BEFORE THE
NEW JERSEY BOARD OF PUBLIC UTILITIES

DIRECT TESTIMONY OF

LEAH GIBBONS

ON BEHALF OF
THE MARKET PARTICIPANTS

Docket No. EO18101115

In the Matter of the Petition of Public Service Electric & Gas Company for Approval of Its Clean Energy Future-Energy Cloud ("CEF-EC") Program on a Regulated Basis

August 31, 2020

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TABLE OF EXHIBITS

I. INTRODUCTION

Q. PLEASE STATE YOUR NAME, TITLE AND BUSINESS ADDRESS.

A. My name is Leah Gibbons and I am the Director of Regulatory Affairs for NRG Energy, Inc. ("NRG"). My business address is 804 Carnegie Center, Princeton, NJ 08540.

Q. PLEASE SUMMARIZE YOUR EDUCATIONAL BACKGROUND.

A. I have a Bachelor of Arts degree in Public Service from Pennsylvania State University and a Master of Arts degree in Public Affairs and Policy Analysis from the University of Wisconsin's La Follette Institute of Public Affairs.

Q. PLEASE PROVIDE A SUMMARY OF YOUR RELEVANT EXPERIENCE.

A. I have been an advocate of public policy in support of competitive energy markets – including policies that enable advanced metering infrastructure ("AMI") data access by Third Party Suppliers ("TPSs") and supplier consolidated billing ("SCB") – for over twenty-five years in both regulatory and government affairs roles. I have worked for NRG or one of its retail subsidiaries for approximately thirteen years. During this time, I have led NRG's advocacy efforts in front of the Pennsylvania Public Utility Commission, the Maryland Public Service Commission, and the District of Columbia Public Service Commission in support of AMI data access for TPSs. We developed and filed comments and I participated in stakeholder processes and Commission hearings that resulted in Commission orders requiring the utilities in those jurisdictions to implement protocols enabling automated retail supplier access to their customers' billable quality, 48-hour old, interval usage data in near real-time. I have spoken at industry workshops or conferences on the importance of AMI data access by competitive retail suppliers to delivering the value of customers' AMI investment, and to unlocking the innovation that these AMI investments enable. My speaking engagements include: a MidAtlantic Distributed

Resource Initiative (MADRI) work group session on Dynamic Pricing, a Mid-Atlantic Conference of Regulatory Utility Commissioners (MACRUC) Annual Education Conference panel discussion on Time-of-Use Rates, and a New England Energy Conference and Exposition panel discussion on Restructured Energy Markets and the Grid of the Future.

In addition to leading NRG's advocacy on the AMI data access issue, I have led NRG's advocacy efforts related to SCB. Working with NRG's business team, I led the development of an SCB proposal and worked with outside counsel to develop and file a petition with the Pennsylvania Public Utility Commission ("PA PUC") seeking adoption of SCB.[1] As a result of NRG's petition, the PA PUC opened a stakeholder process to study SCB, took written comments and held two days of hearings on the issue. The proceeding remains open and awaiting final PA PUC action. In addition, I organized a coalition of companies that included Direct Energy, Just Energy, and other interested suppliers, to file a petition with the Maryland Public Service Commission ("MPSC") seeking adoption of SCB.[2] The MPSC issued an order approving our request and tasking Commission staff with organizing a stakeholder proceeding to develop regulations, business processes, electronic data exchange transactions, customer education, etc. to implement SCB.[3] I am participating directly in that stakeholder process representing

[1] Petition of NRG Energy, Inc. for Implementation of Electric Generation Supplier Consolidated Billing, Docket No. P-2016-2579249 (filed December 8, 2016).

[2] Petition of NRG Energy, Inc., Interstate Gas Supply, Inc., Just Energy Group, Inc., Direct Energy Services, LLC and Engie Resources LLC for Implementation of Supplier Consolidated Billing for Electricity and Natural Gas in Maryland, Case No. 9461 (filed September 7, 2017).

[3] Maryland Public Service Commission, *In the Matter of the Petition of NRG Energy, Inc., Interstate Gas Supply, Inc., Just Energy Group, Inc., Direct Energy Services, LLC and Engie Resources LLC for Implementation of Supplier Consolidated Billing for Electricity and Natural Gas in Maryland*, Case No. 9461, Order No. 89116 (Order issued May 7, 2019).

NRG's interests in the stakeholder discussions. The stakeholder process is ongoing and draft regulations are due to be filed by mid-September.

Q. WHAT ARE YOUR VARIOUS JOB RESPONSIBILITIES WITH NRG ENERGY, INC.?

A. My key responsibilities include regulatory advocacy in support of competitive retail markets in five jurisdictions (District of Columbia, Delaware, Maryland, New Jersey and Pennsylvania) on a variety of issues, including AMI data access and SCB. In addition, I provide business operations support, including regulatory consultation for development of energy-related value-added products and services for mass market customers. I also ensure business compliance with state regulatory requirements, and I lead a team responsible for compiling and filing more than 1,000 compliance filings annually in the various states in which NRG's licensed retail companies do business.

Q. HAVE YOU EVER PROVIDED TESTIMONY BEFORE THE NEW JERSEY BOARD OF PUBLIC UTILITIES ("BOARD" OR "BPU")?

A. I have not.

Q. ON WHOSE BEHALF ARE YOU PRESENTING TESTIMONY IN THIS PROCEEDING?

A. I am offering this Direct Testimony on behalf of Direct Energy Business, LLC, Direct Energy Business Marketing, LLC, Direct Energy Services, LLC, and Gateway Energy (collectively, "Direct Energy"), NRG Energy, Inc. ("NRG"), Just Energy Group, Inc. ("Just Energy") and Centrica Business Solutions (collectively, the "Market Participants").

Q. PLEASE BRIEFLY DESCRIBE THE MARKET PARTICIPANTS.

A. Direct Energy, NRG and Just Energy, on their own or through affiliates and subsidiaries, operate as licensed TPSs, actively serving residential, commercial, industrial and institutional customers throughout New Jersey. As TPSs, Direct Energy, NRG and Just

Energy sell electricity to retail customers in the service territory of Public Service Electric & Gas Company ("PSE&G"). These retail companies offer customers a range of electricity products, including 100% renewable, loyalty rewards such as cash back and travel rewards, and time of use plans. Collectively and beyond their role as TPSs, Direct Energy, NRG and Just Energy also provide other services to consumers, such as demand response programs, energy efficiency, distributed energy investments, HVAC solutions, home energy audits, customer data analytics, home energy management services, smart thermostats and home water filtration. Centrica Business Solutions, an affiliate of Direct Energy, integrates localized energy solutions for businesses that leverage its energy insights, onsite generation and demand management responsibilities. The energy solutions integrated by Centrica Business Solutions include solar, combined heat and power, energy efficiency, energy insight, demand response, power generation and energy storage. Offering innovative distributed energy solutions, Centrica Business Solutions enables organizations to improve operational efficiency, increase resilience and drive their business vision forward.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. The purpose of my testimony is to address PSE&G's Petition for Public Service Electric & Gas Company for Approval of its Clean Energy Future-Energy Cloud ("CEF-EC") Program on a Regulated Basis ("CEF-EC Petition" or "Energy Cloud Petition"). In addressing PSE&G's CEF-EC Petition, I will discuss the Direct Testimony of Gregory C. Dunlap.[4] ("Dunlap Direct Testimony"). Through my testimony, I describe the perspectives and positions of the Market Participants on issues raised by the CEF-EC

[4] Energy Cloud Petition, Attachment 1.

Petition stemming from the widespread deployment of smart meters. The Market Participants' recommendations in this proceeding are designed to ensure that the decision of the Board of Public Utilities ("Board" or "BPU") promotes the development of the competitive retail market and appropriately relies on the experience and expertise of TPSs in developing innovative product offerings.

Q. ARE YOU SPONSORING ANY EXHIBITS?

A. Yes. I am sponsoring the following four exhibits:

LG-1	PSE&G Response to MP-PSEG-0002
LG-2	Sample CSV Data Files
LG-3	First Energy Supplier Webinar Powerpoint – Smart Meter Data Update
LG-4	Sample of Reliant's Google Hub Interactive Program

Q. WHAT ARE THE INTERESTS OF THE MARKET PARTICIPANTS IN THIS PROCEEDING?

A. Briefly, the Market Participants have two primary interests in this proceeding. First, the deployment by PSE&G of 2.2 million advanced (or "smart") meters throughout its electric service territory over the course of a five-year period presents a critical need for the development of a comprehensive and robust Data Access Plan. The smart meters, which record customer energy consumption data at a granular level, will provide extensive data about customer usage patterns that can be used not only to engage customers and offer customized solutions tailored to meet their individual needs – something competitive TPSs excel at – but also to enable better customer segmentation, load profiling and forecasting and a whole host of other capabilities. It is critical that the Board ensure that TPSs have access to this data so that they can offer the myriad competitive products and services such data allows and that customers are increasingly

demanding, and improve their own load profiling and forecasting, and customer segmentation. Many of the use cases outlined in PSE&G's petition are more appropriately provided by competitive TPSs, and a comprehensive Data Access Plan is necessary to ensure suppliers have access to their own customers' data so that they may provide the products and services enabled by this data and improve their own operations.

Second, the Market Participants are concerned about PSE&G's plans to use ratepayer-funded smart meter technology to become a "leading smart energy services company" and use its monopoly position to directly compete with entities already offering many of the products and services identified by PSE&G in the competitive market. As a result, it is important for the Board to take steps now to ensure that PSE&G remains focused on its core functions, limits its involvement in additional initiatives that are outside its core competencies and avoids situations where PSE&G uses ratepayer funds and its monopoly position to gain an unfair advantage over other entities offering energy solutions.

Finally, the Market Participants are not contesting or questioning PSE&G's request to deploy AMI meters, their cost estimates, or accounting treatment for such investments. Nor are we questioning the benefits smart meters will have on improved core utility functions like outage identification or restoration, system planning, or cost savings as a result of smart meter deployment.

Q. BASED UPON YOUR REVIEW OF PSE&G'S PETITION AND MR. DUNLAP'S TESTIMONY, DO YOU HAVE SPECIFIC RECOMMENDATIONS?

A. Yes. I recommend the following: 1) PSE&G should be directed to submit a Data Access Plan within 60 days of the BPU Order approving its Energy Cloud petition that lays out in detail how TPSs may access their customers Billable Quality Interval Usage data, as

detailed in my testimony below; 2) the BPU should reject PSE&G's implementation of Use Cases that are clearly outside of PSE&G's core function and that position PSE&G to offer products and services that are currently, and more appropriately, offered by various competitive entities, including TPSs; and 3) the Board should direct that SCB be implemented and operational by the time AMI is fully deployed (end of year 5) so that TPSs have the ability to bill for the new products and services enabled by the deployment of AMI meters and the interval usage data they collect.

II. MARKET PARTICIPANTS' POSITIONS AND RECOMMENDATIONS

Q. PLEASE DESCRIBE PSE&G'S PETITION IN BROAD TERMS.

A. In its Petition, PSE&G proposes to invest approximately $721 million and incur operations and maintenance ("O&M") costs of $73 million over a five-year period in the CEF-EC Program for Advanced Metering Infrastructure ("AMI"). Under its AMI proposal, PSE&G would install approximately 2.2 million advanced, or smart, meters throughout its electric service territory. This deployment would result in its entire customer base receiving an advanced electric meter.[5] As proposed by PSE&G, the CEF-EC Program would also consist of 70 applications or "use cases." By this filing, PSE&G seeks BPU approval of the initial phase of the CEF-EC Program, referred to as "Release 1," which features 22 of the 70 use cases. PSE&G describes these 22 use cases, which focus on customer engagement, network operations and planning, and new utility products and services, as establishing the foundation for the CEF-EC Program.

[5] PSE&G has also proposed that residential customers be permitted to opt-out of receiving an advanced meter and pay a fee.

Q. DO THE MARKET PARTICIPANTS CHALLENGE THE DEPLOYMENT OF SMART METERS, PSE&G'S COST ESTIMATES OR PSE&G'S PROPOSED ACCOUNTING TREATMENT?

A. No. The Market Participants support PSE&G's proposal to deploy smart meters to all its customers – as we have, in fact, been advocating for the deployment of smart meters for several years. We take no position on its cost estimates for its proposed AMI or PSE&G's proposed accounting treatment. As I noted above, the Market Participants' interests in this proceeding are in ensuring that data access issues are adequately and appropriately addressed from the start, and that the Board properly limits the role of PSE&G in offering new and innovative products made possible by the availability of smart meter data.

A. Data Access

Q. AS PART OF ITS PETITION OR IN DIRECT TESTIMONY, DID PSE&G PRESENT A PROPOSED DATA ACCESS PLAN?

A. No.

Q. PLEASE DESCRIBE THE DATA THAT WILL BE MADE AVAILABLE THROUGH THE AMI.

A. AMI smart meters measure and collect very granular energy usage data in increments ranging from one minute to an hour. This data is commonly referred to as Interval Usage ("IU") data. This more granular IU data provides information about how much electricity a customer is using during every hour (or less) of the day. The availability of such granular usage data spurs innovation and customized energy solutions that enable customers to take control over both their energy usage and their energy budgets through products and services designed to help them shift their usage based on their individual needs.

Q. WHO OWNS THE INTERVAL USAGE DATA COLLECTED BY SMART METERS?

A. The interval usage data generated by AMI meters belongs to the customer – after all, the customer used the electricity, paid for the electricity, are 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. And, they should be free to grant access to their data to their chosen supplier in the same way they grant access to their chosen supplier to switch their electricity service and obtain their usage data from the utilities in order to calculate their supply charges.

Q. DO THE MARKET PARTICIPANTS VIEW THE DEVELOPMENT OF A DATA ACCESS PLAN AS A CRITICAL PART OF THIS PROCEEDING?

A. Absolutely. It is essential for the Board to direct PSE&G to implement a comprehensive Data Access Plan ("DA Plan" or "Plan") at the same time it is working to deploy its AMI meters and program its systems so that the Market Participants and other entities offering energy services in the competitive market have access to their customers' IU data (with their consent) as soon as it becomes available. Waiting to address data access issues until after the meters have been installed will unnecessarily delay New Jersey consumers' access to the innovative solutions that the competitive market can offer. Gaining access to this data is just the beginning. It will take time for TPSs to accumulate and analyze their customers' usage information and to develop, test, and launch new products that help consumers use energy more wisely. Suppliers need time to build the front-end customer interface to make it easy for customers to get the information and respond. And it takes time to educate and engage customers. Having access to this data is essential to all this development work. Suppliers will make the necessary investments and then work hard to attract customers – and they need access to this data as soon as it becomes available to do

so. I note that although PSE&G has not proposed a smart meter data access plan as part of this proceeding, it has indicated its willingness to discuss the possibility of such a plan, as well as the plan components related to AMI deployment, with the parties.[6]

Q. IS CUSTOMERS' IU DATA USEFUL FOR ANY PURPOSES OTHER THAN CUSTOMER ENGAGEMENT AND DEVELOPMENT OF NEW PRODUCTS AND SERVICES?

A. Yes. TPSs will also 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. 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. By making IU the standard data, customers will continue to follow their familiar enrollment processes without extra steps for the customer to fully utilize their meter data for their existing or newly chosen supplier.

Q. IN THE MARKET PARTICIPANTS' VIEW, WHAT ARE THE KEY ELEMENTS OF A DATA ACCESS PLAN?

A. The Market Participants' ability to deliver product innovation enabled by access to the interval usage data collected by AMI meters hinges on timely and efficient access to our customers' near real-time interval usage data every single day, all at one time, with watt level precision, and on having our load settled at PJM based on that data. In addition, Peak Load Contributions ("PLCs") must be calculated for customers based on each customer's individual AMI hourly peaks. The Market Participants urge the Board to

[6] PSE&G's response to MP-PSEG-0002, which is attached as Exhibit LG-1.

require PSEG to submit a Data Access Plan within 60 days of the Board order approving PSE&Gs Energy Cloud proposal. The Plan must lay out a process for TPSs to access their customers' Billable Quality Interval Usage ("BQIU") data within 48 hours (or less).[7] 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 PSE&G's existing secure supplier portal via flat files. Finally, the 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. PSE&G should be required to provide periodic updates to TPSs as it deploys the AMI meters and implements its Data Access Plan.[8]

Q. WHY IS IT IMPORTANT THAT BQIU DATA BE ACCESSIBLE QUICKLY?

A. Third party suppliers must be able to retrieve their customers' BQIU data as fast as possible each day so that they can quickly load the data into their systems and present it to their customers promptly. This is especially true for residential customers. The key to

[7] To the extent PSE&G can provide interval usage data that is less than 48 hours old, the Board should require them to do so – the more current the data is, the more valuable and useful it is to the customer, and the better products that will be delivered by the market.

[8] The Market Participants 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.

being able to offer customers products and services that enable them to change their behavior and shift their energy consumption is communicating information about their consumption to them as quickly as possible, so they are able to make a connection between their electricity usage and what they were doing during that time. Customers simply cannot remember what they did days, weeks or even a single month after the fact – time is of the essence. Customers expect instant access to timely information in all aspects of their lives – from the number of steps they take in a day, to movies online, to the products and services that they buy. The older the BQIU data that is provided to consumers, the less valuable and useful it is to motivate them to act. The only way TPSs can effectively engage their customers is to require that PSE&G provides access to their customer data as quickly as possible. When suppliers have that kind of data access, they deliver value-added products and services to customers. Examples of the type of customer engagement I'm referring to here includes 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.

Q. CAN YOU ELABORATE ON THE MEANS OF ACCESSING DATA THROUGH EDI AND THE PSE&G SUPPLIER PORTAL?

A. EDI is utilized by PSEG and TPSs today to transact business. EDI is capable of providing customers' historical interval usage ("HIU") and many other utilities that have deployed smart meters enable access to HIU data via EDI. 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 PSE&G 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 PSE&G. 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 48-hour old (or less) BQIU data for all of the customers being served by the supplier. Each row in the file would be for a specific customer, while each column in the file contains the usage for each hour. The CSV files typically contain a rolling 10 days' worth of 48-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 PSE&G's existing secure supplier portal.[9] Suppliers would log into PSE&G's supplier portal using the PSE&G-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 PSE&G 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.

Q. HOW WILL THE DATA BE DISPLAYED WITHIN THE REQUESTED FORMAT?

A. As detailed in Exhibit LG-2, the Market Participants envision data files that include the following:

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9 *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

1. Mutually agreed upon account identifier
2. Consumption Date
3. A TPS identifier
4. Watts per hour usage broken down in a consistent interval period (preferably 30 or 60-minute increments; lower is possible)

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

Q. WHY IS WATT LEVEL PRECISION IMPORTANT?

A. 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 hours ("kWh") in an entire 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.

Q. WHY ARE LOAD SETTLEMENT AND PLC CALCULATION AT THE INDIVIDUAL CUSTOMER LEVEL IMPORTANT ELEMENTS OF THE DATA ACCESS PLAN?

A. Load settlement and individual customer PLC calculation based on interval usage 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 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 PSE&G 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 her behavior results in a lower monthly energy bill and that can only occur if her actual usage is used to determine how much electricity supply is needed for each hour of every day. PSE&G 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.

Q. YOU STATE ABOVE THAT THE DATA ACCESS PLAN SHOULD ADDRESS WHEN THE DATA WILL BECOME AVAILABLE THROUGH EACH PHASE OF METER DEPLOYMENT. PLEASE EXPLAIN.

A. Mr. Dunlap describes the key components of the Release 1 program plan and scope and lays out at a high level how the deployment of its AMI meters will progress over a five-year period and will ramp up over time. He explains that AMI meters will first be installed to replace aging and/or inaccessible non-AMI meters over the first three years, and in year three deployment will be accelerated and that approximately 1 million meters

will be deployed each year in years 4 and 5.[10] He also explains that a project team will be established to implement Release 1 that will, presumably, develop a detailed plan for completing the implementation.[11] And, based on the 22 use cases described, it seems apparent that data will begin to flow from these new meters as they are deployed.

My reason for stating that the Data Access Plan should address availability of the data through each phase of deployment is that PSE&G should not be permitted to wait until full deployment of all 2.2 million meters is completed before the interval data begins to be shared with the market. As the AMI meters are deployed, meter communication is established, billing is certified, and interval data is generated, it is essential that this data be promptly made available to the market. For example, if PSE&G's installation plan includes deployment by geographic location on its system and each geographic location is certified as it is completed, the interval data generated by the meters in that location should become available. In other words, as each stage of deployment is completed, and the meters are operational, data should be made available. Utilities in other jurisdictions provided such detailed plans that included status updates to the market when data would become available as deployment progressed.[12]

Making IU 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 PSE&G ensure data accuracy as it rolls out its new system.

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[10] Dunlap Direct Testimony at 21.

[11] Dunlap Direct Testimony at 27.

[12] *See for example: 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.

Q. DO ANY OTHER UTILITIES PROVIDE THIRD PARTY SUPPLIERS WITH DATA ACCESS AS YOU HAVE DESCRIBED ABOVE?

A. Yes. The Pennsylvania Public Utility Commission ("PA PUC") directed its utilities to establish a standard electronic format for providing customers and their designated third-party representatives with direct electronic access to the customers' electric usage and price data, with the customer's consent. The PA PUC 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. Moreover, the PA PUC directed stakeholders to develop a standardized solution for the acquisition of historical interval usage and BQIU data via a secure web-portal.[13] Similarly, the Maryland Public Service Commission convened stakeholders and developed a methodology for the delivery of near real-time BQIU data to third-party suppliers, as well as a customer consent policy.[14]

As a result, the utilities in these jurisdictions make interval usage data available through EDI and through their web-based supplier portals via .CSV files. The electric utilities in Delaware, the District of Columbia and Texas, among others, also provide BQIU data in this way.[15] Third party suppliers can access their customers' near real-time BQIU data every single day, all at one time, with watt level precision. These utilities settle all load at PJM based on that data. And, most of the utilities in these states – notably Baltimore Gas and Electric Company, Duquesne Light Company, the

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

[14] *See* Public Service Commission of Maryland, *In the Matter of Baltimore Gas and Electric's, Energy Efficiency, Conservation and Demand Response Programs Pursuant to the Empower Maryland Energy Efficiency Act of 2008*, Case No. 9154, Order No. 87285 (Order issued Dec.8, 2015).

[15] The Texas Transmission and Distribution Utility Service Providers (TDSPs) use a single platform Smart Meter Texas, to share data with customers and the market. See https://www.smartmetertexas.com/home

Pennsylvania based First Energy utilities and PP&L Electric Utilities Corporation – calculate individual customer PLCs based on that data and routinely provide updates to suppliers.

Q. IS GREEN BUTTON CONNECT A FEASIBLE MECHANISM FOR TPS' TO ACCESS THEIR CUSTOMERS' BQIU DATA?

A. No. 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 – or even 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 data needs can lead to security concerns over network traffic accessing data. NRG's Reliant 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. The Market Participants have no objection to PSE&G continuing to enable Green Button Connect as a means for customers to access their own data, but we urge the BPU to require PSE&G to implement our recommended system-to-system rolling 10-day solution described above, as Green Button is not a viable alternative for TPSs.

Q. DO YOU HAVE ANY OTHER RECOMMENDATIONS RELATED TO THE DATA ACCESS PLAN?

A. Yes. Technology now exists 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.[16]

B. Appropriate Roles for Utility versus Third Party Suppliers

Q. WHO SHOULD BE RESPONSIBLE FOR OFFERING THE INNOVATIVE PRODUCTS AND SERVICES MADE POSSIBLE BY INTERVAL USAGE DATA?

A. In a restructured retail electricity market like New Jersey, competitive TPSs are the entities best suited to deliver the types of value-added products and services to consumers made possible by smart meters. Competitive suppliers risk their own capital to find solutions of value to consumers – which takes time, research, testing and development.

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.

Competitive TPSs, like the Market Participants, are highly motivated to identify customer needs and deliver the products and services that customers want to attract and retain them. These entities have customer call centers that listen to consumers, and product development teams focused on creating products that meet those consumers' needs. Most importantly, TPSs do not have captive ratepayers. They must provide products and services at prices customers will pay because if they do not, customers either will not choose those services or they will leave. By relying on the competitive retail market to deliver the innovative solutions enabled by the deployment of AMI, like

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

dynamically priced products, flat bill products, prepaid electricity, etc., the Board – and, most importantly, consumers – can be certain that customers will get the best price and the best value for the products customers want and need.

Q. SHOULD PSE&G BE PERMITTED TO USE THE DATA COLLECTED FROM THE NEW SMART METERS TO OFFER COMPETITIVE PRODUCTS AND SERVICES IN DIRECT COMPETION WITH THIRD PARTY SUPPLIERS?

No. PSE&G's use of the data should be limited to handling of core distribution service functions. In its petition, PSE&G identifies 22 use cases in Release 1. Some of these 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, calculating distribution loss, etc.[17] However, several of the 22 use cases identified as being part of Release 1 are firmly within the purview of competitive entities and available in the competitive market, including: (1) enhanced customer engagement and communications; (2) rate analyzer and comparator; (3) usage and bill alerts, saving tips; (4) interactive energy demand and bill management; (5) customer segmentation and behavioral analysis; (7) customer efficiency programs (smart thermostats); and (9) customer DER/PV/EV. For each of these cases, PSE&G argues that these use cases will enable them to market and "provide new products and services" to customers. Monopoly utility interference in the competitive

[17] Energy Cloud Petition, Para. 9. Use cases 8 and 20 are applicable to both PSE&G and competitive entities.

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.[18]

Q. DO RELEASES 2 – 4 HAVE ANY USE CASES THAT CROSS THE LINE INTO THE PURVIEW OF THE COMPETITIVE MARKET?

Yes. PSE&G indicates that its future plans for the use of this data include offering customers more choice and options such as "non-industry products and services (e.g., Alexa, cable TV, internet), and the bundling of utility and non-utility products and services (e.g., home security, home energy management)"[19] and the like. These products and services are entirely outside the purview of a regulated monopoly function and are already provided in the competitive market by various entities – including TPSs – with the expertise, experience, and financial incentives to economically develop and deliver such services to customers. More specifically, PSE&G has identified an additional 48 uses cases in future releases. Among these are use cases related to customer demand response, customer pre-paid billing options, innovative rate development, customer smart home/appliances/devices, smart city, microgrids, innovative/new products and services, customer gamification & loyalty programs, energy storage, real-time pricing, etc., which are all outside of the monopoly utility core function of delivering safe and reliable electricity.[20] While this is not a comprehensive list of the additional 48 use cases, they provide sufficient insight into PSE&G's plans to expand its services beyond its core

[18] Arguably, use cases 3 and 4 could be applicable for both PSE&G and competitive TPSs. As detailed below, NRG subsidiary, Reliant, offers these types of services in Texas today.

[19] PSE&G Dunlap testimony, p. 13, lines 9-12.

[20] Dunlap, Figure 2, p 19. Inappropriate Use Cases include: Release 2: 1, 4, 8, 9, 10, 11 – 14; Release 3: 1-4; Release 4: 1-3, 8-12.

utility functions. These products and services are all provided by entities operating in the competitive market. 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 and the Board should reject PSE&G's proposal to implement these use cases.

Q. WOULD THIRD PARTY SUPPLIERS USE THIS DATA IN PARTICIPATING IN NEW JERSEY'S COMPETITIVE RETAIL MARKET?

A. Yes. Delivering the products and services that customers want is a continually evolving process and it takes time to get these new products into the hands of consumers. The first step is engaging and educating customers by providing them with information about their usage quickly in a convenient and easy to understand way. The Market Participants have been doing this in Texas for at least the last decade. In the Mid-Atlantic region, where access to this data is relatively recent, NRG subsidiaries, NRG Home and Green Mountain Energy, have been working to educate and engage customers in Maryland and Pennsylvania. With access to our customer's BQIU data, we provide a weekly email summary of our customer's energy usage for the last week, along with current bill estimates – and in Green Mountain's case, the benefits in carbon offset savings – so that customers start to learn about how they are using energy. The response to these communications has been very positive. NRG Home also offers its Nest Learn and Conserve plan which facilitates energy conservation and energy efficiency.

Importantly, it takes time for customers to get educated and for suppliers to figure out what they want. Experience in other markets, notably in Texas where AMI data has been available for over a decade, demonstrates that the market will respond to customer

demands once they have access to their customers' AMI data and the ability to bill for these new products and services – both of which are essential to delivering the AMI Data based products and services that meet customers' evolving needs. And, suppliers are using this data to improve their own load profiling and forecasting and customer segmentation and behavioral analysis.

Q. PLEASE DISCUSS NRG'S TEXAS EXPERIENCE.

A. In Texas, where all suppliers are able to access near real-time BQIU data for all of their customers at one time, every single day, and where suppliers handle all billing and collections, NRG subsidiary Reliant, currently has more than 800,000 customers benefiting from at least one "Smart Energy" product or service.[21] Reliant owns a "Smart House" near downtown Houston where it tests new technologies and new products to determine the most practical in-home applications so that it can then develop product and service offerings. Examples of home energy management tools and offerings that Reliant offers in Texas, and which are made possible with access to near real-time BQIU data, include:

- A desktop and mobile-compatible Account Management tool that allow customers to personally monitor their electricity use, set cost and usage alerts, and compare their energy use to that of their neighbors. Several of Reliant's product plans also include a free Google Nest Hub that helps customers manage their Reliant account and accomplish daily tasks with natural voice commands.
- A mobile app in which customers can customize views, pay their bills, view their usage, choose different plans, etc.

[21] See Exhibit LG-4 for a sample of Reliant's Google Hub interactive program.

- Cost and Usage alerts - provided via email, text messages, or mobile app – notify customers when they are approaching any cost or usage thresholds they have selected.
- Weekly Summary Emails that highlight the customer's electricity usage - and approximately what it costs - for the most recent week as compared to the previous week. This information is then used to generate an estimate of the next bill to help the customer better manage his or her electricity budget. It also provides energy efficiency tips and other useful information.
- Pricing Plans that encourage consumers to shift usage and conserve such as:
    - Reliant "Pick Your Free Electricity" plans which enable customers to choose Truly Free Weekends, Truly Free Nights, or Truly Free 7 Days. Truly Free means no energy charge and zero delivery charges during they free periods selected, and a fixed price for all other times. These plans also come with a free Google Nest Hub that enables customers to manage their Reliant accounts and accomplish daily tasks with natural voice commands.
    - Reliant Electric Vehicle 12 Plan allows customers to charge their electric vehicles for less with discounted renewable energy prices every night and includes $100 charging credit to use at any EVgo or ChargePoint station.
    - Reliant "Learn & Conserve" Plans that include free Google Nest Learning Thermostats that automatically adjusts to save energy when customers are away and promote conservation.
- Payment plans that help customers budget their energy costs more easily, such as Reliant Pay as You Go. Pay as You Go is a pre-pay plan that allows customers to

pay as they go; the plan is very easy to understand – it is very similar to how many mobile phone plans are structured – and it is growing in popularity. This plan gives the customer the ability to decide how much they want to spend.[22]

- Reliant "Solar Sell-Back" allows customers with solar PV systems installed at their home to choose to have sell-back savings automatically credited to their monthly Reliant bill for surplus electricity generated and returned to the grid. Interval data allows Reliant to determine the usage profile for the individual customer so Reliant knows how much electricity to purchase and Reliant purchases supply based on actual demand. This allows Reliant to offer better pricing to the customer and determine the amount of the credits that can be offered.
- "Make it Solar" which enables customers to upgrade their plan to a solar plan for a low monthly fee.
- Demand response programs such as "Degrees of Difference" provide customers a bill credit for using less electricity than normal during high demand hours. Degrees of Difference alerts customers to upcoming periods of high electricity demand so that the customer can reduce usage.

Q. DO YOU BELIEVE THAT NEW JERSEY CUSTOMERS CAN ENJOY ACCESS TO THIS WIDE ARRAY OF PRODUCTS AND SERVICES IF THIRD PARTY SUPPLIERS HAVE ACCESS TO THEIR SMART METER DATA?

A. I believe that TPS access to customers' smart meter data would represent a major step toward the development of the wide array of products and services that are currently

[22] Reliant's Pay as you Go plan is temporarily unavailable due to constraints with COVID-19 and collections activity. It will resume once the emergency has been lifted.

available to customers in Texas. However, for at least some of the offerings, TPSs also need to be able to directly bill their customers so that they can show the benefits and savings being realized by the use of these tools. I discuss the Market Participants' proposed solution immediately below.

C. Supplier Consolidated Billing

Q. ALONG WITH AFFORDING EQUAL ACCESS TO THE SMART METER DATA BY THIRD PARTY SUPPLIERS, WHAT OTHER STEP SHOULD THE BOARD TAKE TO ENSURE NEW JERSEY CUSTOMERS REALIZE THE FULL VALUE OF THEIR AMI INVESTMENT?

A. Yes. While affording TPSs equal access to their customers' smart meter data, it is also important for the Board to direct PSE&G to implement supplier consolidated billing ("SCB") in its service territory. This directive should be accompanied by a timeline for implementation.

Q. WHAT IS SUPPLIER CONSOLIDATED BILLING?

A. Under SCB, TPSs would issue a single, consolidated bill to their retail customers containing all of their charges, as well as PSE&G's distribution charges.

Q. HOW IS SCB RELATED TO ACCESS TO SMART METER DATA?

A. Simply put, SCB facilitates the provision by TPSs of the innovative products and services enabled by AMI data. Today, PSE&G handles all the billing for customers being served by TPSs – this is referred to as utility consolidated billing.[23] Suppliers are limited in what they can put on the utility bill to the space dictated in PSE&G's Third Party Supplier

[23] This is true primarily for residential and small commercial customers. Some larger commercial and industrial customers may receive a separate bill from their chosen TPS for the supplier's charges.

Manual.[24] 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 received. 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.[25] Similarly, a TPS offering a product that includes a demand response rebate needs to be able to directly and effectively communicate that credit 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.

Q. WHY IS DUAL BILLING BY THRID PARTY SUPPLIERS INSUFFICIENT?

A. There are 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

[24] Per PSE&G's TPS User Manual, suppliers are limited to 50 lines of roughly 60 characters in length (in addition to 10 lines for the TPS name and billing charges provided in a bill-ready format). *PSE&G Third Party Supplier Electric Operating Manual*, p. 26-27, November 2016.

[25] And, per the terms stipulated in PSE&G's TPS User Manual, PSE&G has the ability to reject the EDI 810 transaction that includes the TPS billing data, and in such instances, neither the billing data nor the text messages will be printed on the bill. *PSE&G Third Party Supplier Electric Operating Manual*, p. 27, November 2016.

required to pay two energy bills covering the same period of time from two separate energy companies. While we like to think customers always understand the difference between supply and delivery, the reality is that a large number of them do not. 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.

Q. ARE THERE ANY OTHER BENEFITS TO ENABLING SCB?

A. Yes. SCB is an essential communication tool that allows a TPS to establish a relationship and build brand recognition with its customers. SCB enables a supplier to demonstrate its proficiency and competence at meeting the customers' needs and increases the supplier's visibility with its customers. With increased visibility comes increased accountability to its customers. Suppliers offering SCB are no longer able to hide on page four of the utility bill. For this reason, SCB can be viewed as possibly the most effective consumer protection tool.

SCB is essential to enabling the supplier's business to grow and thrive. The billing relationship is an important factor in improving customers' satisfaction with the service they receive. Most notably, SCB aligns with what customers expect from their service providers. Customers expect to be billed by, and pay, the provider of the goods

and services they consume. There are no other commodities or services that a customer purchases where the customer is billed by, and pays, the company that *delivered* that product or service.

Q. IS SCB PERMITTED BY NEW JERSEY STATUTE OR REGULATION?

A. Yes. On the advice of counsel, I understand that the Electric Discount and Energy Competition Act ("EDECA") required the Board to implement a proceeding to establish the provision of customer account services ("CAS") so that customers could choose electric and/or gas suppliers to provide these services.[26] EDECA defines CAS as "metering, billing, or such other administrative activity associated with maintaining a customer account."[27] EDECA clearly contemplates the provision of customer billing by licensed TPSs, and gives the Board authority and direction to implement metering and billing functions through required proceedings.

As required by EDECA, the Board instituted a proceeding to "determine the manner and mechanics by which customers may choose a supplier for some or all customer account services, which are defined as metering, billing and other account administrative functions."[28] Each of the state's regulated utilities executed a separate, but identical, settlement document with utility specific attachments appended to each settlement. PSE&G's Order/Settlement is dated December 22, 2000. The CAS Orders provide for SCB. While the Orders indicate that the Board directed the New Jersey Billing Implementation/EDI work group to create process flows, business rules and EDI

[26] N.J.S.A. 48:3-54

[27] N.J.S.A. 48:3-51.

[28] *I/M/O The Electric Discount and Energy Competition Act of 1999 Customer Account Services*, Docket No. EX99090676 (the "customer account service," or "CAS Orders").

transactions, or other Board approved electronic data exchange protocols necessary to facilitate the implementation of SCB, NRG is not aware that such protocols and rules were ever developed and implemented. That said, PSE&G does have a Third Party Customer Account Services Master Agreement available for execution by third party suppliers that would appear to enable SCB. These provisions are ineffective because they have never been operationalized. To my knowledge, no EDI transactions exist and no rules governing how SCB would work are in place that would allow PSE&G to execute the CAS Agreement were a TPS to request it. Regardless, it has been almost 20 years since the Board last considered this issue, and the CAS Order and Settlement Agreement represent a starting point for full SCB implementation. A Board decision in this matter directing SCB to be implemented in concert with the deployment of AMI meters and the implementation of a data access plan is an appropriate resolution to the barrier that the utility consolidated billing model presents to the availability to innovative products from TPSs.

D. <u>Competitive Services</u>

Q. WHAT IS YOUR UNDERSTANDING OF WHAT THE COMPETITION LAW SAYS ABOUT ELECTRIC UTILITIES OFFERING COMPETITIVE SERVICES?

A. Section 48:3-55(a)(1) of EDECA prohibits an electric utility from offering any competitive service to retail customers within New Jersey without the Board's prior express written approval. [29] This prohibition further states that the Board shall approve a competitive service only upon a finding that the public utility's provision of a

[29] N.J.S.A. 48: 3-55(a)(1).

competitive service will not adversely impact the ability of the public utility to perform its core functions.[30]

Q. WHAT IS THE SIGNIFICANCE OF THAT PROVISION OF EDECA IN THIS PROCEEDING?

A. Much of Mr. Dunlap's Direct Testimony suggests that PSE&G plans to use the smart meter technology platform proposed in this proceeding to evolve as a company into far more than an electric distribution utility. For example, he describes this proceeding as enabling PSE&G to transform itself into a "leading smart energy services company," and that many of the use cases position PSE&G to market and offer "new products and services." Importantly, many of the use cases identified by Mr. Dunlap are already being offered by suppliers and other entities in the private market. As such, they must be viewed as "competitive services," for which PSE&G needs express, prior Board approval to provide. Additionally, PSE&G should not be able to offer these services unless it can show that doing so would not interfere with its ability to safely and reliably deliver electricity to customers on its distribution system.

Q. ARE YOU AWARE OF ANY PRIOR BOARD APPROVAL FOR PSE&G TO TRANSFORM ITSELF INTO A LEADING SMART ENERGY SERVICES COMPANY?

A. No.

Q. ARE YOU AWARE THAT THE BOARD ENVISIONS PSE&G AND OTHER ELECTRIC UTILITIES TO HAVE A ROLE IN MAKING ENERGY REDUCTION PROGRAMS AVAILABLE TO CONSUMERS?

A. Yes. I am aware that on June 10, 2020, the Board adopted a comprehensive Order directing each electric public utility and gas public utility in the State of New Jersey to establish energy efficiency ("EE") and peak demand reduction programs pursuant to the

[30] N.J.S.A. 48: 3-55(a)(1).

EE provisions of the Clean Energy Act of 2018.[31] Under the EE Order, it is clear that the Board envisions a significant role for PSE&G and other electric utilities in the development of EE projects designed to fulfill the usage reductions mandated by the Clean Energy Act. However, that role does not support the transformation of PSE&G into leading smart energy services company or the implementation of many of the types of programs identified by Mr. Dunlap describes. Nor does PSE&G's mandate to achieve certain usage reductions justify affording it an unfair advantage, as the monopoly electric utility, over other entities currently competing in the private market by using ratepayer funds to develop innovative products that go well beyond the traditional monopoly utility model.

Q. IN WHAT WAYS DO MR. DUNLAP'S DESCRIPTIONS SUGGEST THAT PSE&G INTENDS TO GO BEYOND THE TRADITIONAL UTILITY MODEL?

A. Besides his frequent references to PSE&G as becoming a "leading smart energy services company," Mr. Dunlap refers to AMI as the foundational layer of the Energy Cloud, which will enable PSE&G to "[d]eploy numerous other smart use capabilities that are far broader in reach than AMI and the traditional utility model."[32] He also touts the program as providing customers with "increased choice" and gives examples of non-industry products (e.g., Alexa, cable television, internet) and non-utility products and services (e.g., home security, home energy management).[33] Indeed, Mr. Dunlap describes Energy Cloud as enabling PSE&G to become a key provider and enabler of smart digital capabilities, citing six interrelated smart capability domains, which include Smart

[31] P.L. 2018, c. 17; N.J.S.A. 48-3-87 et al. *In the Matter of the Implementation of P.L. 2018, c. 17 Regarding Establishment of Energy Efficiency and Peak Demand Reduction Programs*, Docket No. QO19010040 et al.

[32] Dunlap Direct Testimony at 6.

[33] Dunlap Direct Testimony at 6.

Operations, Smart Network, Smart Products and Services, Smart Customers, Smart Home, and Smart City.[34]

Q. WHY DO THE MARKET PARTICIPANTS OPPOSE PSE&G'S EVOLUTION AS DESCRIBED BY MR. DUNLAP?

A. As I stated previously, the competitive market driven by TPSs competing to develop the products and services customers demand are the entities with the expertise, entrepreneurial drive, and motivation to drive innovation. They have the experience and the incentive to provide what consumers want. Allowing the monopoly utility to take on this new competitive role takes their eyes off the ball in terms of fulfilling their core functions of delivering electricity safety and reliability to the more than 2 million customers that rely on them to do so. Moreover, use of ratepayer funds to subsidize utility offerings of products that are already available from third party entities competing for in the market puts unnecessary risk on ratepayers and allows PSE&G to use its monopoly position in the market to compete unfairly.

III. CONCLUSION

Q. DOES THAT COMPLETE YOUR DIRECT TESTIMONY?

A. Yes.

[34] Dunlap Direct Testimony at 13-15.

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

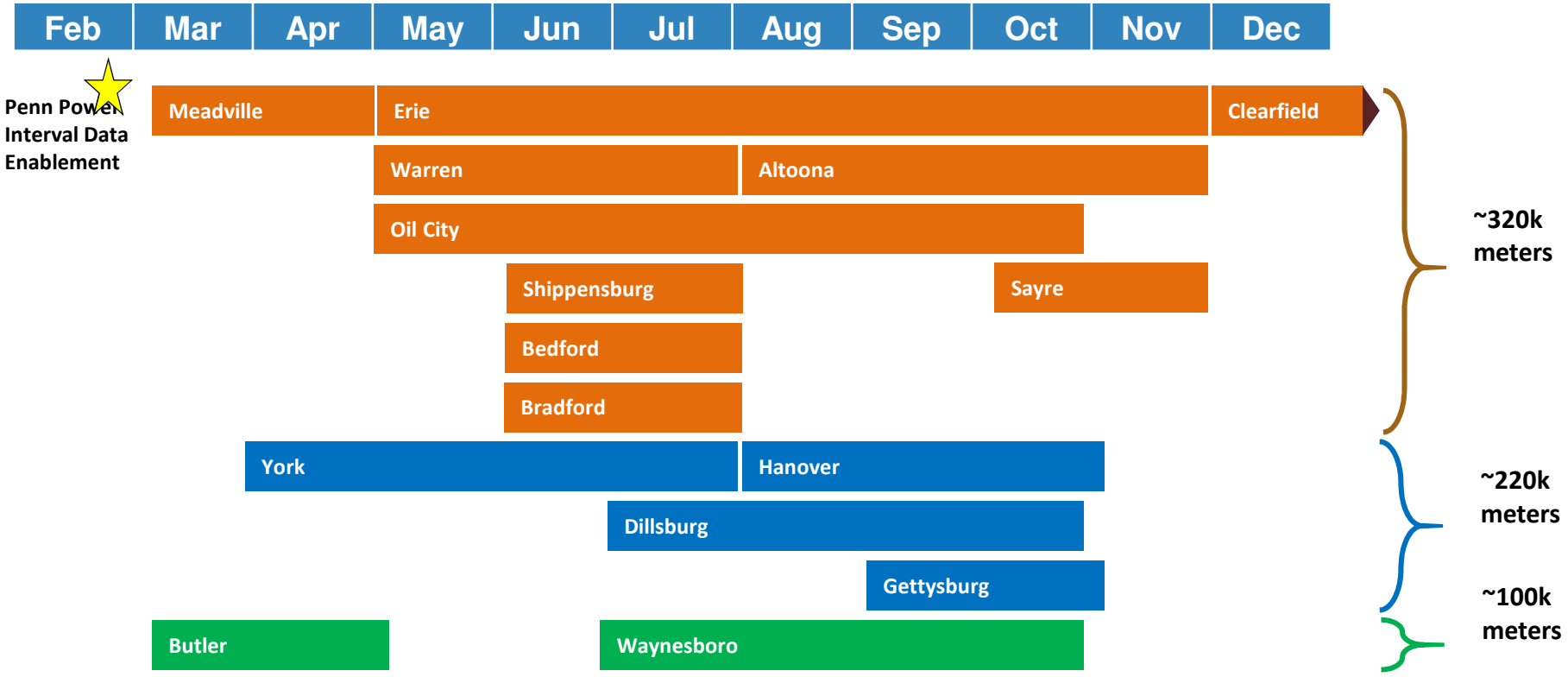
Progress is performed on a meter reading route by route basis for all routes within a meter reading district, while progressing in parallel across multiple districts in multiple OpCos

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

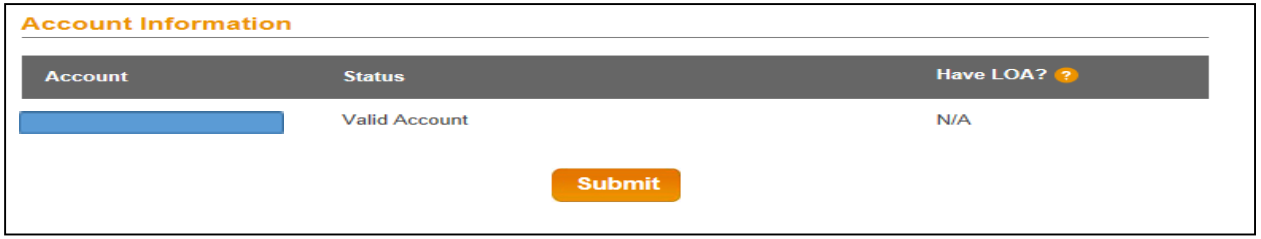
- **PA PUC requires utilities with smart meter requirements to have a web portal.**
  - Final Order Sept 3th, 2015 (Regarding SU-MR)
  - Final Order June 30th, 2016 (Regarding StS)
- **The web portal will have 3 unique functionalities**
  - Single User – Multiple Request (SU-MR)
  - System-to-System 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.

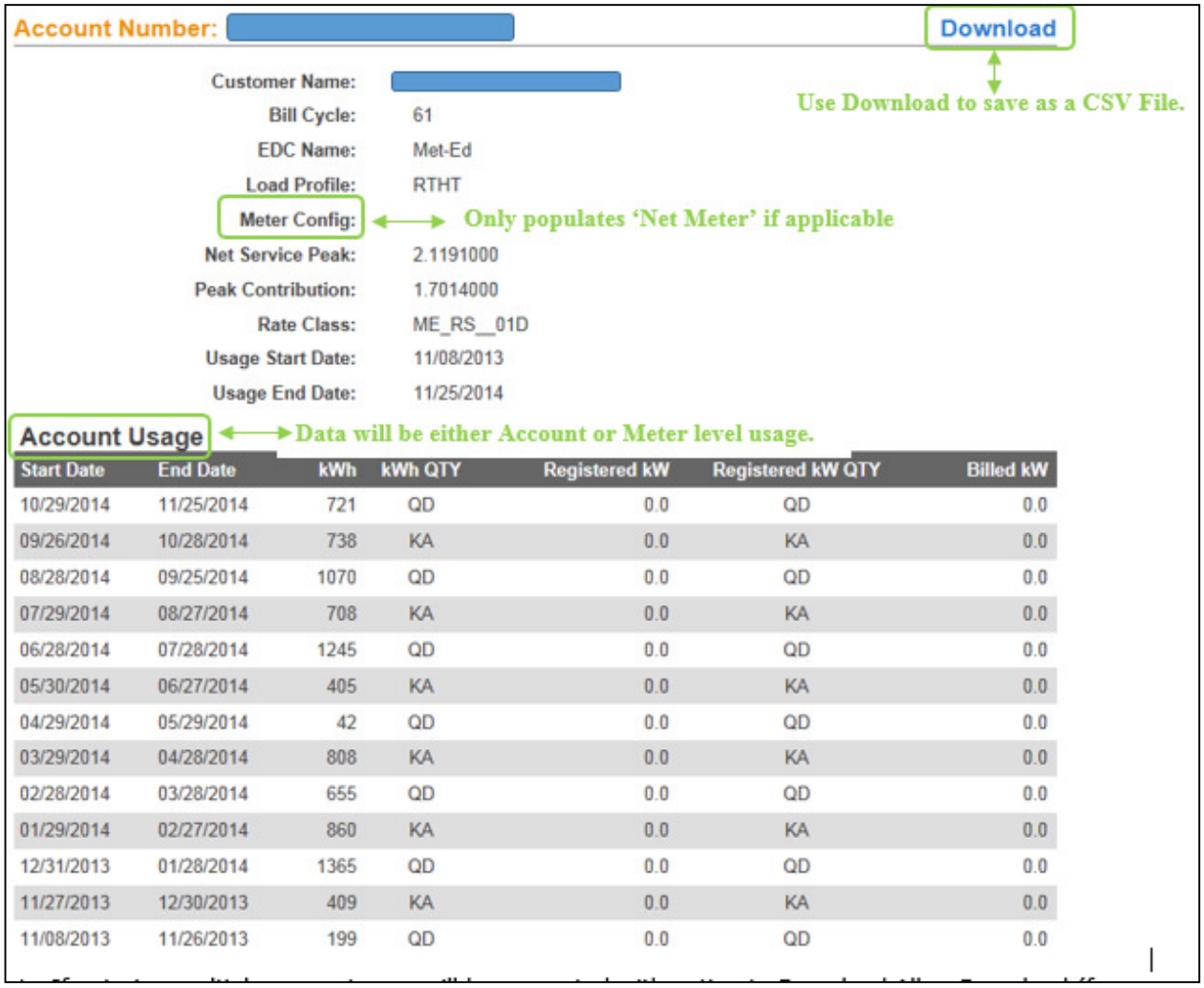
SU-MR

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

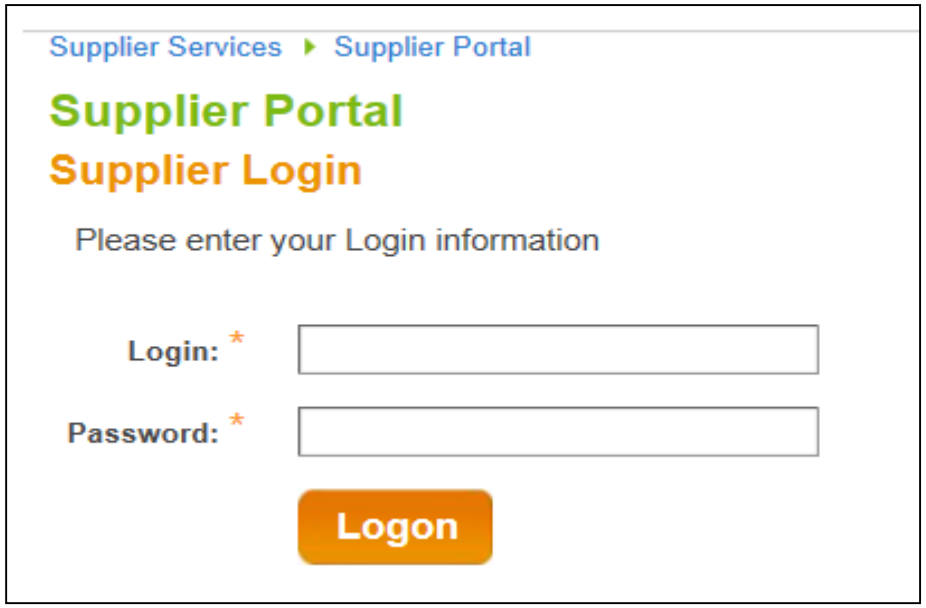
- **Suppliers will need to contact us if they would like to utilize either the Rolling 10 Day files or the StS HIU**
  - Rolling 10 Day files will be received once a supplier sets up the DUNS+4 for each entity they would like to receive files for.
    - The admin must submit a request to the Supplier 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.

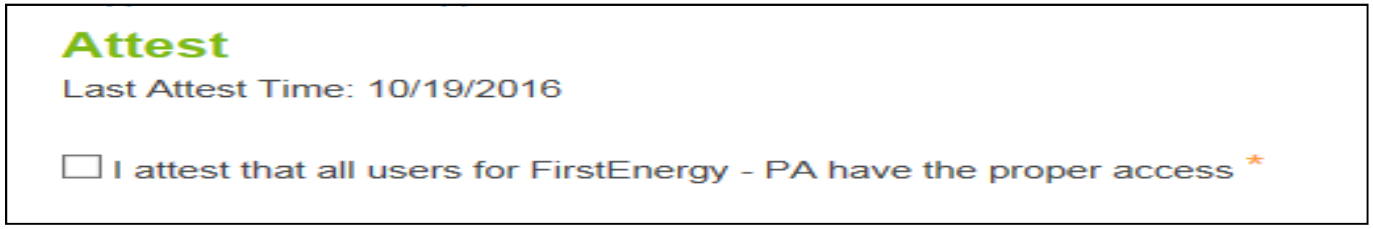
Access

- 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".

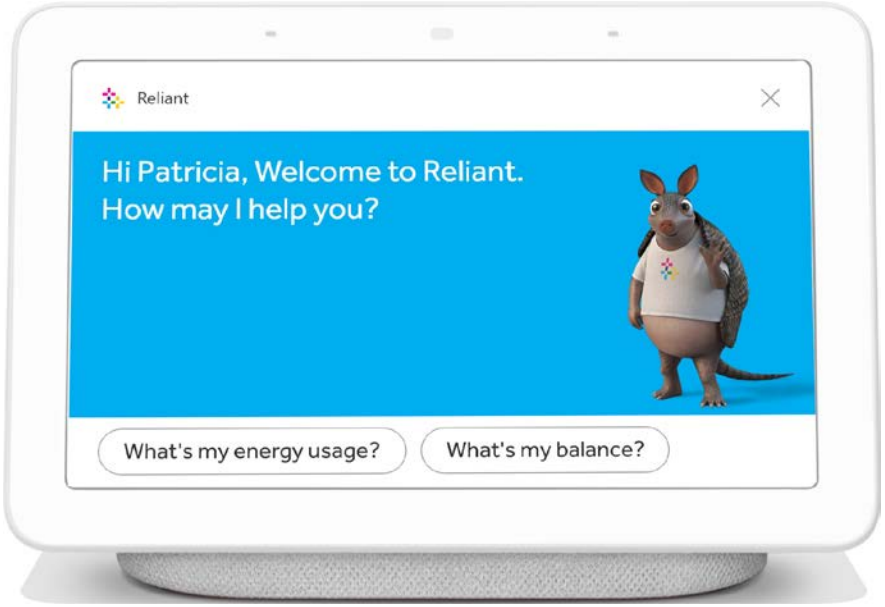
Q7: Will we receive the presentation?

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

Exhibit LG-4

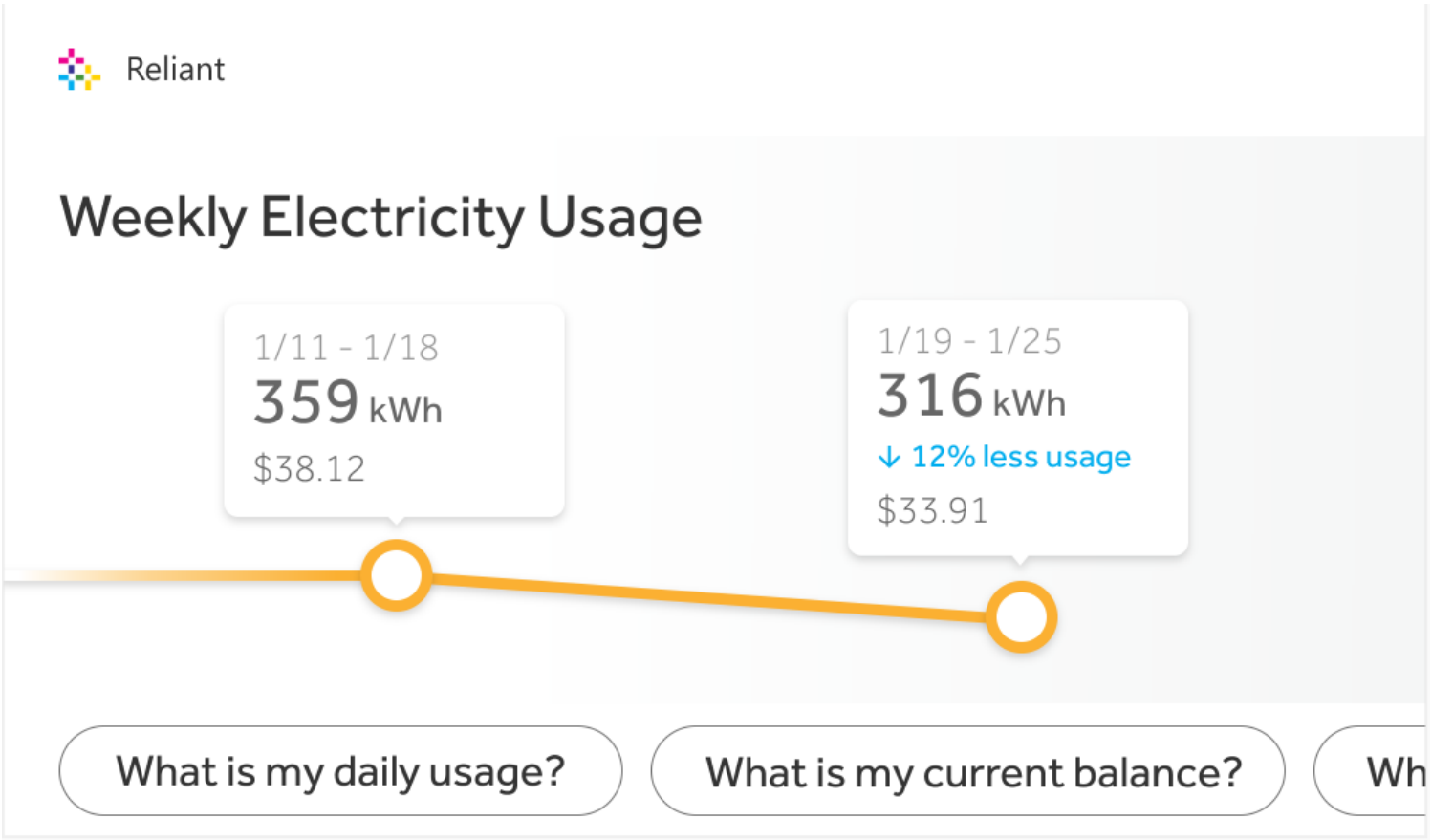
Welcome Screen

Ex. LG-4



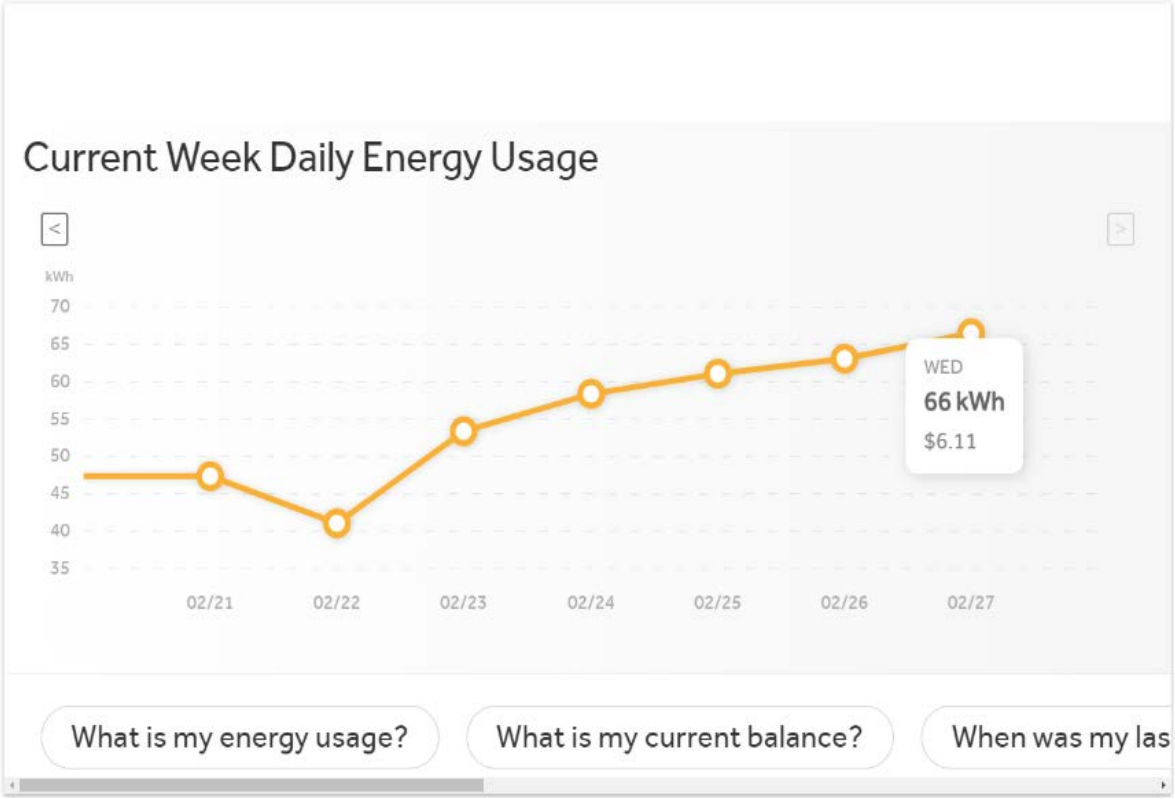
Weekly Usage

Ex. LG-4



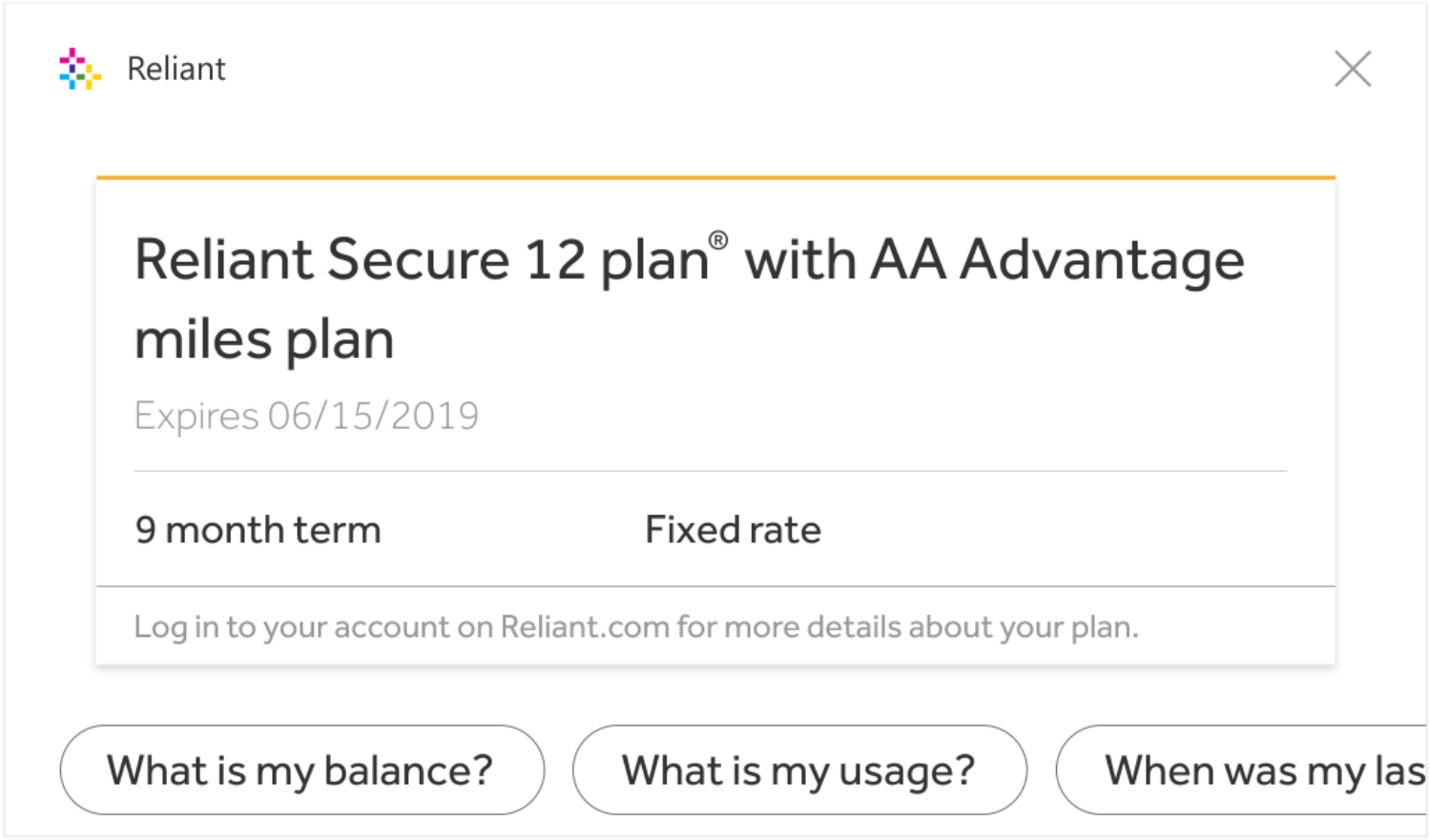
Daily Usage

Ex. LG-4



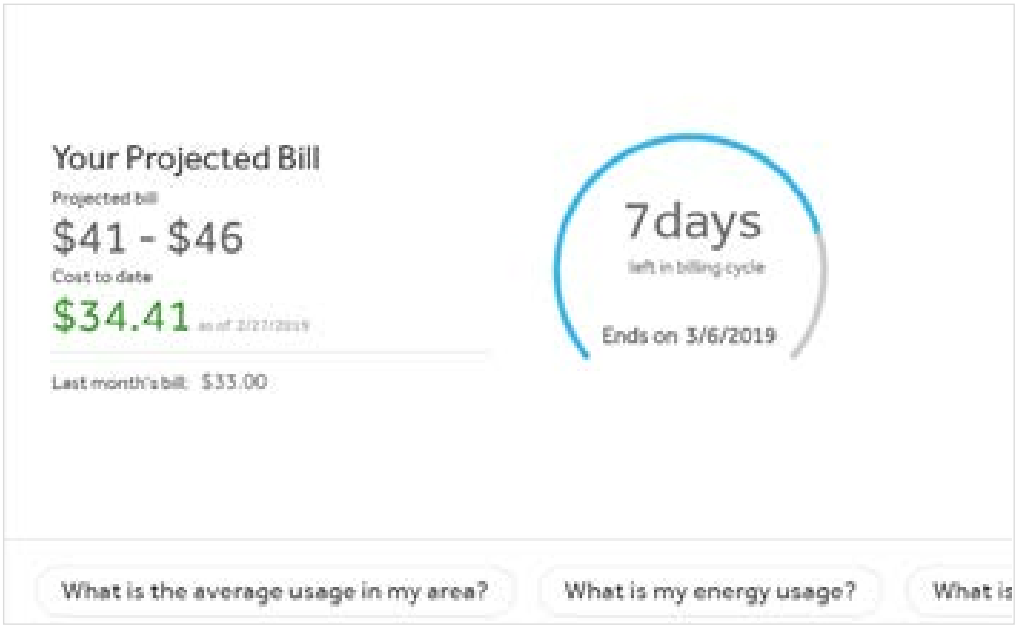
What plan am I on?

Ex. LG-4



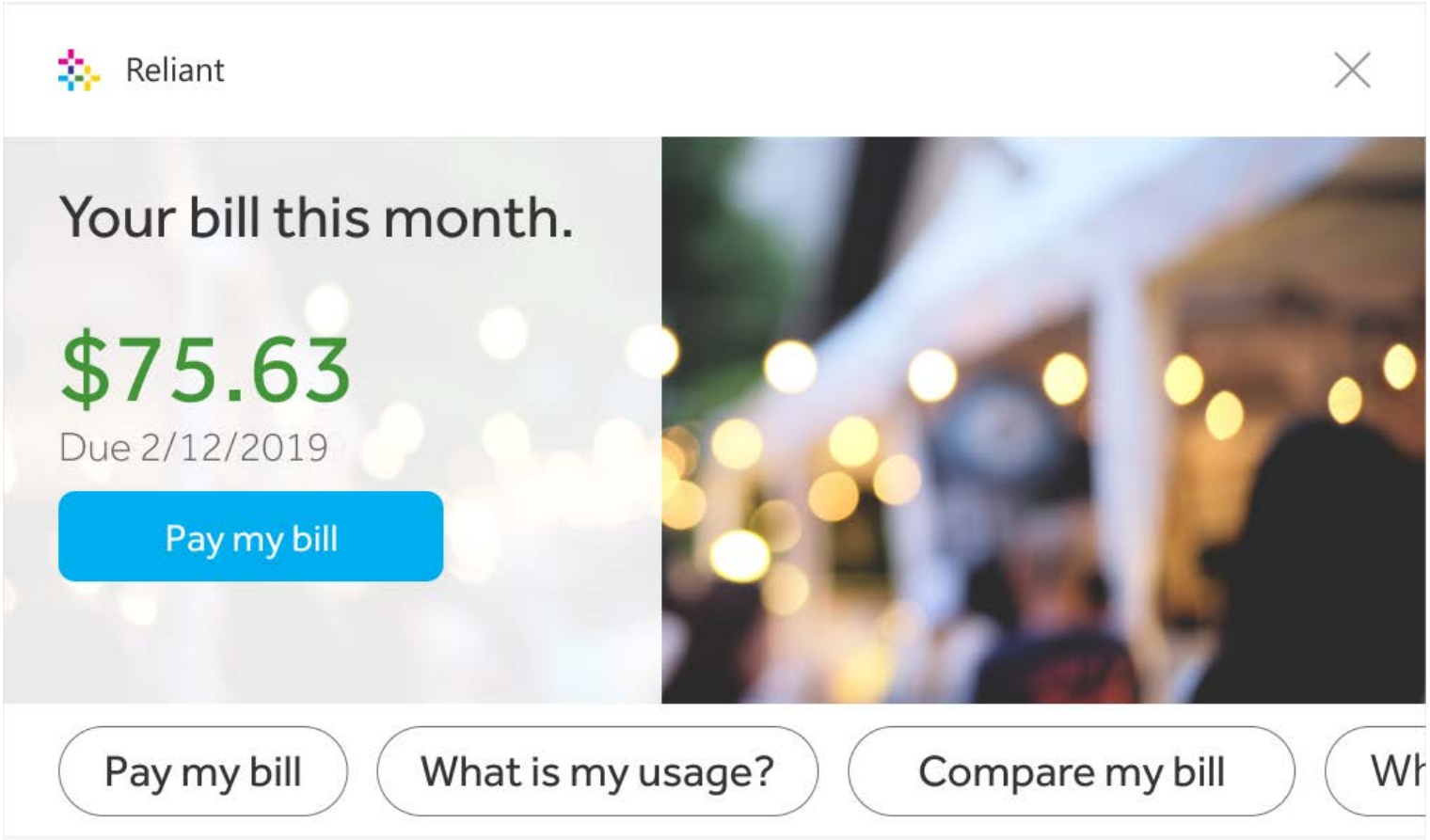
Projected Bill

Ex. LG-4



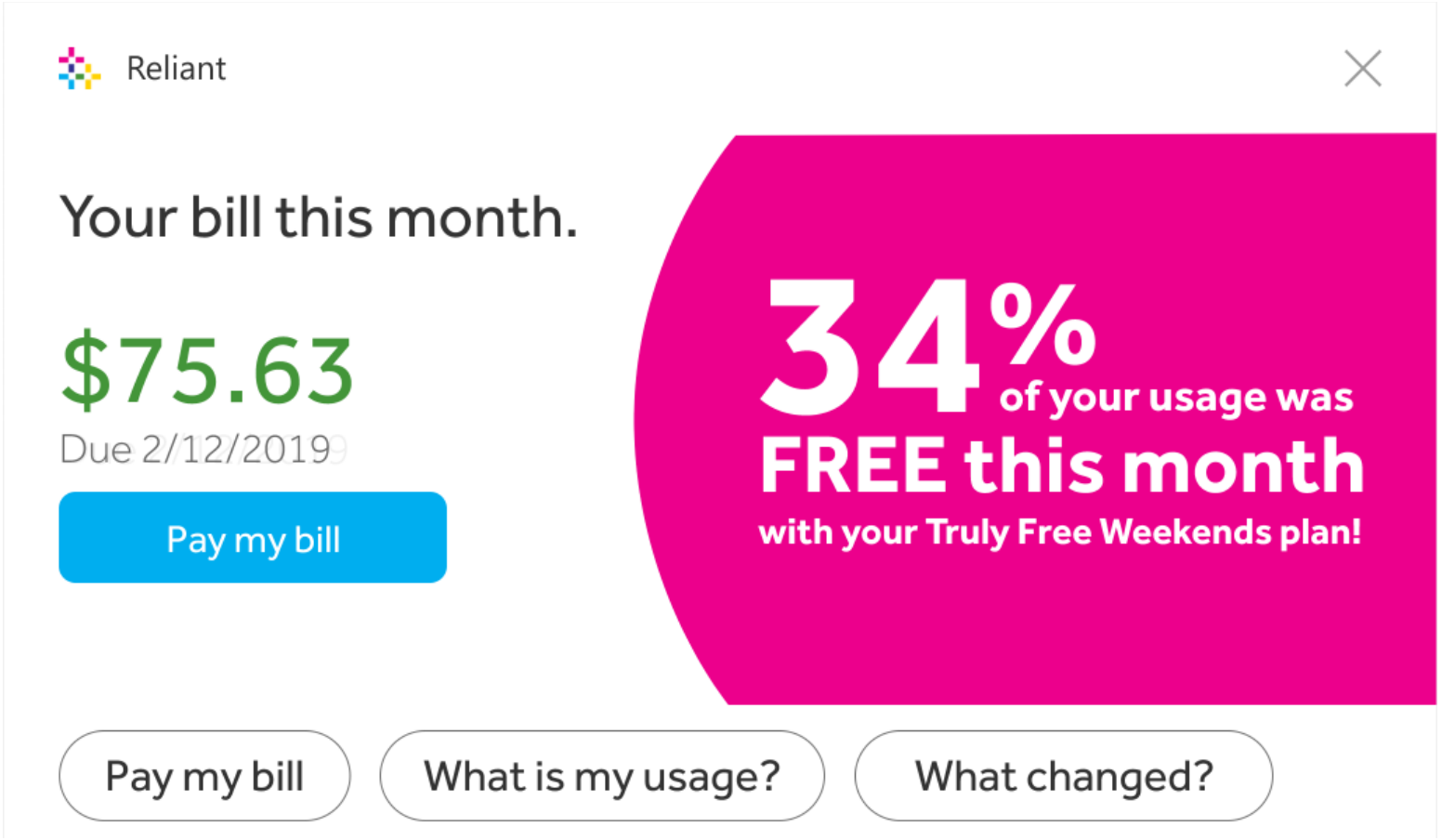
View My Bill

Ex. LG-4



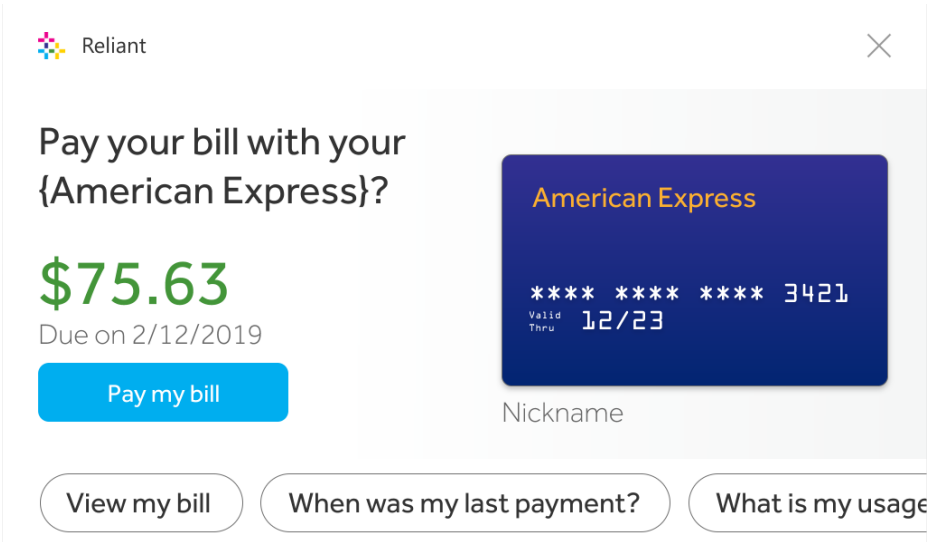
View My Bill - TFW

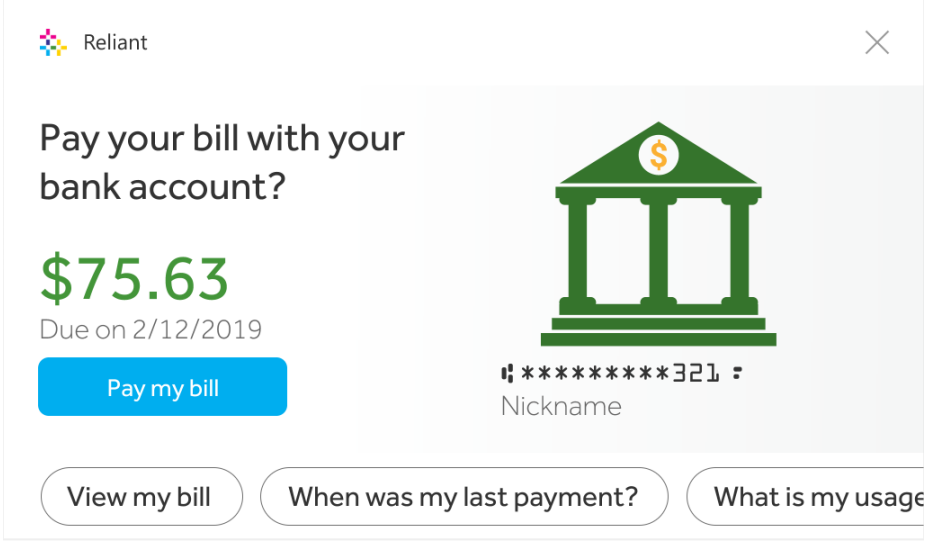
Ex. LG-4



Pay My Bill

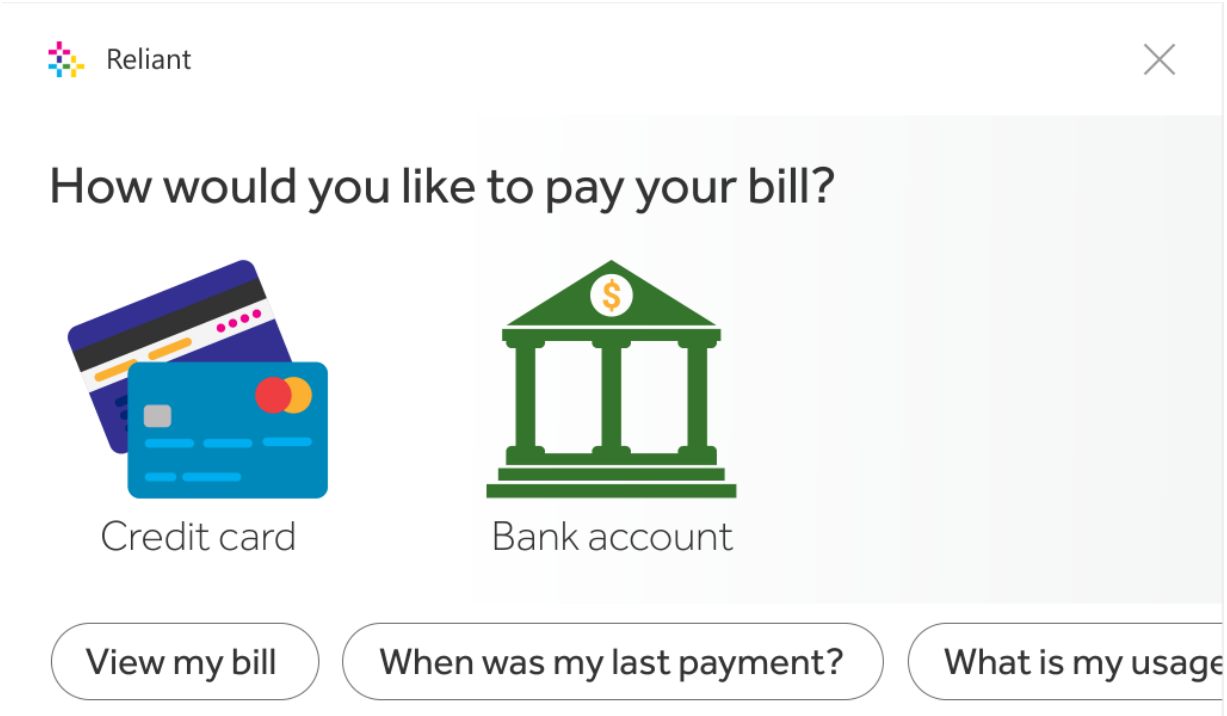
Ex. LG-4





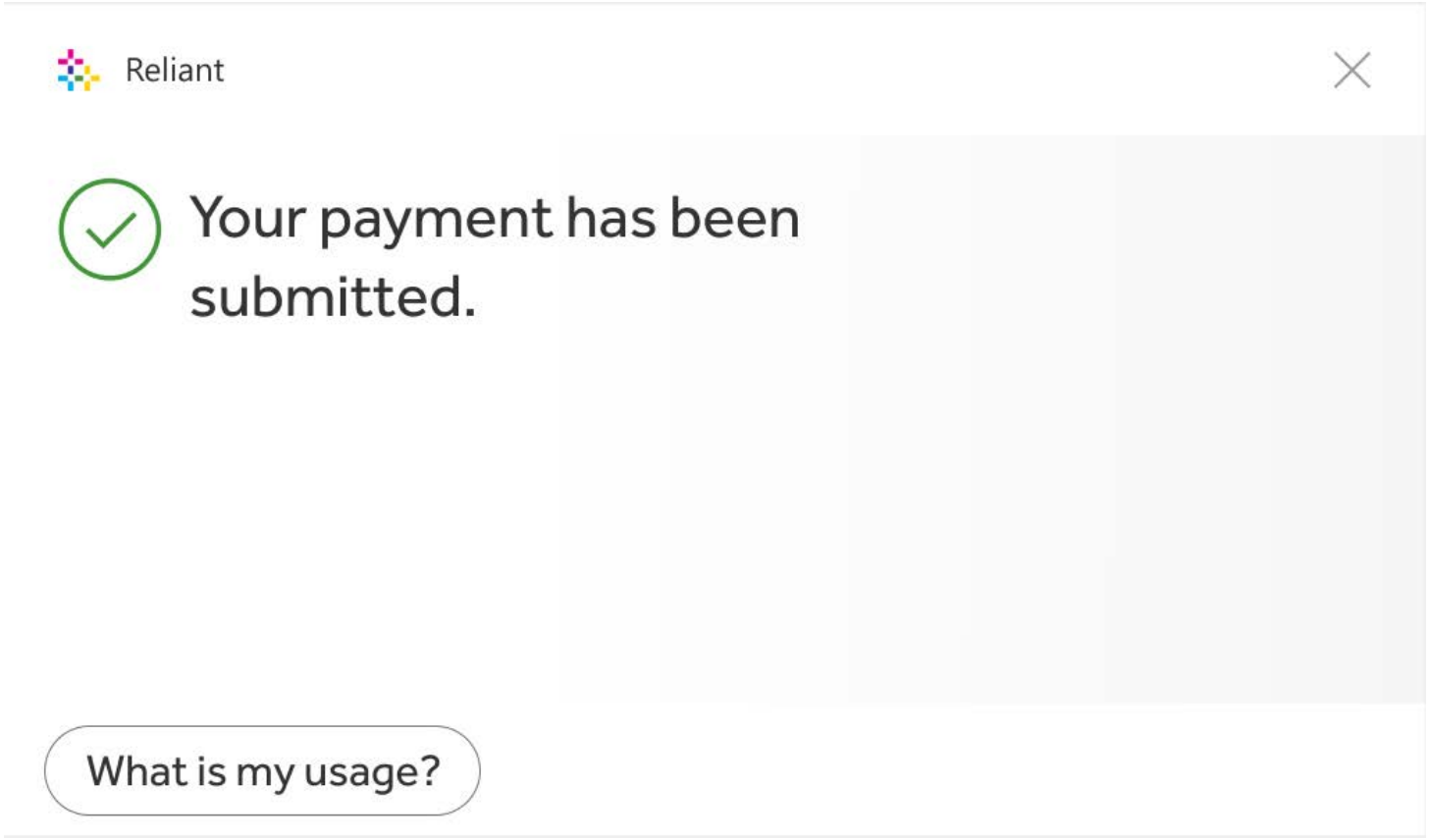
Pay My Bill – choose which payment

Ex. LG-4



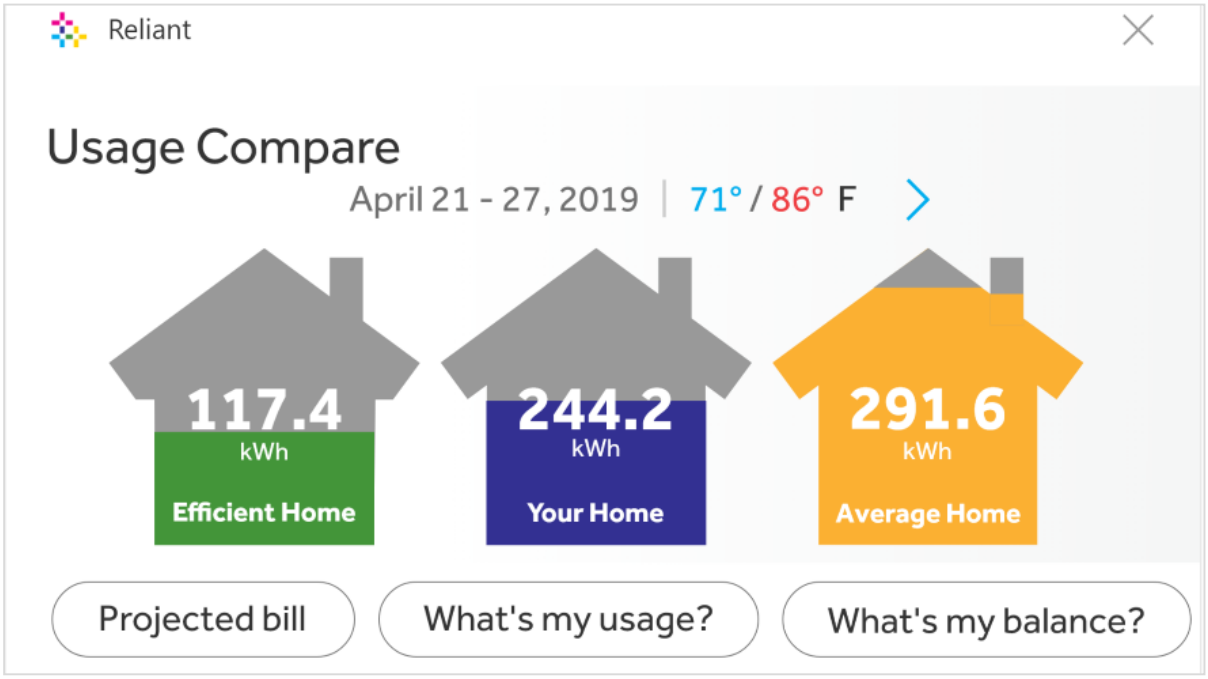
Pay My Bill

Ex. LG-4



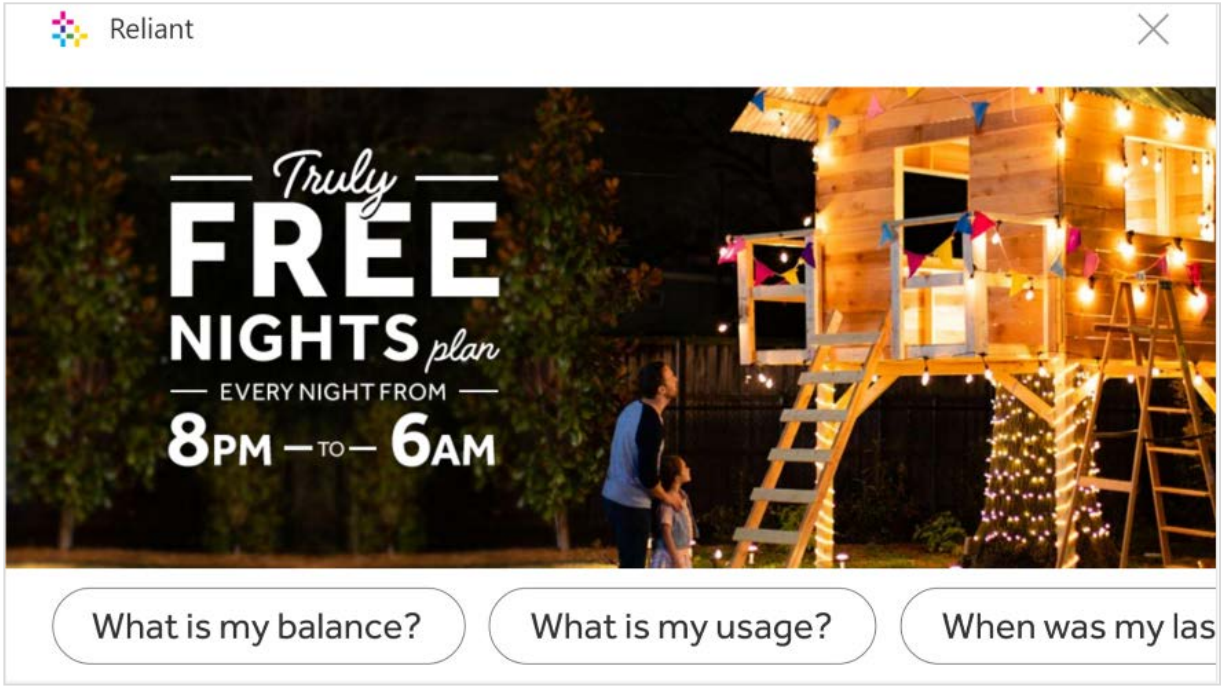
Usage Compare

Ex. LG-4



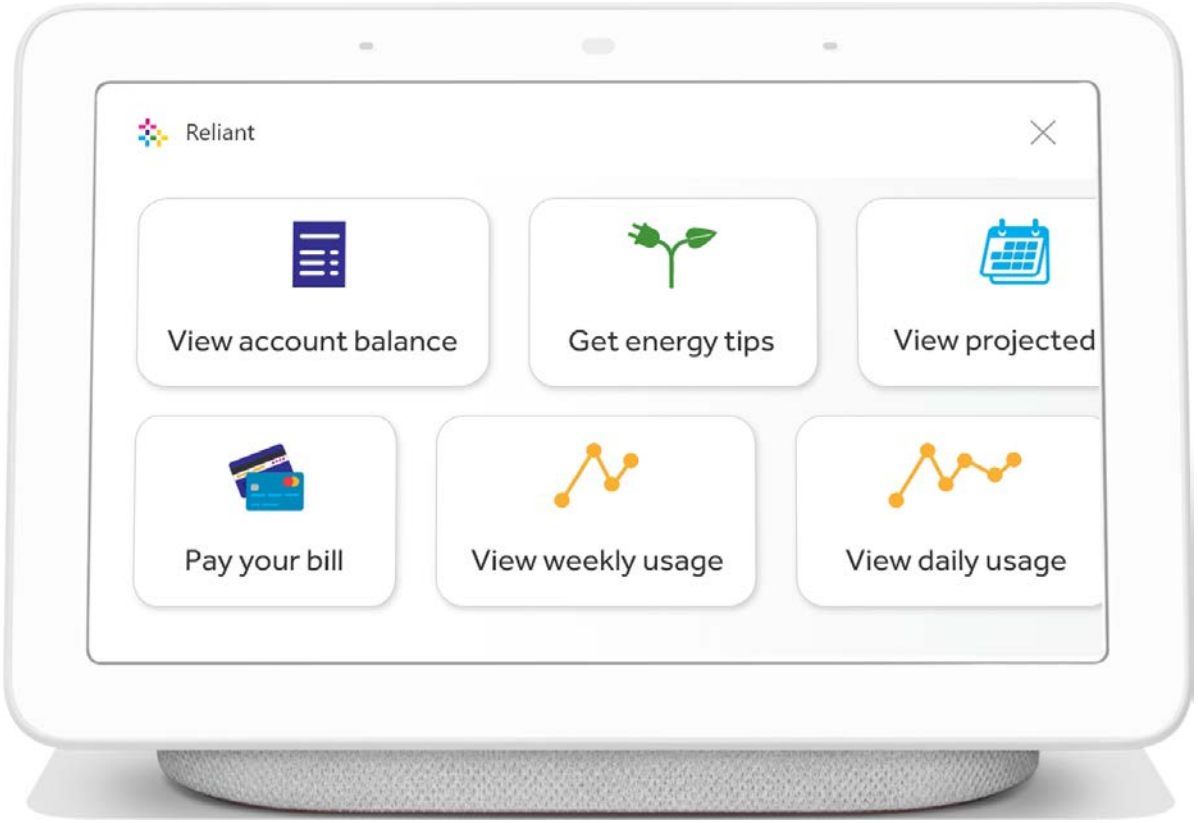
Truly Free Nights

Ex. LG-4



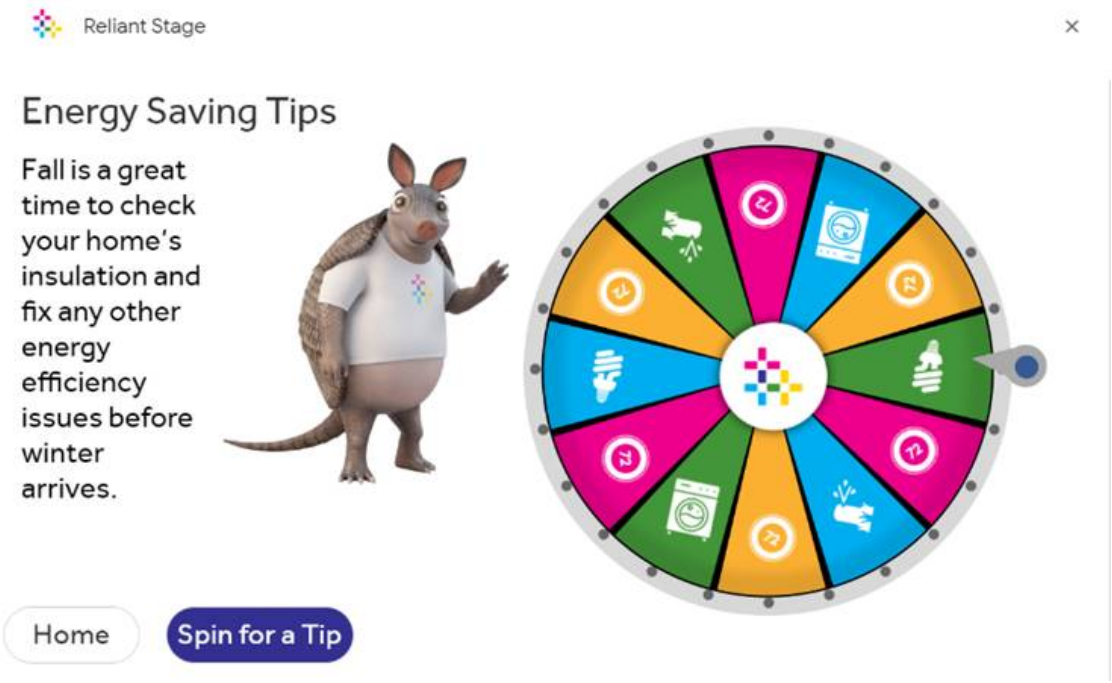
What Can You Do?

Ex. LG-4



Energy Saving Tips

Ex. LG-4



Feedback

Ex. LG-4