. TPSs could simply include language in their customer contracts that addresses the sharing of BQIU data. TPSs should not have to require a customer to complete some additional cumbersome data privacy form in order to be served by them. That additional step would create one more barrier to customers being able to shop easily for their electricity supply.

Moreover, limiting the amount of identifying information in the data files will help protect the privacy of customers in the event of a data breach. Therefore, we envision data files that include only the following data(as detailed in Exhibit LG-2):

1. Mutually agreed upon account identifier
2. Consumption Date
3. A TPS identifier

4. Watts per hour usage broken down in a consistent 5 minute interval period.

Outside of the agreed upon account identifier, no other customer identifiers are necessary.

Third party suppliers should be invited to participate in Board Staff's proposed stakeholder working group regarding the development and implementation of customer privacy protections.

AMI DATA SHOULD BE MADE AVAILABLE ON A ROLLING BASIS AS AMI METERS ARE INSTALLED

We agree with Board Staff that the EDCs should be required to make the AMI data available on a rolling basis as the AMI meters are installed across their service territories rather than waiting until all, or even most, AMI meters are installed. TPSs will rely on this data to improve their own load profiling and forecasting, customer segmentation and behavior analysis, thereby promoting a "smart" and efficient grid. For this reason, IU data must become standard usage data available to all TPSs for all their customers at no charge as soon as the AMI meters are installed and data becomes available. Each EDC's Data Access Plan should address when the data will become available through each phase or stage of meter deployment, ensuring that the data is available to the market as soon as the meters are installed and are collecting data. Utilities in other jurisdictions provided such detailed plans that included status updates to the market when data would become available as deployment progressed.9 Making BQIU data available to the market as it becomes available has at least one other benefit. It allows TPSs the ability to monitor data quality and accuracy and provide feedback which could help EDCs to ensure data accuracy as it rolls out its new system.

AMI METER CAPABILITIES AND FUTURE USE CASES

We also strongly support the principle of fair access and competition for meter capabilities discussed by Board Staff in section six of the Straw Proposal. We also agree with Board Staff that on-meter apps and other technologies should also be open to competition by third party providers, and that bandwidth should therefore be universal to allow for an adequate level of competition, as opposed to tailored to meet the software needs of individual providers.[10] Technology now exists

[9] See, e.g., First Energy PA Smart Meter Data, Met-Ed, Penelec, Penn Power, West Penn Power, Supplier Webinar, March 1, 2017. The update is attached as Exhibit LG-3.

[10] We do not agree with Board Staff that on-meter apps and other software technologies should be open to competition by utilities.

that enables a direct connection with AMI meters via device and software applications developed by third party vendors to access IU data. To the extent such direct access to the AMI meter is enabled it should be open to any company the customer chooses to provide services. No service provider should be precluded from accessing the customer's data – with the customer's consent – in this way.[11]

We also agree with the following statements by the Board in section three of the Straw Proposal regarding how AMI data can be used:

> [I]n the near-term AMI adoption allows consumers to participate in various types of demand response programs, such as universal peaktimes rebates, and helps provide measurement and verification of energy efficiency ("EE") program effectiveness. In addition, Staff believes that robust AMI data allows for different rate designs including interval demand rates and other time of use rates that will allow efficient deployment and integration of distributed generation, energy storage, electric vehicles, and microgrids. Staff also believes that AMI needs to be able to communicate with customers (or their aggregation energy service providers) on a real-time basis to update them on changes to system conditions and other pertinent information. Otherwise, customers will not react to changing situation on the grid (e.g. peak demand) or information (potential high bill) and take the appropriate action (i.e. reduce consumption).

Moreover, we agree with Staff that there is an important role for AMI data to help improve distribution planning and operations which will be essential for the future growth of DERs. As grid modernization projects become the norm, AMI data will allow for consumers to be more directly involved with their energy usage. As a precursor to customer engagement, the grid needs to be modernized so that more consumers can take advantage of energy efficiency and demand response programs. More consistent customer data will allow for advances in analytics to understand usage patterns. There would be the ability to optimize interoperability between smart devices, EV chargers, and smart meters. Mobile apps will allow for near real time data for customers to stay connected to their energy management.

And we support Board Staff's forward thinking regarding other future uses of AMI data, including their recognition that "The data gathered from AMI can also be used to evaluate next-generation program design, including potential application of blockchain and potential artificial intelligence and machine learning based technology innovations. These technologies, if found useful

[11] See https://www.oracle.com/a/ocom/docs/industries/utilities/utilities-meter-data-management-ds.pdf

and adopted, could help drive advances in EE, more intelligent load management programs, and renewable energy and storage investment."

We also support Staff's plan to develop standard terms for promoting access to aggregated AMI data to universities to encourage academic research into customer usage and system reliability. Such data provided to universities for research purposes should be anonymous.

EDCs SHOULD BE LIMITED TO USING AMI DATA ONLY FOR CORE UTILITY FUNCTIONS AND NOT FOR COMPETITIVE OFFERINGS

We applaud Board Staff's recommendation in section 10 of the Straw Proposal that "the Board enshrine the principle that EDC usage of smart meter data be limited to core functions, including billing, settlements and reliability. For instance, utilities should avoid situations where the EDCs use ratepayer funds or their monopoly position to gain an unfair advantage over other entities offering energy solutions or to expand the utility's marketing of non-utility products (e.g., home security systems and appliance warranties), new energy rate products (e.g., free nights and weekends, targeted time of use rates), as well as energy-related usage items, other than EE program administration." Each EDC's Data Access Plan should require that use cases which are outside of the utility's core function be performed exclusively by third parties. Any exception to this general rule, such as the delivery of EE core program services, should be specifically listed in the utility's compliance filings, and should be limited to those roles that are uniquely performed by the utility, either because it is a natural monopoly, or has been expressly assigned the role by the Board. This proposed limit avoids situations where the utility uses ratepayer funds and its monopoly position to gain an unfair advantage over other entities offering comparable energy solutions.

Technology evolves quickly, as do consumer needs and desires. The regulated model is too slow to adapt to the ever-changing consumer needs and technological advances and is simply not designed for innovation. Most importantly, captive ratepayers should not bear the risk of monopoly utility investment in competitive offerings. Some use cases are appropriate, and even essential, for a regulated monopoly utility to engage in as they align with the core function of maintaining a safe and reliable distribution system and result in clear benefits to the operation of that system and the customers connected to it. These include using AMI meters to reduce the number and duration of outages during major outage events, providing more accurate and timely estimated time of restoration communications to impacted customers, enabling remote disconnect/reconnect, enabling remote move-in/move-out, and calculating distribution loss. However, the following use cases are outside of the EDCs' core functions and firmly within the purview of competitive entities and

available in the competitive market, including: enhanced customer engagement and communications; rate analyzer and comparator; usage and bill alerts, saving tips; interactive energy demand and bill management; customer segmentation and behavioral analysis; customer efficiency programs (smart thermostats); and customer DER/PV/EV; customer demand response; customer pre-paid billing options; innovative rate development, customer smart home/appliances/devices; smart city; microgrids; customer gamification & loyalty program; energy storage; and real-time pricing. Monopoly utility interference in the competitive market with these types of product offers has the potential to create barriers to competitive services. Monopoly interference in competition is inappropriate and should be rejected. Competitive entities risk their own shareholders' dollars to innovate and develop the products and services attractive to consumers, and consumers freely choose those products and services that meet their needs. New Jersey ratepayers should not be forced to bear the risk of these types of investments

CONCLUSION

We agree with Board Staff that each EDC should be required to incorporate the AMI data access principles into its antecedent AMI deployment plan as part of an MFR proceeding, within 90 days of the Board's formal adoption of any MFRs. We also believe that the same rules and processes developed in this stakeholder proceeding should apply to the emerging market of smart meters installed by natural gas utilities.

We greatly appreciate the opportunity to be part of this AMI data stakeholder process and look forward to working closely with Board Staff to further develop minimum filing requirements for EDCs to create AMI Data Access Plans.

Respectfully submitted,

Murray E. Bevan

cc: NRG - Rob Gibbs, Leah Gibbons, and Angela Schorr
Engie - Jeffrey Levine
Vistra - Kristina Montgomery

Exhibit LG-1

Public Service Electric and Gas Company
Case Name: CEF-EC
Docket No(s): EO18101115

Response to Discovery Request: MP-PSEG-0002
Date of Response: 8/4/2020
Witness: Daum, Frederick
Smart Meter Data Access Plan

Question:
If PG&E has not proposed a smart meter data access plan as part of the Petition or supporting Testimony, please indicate PG&E's willingness to adopt such a plan, either as proposed by an Intervenor in the proceeding or as modified by PG&E for further review and comment by the parties.
Does PG&E agree that the following components should be included in a smart meter data access plan? If PSE&G does not agree with each of these components for inclusion in a smart meter data access plan, please explain.
(a) Access by third party suppliers and other entities in the private market.
(b) Proper use of data by PSE&G, so that it is restricted only for poles and wires functions (i.e. outage management, system planning).
(c) Ownership of data by customer, who can freely and easily authorize its release to third parties of their choosing.
(d) Capability of data being transferred through electronic data interchange ("EDI"), not solely through customer portals, such as Green Button Connect type platforms.

Attachments Provided Herewith: 0

Response:
a – d. PSE&G currently provides customers direct access to their interval data through a customer portal (including green button download), and plans to continue to provide such access as part of the proposed advanced meter deployment. The Company also provides interval meter data to Third Party Suppliers consistent with State requirements, with authorization of the customer. PSE&G does not have a specific position on components for inclusion in a smart meter data access plan, other than to state that, at a minimum, a smart meter data access plan should satisfy all applicable rules, regulations, and tariff requirements. PSE&G is willing to discuss the possibility of a data access plan and plan components related to AMI deployment with the parties in this case.

Exhibit LG-2

EDC_ACCT	USAGE_DA	15	30	45	100	115	130	145	200	215	230	245	300	315	330	345	400	415	430	445	500	515	530	545	600	615	630	645
1.23E+09	20201129	0.9216	0.3456	0.4608	0.576	1.152	0.9792	3.2832	2.304	1.6704	1.728	4.032	1.8432	1.4976	1.6128	1.0944	1.4976	0.9792	1.3248	1.4976	1.44	1.2672	1.2672	0.7488	0.6336	0.9216	0.3456	0.4608
2.34E+09	20201129	0.9216	0.576	0.5184	0.4608	0.4032	0.6336	2.1888	5.5296	3.1104	1.728	0.864	0.8064	1.728	1.152	1.3824	2.9952	1.3824	0.7488	1.6128	1.3824	1.728	2.304	1.6704	0.864	0.9216	0.576	0.5184
3.45E+09	20201129	0.5184	0.6336	1.152	1.3248	2.1312	1.9008	2.88	3.744	2.9376	5.9904	4.1472	1.8432	1.9584	1.0944	0.576	1.2096	6.336	3.5712	3.168	2.9376	2.2464	2.304	2.7648	1.44	0.5184	0.6336	1.152
4.56E+09	20201129	0.8064	1.5552	1.9008	2.8224	2.3616	2.4192	3.1104	5.3568	5.7024	3.6864	4.032	3.744	3.0528	1.152	0.9216	1.0944	2.0736	2.1888	2.3616	2.6496	3.744	4.32	3.8016	2.7072	0.8064	1.5552	1.9008
5.68E+09	20201129	1.8432	1.9008	2.0736	2.3616	2.8224	2.88	3.0528	4.2624	7.0848	9.7344	6.8544	4.2048	2.1312	2.4192	2.016	1.6704	3.168	2.304	2.3616	2.7072	1.9008	0.9216	1.6128	1.2672	1.8432	1.9008	2.0736
6.79E+09	20201129	0.4608	0.6912	1.0368	1.2096	0.9792	1.6704	3.0528	3.5136	1.9584	2.5344	4.2048	1.9008	2.1312	1.6704	1.44	2.8224	2.88	2.4192	2.6496	2.304	2.5344	1.9584	1.2096	1.0944	0.4608	0.6912	1.0368
7.9E+09	20201129	0.8064	1.152	0.9792	1.2096	1.2672	1.728	2.4768	2.2464	2.4192	6.2208	5.1264	2.2464	2.3616	2.2464	2.4768	2.9952	2.7648	3.1104	3.2256	3.5136	3.9744	3.3984	2.7648	1.44	0.8064	1.152	0.9792
8.91E+09	20201129	2.9952	2.7648	2.4192	3.1104	2.88	3.0528	3.3984	5.8176	6.1056	8.4672	4.3776	3.744	3.5712	3.5712	3.5136	3.6864	4.7232	4.2048	4.2624	3.8016	3.6864	3.1104	2.7072	2.304	2.9952	2.7648	2.4192
9.02E+09	20201129	2.5344	2.304	2.304	2.9376	3.1104	3.168	2.8224	5.5296	4.32	3.6864	3.168	6.1632	3.1104	2.88	2.88	3.456	4.1472	5.8752	3.6288	2.9376	2.5344	2.1888	2.592	1.3248	2.5344	2.304	2.304

This file represents one day within Daylight Savings Time using 15-minute increments in interval-ending format.
EDC Account Number - Usage Date - then Usage for all intervals on that day

For Fall DST - Add second set of intervals between 0100 and 0200 at the end. Will be null on all days except Fall DST day.

For Spring DST - Columns for intervals covering hour-ending 0300 will also be null.

Usage values will be signed negative for net generation.

Filenaming convention: [EDC DUNS(+4)]_[EGS DUNS(+4)]_P[Publication Date]_IU[Usage Date]_[Interval Increment]_[File ##].zip
Example: the first PSEG 15-minute file for usage delivery date of 11/29/2020 that corresponds to EGS DUNS "123-45-6789-0123", if published on 12/1/2020
006973812_1234567890123_P20201201_IU20201129_15_01.zip

700	715	730	745	800	815	830	845	900	915	930	945	1000	1015	1030	1045	1100	1115	1130	1145	1200	1215	1230	1245	1300	1315	1330	1345	1400
0.576	1.152	0.9792	3.2832	2.304	1.6704	1.728	4.032	1.8432	1.4976	1.6128	1.0944	1.4976	0.9792	1.3248	1.4976	1.44	1.2672	1.2672	0.7488	0.6336	0.9216	0.3456	0.4608	0.576	1.152	0.9792	3.2832	2.304
0.4608	0.4032	0.6336	2.1888	5.5296	3.1104	1.728	0.864	0.8064	1.728	1.152	1.3824	2.9952	1.3824	0.7488	1.6128	1.3824	1.728	2.304	1.6704	0.864	0.9216	0.576	0.5184	0.4608	0.4032	0.6336	2.1888	5.5296
1.3248	2.1312	1.9008	2.88	3.744	2.9376	5.9904	4.1472	1.8432	1.9584	1.0944	0.576	1.2096	6.336	3.5712	3.168	2.9376	2.2464	2.304	2.7648	1.44	0.5184	0.6336	1.152	1.3248	2.1312	1.9008	2.88	3.744
2.8224	2.3616	2.4192	3.1104	5.3568	5.7024	3.6864	4.032	3.744	3.0528	1.152	0.9216	1.0944	2.0736	2.1888	2.3616	2.6496	3.744	4.32	3.8016	2.7072	0.8064	1.5552	1.9008	2.8224	2.3616	2.4192	3.1104	5.3568
2.3616	2.8224	2.88	3.0528	4.2624	7.0848	9.7344	6.8544	4.2048	2.1312	2.4192	2.016	1.6704	3.168	2.304	2.3616	2.7072	1.9008	0.9216	1.6128	1.2672	1.8432	1.9008	2.0736	2.3616	2.8224	2.88	3.0528	4.2624
1.2096	0.9792	1.6704	3.0528	3.5136	1.9584	2.5344	4.2048	1.9008	2.1312	1.6704	1.44	2.8224	2.88	2.4192	2.6496	2.304	2.5344	1.9584	1.2096	1.0944	0.4608	0.6912	1.0368	1.2096	0.9792	1.6704	3.0528	3.5136
1.2096	1.2672	1.728	2.4768	2.2464	2.4192	6.2208	5.1264	2.2464	2.3616	2.2464	2.4768	2.9952	2.7648	3.1104	3.2256	3.5136	3.9744	3.3984	2.7648	1.44	0.8064	1.152	0.9792	1.2096	1.2672	1.728	2.4768	2.2464
3.1104	2.88	3.0528	3.3984	5.8176	6.1056	8.4672	4.3776	3.744	3.5712	3.5712	3.5136	3.6864	4.7232	4.2048	4.2624	3.8016	3.6864	3.1104	2.7072	2.304	2.9952	2.7648	2.4192	3.1104	2.88	3.0528	3.3984	5.8176
2.9376	3.1104	3.168	2.8224	5.5296	4.32	3.6864	3.168	6.1632	3.1104	2.88	2.88	3.456	4.1472	5.8752	3.6288	2.9376	2.5344	2.1888	2.592	1.3248	2.5344	2.304	2.304	2.9376	3.1104	3.168	2.8224	5.5296

1415	1430	1445	1500	1515	1530	1545	1600	1615	1630	1645	1700	1715	1730	1745	1800	1815	1830	1845	1900	1915	1930	1945	2000	2015	2030	2045	2100	2115
1.6704	1.728	4.032	1.8432	1.4976	1.6128	1.0944	1.4976	0.9792	1.3248	1.4976	1.44	1.2672	1.2672	0.7488	0.6336	0.9216	0.3456	0.4608	0.576	1.152	0.9792	3.2832	2.304	1.6704	1.728	4.032	1.8432	1.4976
3.1104	1.728	0.864	0.8064	1.728	1.152	1.3824	2.9952	1.3824	0.7488	1.6128	1.3824	1.728	2.304	1.6704	0.864	0.9216	0.576	0.5184	0.4608	0.4032	0.6336	2.1888	5.5296	3.1104	1.728	0.864	0.8064	1.728
2.9376	5.9904	4.1472	1.8432	1.9584	1.0944	0.576	1.2096	6.336	3.5712	3.168	2.9376	2.2464	2.304	2.7648	1.44	0.5184	0.6336	1.152	1.3248	2.1312	1.9008	2.88	3.744	2.9376	5.9904	4.1472	1.8432	1.9584
5.7024	3.6864	4.032	3.744	3.0528	1.152	0.9216	1.0944	2.0736	2.1888	2.3616	2.6496	3.744	4.32	3.8016	2.7072	0.8064	1.5552	1.9008	2.8224	2.3616	2.4192	3.1104	5.3568	5.7024	3.6864	4.032	3.744	3.0528
7.0848	9.7344	6.8544	4.2048	2.1312	2.4192	2.016	1.6704	3.168	2.304	2.3616	2.7072	1.9008	0.9216	1.6128	1.2672	1.8432	1.9008	2.0736	2.3616	2.8224	2.88	3.0528	4.2624	7.0848	9.7344	6.8544	4.2048	2.1312
1.9584	2.5344	4.2048	1.9008	2.1312	1.6704	1.44	2.8224	2.88	2.4192	2.6496	2.304	2.5344	1.9584	1.2096	1.0944	0.4608	0.6912	1.0368	1.2096	0.9792	1.6704	3.0528	3.5136	1.9584	2.5344	4.2048	1.9008	2.1312
2.4192	6.2208	5.1264	2.2464	2.3616	2.2464	2.4768	2.9952	2.7648	3.1104	3.2256	3.5136	3.9744	3.3984	2.7648	1.44	0.8064	1.152	0.9792	1.2096	1.2672	1.728	2.4768	2.2464	2.4192	6.2208	5.1264	2.2464	2.3616
6.1056	8.4672	4.3776	3.744	3.5712	3.5712	3.5136	3.6864	4.7232	4.2048	4.2624	3.8016	3.6864	3.1104	2.7072	2.304	2.9952	2.7648	2.4192	3.1104	2.88	3.0528	3.3984	5.8176	6.1056	8.4672	4.3776	3.744	3.5712
4.32	3.6864	3.168	6.1632	3.1104	2.88	2.88	3.456	4.1472	5.8752	3.6288	2.9376	2.5344	2.1888	2.592	1.3248	2.5344	2.304	2.304	2.9376	3.1104	3.168	2.8224	5.5296	4.32	3.6864	3.168	6.1632	3.1104

2130	2145	2200	2215	2230	2245	2300	2315	2330	2345	2400	0115D	0130D	0145D	0200D
1.6128	1.0944	1.4976	0.9792	1.3248	1.4976	1.44	1.2672	1.2672	0.7488	0.6336				
1.152	1.3824	2.9952	1.3824	0.7488	1.6128	1.3824	1.728	2.304	1.6704	0.864				
1.0944	0.576	1.2096	6.336	3.5712	3.168	2.9376	2.2464	2.304	2.7648	1.44				
1.152	0.9216	1.0944	2.0736	2.1888	2.3616	2.6496	3.744	4.32	3.8016	2.7072				
2.4192	2.016	1.6704	3.168	2.304	2.3616	2.7072	1.9008	0.9216	1.6128	1.2672				
1.6704	1.44	2.8224	2.88	2.4192	2.6496	2.304	2.5344	1.9584	1.2096	1.0944				
2.2464	2.4768	2.9952	2.7648	3.1104	3.2256	3.5136	3.9744	3.3984	2.7648	1.44				
3.5712	3.5136	3.6864	4.7232	4.2048	4.2624	3.8016	3.6864	3.1104	2.7072	2.304				
2.88	2.88	3.456	4.1472	5.8752	3.6288	2.9376	2.5344	2.1888	2.592	1.3248				

EDC_ACCT	USAGE_DA	30	100	130	200	230	300	330	400	430	500	530	600	630	700	730	800	830	900	930	1000
1.23E+09	20201129	0.3456	0.576	0.9792	2.304	1.728	1.8432	1.6128	1.4976	1.3248	1.44	1.2672	0.6336	0.3456	0.576	0.9792	2.304	1.728	1.8432	1.6128	1.4976
2.34E+09	20201129	0.576	0.4608	0.6336	5.5296	1.728	0.8064	1.152	2.9952	0.7488	1.3824	2.304	0.864	0.576	0.4608	0.6336	5.5296	1.728	0.8064	1.152	2.9952
3.45E+09	20201129	0.6336	1.3248	1.9008	3.744	5.9904	1.8432	1.0944	1.2096	3.5712	2.9376	2.304	1.44	0.6336	1.3248	1.9008	3.744	5.9904	1.8432	1.0944	1.2096
4.56E+09	20201129	1.5552	2.8224	2.4192	5.3568	3.6864	3.744	1.152	1.0944	2.1888	2.6496	4.32	2.7072	1.5552	2.8224	2.4192	5.3568	3.6864	3.744	1.152	1.0944
5.68E+09	20201129	1.9008	2.3616	2.88	4.2624	9.7344	4.2048	2.4192	1.6704	2.304	2.7072	0.9216	1.2672	1.9008	2.3616	2.88	4.2624	9.7344	4.2048	2.4192	1.6704
6.79E+09	20201129	0.6912	1.2096	1.6704	3.5136	2.5344	1.9008	1.6704	2.8224	2.4192	2.304	1.9584	1.0944	0.6912	1.2096	1.6704	3.5136	2.5344	1.9008	1.6704	2.8224
7.9E+09	20201129	1.152	1.2096	1.728	2.2464	6.2208	2.2464	2.2464	2.9952	3.1104	3.5136	3.3984	1.44	1.152	1.2096	1.728	2.2464	6.2208	2.2464	2.2464	2.9952
8.91E+09	20201129	2.7648	3.1104	3.0528	5.8176	8.4672	3.744	3.5712	3.6864	4.2048	3.8016	3.1104	2.304	2.7648	3.1104	3.0528	5.8176	8.4672	3.744	3.5712	3.6864
9.02E+09	20201129	2.304	2.9376	3.168	5.5296	3.6864	6.1632	2.88	3.456	5.8752	2.9376	2.1888	1.3248	2.304	2.9376	3.168	5.5296	3.6864	6.1632	2.88	3.456

This file represents one day within Daylight Savings Time using 30-minute increments in interval-ending format.
EDC Account Number - Usage Date - then Usage for all intervals on that day

For Fall DST - Add second set of intervals between 0100 and 0200 at the end. Will be null on all days except Fall DST day.

For Spring DST - Columns for intervals covering hour-ending 0300 will also be null.

Usage values will be signed negative for net generation.

Filenaming convention: [EDC DUNS(+4)]_[EGS DUNS(+4)]_P[Publication Date]_IU[Usage Date]_[Interval Increment]_[File ##].zip
Example: the first PSEG 30-minute file for usage delivery date of 11/29/2020 that corresponds to EGS DUNS “123-45-6789-0123”, if published on 12/1/2020
006973812_1234567890123_P20201201_IU20201129_30_01.zip

1030	1100	1130	1200	1230	1300	1330	1400	1430	1500	1530	1600	1630	1700	1730	1800	1830	1900	1930	2000	2030	2100
1.3248	1.44	1.2672	0.6336	0.3456	0.576	0.9792	2.304	1.728	1.8432	1.6128	1.4976	1.3248	1.44	1.2672	0.6336	0.3456	0.576	0.9792	2.304	1.728	1.8432
0.7488	1.3824	2.304	0.864	0.576	0.4608	0.6336	5.5296	1.728	0.8064	1.152	2.9952	0.7488	1.3824	2.304	0.864	0.576	0.4608	0.6336	5.5296	1.728	0.8064
3.5712	2.9376	2.304	1.44	0.6336	1.3248	1.9008	3.744	5.9904	1.8432	1.0944	1.2096	3.5712	2.9376	2.304	1.44	0.6336	1.3248	1.9008	3.744	5.9904	1.8432
2.1888	2.6496	4.32	2.7072	1.5552	2.8224	2.4192	5.3568	3.6864	3.744	1.152	1.0944	2.1888	2.6496	4.32	2.7072	1.5552	2.8224	2.4192	5.3568	3.6864	3.744
2.304	2.7072	0.9216	1.2672	1.9008	2.3616	2.88	4.2624	9.7344	4.2048	2.4192	1.6704	2.304	2.7072	0.9216	1.2672	1.9008	2.3616	2.88	4.2624	9.7344	4.2048
2.4192	2.304	1.9584	1.0944	0.6912	1.2096	1.6704	3.5136	2.5344	1.9008	1.6704	2.8224	2.4192	2.304	1.9584	1.0944	0.6912	1.2096	1.6704	3.5136	2.5344	1.9008
3.1104	3.5136	3.3984	1.44	1.152	1.2096	1.728	2.2464	6.2208	2.2464	2.2464	2.9952	3.1104	3.5136	3.3984	1.44	1.152	1.2096	1.728	2.2464	6.2208	2.2464
4.2048	3.8016	3.1104	2.304	2.7648	3.1104	3.0528	5.8176	8.4672	3.744	3.5712	3.6864	4.2048	3.8016	3.1104	2.304	2.7648	3.1104	3.0528	5.8176	8.4672	3.744
5.8752	2.9376	2.1888	1.3248	2.304	2.9376	3.168	5.5296	3.6864	6.1632	2.88	3.456	5.8752	2.9376	2.1888	1.3248	2.304	2.9376	3.168	5.5296	3.6864	6.1632

2130	2200	2230	2300	2330	2400	0130D	0200D
1.6128	1.4976	1.3248	1.44	1.2672	0.6336		
1.152	2.9952	0.7488	1.3824	2.304	0.864		
1.0944	1.2096	3.5712	2.9376	2.304	1.44		
1.152	1.0944	2.1888	2.6496	4.32	2.7072		
2.4192	1.6704	2.304	2.7072	0.9216	1.2672		
1.6704	2.8224	2.4192	2.304	1.9584	1.0944		
2.2464	2.9952	3.1104	3.5136	3.3984	1.44		
3.5712	3.6864	4.2048	3.8016	3.1104	2.304		
2.88	3.456	5.8752	2.9376	2.1888	1.3248		

EDC_ACCT	USAGE_DA	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800
1.23E+09	20201129	0.576	2.304	1.8432	1.4976	1.44	0.6336	0.576	2.304	1.8432	1.4976	1.44	0.6336	0.576	2.304	1.8432	1.4976	1.44	0.6336
2.34E+09	20201129	0.4608	5.5296	0.8064	2.9952	1.3824	0.864	0.4608	5.5296	0.8064	2.9952	1.3824	0.864	0.4608	5.5296	0.8064	2.9952	1.3824	0.864
3.45E+09	20201129	1.3248	3.744	1.8432	1.2096	2.9376	1.44	1.3248	3.744	1.8432	1.2096	2.9376	1.44	1.3248	3.744	1.8432	1.2096	2.9376	1.44
4.56E+09	20201129	2.8224	5.3568	3.744	1.0944	2.6496	2.7072	2.8224	5.3568	3.744	1.0944	2.6496	2.7072	2.8224	5.3568	3.744	1.0944	2.6496	2.7072
5.68E+09	20201129	2.3616	4.2624	4.2048	1.6704	2.7072	1.2672	2.3616	4.2624	4.2048	1.6704	2.7072	1.2672	2.3616	4.2624	4.2048	1.6704	2.7072	1.2672
6.79E+09	20201129	1.2096	3.5136	1.9008	2.8224	2.304	1.0944	1.2096	3.5136	1.9008	2.8224	2.304	1.0944	1.2096	3.5136	1.9008	2.8224	2.304	1.0944
7.9E+09	20201129	1.2096	2.2464	2.2464	2.9952	3.5136	1.44	1.2096	2.2464	2.2464	2.9952	3.5136	1.44	1.2096	2.2464	2.2464	2.9952	3.5136	1.44
8.91E+09	20201129	3.1104	5.8176	3.744	3.6864	3.8016	2.304	3.1104	5.8176	3.744	3.6864	3.8016	2.304	3.1104	5.8176	3.744	3.6864	3.8016	2.304
9.02E+09	20201129	2.9376	5.5296	6.1632	3.456	2.9376	1.3248	2.9376	5.5296	6.1632	3.456	2.9376	1.3248	2.9376	5.5296	6.1632	3.456	2.9376	1.3248

This file represents one day within Daylight Savings Time using 60-minute increments in interval-ending format.
EDC Account Number - Usage Date - then Usage for all intervals on that day

For Fall DST - Add second interval for hour-ending 0200 at the end. Will be null on all days except Fall DST day.

For Spring DST - Column for intervals covering hour-ending 0300 will also be null.

Usage values will be signed negative for net generation.

Filenaming convention: [EDC DUNS(+4)]_[EGS DUNS(+4)]_P[Publication Date]_IU[Usage Date]_[Interval Increment]_[File ##].zip
Example: the first PSEG 60-minute file for usage delivery date of 11/29/2020 that corresponds to EGS DUNS “123-45-6789-0123”, if published on 12/1/2020
006973812_1234567890123_P20201201_IU20201129_60_01.zip

1900	2000	2100	2200	2300	2400	0200D
0.576	2.304	1.8432	1.4976	1.44	0.6336	
0.4608	5.5296	0.8064	2.9952	1.3824	0.864	
1.3248	3.744	1.8432	1.2096	2.9376	1.44	
2.8224	5.3568	3.744	1.0944	2.6496	2.7072	
2.3616	4.2624	4.2048	1.6704	2.7072	1.2672	
1.2096	3.5136	1.9008	2.8224	2.304	1.0944	
1.2096	2.2464	2.2464	2.9952	3.5136	1.44	
3.1104	5.8176	3.744	3.6864	3.8016	2.304	
2.9376	5.5296	6.1632	3.456	2.9376	1.3248	

Exhibit LG-3

FirstEnergy®

PA Smart Meter Data

Met-Ed, Penelec, Penn Power, West Penn Power

Supplier Webinar

Agenda

- **FirstEnergy Interval Data Implementation Plan**
- **PJM Settlements Utilizing Interval Data**
- **Interval Data Availability**
  - Eligible Customer List
  - EDI
  - Web Portals
    - SU-MR
    - Rolling 10 Day
    - StS Historical Interval Usage
- **Questions**

Smart Meter Stages | Deployment through Interval Enablement

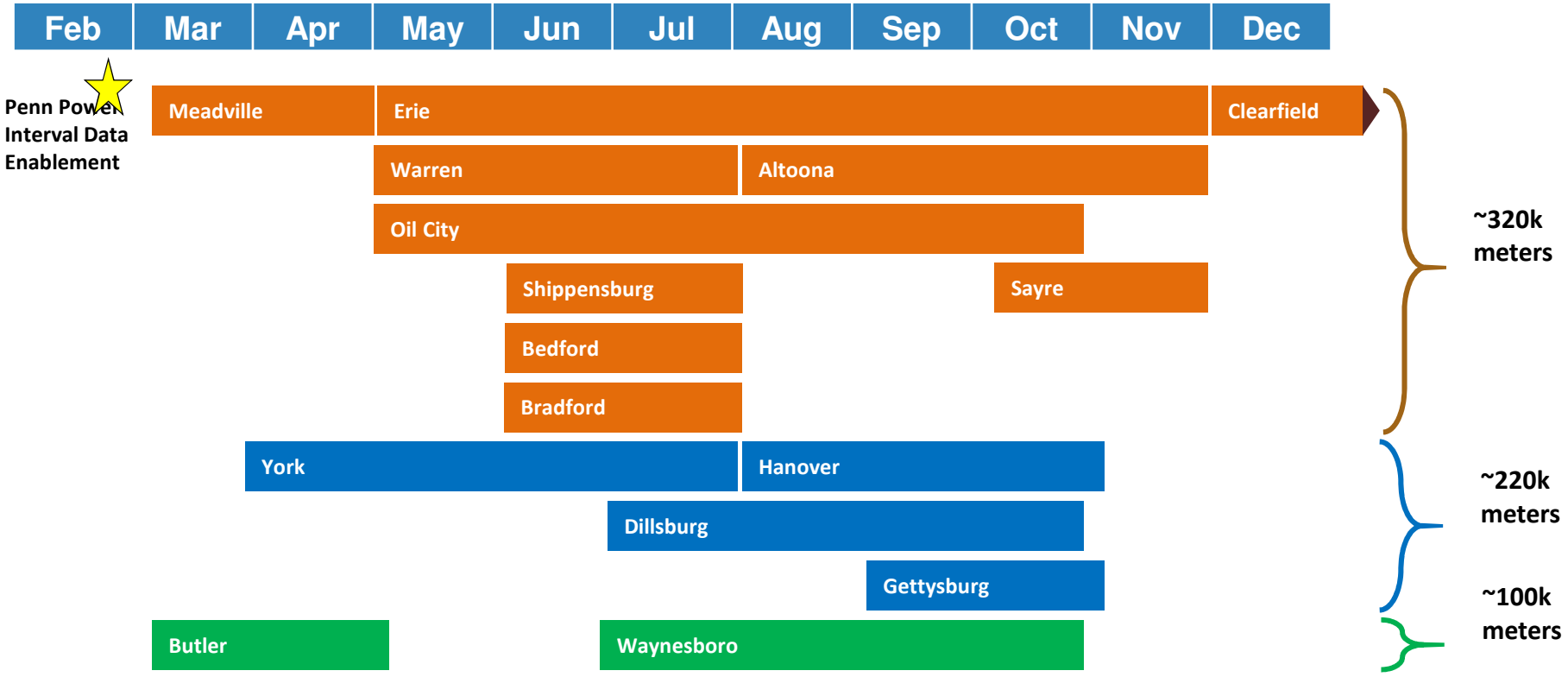
Progress is performed on a meter reading route by route basis for all routes within a meter reading district, while progressing in parallel across multiple districts in multiple OpCos

1) Deployed	• Engaged in socket on premise
2) Communicating	• Meter communication attained over the network
3) Accepted	• Route Acceptance following network optimization
4) Register Billing	• Billing Certified – Register Values Only
5) Interval Enabled	• Billing Certified – Interval Data for Settlement, Portals, etc.

Following the February 2017 system enhancement, Stages 4 & 5 are attained simultaneously upon billing certification

Stages 4 & 5 Billing Certification | 2017 PA Schedule for ME, PN, WPP

Bill Certification will begin in Met-Ed, Penelec, and West Penn Power Meter Reading Districts in March 2017 following the Interval Data Enablement release. ~640k meters across 16 districts encompassing all three OpCos are scheduled to be certified in 2017 with the remaining ~1.2M meters throughout 2018-19



Deployment maps are available at:
https://www.firstenergycorp.com/help/pa-smartmeter/schedule.html

AMI Impacts to PJM processes

- **AMI interval data will be used in the daily Settlement A**
  - All validated meter data received by 8 am on day of processing will be included in Settlement A
  - Any missing meter data will be estimated using the assigned class profile and its respective usage factor. (same estimation routine as used when non-interval meter)
  - Missing data will be replaced with actual data for 60-day Settlement B processing.
- **Penn Power February Settlement B**
  - All available AMI data will be included for Feb 20 through 28
- **AMI data for West Penn, Penelec and Met Ed will be incorporated into the Settlement A and Settlement B processes beginning in March and continuing on a rolling basis throughout the remainder of the smart meter deployment.**
- **AMI interval data will be used in the 2018 NSPL and PLC calculations**

Eligible Customer List

- **The Eligible customer list will now include a new field "SM".**
  - This field will have a "Y" to denote that interval data is available.
  - This field will have a "N" to denote that the account does not yet have interval data.
  - The ECL is run each month on the 3rd Sunday of the month.
    - We ran this off cycle last Sunday to pull in all eligible Penn Power interval data customers.

contract_acct(12)
capacity_pls_future(20)
net_metering_ind(1)
tax_exempt(1)
sm (1)
Smart meter. "Y" indicates that smart meter interval data is available for the customer.

- **https://www.firstenergycorp.com/supplierservices/pa/pp/data.html**

EDI Changes

- **Suppliers can now begin to request monthly interval usage data utilizing EDI.**
  - This can be requested upon a new enrollment or via an 814C requesting monthly interval usage.
    - If the request is accepted, we will begin providing interval usage data via the 867 starting the first month where we have only interval data.
- **Planned for May 2017 implementation, Suppliers will be able to request historical interval usage.**
  - These request will only be fulfilled under the following scenarios:
    - The customer has at least 12 months of interval data.
      - We do not have the ability to provide a combination of HU & HIU.
    - The customer has received interval data from the point of their move in.

Web Portal - Background

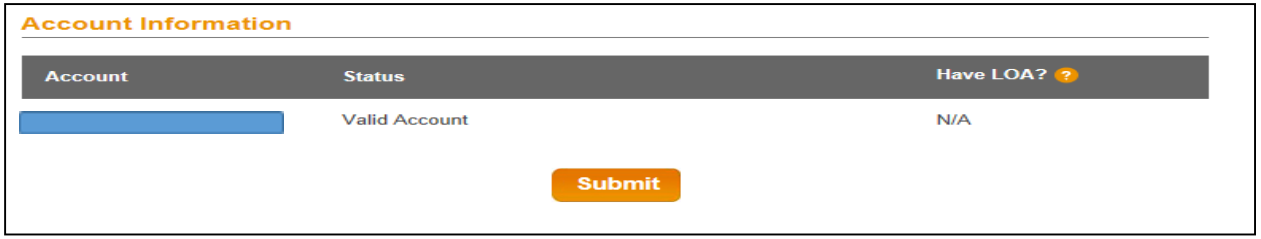
- **PA PUC requires utilities with smart meter requirements to have a web portal.**
  - Final Order Sept 3th, 2015 (Regarding SU-MR)
  - Final Order June 30th, 2016 (Regarding StS)
- **The web portal will have 3 unique functionalities**
  - Single User – Multiple Request (SU-MR)
  - System-to-System Rolling 10 Day (StS Rolling 10 Day)
  - System-to-System Historical Interval Usage (StS HIU)
- **We are implementing functionality in accordance with the solution framework document.**
  - http://www.puc.pa.gov/utility_industry/electricity/edewg_files_for_downloading.aspx.

SU-MR

- **The SU-MR method requires a web-based platform allowing for an authorized user to manually log into a secure portal, request, and receive smart meter interval usage for one or more account numbers as part of a single request. The results are rendered within the web portal interface itself or exported to the user in a predefined file format.**
  - Supplier must enter the 20 digit customer number.
  - Unmetered and a non smart interval meter (MV90) accounts not eligible.
- **We will allow up to 10 accounts to be loaded at one time.**
  - These can be viewed via the web.
  - They can also be downloaded to a CSV file.
    - You can download each account separately or together in one file.

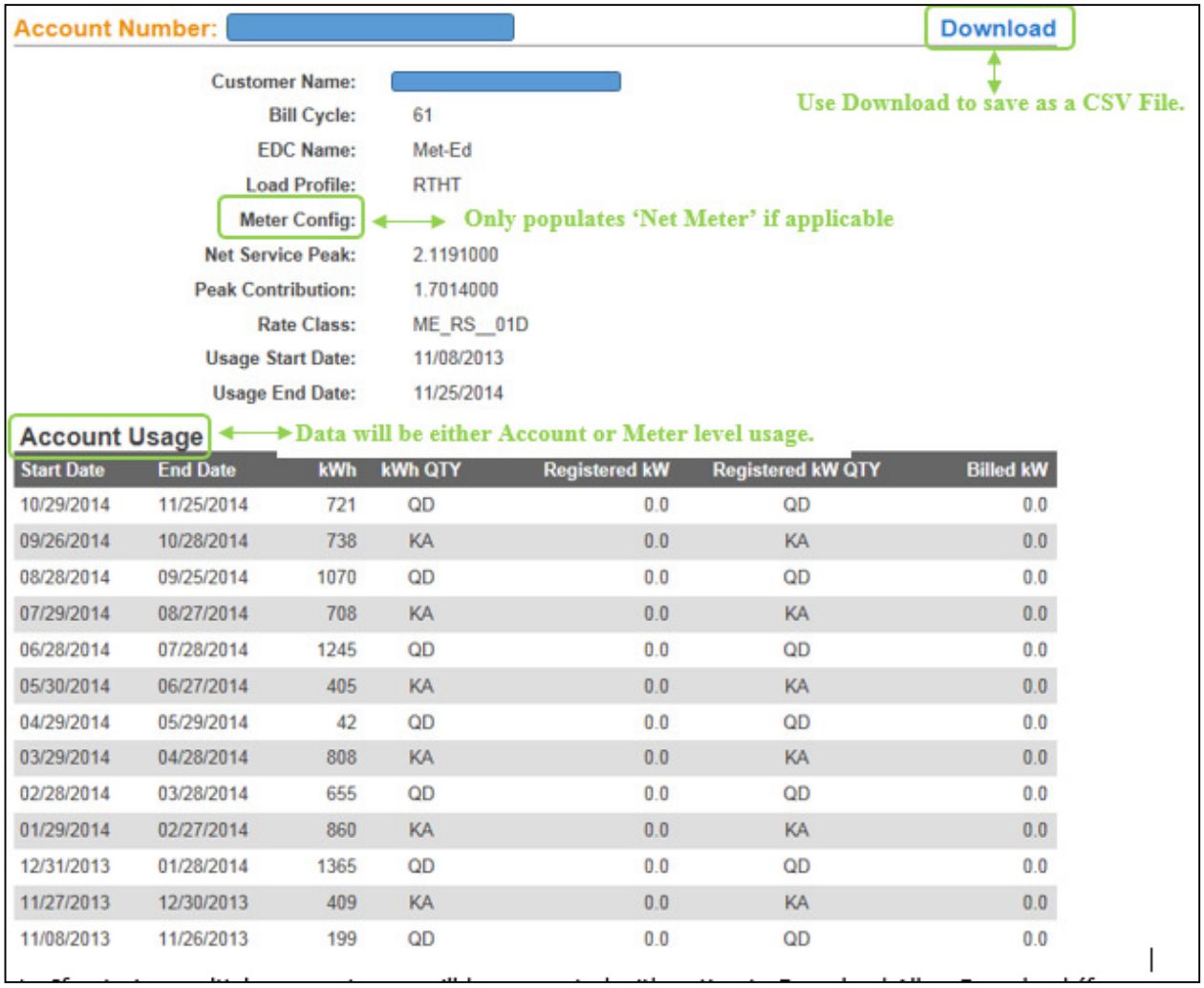
SU-MR

A user can either upload **ten** accounts using a CSV file format or enter accounts manually in the Account Numbers box as seen in the example below.



Rejection Reason	Summary of Rejection
Missing Account Number	Input is missing 20-digits
Invalid Account	Input has 20-digits but are invalid, input is for a non-PA EDC and or input is for an interval meter that is not a smart meter (MV90)
Account Exists but is not Active	Account number exists but a move out date is pending
Unmetered Account	Unmetered Account
Account Pending Active	Account number exists but request is made before the customer's move-in date
Historical Usage Unavailable	No historical usage data is available

SU-MR (Web View)



Account Number: [redacted] Download

Use Download to save as a CSV File.

Customer Name: [redacted]
Bill Cycle: 61
EDC Name: Met-Ed
Load Profile: RTHT
Meter Config: ← Only populates 'Net Meter' if applicable
Net Service Peak: 2.1191000
Peak Contribution: 1.7014000
Rate Class: ME_RS__01D
Usage Start Date: 11/08/2013
Usage End Date: 11/25/2014

Account Usage ← Data will be either Account or Meter level usage.

Start Date	End Date	kWh	kWh QTY	Registered kW	Registered kW QTY	Billed kW
10/29/2014	11/25/2014	721	QD	0.0	QD	0.0
09/26/2014	10/28/2014	738	KA	0.0	KA	0.0
08/28/2014	09/25/2014	1070	QD	0.0	QD	0.0
07/29/2014	08/27/2014	708	KA	0.0	KA	0.0
06/28/2014	07/28/2014	1245	QD	0.0	QD	0.0
05/30/2014	06/27/2014	405	KA	0.0	KA	0.0
04/29/2014	05/29/2014	42	QD	0.0	QD	0.0
03/29/2014	04/28/2014	808	KA	0.0	KA	0.0
02/28/2014	03/28/2014	655	QD	0.0	QD	0.0
01/29/2014	02/27/2014	860	KA	0.0	KA	0.0
12/31/2013	01/28/2014	1365	QD	0.0	QD	0.0
11/27/2013	12/30/2013	409	KA	0.0	KA	0.0
11/08/2013	11/26/2013	199	QD	0.0	QD	0.0

SU-MR (File View) – No Interval Data

CSV view of an account's data response:

Customer Identifier	12345678901234500000
Customer Name	Abe L Customer
Report Title	Account-Level Usage ⟷ Data will be either Account or Meter level usage.
EDC	Met-Ed
Usage From Date	11/8/2013
Usage To Date	11/25/2014
Current Capacity PLC	1.7014
Current Transmission NSPL	2.1191
Current Rate Class	ME_RS__01D
Current Rate Subclass	
Current Bill Cycle	61
Current Load Profile	RTHT
Special Meter Configuration	⟷ Only populates 'Net Meter' if applicable

Summarized Monthly Billed Usage

Reading From Date	Reading To Date	kWh	kWh QTY	Registered kW	Registered kW QTY	Billed kW
10/29/2014	11/25/2014	721	QD	0	QD	0
9/26/2014	10/28/2014	738	KA	0	KA	0
8/28/2014	9/25/2014	1070	QD	0	QD	0
7/29/2014	8/27/2014	708	KA	0	KA	0
6/28/2014	7/28/2014	1245	QD	0	QD	0
5/30/2014	6/27/2014	405	KA	0	KA	0
4/29/2014	5/29/2014	42	QD	0	QD	0
3/29/2014	4/28/2014	808	KA	0	KA	0
2/28/2014	3/28/2014	655	QD	0	QD	0
1/29/2014	2/27/2014	860	KA	0	KA	0
12/31/2013	1/28/2014	1365	QD	0	QD	0
11/27/2013	12/30/2013	409	KA	0	KA	0
11/8/2013	11/26/2013	199	QD	0	QD	0

Detailed Interval Usage

Reading Date	100	100 QTY	200	200 QTY	200 DST	200 DST Q
No Data Found	⟷ Interval data will only present once a meter is interval enabled.					

SU-MR (File View) – Interval Data

15 MPI

Detailed Interval Usage												
Reading Date	15	0015 QTY	30	0030 QTY	45	0045 QTY	100	0100 QTY	115	0115 QTY	130	0130 QTY
2/7/2017	0.845	QD	0.935	QD	1.008	QD	0.894	QD	0.997	QD	0.88	QD
2/6/2017	0.717	QD	0.98	QD	0.798	QD	0.983	QD	0.868	QD	0.872	QD
2/5/2017	1.245	QD	1.064	QD	1.277	QD	1.025	QD	1.101	QD	1.184	QD
2/4/2017	1.186	QD	1.064	QD	1.064	QD	1.118	QD	1.008	QD	1.16	QD
2/3/2017	0.868	QD	1.208	QD	0.957	QD	1.096	QD	1.065	QD	0.875	QD
2/2/2017	1.089	QD	1.072	QD	1.173	QD	1.051	QD	1.133	QD	1.177	QD
2/1/2017	1.034	QD	1.111	QD	1	QD	0.937	QD	0.988	QD	1.11	QD
1/31/2017	0.949	QD	1.065	QD	1.119	QD	1.015	QD	1.079	QD	1.061	QD
1/30/2017	0.999	QD	0.944	QD	1.06	QD	1.07	QD	0.948	QD	1.041	QD
1/29/2017	1.023	QD	1.2	QD	0.938	QD	1.178	QD	0.928	QD	1.115	QD
1/28/2017	1.079	QD	1.146	QD	1.031	QD	1.187	QD	1.065	QD	0.994	QD
1/27/2017	1.061	QD	0.91	QD	0.903	QD	1.005	QD	1.112	QD	1.019	QD
1/26/2017	0.813	QD	0.879	QD	0.815	QD	0.827	QD	0.84	QD	0.798	QD
1/25/2017	1.048	QD	1.022	QD	0.901	QD	1.055	QD	1	QD	0.821	QD
1/24/2017	0.877	QD	0.983	QD	0.929	QD	0.853	QD	1.083	QD	0.81	QD

60 MPI

Detailed Interval Usage												
Reading Date	100	100 QTY	200	200 QTY	200 DST	200 DST QTY	300	300 QTY	400	400 QTY	500	500 QTY	600	600 QTY
2/7/2017	0.145	QD	0.078	QD			0.135	QD	0.07	QD	0.126	QD	0.093	QD
2/6/2017	0.044	QD	0.116	QD			0.156	QD	0.075	QD	0.151	QD	0.136	QD
2/5/2017	0.143	QD	0.093	QD			0.085	QD	0.14	QD	0.154	QD	0.154	QD
2/4/2017	0.13	QD	0.137	QD			0.132	QD	0.133	QD	0.147	QD	0.145	QD
2/3/2017	0.101	QD	0.151	QD			0.159	QD	0.142	QD	0.141	QD	0.16	QD
2/2/2017	0.143	QD	0.141	QD			0.094	QD	0.092	QD	0.135	QD	0.137	QD
2/1/2017	0.15	QD	0.148	QD			0.064	QD	0.134	QD	0.152	QD	0.072	QD
1/31/2017	0.104	QD	0.099	QD			0.155	QD	0.148	QD	0.114	QD	0.118	QD
1/30/2017	0.113	QD	0.141	QD			0.157	QD	0.042	QD	0.133	QD	0.168	QD
1/29/2017	0.066	QD	0.136	QD			0.15	QD	0.096	QD	0.069	QD	0.148	QD
1/28/2017	0.127	QD	0.11	QD			0.137	QD	0.151	QD	0.097	QD	0.089	QD
1/27/2017	0.134	QD	0.092	QD			0.095	QD	0.134	QD	0.114	QD	0.15	QD
1/26/2017	0.08	QD	0.083	QD			0.129	QD	0.08	QD	0.137	QD	0.067	QD
1/25/2017	0.13	QD	0.105	QD			0.104	QD	0.105	QD	0.06	QD	0.158	QD
1/24/2017	0.051	QD	0.097	QD			0.1	QD	0.146	QD	0.026	QD	0.141	QD
1/23/2017	0.039	QD	0.09	QD			0.142	QD	0.077	QD	0.026	QD	0.065	QD
1/22/2017	0.077	QD	0.16	QD			0.073	QD	0.089	QD	0.139	QD	0.072	QD
1/21/2017	0.141	QD	0.085	QD			0.121	QD	0.087	QD	0.11	QD	0.228	QD
1/20/2017	0.148	QD	0.138	QD			0.069	QD	0.147	QD	0.145	QD	0.071	QD

StS Rolling 10 Day

- **According to the Web Portal Working Group Technical Implementation Standards System-to-System (StS) Rolling 10-day is a "provide-and-park" approach for sharing smart meter data. The EDC publishes a file that includes all available detailed bill-quality meter-level interval usage in hour ending format for the set of accounts served by a particular EGS DUNS(+4) number on a specific usage delivery date.**
- **Smart Meter interval enablement was available as of 2/23/17.**
- **We will provide a daily list that includes:**
  - Customer Number, Meter Number, Meter Multiplier
  - The file will also include kWh data for each interval for that particular day.

StS Rolling 10 Day

Supplier Customer File Download

Download Customer File -

007912736_[redacted]_P20170227_IU20170224_60_1.zip

007912736_[redacted]_P20170227_IU20170224_15_1.zip

007912736_[redacted]_P20170227_IU20170223_60_1.zip

007912736_[redacted]_P20170227_IU20170223_15_1.zip

007912736_[redacted]_P20170227_IU20170222_60_1.zip

007912736_[redacted]_P20170227_IU20170222_15_1.zip

007912736_[redacted]_P20170227_IU20170221_60_1.zip

007912736_[redacted]_P20170227_IU20170221_15_1.zip

007912736_[redacted]_P20170227_IU20170220_60_1.zip

007912736_[redacted]_P20170227_IU20170220_15_1.zip

15 MPI

#EDI_ACCT_NO	METER_NUMBER	METER_MULTIPLIER	USAGE_DATE	E_015	E_030	E_045	E_100	E_115
xxxxxxxxxxxxxxxxxxx	xxxxxxxxxx	1	2/20/2017	0.01	0.01	0.01	0.01	0.01
xxxxxxxxxxxxxxxxxxx	xxxxxxxxxx	1	2/20/2017	0.013	0.013	0.06	0.059	0.013
xxxxxxxxxxxxxxxxxxx	xxxxxxxxxx	40	2/20/2017	4.186	4.4	4.226	4.346	4.32
xxxxxxxxxxxxxxxxxxx	xxxxxxxxxx	1	2/20/2017	0.523	0.277	0.329	0.343	0.27
xxxxxxxxxxxxxxxxxxx	xxxxxxxxxx	80	2/20/2017	4.96	4.88	4.88	4.96	4.88
xxxxxxxxxxxxxxxxxxx	xxxxxxxxxx	1	2/20/2017	0.19	0.186	0.185	0.185	0.186
xxxxxxxxxxxxxxxxxxx	xxxxxxxxxx	80	2/20/2017	3.28	3.28	3.44	3.36	3.36

60 MPI

#EDI_ACCT_NO	METER_NUMBER	METER_MULTIPLIER	USAGE_DATE	E_100	E_200	E_300	E_400	E_500	E_600	E_700	E_800	E_900
xxxxxxxxxxxxxxxxxxx	xxxxxxxxxx	1	2/24/2017	0.487	0.474	0.485	0.822	0.478	2.851	2.791	0.639	0.66
xxxxxxxxxxxxxxxxxxx	xxxxxxxxxx	1	2/24/2017	0.663	0.665	0.664	0.663	0.663	0.65	0.632	0.621	0.619
xxxxxxxxxxxxxxxxxxx	xxxxxxxxxx	1	2/24/2017	0.005	0.005	0.005	0.005	0.004	0.005	0.005	0.005	0.005
xxxxxxxxxxxxxxxxxxx	xxxxxxxxxx	1	2/24/2017	0.028	0.027	0.028	0.027	0.027	0.027	0.027	0.026	0.027
xxxxxxxxxxxxxxxxxxx	xxxxxxxxxx	1	2/24/2017	0.562	0.566	0.57	0.557	0.571	0.565	0.568	0.384	0.4
xxxxxxxxxxxxxxxxxxx	xxxxxxxxxx	1	2/24/2017	0.115	0.114	0.115	0.115	0.114	0.113	0.112	0.113	0.113

StS Historical Interval Usage

- **According to the Web Portal Working Group Technical Implementation Standards the StS Historical Interval Usage (HIU) is a method that utilizes a platform which allows an authorized user's IT systems to communicate directly with the web portal system of the EDC without requiring a user to manually log into the web portal itself and leverage the user interface. The requestor connects to the EDC's system exchanging data via XML transactions.**
- **Smart Meter interval enablement was available as of 2/23/17.**
- **We will provide the follow upon request:**
  - Customer attribute information as well as interval data
  - A valid reject reason
- **NOTE: We will provide up to 12 months of data. If less than 12 months, we will return what interval data is available.**

How to Receive Rolling 10 Day & HIU

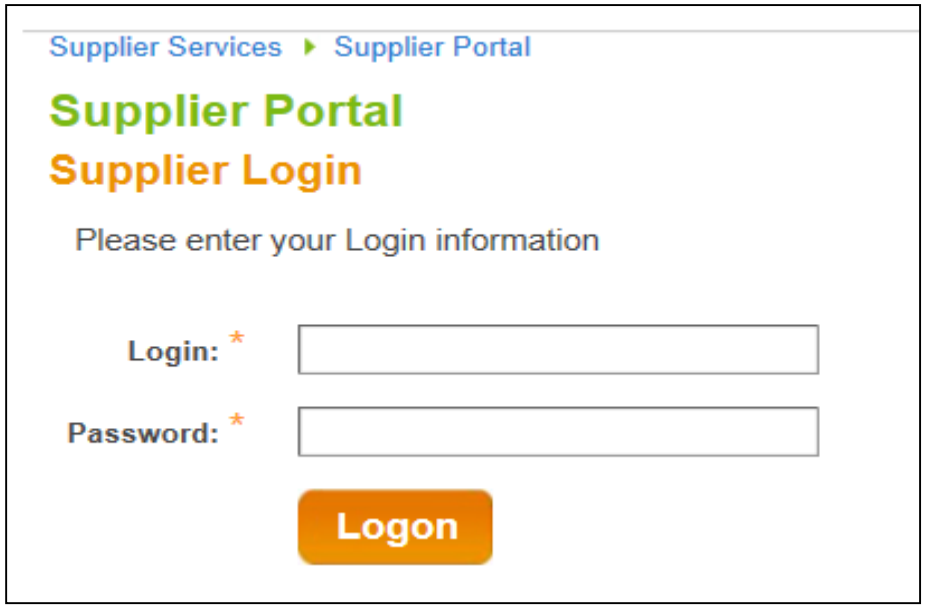
- **Suppliers will need to contact us if they would like to utilize either the Rolling 10 Day files or the StS HIU**
  - Rolling 10 Day files will be received once a supplier sets up the DUNS+4 for each entity they would like to receive files for.
    - The admin must submit a request to the Supplier Services mailbox to initiate the request. The request must include each DUNs+4 that we should provide daily files for.
  - StS HIU will require a form to be filled out and coordination between the supplier and FE IT dept. This will be included in User Guide.
    - Send the completed form to the Supplier Services mailbox to begin the process.
- **User Guide version 2 including updates related to interval billing will be posted to our portal on February 28th.**
  - The user guide will include instructions on accessing Rolling 10 Day and StS HIU.

Administration

- **In order to utilize any of the three functionalities outlined, each supplier must have an administrator.**
  - If a supplier already has an administrator, they will be able to view SU-MR but must contact Supplier Services for Rolling 10 Day and HIU.
- **Administrative Functions:**
  - Ability to create, edit and remove users.
  - Must attest that all users for their organization have proper access.
  - Ability to deactivate user sessions when a user locks themselves out.
  - Will be able to view an activity log of users and export the information to Excel.

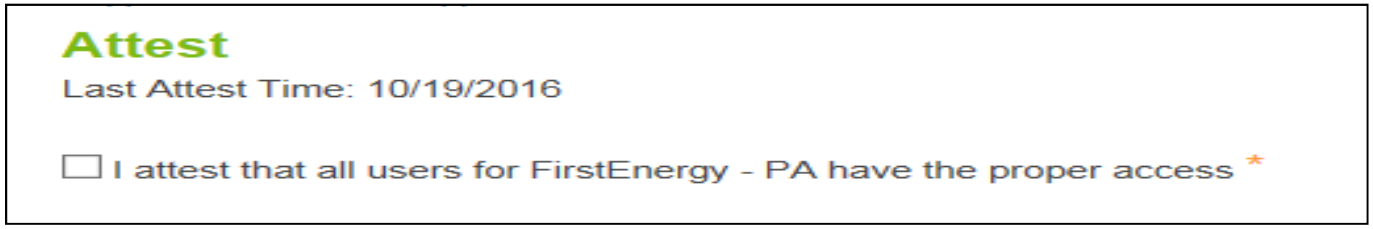
Access

- https://www.firstenergycorp.com/supplierservices/supplier_portal.html



Quarterly Review Process

- **Each administrator is required to validate the accuracy of the users of the portal.**
  - We will prompt the admin upon initial login, to attest to the accuracy of the users of the tool.
  - The administrator must sign off that the list of users is complete and accurate on a quarterly basis.
  - Administrators can attest as frequently as they would like, however we will prompt them at login as they get close to the 3 month limit.
  - If the administrator does not attest for a period of 3 months, we will lock the admin and all users of the tool.
    - The administrator must reach out to supplier support to unlock the portal.



Audit Log

Activity Log

Back to Admin | Logout

Search for user by login or name then filter by clicking on the icons on each column. To retrieve a list of all users leave the search field blank and click search.

Export to Excel

Date/Time	User ID	Action Code	Action Text
2016/10/13 09:26 AM	FirstEnergy	Access	Login success for username: Firstenergy
2016/10/13 09:26 AM	FirstEnergy	Attest	Supplier Attested Access
2016/10/13 09:38 AM	FirstEnergy	Query	Account: [redacted] Message: Valid Account LOA Required: false
2016/10/13 09:38 AM	FirstEnergy	Result	Account: [redacted] LOA Provided: N/A
2016/10/13 09:58 AM	FirstEnergy	Access	Login success for username: Firstenergy
2016/10/13 09:58 AM	FirstEnergy	Query	Account: [redacted] Message: Valid Account LOA Required: false
2016/10/13 09:59 AM	FirstEnergy	Result	Account: [redacted] LOA Provided: N/A
2016/10/13 10:20 AM	FirstEnergy	Access	Login success for username: FirstEnergy
2016/10/13 10:20 AM	FirstEnergy	Query	Account: [redacted] Message: Valid Account LOA Required: false
2016/10/13 10:20 AM	FirstEnergy	Result	Account: [redacted] LOA Provided: N/A
2016/10/13 10:24 AM	FirstEnergy	User Logout	Successful logout for login: FirstEnergy

Questions

Q1: Will monthly usage change to interval data?

A1: No, we will continue to send MU data until we receive a request for IU.

Q2: Is the change to IU requested through ref line 17?

A2: Yes

Q3: How can I tell if a customer is interval enabled?

A3: You will see that on the ECL file under SM indicator, through, SU-MR, Rolling 10 Day, or HIU.

Q4: How do we know if a customer is 15 minute or 60 minute.

A4: We will pass back data at the interval the customer is metered. Also, it will match our utility rate schedules. Therefore, as a rule of thumb, all residential and GS-Small will be 60 min interval with the remaining rate classes 15 min.

Q5: Does the 814C have any special characters to denote receiving meter level vs. account level.

A5: We will only pass back account level data in PA.

Q6: Will the various REF lines which indicate the Meter Type in an enrollment response reflect MON or Minutes Per Interval (015 or 060).

A6: We will provide back "MON".

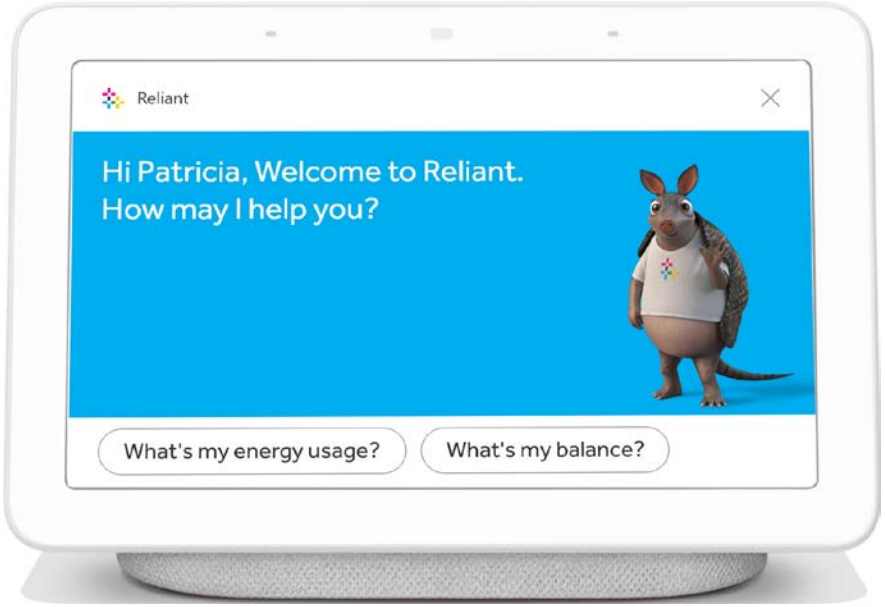
Q7: Will we receive the presentation?

A7: We will send out after our Thursday March 2nd webinar.

Exhibit LG-4

Welcome Screen

Ex. LG-4



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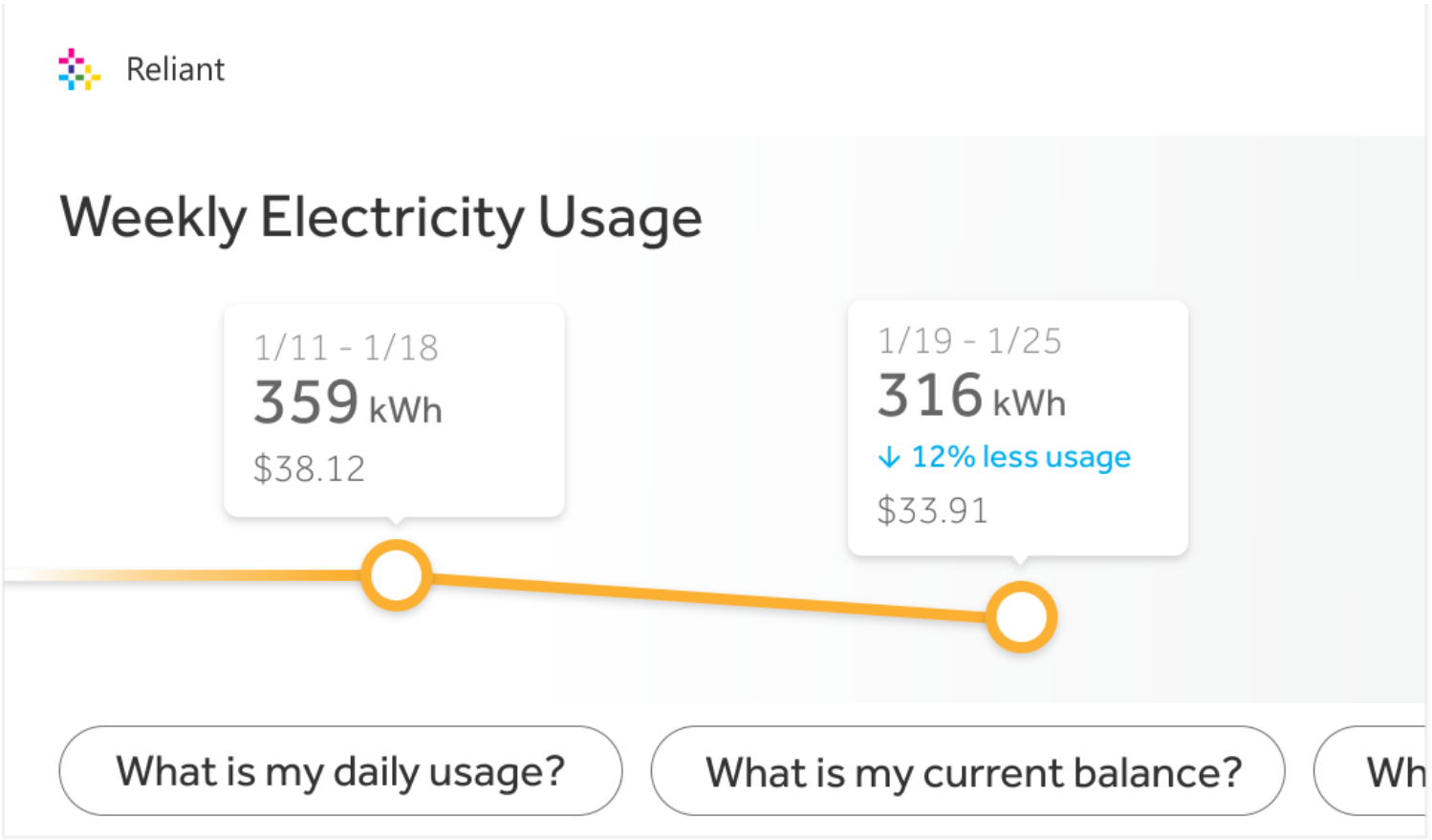
Weekly Usage

Ex. LG-4



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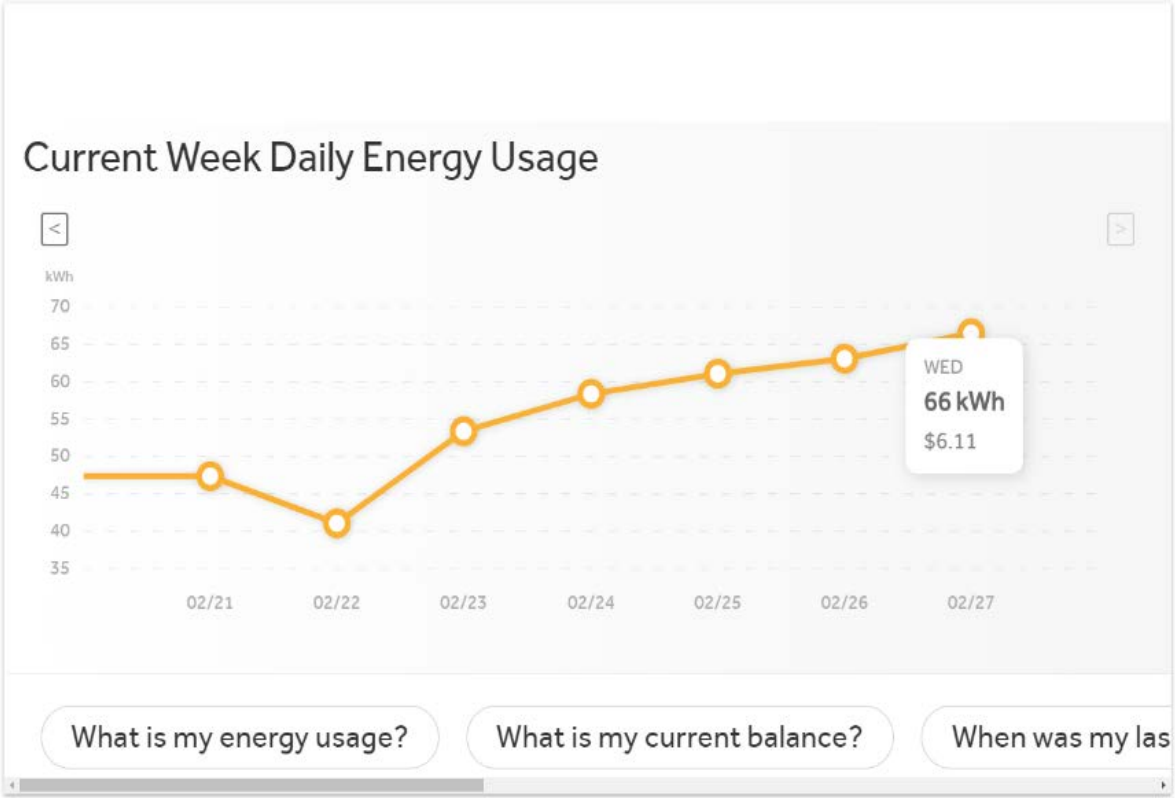
Daily Usage

Ex. LG-4



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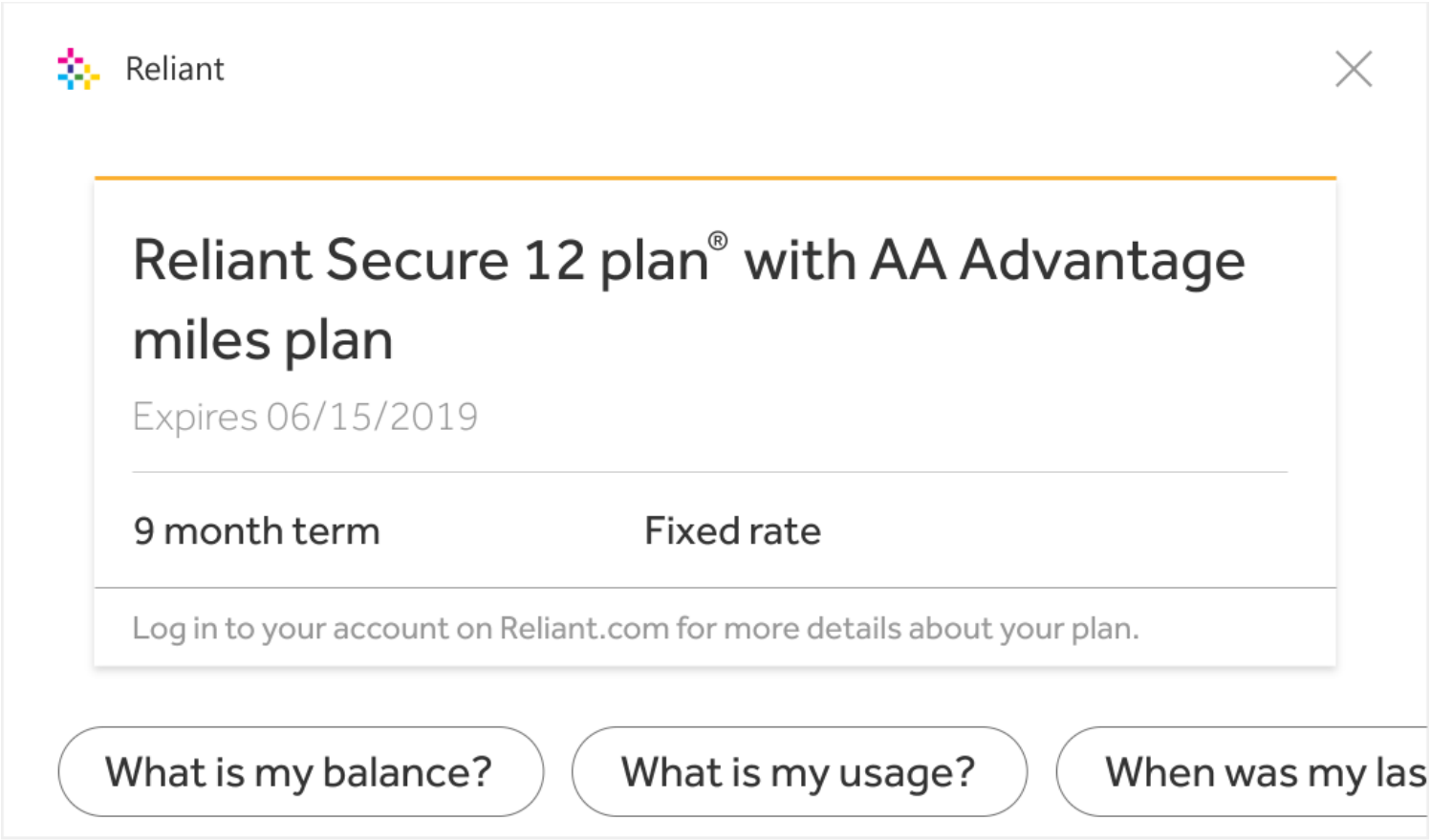
What plan am I on?

Ex. LG-4



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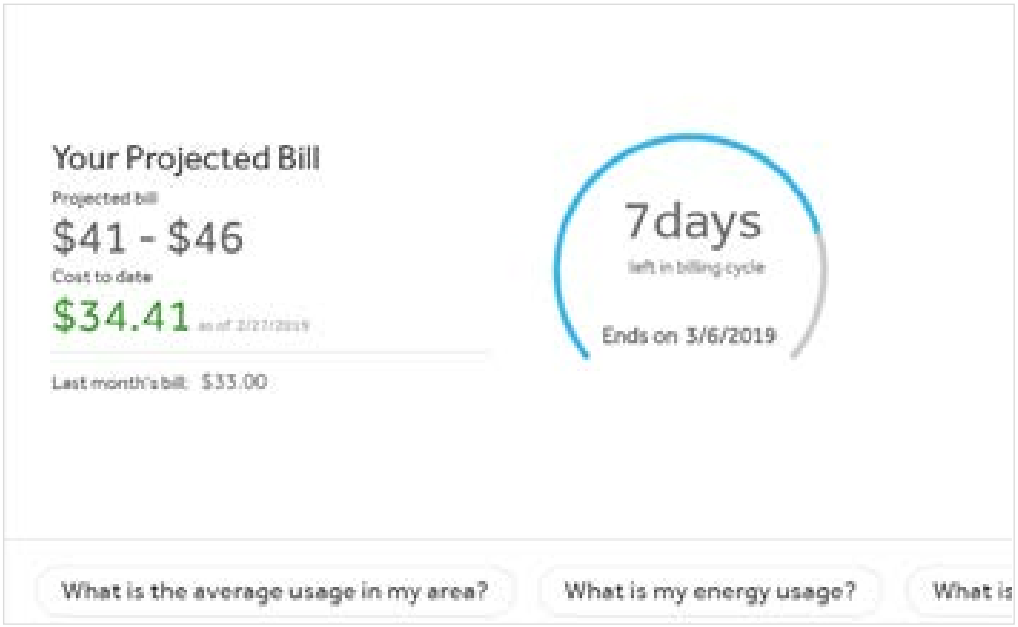
Projected Bill

Ex. LG-4



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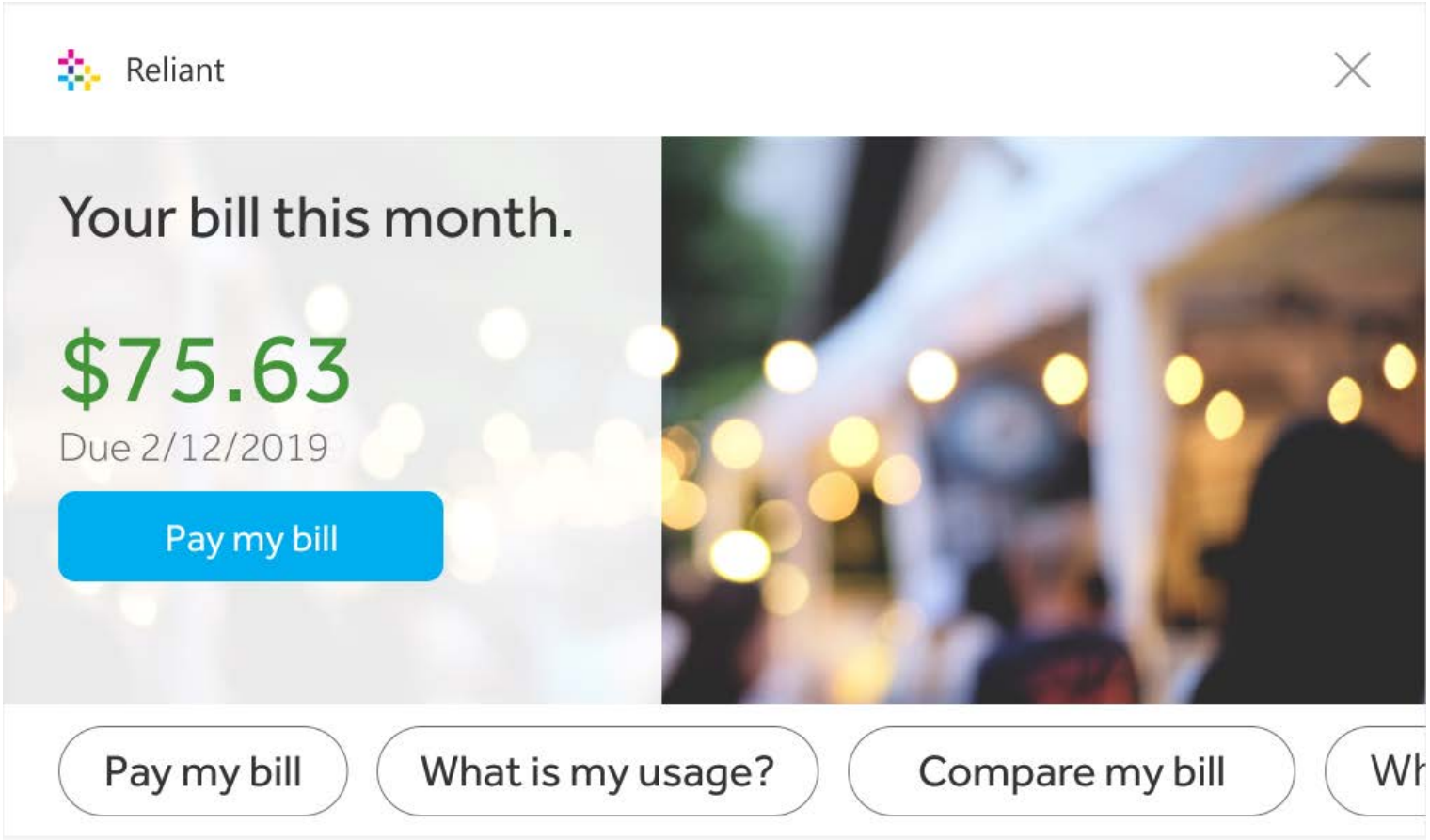
View My Bill

Ex. LG-4



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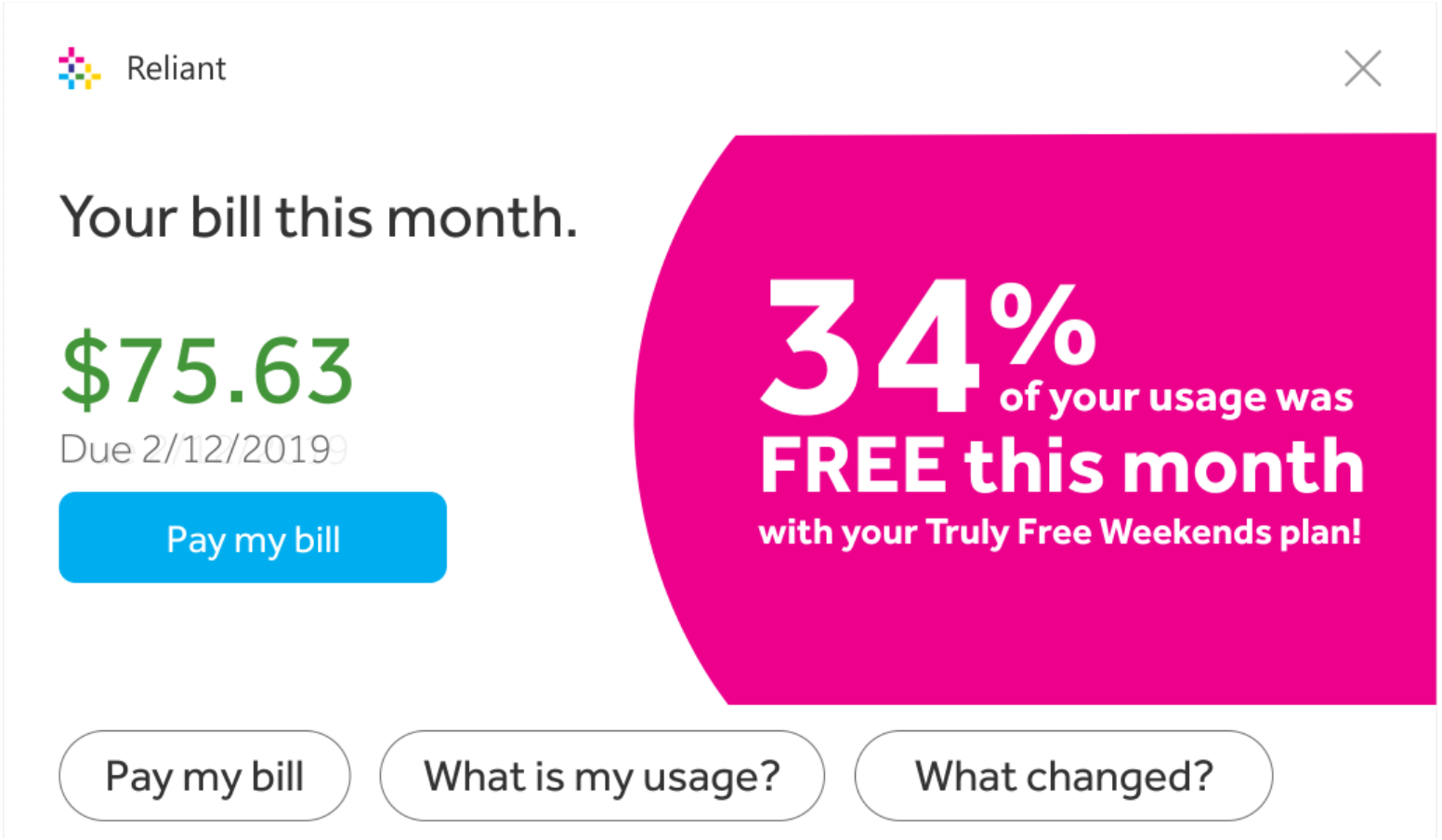
View My Bill - TFW

Ex. LG-4



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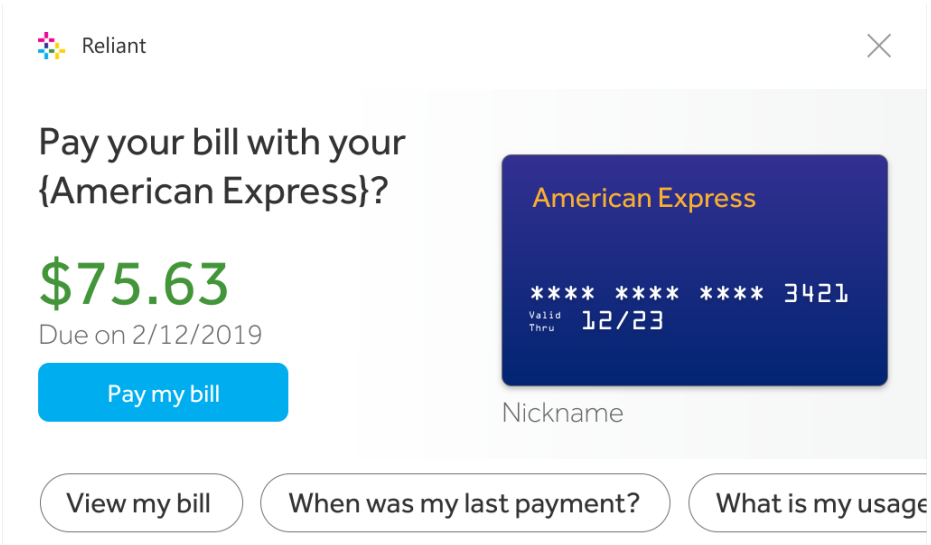
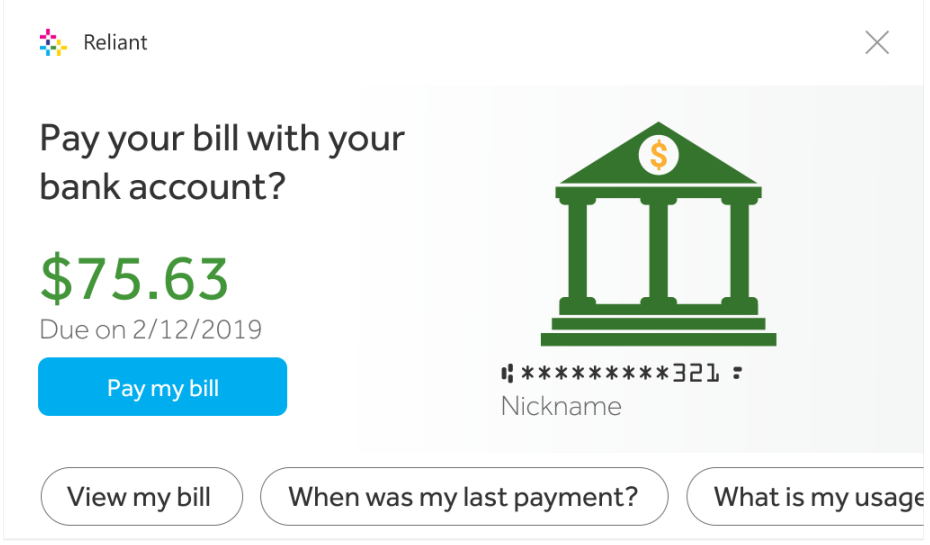
Pay My Bill

Ex. LG-4





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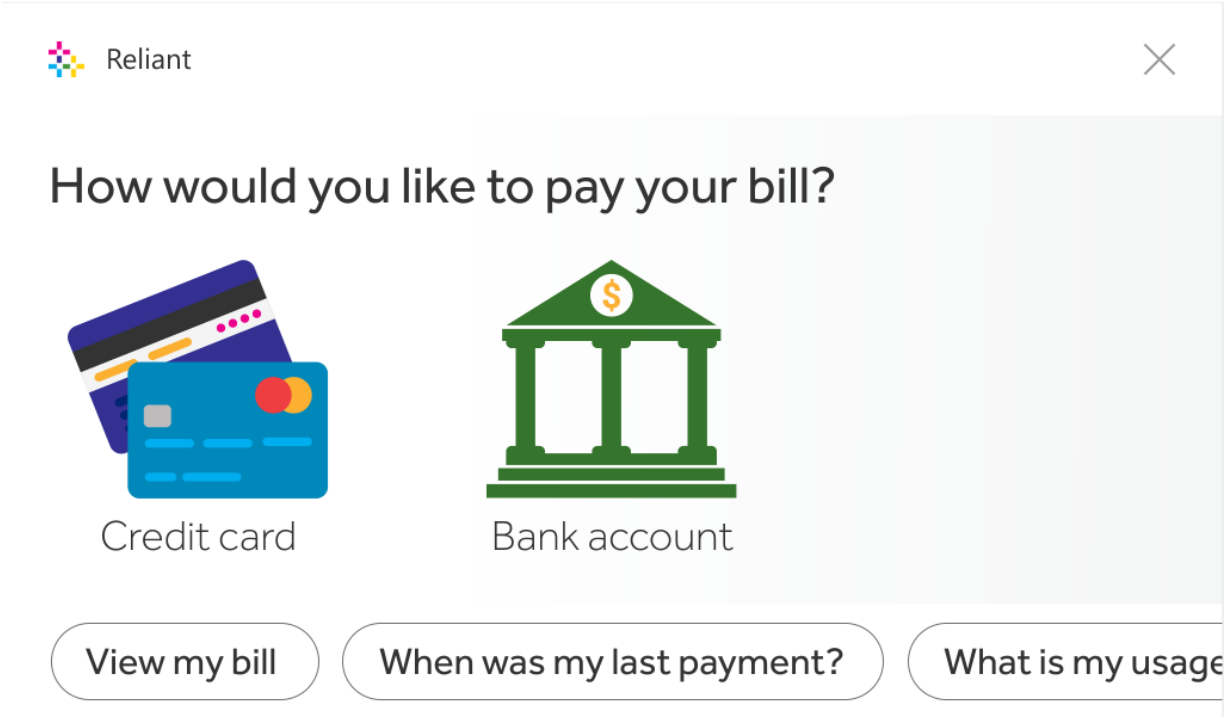
Pay My Bill – choose which payment

Ex. LG-4



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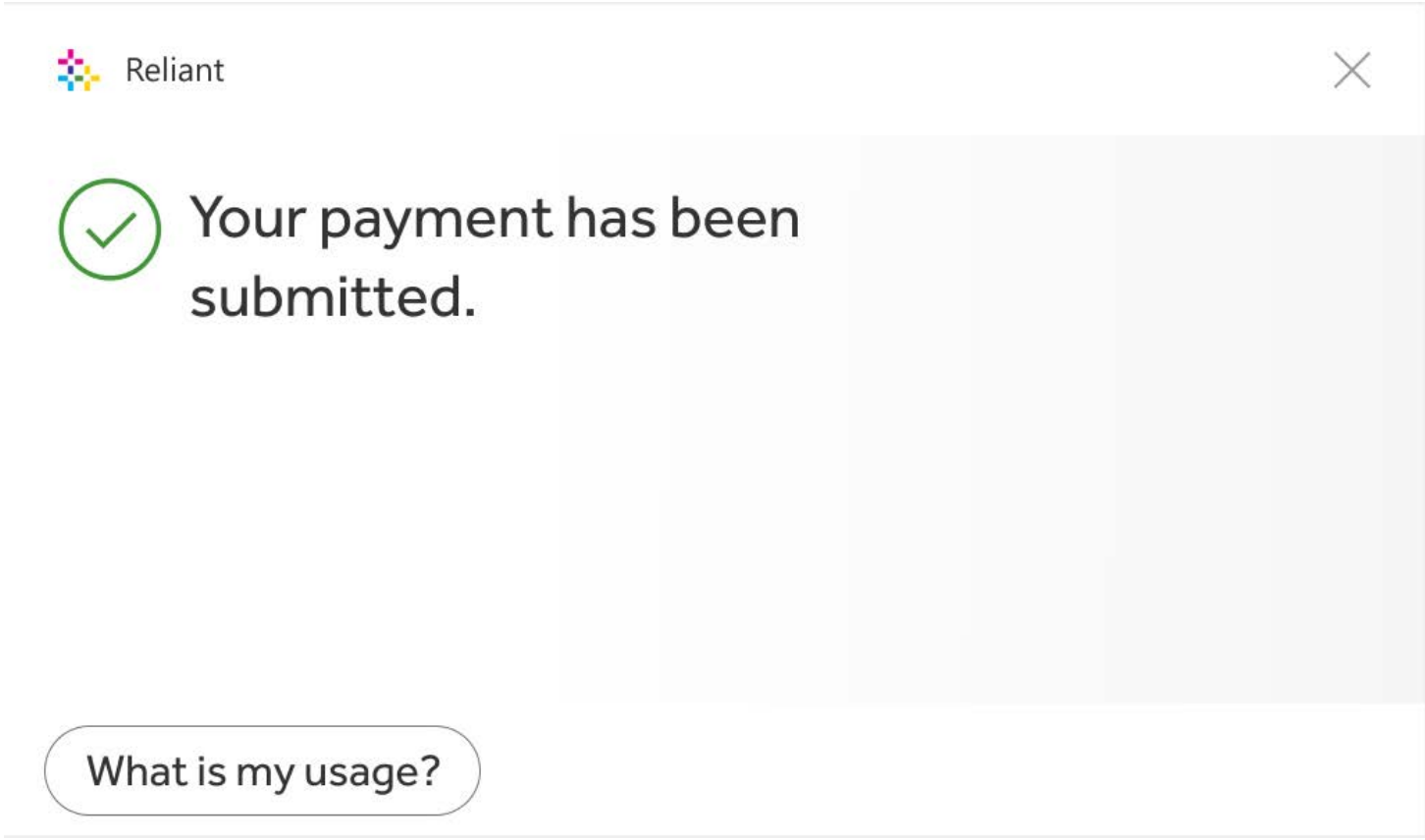
Pay My Bill

Ex. LG-4



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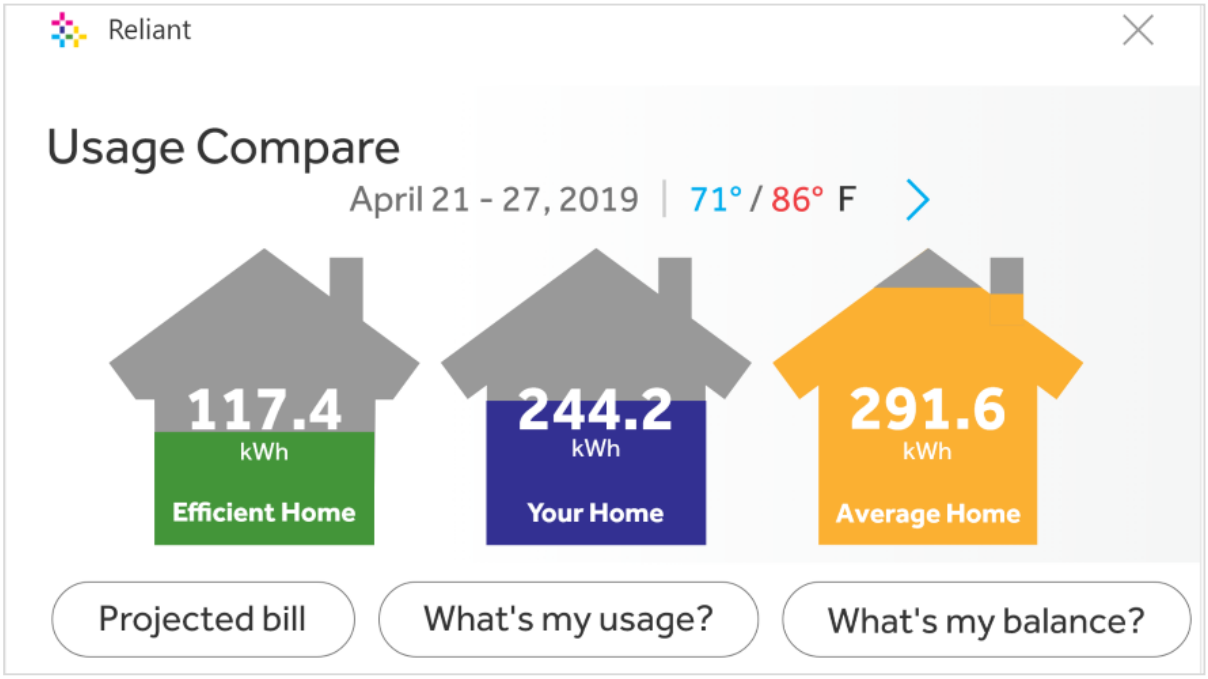
Usage Compare

Ex. LG-4



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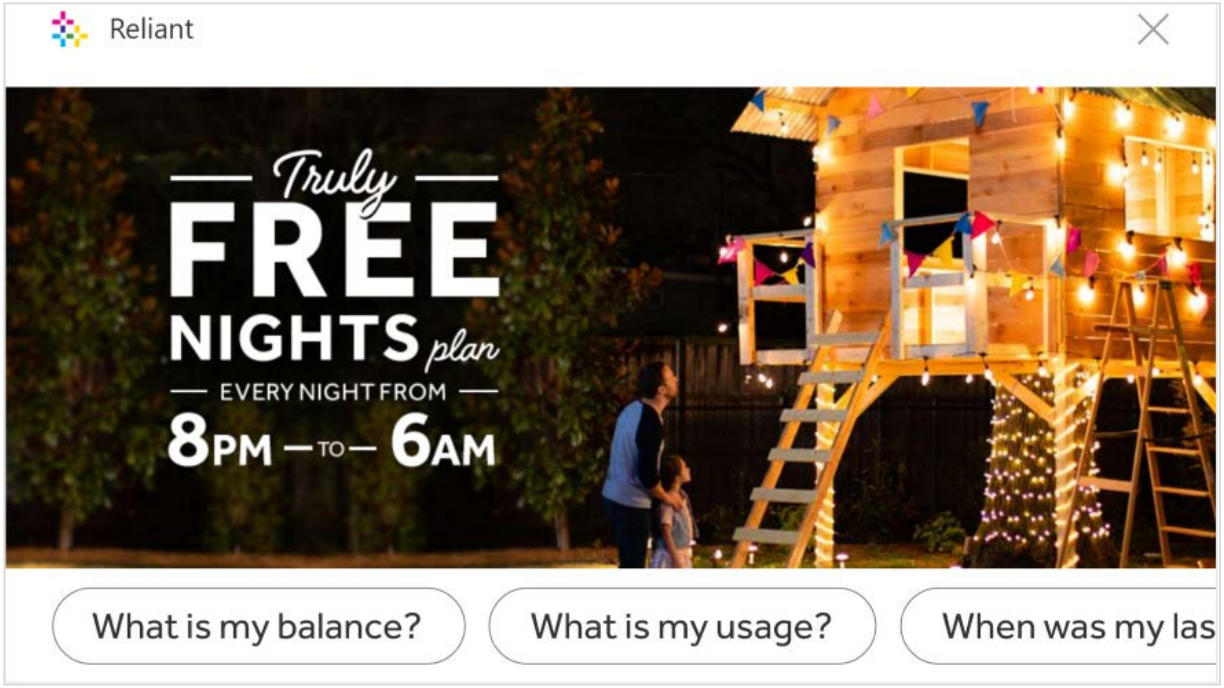
Truly Free Nights

Ex. LG-4



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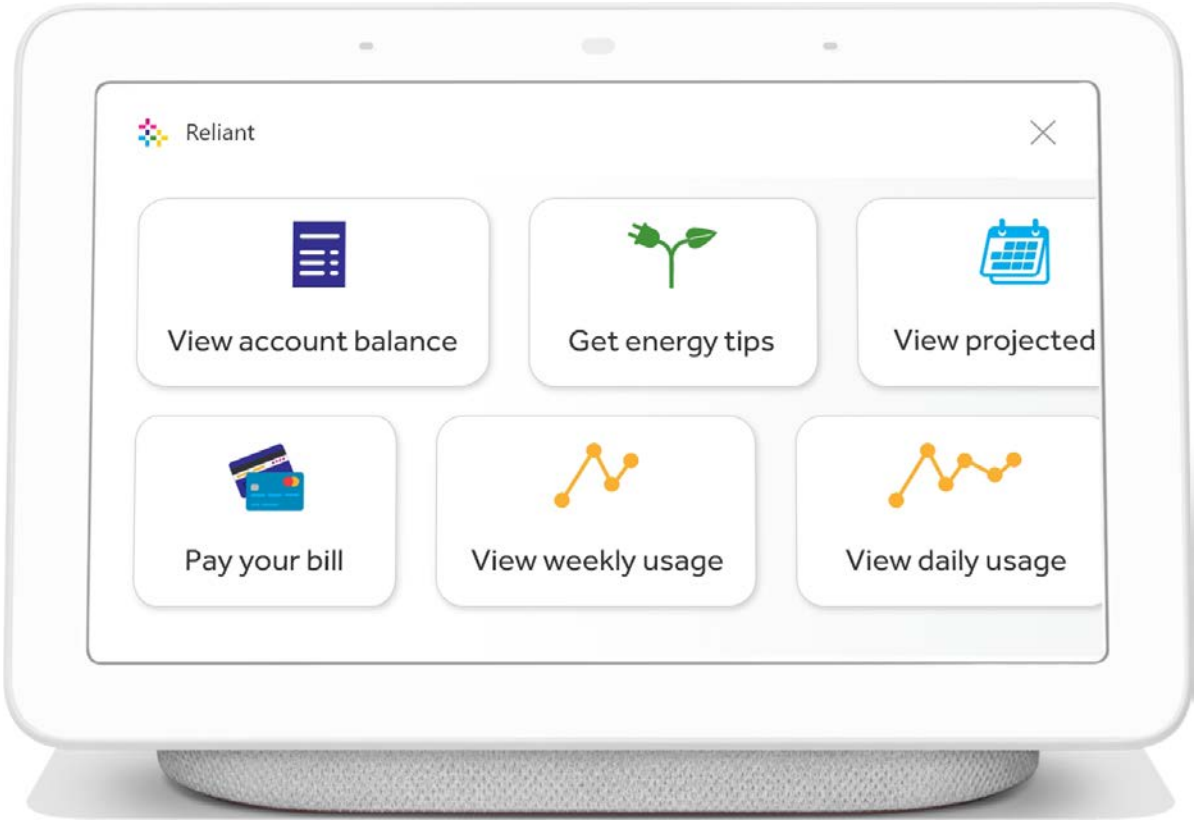
What Can You Do?



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Energy Saving Tips

Ex. LG-4

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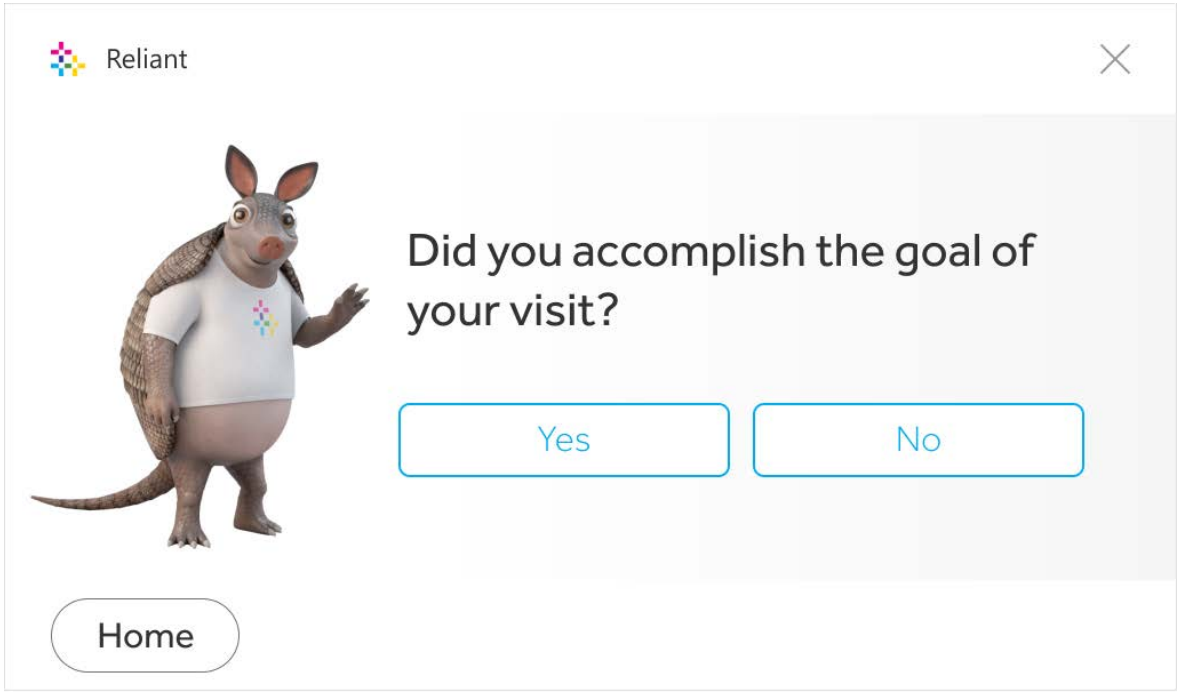
Feedback

Ex. LG-4



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