

SOUTHERN CALIFORNIA GAS COMPANY
APPLICATION TO ESTABLISH A DEMAND RESPONSE PROGRAM
(D.18-11-005)

(Mission:data Data Request-01)

DATE RECEIVED: March 18, 2019

DATE RESPONDED: April 1, 2019

QUESTION 2:

See Lawrence Prepared Direct Testimony, Chapter 2, at p. 2, footnote #4: “Advanced meter data from SoCalGas’ back office systems incorporates validation, estimation and editing (VEE) and is consistent with the usage data presented to SoCalGas customers via the My Account website.”

- a) How often is the “VEE” process executed by SCG?
- b) What is the time delay between the gas consumption occurring at a customer premise and validated, edited and estimated usage data being available from SCG’s back-office systems?
- c) What is the time delay between the gas consumption occurring at a customer premise and raw usage data being available in SCG’s head-end AMI system?
- d) What is the time delay between the gas consumption occurring at a customer premise and raw usage data being available in SCG’s meter data management system?
- e) Please provide all documents associated with SCG’s consideration of whether the EDSP should provide raw energy usage values to third party demand response (DR) providers in addition to validated, edited and estimated usage values.

RESPONSE 2:

- a) The Verification, Estimation, and Editing (VEE) process occurs within SoCalGas’ Meter Data Management System (MDMS) two times a day.
- b-d) The following is an overview and associated diagrams of how gas consumption data from SoCalGas’ Advanced Meter Infrastructure (AMI) flows through SoCalGas’ AMI systems:

Pursuant to Commission Decision (D.) 10-04-027, SoCalGas AMI technology was built to support a monthly billing process and next day, hourly customer energy presentment for its core customers.

AMI Overview

SoCalGas’ AMI deployment consists of three primary components: 1) Meter Transmission Units (MTUs) installed on nearly 6 million gas meters; 2) nearly 4,600 Data Collector Units (DCUs) constructed throughout the service territory; and 3) back-office systems that allow for the collection and management of automated meter readings for billing and next day customer energy presentment (e.g., HeadEnd and

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MDMS). An MTU is a communication device that automatically and securely transmits hourly gas meter reads to the DCUs, which in turn transmits the gas meter reads to SoCalGas' back-office systems and billing department.

While gas usage is still measured by the analog meter as it was prior to adding the AMI technology, the MTU is applied (retrofitted) to the meter to securely transmit hourly meter reads wirelessly through SoCalGas' data communications network four times per day. While the MTU is battery powered, it is off for all but a fraction of a second per day (less than two minutes total per year). With this configuration, the MTU batteries are expected to last up to 20 years.

The AMI communication network includes nearly 4,600 DCUs across the SoCalGas service territory. The DCUs receive the meter read data from the MTUs installed on each meter (with the exception of Opt-Out customers). The data is encrypted and transmitted wirelessly across a licensed frequency from the MTU to the DCU.

The third component of the infrastructure includes the AMI Information Technology (IT) systems, including the Headend and MDMS. Meter read data from the MTUs is received by the DCUs and then transmitted to these systems.

Core customer hourly and daily natural gas usage data is then made available on a next day basis via SoCalGas' My Account online customer portal and the SoCalGas Mobile App. These applications provide core customers the opportunity to manage their usage and to potentially conserve energy and reduce their monthly bills. Customers may also download their hourly gas usage data and, at their discretion, provide it to the third parties of their choosing, utilizing the "Export" or "Green Button Download" features available within the "Analyze Usage" page of the My Account online customer portal. This same usage information is also made available to SoCalGas customer service representatives in the Customer Contact Center to assist customers with billing and usage-related inquiries. Figure 1 provides a visual depiction of the AMI data flow described in this section:

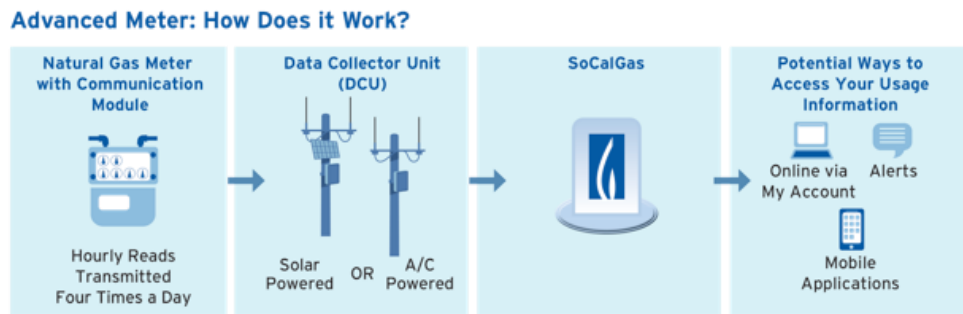
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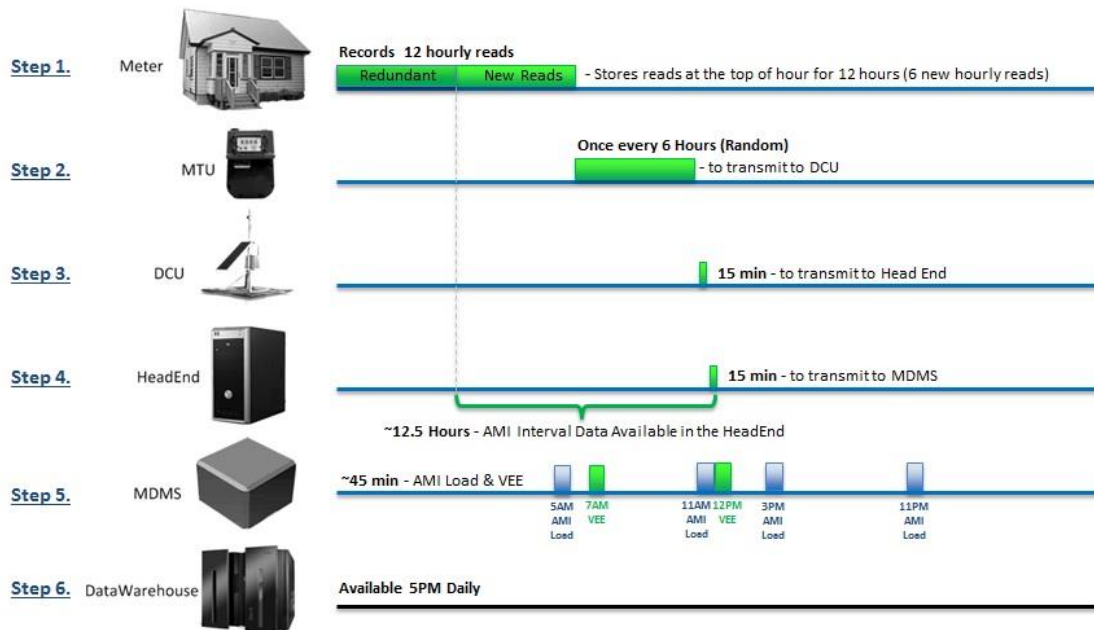
Figure 1 – AMI Data Flow Overview



System Overview for Timing of Data Availability

Figure 2 below provides an AMI System Overview, including a graphical depiction of the AMI data collection steps and a description of each of the data-availability steps. This System Overview applies to core customers only.

Figure 2 – System Overview



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Step 1. The MTU reads the meter at the top of the hour and stores the meter read. The MTU has memory available to store up to 12 of the most recent hourly reads. Every 6 hours, the MTU collects the 12 reads, encrypts, and prepares a data transmission package for delivery in Step 2. The data package therefore consists of 6 redundant reads and 6 new reads, relative to the last transmission.

Step 2. The MTU schedules a data transmission to the DCU randomly over the next 6 hours. This ensures an even network radio utilization because the 6 million MTU transmissions are spread out over 6 hours. During this 6-hour time period, the MTU is continuing to collect the next 6 hours of meter reads.

Step 3. The DCU continuously collects data from all MTUs within range. In general, the DCU will batch the MTU data to transmit to the HeadEnd every 15 minutes.

Step 4. The HeadEnd decrypts, consolidates and removes duplicate MTU data from the DCU transmissions for delivery to MDMS every 15 minutes.

Step 5. MDMS loads the hourly interval data and performs the VEE process. Through the AMI Load process, the MDMS receives and stores the original volume (cubic feet) meter reads for billing purposes. The AMI Load Process and the VEE Process are batch processes that are currently scheduled as shown in Figure 3. Each process can take up to approximately 45 minutes to complete. Customer billing is performed using original volume data which is measured in hundreds of cubic feet (CCF) and has not been through the VEE process. Energy Presentment uses data that has been through the VEE process and is presented in therms.

Step 6. Both original volume data and VEE AM Interval (hourly) data are stored in the Data Warehouse for internal business unit access as appropriate. The data warehouse load process is completed by 5:00 p.m. and stores data from the previous calendar day.

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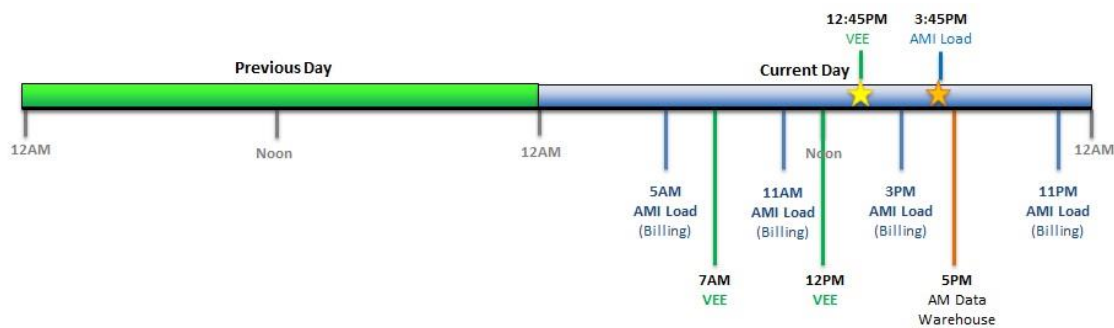
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Figure 3 below provides the timing for the AMI Load and VEE processes.

Figure 3 – System Overview with AMI Load and VEE



The AMI Load process loads the working data from the HeadEnd system into the MDMS. MDMS data is used for monthly billing activities. The AMI Load processes all data, including the current day's data, that has been received up to the process run point. The 5 a.m. AMI Load process ensures that approximately 40% (~2.4 million) customers have 100% of their data for the previous day. The 11 a.m. AMI Load process ensures that approximately 90% (~5.4 million) customers have 100% of their data for the previous day. SoCalGas has all the data for the previous day available for processing after the 3 p.m. AMI Load process is complete.

The VEE process validates the previous calendar day hourly usage data, estimates missing or erroneous values and fills gaps in consumption data for online energy presentment purposes. The 7 AM VEE job processes 40% (~2.4 million meters) of data for the previous day, while the 12 PM VEE job processes 90% (~5.4 million meters) of data for the previous day.

- e) SoCalGas does not have documents relating to consideration of whether the EDSP should provide raw energy usage values to third-party DR providers in addition to validated, edited and estimated usage values. SoCalGas will consider this when developing the functional and technical requirements of the EDSP project once it is initiated.

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QUESTION 3:

- a) See Lawrence Prepared Direct Testimony at p. 3, Figure 1, which cites “AMI usage & other customer data.” Please define “other customer data” in detail.
- b) Please explain any differences between the above and “certain types of customer data” referenced in Lawrence 13:12 and “a list of available data types” in Lawrence 13:14-15.
- c) In the future, could the inclusion of certain customer-related data that were not originally planned in the EDSP cause SCG to re-design the EDSP? If so, what implications on both system architecture and cost would such a re-design have? Please explain in detail.

RESPONSE 3:

- a) What constitutes the full set of “other customer data” as referenced in the cited testimony is unknown at this time and was meant to refer generally to customer data elements in addition to customer-specific AMI usage data, for which the EDSP may facilitate data sharing for the purposes outlined in Chapters 1 and 2. Further context is provided regarding the potential types of data that may be included in “other customer data” in Chapter 2, page 14, lines 20-21. SoCalGas will consider what specifically constitutes “other customer data” when developing the detailed functional and technical requirements of the EDSP project once it is initiated.
- b) The “certain types of customer data” referenced on page 13 of Chapter 2 refers to the specific subset of data a certified third-party vendor may require to support a specific DR program implementation or evaluation associated with implementing and/or evaluating the DR programs outlined in Chapter 1. The purpose of the EDSP “Request and Permission” “sub-capability” referenced on Chapter 2, page 13 is to make sure SoCalGas complies with data minimization rules and regulations. Decision (D.) 11-07-056 establishes rules pertaining to data minimization with respect to utilities transmitting data to third parties for a primary purpose, and specifically states in D.11-07-056, Attachment D: “Rules Regarding Privacy and Security Protections for Energy Usage Data,” page 6¹ that, “Covered entities shall not disclose to any third party more covered information than is reasonably necessary or as authorized by the Commission to carry out on behalf of the covered entity a specific primary purpose identified in the notice required under section 2 or for a specific secondary purpose authorized by the customer.”

¹ <http://docs.cpuc.ca.gov/Published/Graphics/140370.pdf>

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The “list of available data types” also referenced on page 13 refers to the list of customer data elements a SoCalGas administrator will be able to select from in the EDSP for a given data sharing circumstance that an associated third-party vendor implementer/evaluator is certified in the EDSP as eligible to receive. The list of available data types may be the same as the “certain types of customer data” referenced above, or the subset of this certain types of data that is relevant to a specific data sharing purpose associated with the certified vendor.

- c) SoCalGas’ intends to design the EDSP in a manner such that a major redesign would not be required to incorporate additional customer-specific data elements at a future time.

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QUESTION 5:

- a) See Lawrence Prepared Direct Testimony at 5:8-10. Please explain how SCG's proposed EDSP is "consistent" with the electric investor-owned utilities' investments in EDSPs if SCG's EDSP, as proposed, does not provide customers the ability to authorize third parties to access their energy data.
- b) Has SCG estimated the incremental cost associated with providing Green Button Connect My Data on top of the EDSP? If so, please provide all documents and cost estimates. If not, why not?

RESPONSE 5:

- a) As outlined in Chapter 2 on page 4, the EDSP proposed in this Application will "provide the foundation by which, through funding authorized in future SoCalGas regulatory proceedings, the automated data transfer capabilities could eventually be expanded to establish "customer-authorized" energy-related data sharing capabilities, such as a SoCalGas "Green Button Connect My Data" (GBCMD) offering." And that "[t]hese potential future capabilities would be comparable to those ordered by the Commission in D.11-07-056 of the Smart Grid proceeding and subsequent proceedings for the three electric investor-owned utilities (IOUs)."

The EDSP capabilities for which funding is requested in this DR Application are consistent with the electric IOUs' investments in energy data-sharing platforms in that the EDSP will also facilitate timely, automated, streamlined, standardized, recurring, and secure transmittal of customer-specific energy-related data to authorized third parties for purposes of implementing DR and potentially EE programs. It will also facilitate automated transmittal of customer energy-related data in accordance with data privacy rules and regulations, including those established by the Commission.

The current set of energy data sharing capabilities the electric IOUs have built out were deployed gradually through funding authorized incrementally through sequential Commission proceedings in response to evolving customer, DR provider, privacy and security requirements, and in response to ongoing customer and industry feedback.

As further clarified in SoCalGas' Revised Supplemental testimony on pages 14-16, unlike many electric DR programs currently offered in California, the pilot DR programs proposed in SoCalGas' DR Application do not require a customer data-sharing authorization capability, thus funding for a potential future "add-on" customer authorization capability of the EDSP is not sought in this Application. SoCalGas also

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states in its Supplemental Testimony on page 18, that “while SoCalGas intends to incorporate best practices and, where feasible and practical, the same or similar software components as the three other IOUs, it intends to design the EDSP in a manner that leverages existing, enhanced and/or potentially new IT infrastructure, systems and approaches with the goal of optimizing both cost-efficiency and ‘future-proofing.’”²

Lastly, it’s important to note, as outlined in the response to Question 2 above, SoCalGas’ current AMI system provides the ability for customers to share their energy-usage data with third parties: “Customers may also download their hourly gas usage data and, at their discretion, provide it to the third parties of their choosing, utilizing the “Export” or “Green Button Download” features available within the “Analyze Usage” page of the My Account online customer portal.”

- b) No. Please see the above response and the Supplemental Testimony which clarify that a customer authorization capability is not required to implement the pilot DR programs proposed in SoCalGas’ DR Application.

² The Commission introduced the concept of “future-proofing” in Res. E-4868 which “Approves, with modifications, the Utilities’ Click-Through Authorization Process which releases Customer Data to Third-Party Demand Response Providers.” It states on page 68 that ““Future-proofing’ the solution(s) will ensure an efficient use of ratepayer funds by preventing expensive re-architecture of systems.”

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QUESTION 6:

Please detail all planned or contemplated uses of the EDSP outside of the DR programs sought in the Application, including, but not limited to, supporting voice assistants such as Amazon Alexa or Google Assistant.

RESPONSE 6:

The specific use cases the EDSP funding requested in SoCalGas' DR Application will support includes those outlined throughout Chapter 2. The "Purpose" section on page 1 summarizes these as "Specifically, the EDSP will enable the third-party implementer-facilitated Behavioral Messaging Pilot described in Chapter 1, Direct Testimony of Darren Hanway. Additionally, the platform will facilitate the data transfers to DR program evaluators required to conduct the Evaluation, Measurement and Verification (EM&V) outlined in Chapter 1, section, including load impact evaluations." On page 2 of Chapter 2, it also states that "The EDSP will also support similar requirements for automated transfer of AMI usage data and other customer data to DR program evaluators, as well as to third parties under contract to SoCalGas and/or to Statewide Lead Program Administrators to implement innovative, new Energy Efficiency (EE) programs as contemplated in SoCalGas' Energy Efficiency Business Plan."

As outlined in the prior response and noted in SoCalGas' Supplemental testimony, SoCalGas' intent is to "future-proof" the EDSP by designing it in such a manner that additional customer-specific energy-related data sharing use cases could be supported in the future. SoCalGas has not fully considered all potential future use case scenarios, however they could potentially include supporting voice assistants such as Amazon Alexa or Google Assistant. Additional future use cases SoCalGas has contemplated include the following:

- Fulfillment of CPUC data requests to SoCalGas for customer-specific energy-related data;
- Fulfillment of customer-authorized interval usage "CISR" requests;³
- Fulfillment of CPUC-ordered or CPUC-approved transfers of customer-specific energy-related data to certified third parties; and,
- Future add-on "Green Button Connect My Data" capability to support customer energy management use cases not associated with a Primary Purpose.

³ [https://www.socalgas.com/regulatory/tariffs/tm2/pdf/CISR_\(Usage\).pdf](https://www.socalgas.com/regulatory/tariffs/tm2/pdf/CISR_(Usage).pdf)

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QUESTION 7:

What specific elements of the EDSP differ from the information technology investments approved for SCG's advanced metering infrastructure pursuant to D.10-04-027 or other decisions? Please provide all relevant documents and explain in detail.

RESPONSE 7:

All of the elements of the EDSP differ from the information technology investments approved for SoCalGas' advanced metering infrastructure pursuant to D.10-04-027 or other decisions. As stated in SoCalGas' Revised Supplemental Testimony on page 13, "EDSP capabilities were not authorized or funded as part of SoCalGas' Advanced Meter Decision (D.10-04-027), which was authorized prior to the launch of the Green Button Initiative in 2012 and prior to the Commission's authorization of similar capabilities for the three California electric IOUs."

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QUESTION 9:

See Lawrence 16:1-2.

- a) What does SCG mean by “reasonable level of performance”? Please explain in detail.
- b) What uptime percentage of the EDSP does SCG consider to be reasonable? Please explain in detail.
- c) To what penalties or disciplinary actions, if any, will SCG’s assigned staff or I.T. contractors be subject for failing to achieve “reasonable levels of performance”? Please explain in detail.

RESPONSE 9:

- a) In reference to the cited statement, SoCalGas intended to use the general meaning of the word “reasonable” to indicate the that the EDSP would provide a level of performance that is reasonable under the circumstances.
- a) The uptime percentage for the EDSP is unknown at this time because the detailed functional and technical requirements for the EDSP will be developed with key stakeholder input once the EDSP project is initiated.
- b) SoCalGas objects to this request on the grounds that it (1) seeks information that is neither relevant to the subject matter involved in the pending proceeding nor is likely reasonably calculated to lead to the discovery of admissible evidence, and is outside the scope of this proceeding (2) is vague and ambiguous as to the terms “penalties or disciplinary actions” and “failing to achieve” and (3) seeks information that is confidential or privileged.

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QUESTION 11:

See Lawrence at p. 10, Figure 2.

- a) What time lag between the completion of Step 2 (“Request & Permission Capability”) and data delivery to the third party did SCG use as the basis of its cost estimates? Please explain in detail.
- b) From the “Data Transfer Engine” to a third party, how many meters’ historical data (12 months) can be transferred per minute and per hour according to SCG’s design parameters? Please explain in detail.
- c) From the “Data Transfer Engine” to a third party, how many meters’ historical data (24 months) can be transferred per minute and per hour according to SCG’s design parameters? Please explain in detail.
- d) From the “Data Transfer Engine” to a third party, how many meters’ ongoing daily usage data can be transferred per minute and per hour according to SCG’s design parameters? Please explain in detail.

RESPONSE 11:

- a) The time between the two cited activities is not specified at this time because the detailed functional and technical requirements for the EDSP will be developed with key stakeholder input once the EDSP project is initiated.
- b) – d) SoCalGas objects to these three requests on the grounds that the questions are vague and ambiguous as to the term “design parameters.” Subject to and without waiving this objection, SoCalGas responds as follows: The activities described and the time attributable to them are unknown at this time because the detailed functional and technical requirements for the EDSP will be developed once the EDSP project is initiated.

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QUESTION 13:

- a) See Revised Chapter 5 Prepared Consolidated Supplemental Testimony of Hanway and Lawrence (“Supplemental Testimony”) at 18:13-15: “SoCalGas never stated in its direct testimony that it did not plan to use or leverage existing San Diego Gas & Electric (SDG&E) data sharing IT infrastructure components.” How does SCG reconcile the above statement with Lawrence 16:15 (“the EDSP will be a major new SoCalGas IT system”) and Lawrence 19:6-7 (“the Energy Data Sharing Platform will be a new capability in the SoCalGas IT department’s portfolio”)? Please explain in detail.
- b) See Supplemental Testimony at 18:19 - 19:2.
 - I. Please provide the make and model of the workflow management software.
 - II. By “leveraging” the same workflow management software that SDG&E uses, is SCG saying it plans to use the exact same instance of the software such that the software will serve SDG&E and SCG simultaneously? Please explain in detail.

RESPONSE 13:

- a) As stated in cited testimony, the EDSP is not currently an IT system within SoCalGas’ IT department’s portfolio. Accordingly, SoCalGas seeks approval to establish the EDSP as proposed in the Application such that it would be a new major IT system within SoCalGas’ IT department’s portfolio.
- b)
 - I. While SoCalGas based its EDSP high-level IT project cost estimates on certain assumptions and cost comparisons, as further detailed in the response to Question 1, the ultimate design and software to be utilized to build the EDSP are unknown at this time. The detailed functional and technical requirements have not yet been developed for the EDSP, including the make and model of potential workflow management software.
 - II. No. It is unknown at this time whether the exact same instance of any software will be used such that the software will serve SDG&E and SCG simultaneously. Detailed functional and technical requirements have not yet been developed for the EDSP.

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QUESTION 15:

See Lawrence at p. 10, Figure 2.

- a) Does SCG propose to utilize cloud computing services for any portion of the EDSP? Why or why not? Please explain in detail.
- b) Does SCG propose to utilize any third party contractors for any component of the EDSP? Why or why not? Please describe in detail.
- c) If SCG were to move any portion of the EDSP to a cloud-based service or a third party vendor at some point in the future, what elements of the EDSP would be rendered unnecessary or no longer useful?
- d) For each EDSP component identified in (c) above, please provide a high level cost estimate each component.

RESPONSE 15:

- a) Unknown at this time. The technical design and solutions for the EDSP cannot be determined until all the key functional requirements are determined. Detailed functional and technical requirements have not yet been developed for the EDSP.
- b) Unknown at this time because the detailed functional and technical requirements for the EDSP will be developed once the EDSP project is initiated. Notwithstanding, SoCalGas anticipates that contractors and/or third-party software/solution providers may be utilized during the development and implementation of the EDSP.
- c) Unknown at this time. See response 15a above.
- d) N/A.

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QUESTION 1:

Please provide all documents and workpapers substantiating the costs of the Energy Data Sharing Platform (EDSP).

RESPONSE 1:

Please see the following attachments which contain supporting documentation regarding the EDSP estimated ongoing operating costs and high-level IT project cost estimates:



A.18-11-005_Mission
data DR-01_Q01_EDS



A.18-11-005_Mission
data DR-01_Q01_EDS

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QUESTION 4:

See Lawrence Prepared Direct Testimony at 3:10-12.

- a) Please explain in detail the process(es) by which third party contractors to SCG, including, but not limited to, demand response providers, access customer data today.
- b) Without completing a special study, how would SCG characterize the staff time required to transfer customer data to SCG's authorized third parties today, including information technology staff, program management staff, and any consultants or contractors?
- c) At any time in the past two years, has SCG engaged in "time consuming 'one-off' data transfer mechanisms"? Please explain in detail.
- d) Has SCG conducted a cost estimate for providing DR providers with customer data via methods other than the EDSP for the duration of the DR programs sought in the Application? Please provide all relevant documents, work papers or cost estimates.
- e) Has SCG quantified the benefits of the EDSP? If so, please provide all relevant documents and work papers.

RESPONSE 4:

- a) Third party contractors under contract to and under the oversight of SoCalGas for the purposes of implementing and/or evaluating SoCalGas Energy Efficiency (EE) or Demand Response (DR) programs access the SoCalGas customer data necessary to implement and/or evaluate the(se) program(s) through primarily manual processes. The manual processes are typically overseen and coordinated by an assigned SoCalGas project manager, program manager and/or Evaluation, Measurement and Verification (EM&V) staff member and are usually coordinated with a counterpart project lead from the contractor. These manual processes involve support staff from multiple SoCalGas organizations, as well as functional and technical staff from the respective third-party contractors.

The SoCalGas project manager for a given data sharing circumstance (e.g., a specific program implementation or evaluation) works with the appropriate team members and stakeholders from both SoCalGas internal staff groups as well as the third-party contractor's staff to define the specific data sharing requirements for each specific data sharing circumstance. SoCalGas verifies that appropriate privacy, security and data minimization rules and regulations are addressed. This can include, but is not limited to, determining the following aspects pertaining to the customer data to be shared for each specific data sharing circumstance:

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1. The specific energy-related customer-specific data elements required;
 2. The applicable customer account numbers or facility nodes;
 3. The specific format for each data element shared (e.g., whether to include and how to handle leading zeros - if applicable - in the data fields and the character length of a data field);
 4. The contractor's specific data format requirements;
 5. The timeframe for which each data element is required (historical, current, future);
 6. The frequency of the data transmittal(s) from SoCalGas to the contractor (e.g., one-time, on-demand, recurring, weekly, or monthly);
 7. The unit of measure for the data (if applicable), e.g., energy use volume and/or heat content;
 8. The method(s), software, and algorithms by which SoCalGas analysts and/or IT staff will query, extract and/or process the required data from the relevant SoCalGas information systems and databases in which it resides;
 9. The data elements which will be extracted using manual queries and data transfer performed by SoCalGas analysts and/or IT staff, e.g., using SAS or SQL queries, and the data elements which will be extracted and transmitted by leveraging SoCalGas IT staff to build automated file query and/or transfer processes, such as a nightly batch file transfer, to the contractor(s);
 10. The project plan and timing associated with the required queries from applicable SoCalGas systems;
 11. The approach for and implementation of manual pre- and post-transmittal data quality assurance for customer data transmitted to the contractor(s); and,
 12. The secure electronic means by which the data will be transferred to the third-party contractor.
- b) The staff time required to transfer customer data to SoCalGas' authorized third parties today can vary significantly based on the complexity or unique data requirements of

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each data sharing circumstance. As outlined in the response to a) above, there are multiple aspects and steps to each data transfer circumstance, many of which can be substantially manual- and time-intensive.

- c) SoCalGas has engaged in “one-off” transfers of customer-specific energy-related data many times in recent years that have proven to be time consuming. These transfers occurred numerous times throughout the course of SoCalGas’ deployment of advanced meters. The data transfers were specifically associated with SoCalGas’ four consecutive years of advanced meter-enabled behavior conservation “Test and Learn” pilot programs, as detailed in the “Conservation Outreach Campaigns” sections of the August 2013 through August 2017 “SoCalGas Advanced Meter Semi Annual Report” reports and the Nexant-authored conservation campaign evaluations included within the appendices of each of these August reports.¹ Data transfers were required both for conservation program implementations to multiple third-party contractors under contract to SoCalGas and to the program evaluator.

Data transfers to third-party DR program implementation and evaluation contractors under contract to SoCalGas of a similar and potentially even more manually-intensive nature were also required beginning in the fall of 2016, and again in 2017-2018, associated with SoCalGas’ implementation and subsequent evaluation of those DR pilot programs. High level descriptions of and the load impact evaluations for these multiple DR pilot programs can be found in Appendix A of “Chapter 1, Prepared Direct Testimony of Darren Hanway.”

A more recent example of a manually-intensive transfer of data to a third party includes SoCalGas’ recent completion of the implementation of a “one-off” data transfer mechanism to support its first EE residential pay-for-performance (P4P) program. Given the absence of a data sharing platform, and the need to implement such a program under Resolution E-4820, SoCalGas assembled a cross-functional team to develop, build and deploy the necessary queries and code to securely transfer the customer data to the third-party contractor who is implementing this program.

¹ <https://www.socalgas.com/regulatory/A0809023.shtml>

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There were several challenges in this “one-off” data transfer for the residential P4P program. For instance, much of the work that went into establishing this data transfer mechanism was due to the fact that there is no existing protocol that can be used to standardize the transfer process in terms of frequency, data types, and formats. In addition, SoCalGas learned that what worked for one third-party contractor did not work for another, and that compromises occurred frequently during the process. In short, there was also considerable time and effort spent to understand the requirements of the third-party contractor within the context of the existing processes within SoCalGas.

- d) SoCalGas has not conducted a cost estimate for providing DR providers with customer data via methods other than the EDSP for the duration of the DR programs sought in the Application.

- e) SoCalGas objects to this request on the grounds that it is vague and ambiguous as to the phrase “quantified the benefits.” Subject to and without waiving this objection, SoCalGas responds as follows: SoCalGas is not able to calculate a specific dollar value that quantifies the various benefits of the EDSP that are discussed in the Application and testimony. Notwithstanding, SoCalGas believes it is imperative to build the EDSP for the reasons explained in Chapter 2 and the associated Supplemental² testimony. As is the case with the electric IOUs’ data sharing platforms, it is impractical to assume that the recurring, daily data transfers of the often very large quantities of interval usage data and other customer data required to support third-party DR and EE programs enabled by the advanced meter infrastructure can be facilitated in a manual manner.

² Revised Chapter 5 Southern California Gas Company Demand Response Program, Prepared Consolidated Testimony of Darren Hanway and Nancy Carrell Lawrence on Behalf of Southern California Gas Company.

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QUESTION 8:

- a) See Lawrence 15:2-5. What “standard data formats” will the EDSP support? Please explain in detail and provide all relevant documentation.
- b) See Lawrence 16:2-3. In SCG’s view, does “the current OpenADE data format standards” include the Retail Customer schema? Why or why not? Please explain in detail.

RESPONSE 8:

- a) As outlined on page 7 of Chapter 2 “The EDSP will enable automated and secure energy-related customer data transfers to third parties utilizing common data transfer formats to the maximum extent possible, consistent with the approaches utilized by the three other California IOUs and with the ongoing national standards for energy data access, including the Open Automated Data Exchange (OpenADE) Energy Service Provider Interface (ESPI) standard (national Smart Grid standard).³ At a minimum, it is anticipated that the EDSP will support these industry standard data formats. Potential additional data formats the EDSP will also support are unknown at this time because the detailed functional and technical requirements for the EDSP, including the standard data formats it will support, will be developed with key internal and external stakeholder input once the EDSP project is initiated.
- b) As noted in the prior response, the complete set of data formats the EDSP will support are unknown at this time because the detailed functional and technical requirements for the EDSP, including the standard data formats it will support, will be developed with key internal and external stakeholder input once the EDSP project is initiated. That said, it is possible that if Mission:Data is referring to the “Retail Customer schema,” as it is broadly described at <http://dev.greenbuttonalliance.org/library.html> and

³ Excerpt from Chapter 2, footnote number 8: As described at <https://www.energy.gov/data/green-button>, the Energy Services Provider Interface (ESPI) data standard was released by the North American Energy Standards Board (NAESB) in the fall of 2011. “The data standards development process was facilitated by the Smart Grid Interoperability Panel, a public private partnership that is facilitated by the National Institute of Standards and Technology (NIST). The ESPI standard consists of two components: 1) a common XML format for energy usage information and 2) a data exchange protocol which allows for the automatic transfer of data from a utility to a third party based on customer authorization.” Further details relating to the ESPI standard is found at: https://www.naesb.org/ESPI_Standards.asp.

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https://www.greenbuttonalliance.org/index.php?option=com_dailyplanetblog&view=entry&category=technical&id=20:green-button-ensures-utilities-and-third-parties-protect-customer-privacy, is required to fulfill the use cases outlined in Chapter 1, then it, or an adaptation of it, would likely be one of the standard data formats supported by the EDSP funded through this application.

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QUESTION 10:

See Lawrence 18:16-17 and 18:21-23. What methods, either technical or otherwise, will SCG have in place to prevent the transmission of incomplete, inaccurate or missing data to authorized third parties? Please explain in detail.

RESPONSE 10:

The detailed methods, either technical or otherwise, that SoCalGas will have in place to prevent the transmission of incomplete, inaccurate or missing data to authorized third parties will be developed with key stakeholder input as part of the detailed business/functional and technical requirements gathering and analysis process once the EDSP project is initiated.

Notwithstanding, these methods will likely encompass existing methods SoCalGas currently has in place to optimize the quality, accuracy and presentation of its customer-specific advanced meter energy-related data, such as the validation, estimation and editing process (VEE) which occurs in SoCalGas' Meter Data Management System as outlined in the response to Question 2. It is likely that both technical and manual processes will be developed to conduct ongoing quality assurance and monitoring of data transmitted to third party contractors via the EDSP. As outlined in Chapter 2 in the section titled "Ongoing EDSP Operation and Maintenance Functions" starting on page 16, a key responsibility of EDSP support staff will be to focus on these aspects, and to act as the liaison between SoCalGas IT/technical and advanced meter network operations staff, and third party contractors as required, to troubleshoot and resolve issues of the nature described in Question 10.

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QUESTION 12:

- a) See Lawrence at 20:1-2. Please provide detailed cost breakdowns for each discrete annual software licensing, hosting and maintenance fee SCG would incur.
- b) See Lawrence at p. 22, Tables 2-1 and 2-2. Please provide a breakdown into capital and operating expense categories by year for each table.
- c) If approved, please estimate how much profit on the EDSP SCG would earn during the period 2020-2022 at SCG's current Commission-approved return on equity.
- d) See Lawrence at p. 22, footnote #18. Please provide a copy of SCG's "IT lifecycle methodology."
- e) See Lawrence at p. 22, footnote #18. Why did SCG provide merely a "high level estimation" of costs and not a detailed cost estimate? Please explain in detail.

RESPONSE 12:

- a) Estimated total annual costs for EDSP annual software licensing, hosting and maintenance fees are provided in the response to Question 1. Detailed cost breakdowns for each discrete annual software licensing, hosting and maintenance fee, if any, are unknown at this time because the detailed functional and technical requirements for the EDSP, and the associated final IT technical design and software architecture to meet these requirements – including final software components, will be developed once the EDSP project is initiated.
- b) The expenses referred to are all operating and maintenance expenses. The SoCalGas proposal does not seek capital expenses in relation to implementing the EDSP.
- c) N/A.
- d) The cited quotation was made as a general reference to SoCalGas' typical software development lifecycle methodology for IT projects and was not a reference to a particular document. SoCalGas' methodology for IT projects generally includes IT industry standard practices from both "Agile development" and "Waterfall development" software development lifecycle approaches. Once original high level IT project concepts and associated high level IT cost estimates are approved, SoCalGas IT projects incorporate the following stages in either a sequential or iterative approach:
1) Business/functional and technical requirements gathering and analysis with key stakeholder input resulting in a set of software requirements specifications; 2) Design,

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e.g., the IT software design and architecture to meet the requirements; 3) Construct/Build; 4) Testing; and 5) Implementation.

- e) A high- level estimation of the costs associated with the EDSP was provided because the EDSP project has not yet been approved, thus the various IT lifecycle stages required to implement the EDSP, as outlined in the prior response, have not been initiated. These stages of the EDSP will be initiated once the funding for the project is approved and the resources required to implement and operate the EDSP are established. SoCalGas provides a breakdown of the EDSP high-level cost estimates in response to Question 1.

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QUESTION 14:

With regard to the Revised Chapter 5 Prepared Consolidated Supplemental Testimony:

- a) See 16:6-7: "...the data sharing and framework required for the SoCalGas DR pilots are a 'Primary Purpose' in accordance with Commission Privacy regulations and SoCalGas Rule 42." In SCG's view, is electric demand response (DR) from third party DR providers considered a Primary Purpose pursuant to D.11-07-056 Attachment D, page 2? Why or why not? Please explain in detail.
- b) See 16:15-17: "Although customer-facing web page based 'Click-through' capabilities are not part of the proposed scope of the EDSP, data delivery and quality performance metrics of the nature the Commission describes in Res. E-4868 would be applicable to the EDSP."
 - I. Please describe the reporting metrics on data delivery and quality performance that SCG proposes to implement as part of its EDSP, as well as the frequency by which such metrics would be updated.
 - II. As answered in (b)(I) above, please describe in detail any differences with the data delivery and quality performance metrics as required of the electric IOUs pursuant to Resolution E-4868.
 - III. Will the reporting metrics be publicly available? If not, why not?
- c) See 16:2-8.
 - I. Please describe in detail what portion of the EDSP budget is allocated to SCG staff participation in the Customer Data Access Committee.
 - II. Please describe in detail what portion of the EDSP budget is allocated to implementation of the data delivery and quality performance metrics and reporting.

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RESPONSE 14:

- a) SoCalGas objects to this request on the grounds that it seeks a legal conclusion, seeks information that is neither relevant to the subject matter involved in the pending proceeding nor is likely reasonably calculated to lead to the discovery of admissible evidence, and is outside the scope of this proceeding. Subject to and without waiving this objection, SoCalGas responds as follows: Please refer to the discussion beginning on line 19 of page 14 of SoCalGas' Revised Supplemental Testimony⁴ for additional context pertaining to this question.

As discussed in this Supplemental Testimony section, and outlined on the Commission web page <http://www.cpuc.ca.gov/general.aspx?id=8314>, "Accessing customer's meter data is a critical requirement for direct participation DR. All DRPs/aggregators must obtain customer approval in order to access the customer's electric usage data and other personal information regarding the customer's service account. The customer's consent is provided through its utility's Authorization or Revocation of Authorization to Disclose Customer Information to a Demand Response Provider under Rule 24/32 (CISR-DRP) form or other electronic means, if available."

D.11-07-056 "Attachment D - Rules Regarding Privacy and Security Protections for Energy Usage Data," states the following on page 2, "Primary Purposes. The "primary purposes" for the collection, storage, use or disclosure of covered information are to— (1) provide or bill for electrical power or gas, (2) provide for system, grid, or operational needs, (3) provide services as required by state or federal law or as specifically authorized by an order of the Commission, or (4) plan, implement, or evaluate demand response, energy management, or energy efficiency programs under contract with an electrical corporation, under contract with the Commission, or as part of a Commission authorized program conducted by governmental entity under the supervision of the Commission."

Also as noted on page 16 of SoCalGas' Supplemental testimony, "As outlined in Chapter 2, the data sharing and framework required for the SoCalGas DR pilots are a "Primary Purpose" in accordance with Commission Privacy regulations and SoCalGas Rule 42."

⁴ Revised Chapter 5 Southern California Gas Company Demand Response Program, Prepared Consolidated Testimony of Darren Hanway and Nancy Carrell Lawrence on Behalf of Southern California Gas Company.

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b)

- I. The detailed reporting metrics on data delivery and quality performance that SoCalGas will implement as part of its EDSP, as well as the frequency by which these metrics will be updated, will be developed with key stakeholder input as part of the detailed business/functional and technical requirements gathering and analysis process once the EDSP project is initiated. Additionally, as outlined in Chapter 2 on page 19 and restated on page 17 of SoCalGas' Supplemental Testimony, "the budget associated with the ongoing operations of the EDSP will support funding of SoCalGas staff participation in the joint IOU "Customer Data Access Committee," as well to support SoCalGas staff involvement in ongoing energy data-sharing-related industry dialogues, forums and working groups, and "other standards and regulatory forums associated with verifying that the EDSP operates in a manner that is consistent with utility data standards and best practices."

II and III. Unknown at this time for the reasons noted in the prior response. However, as noted above, it is SoCalGas' intent "that the EDSP operates in a manner that is consistent with utility data standards and best practices."

c)

- I. The specific portion of the EDSP budget allocated to staff participation in the Customer Data Access Committee is not known at this time. Notwithstanding, it is likely that the staff budgeted as part of the "SoCalGas Energy Data Sharing Platform Project - Proposed Budget Ongoing Operating Costs" included in the response to Question 1 will allocate a portion of their time to participation in the Customer Data Access Committee to make sure the EDSP operates in a manner that is consistent with utility data sharing standards and best practices.
- II. The portion of the EDSP budget allocated to implementation of the data delivery and quality performance metrics and reporting will be determined based on the detailed business/functional and technical requirements that are developed once the EDSP project is initiated.