SAN DIEGO GAS & ELECTRIC COMPANY
SOUTHERN CALIFORNIA GAS COMPANY

APPLICATION FOR AUTHORITY TO
REVISE THEIR CURTAILMENT PROCEDURES

(A.15-06-020)

(16TH DATA REQUEST FROM SOUTHERN CALIFORNIA GENERATION COALITION)

QUESTION 16.1:

16.1. With respect to the SDG&E advanced meter infrastructure ("AMI") system, which was described by Paul Borkovich in his rebuttal testimony in A.15-07-014:

> SDG&E has completed installation of its AMI-enabled gas modules. Daily meter reads are recorded that are used to calculate daily usage for individual customers who have the smart module installed on their gas meters that allows these customers to view their daily usage on the SDG&E online webpage. Systems have been developed to collect, manage and store only the daily meter reads collected from the 900,000 AMI-enabled gas meters.

16.1.1. Is each SDG&E AMI Meter Transmission Unit ("MTU") recording hourly data?

16.1.2. If the answer to the Q.16.1.1 is "yes," is the MTU collecting 24 hours of metering data before transmitting the data to a Data Collection Unit ("DCU")?

16.1.3. If the answer to the Q.16.1.1 is "no," please describe in detail how the MTU records data for individual customers.

16.1.4. If the MTU records data for individual customers only once per day, what time is the data recorded for each customer?

16.1.5. How long does the AMI system take to transmit data from the MTU to a DCU and from a DCU to SDG&E's back office systems? Please state this answer as average times but provide the amount of variation in terms of minutes that has been observed.

16.1.6. Please explain in detail each of the steps that the data takes during its transmission from MTU through the DCU to SDG&E's back office systems describing in detail the processes that the data undergoes at each step.

16.1.6.1. Are there steps along the data transmission path from the MTU to SDG&E's back office systems where the data sits, waiting for transmission?

16.1.6.2. If the answer to the previous question is "yes," please describe in detail the points along the data transmission where the data sits and estimate the likely

amount of time that data spends sitting at each of the points awaiting transmission.

16.1.6.3. Does the data transmission involve any manual steps?

16.1.6.4. If the answer to the previous question is “yes,” please describe in detail each of the manual steps that are included in transmitting the data.

16.1.6.5. How many individuals, either SDG&E personnel or contractors, are involved in performing the manual tasks described in the response to the previous question?

16.1.6.6. Can any of these manual tasks be automated?

16.1.6.7. Please describe each of the various stages during which data processing occurs.

16.1.6.8. Please estimate the average time associated with the various stages of data processing but provide the amount of variation in terms of minutes that has been observed.

16.1.6.9. Does “data processing” occur after delivery of data from the DCU to SDG&E’s back office systems?

16.1.6.10. If the answer to the previous question is “yes,” please describe in detail the data processing that occurs after the data is delivered to SDG&E’s back office system.

16.1.6.11. How is the compiled data delivered to SDG&E’s back office personnel?

16.1.6.12. Does the “data processing” in the SDG&E’s back office involve any manual steps, or is it fully automated?

16.1.6.13. Is the data processed immediately upon receipt at the SDG&E’s back office? If there is a delay, please quantify the delay and explain why there would be a delay.

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RESPONSE 16.1

16.1.1. No.

16.1.2. See Response 16.1.1.

16.1.3. The gas module takes a self-read or daily freeze time (DFT) at 7am.

16.1.4. 7AM or 8AM during Daylight Savings Time.

16.1.5. This question is not applicable to the way SDG&E's RFLAN and smart meter system operates.

16.1.6. 1. The gas module takes a self-read (DFT) at 7am.

2. The module transmits its read (TT or transmit time) to its bound electric meter at 10pm.

3. The OpenWay7 interrogation will bring back data on the electric host payload from midnight to 6am.

4. There are two file transfers at 5am and 9am that takes all data from the interrogation and sends it to the CIS/billing application.

16.1.6.1 Yes.

16.1.6.2 Refer to Response 16.1.6 for the timeline.

16.1.6.3 No, with the exception of a very small population of meters that does not communicate over the network.

16.1.6.4 See Response 16.1.6.3.

16.1.6.5 See Response 16.1.6.3.

16.1.6.6 See Response 16.1.6.3.

16.1.6.7 Data processing occurs when the Collection Engine (CE) sends the gas files to the Meter Data Management System (MDMS). The MDMS separates and imports the gas and electric payloads, interprets the unit of measure and assigns the reads to a valid service point for billing.

16.1.6.8 SDG&E processes all 900k gas meters within 180 minutes and import process the data within 420 minutes. It can vary +/-60min. The import process includes both reads and events which are critical for determining the status and health of the battery powered modules.

16.1.6.9 Yes.

16.1.6.10 Refer to question 16.1.6.8.

16.1.6.11 The data is delivered through viewable user interfaces in the MDMS application and through file transfers to the CIS/billing application.

16.1.6.12 Fully automated

16.1.6.13 There are delays in import processing due to mapping data to the service point, parsing the complex XML message, and database storage time. Approximate time is 420 min. +/-60min (or 2min latency per meter)

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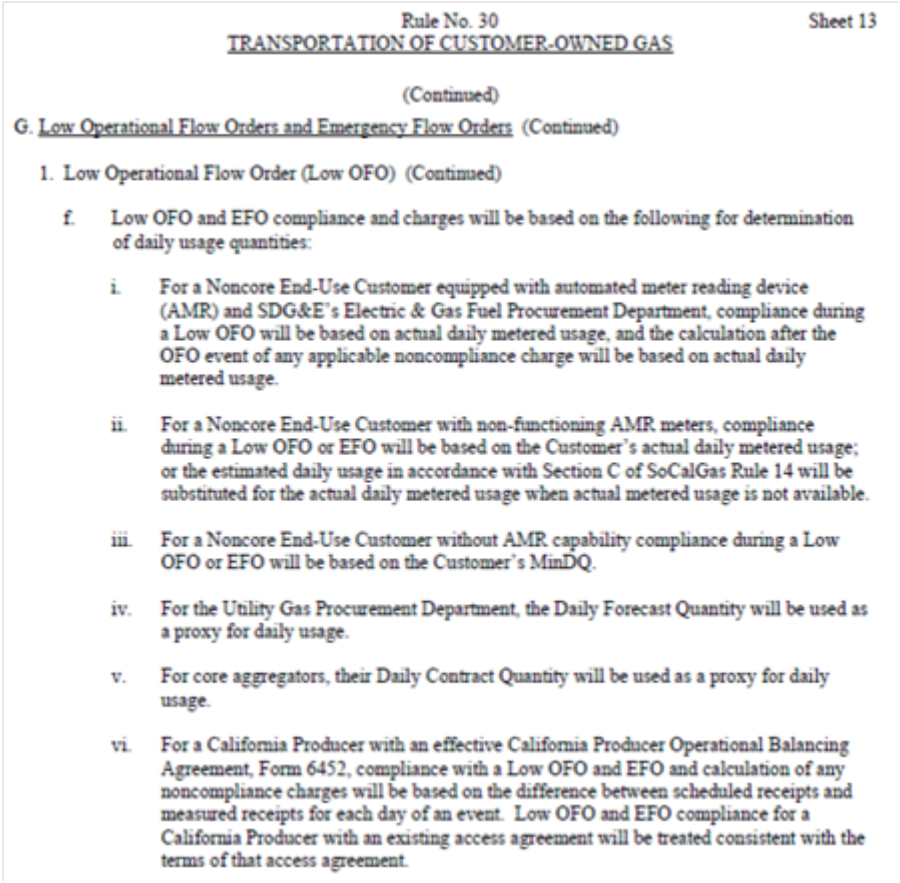
QUESTION 16.2:

16.2. Referring to the following excerpt from SoCalGas' Rule 30:



Rule No. 30 Sheet 13
TRANSPORTATION OF CUSTOMER-OWNED GAS

(Continued)

G. Low Operational Flow Orders and Emergency Flow Orders (Continued)

1. Low Operational Flow Order (Low OFO) (Continued)

f. Low OFO and EFO compliance and charges will be based on the following for determination of daily usage quantities:

i. For a Noncore End-Use Customer equipped with automated meter reading device (AMR) and SDG&E's Electric & Gas Fuel Procurement Department, compliance during a Low OFO will be based on actual daily metered usage, and the calculation after the OFO event of any applicable noncompliance charge will be based on actual daily metered usage.

ii. For a Noncore End-Use Customer with non-functioning AMR meters, compliance during a Low OFO or EFO will be based on the Customer's actual daily metered usage; or the estimated daily usage in accordance with Section C of SoCalGas Rule 14 will be substituted for the actual daily metered usage when actual metered usage is not available.

iii. For a Noncore End-Use Customer without AMR capability compliance during a Low OFO or EFO will be based on the Customer's MinDQ.

iv. For the Utility Gas Procurement Department, the Daily Forecast Quantity will be used as a proxy for daily usage.

v. For core aggregators, their Daily Contract Quantity will be used as a proxy for daily usage.

vi. For a California Producer with an effective California Producer Operational Balancing Agreement, Form 6452, compliance with a Low OFO and EFO and calculation of any noncompliance charges will be based on the difference between scheduled receipts and measured receipts for each day of an event. Low OFO and EFO compliance for a California Producer with an existing access agreement will be treated consistent with the terms of that access agreement.

16.2.1. Please describe what is meant by the term "automated meter reading device (AMR).

16.2.1.1. Is there more than one type of AMR device?

16.2.1.2. If the answer to the previous question is "yes," please describe in detail each of the AMR devices that are used for SoCalGas noncore customers.

16.2.1.3. How many of the different types of AMR devices allow for hourly recording of gas usage?

16.2.1.4. How many SoCalGas noncore customers have AMR installed that allows for hourly recording of gas usage?

16.2.1.5. Please describe the AMR devices and any associated equipment that is necessary for installation at a noncore premise that would enable the System Operator to remotely read hourly customer usage.

16.2.1.6. How many noncore customers have the AMR devices and associated equipment that enables the System Operator to remotely read their hourly usage?

16.2.2. Please state how many SoCalGas noncore customers fall into each of the Rule 30.G categories 1.f.i, 1.f.ii, and 1.f.iii.

16.2.3. Please state in percentage terms the breakdown of SoCalGas noncore customers by each of the Rule 30.G categories 1.f.i, 1.f.ii, and 1.f.iii.

16.2.4. Please state the average winter usage and average summer usage for the noncore customers in each of the Rule 30.G categories 1.f.i, 1.f.ii, and 1.f.iii.

16.2.5. Please state in percentage terms the breakdown of SoCalGas noncore usage by each of the Rule 30.G categories 1.f.i, 1.f.ii, and 1.f.iii.

16.2.6. Please state when the daily metered usage is available for customers in each of the Rule 30.G categories 1.f.i, 1.f.ii, and 1.f.iii.

RESPONSE 16.2:

16.2.1. A device that allows the collection and communication of metering consumption without the requirement of physically visiting the site.

16.2.1.1. Yes.

16.2.1.2 There are three general types of AMR:

- Flow Computers which allow for pressure and temperature compensation on inferential metering that use either a land line or wireless communication modem to communicate with Measurement Collection System (MCS). Customer can access measurement information directly from device via serial communication.

- Electronic Volume Correctors which allows for pressure and temperature on positive displacement metering utilizing land line or wireless communication modems and customer access to consumption data via pulse output
- Pulse Accumulator which collects meter consumption where pressure and/or temperature compensation are not required with land line or wireless communication modems and customer access to consumption data via pulse output

16.2.1.3. All AMR devices for noncore customers allow for hourly recording of gas usage.

16.2.1.4. See Response 16.2.1.3.

16.2.1.5. Applications that can be monitored by Gas Control are limited to AMR described in Response 16.2.1.2 as "Flow Computers which allow for pressure and temperature compensation on inferential metering that use either a land line or wireless communication modem."

Costs to convert AMR devices in the other two other categories described in Response 16.2.1.2 are not known at this time

16.2.1.6. There are 95 noncore customers that have equipment that enables the System Operator to remotely read their hourly usage.

16.2.2. There are 914 noncore billing accounts that have AMR installed. The number of these accounts with non-functioning AMR is low and variable since they are normally repaired and put back in service after being identified. There are only 10 noncore billing accounts that currently have one or more non-automated meters installed.

16.2.3. See Response 16.2.2.

16.2.4. Over 99% of noncore usage is normally measured each day by AMR.

16.2.5. See Response 16.2.4.

16.2.6. Daily metered usage for noncore customers who interconnect with their SoCalGas AMR meter can receive measurement information during the Measurement Day on an hourly basis. Customers and their suppliers can also view their usage information on Envoy as it is collected and transmitted by MCS starting after midnight the following day.

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QUESTION 16.3:

16.3. In his April 11, 2016 rebuttal testimony filed in A.15-07-014, Paul Borkovich says (at 4): Systems have been developed to manage and store the hourly meter reads collected from all AMI-enabled gas meters." Mr. Borkovich states (at 5): "These systems are currently not capable of converting these hourly meter reads into daily measurement quantities that can be allocated and aggregated to the respective core balancing agents for the purpose of calculating OFO noncompliance charges."

16.3.1. Do these statements by Mr. Borkovich at pp. 4-5 of his testimony apply to the SoCalGas AMI system but not the SDG&E AMI system? If the answer is "yes," for each of the questions below please answer the question and then explain any differences between the SoCalGas AMI system and the SDG&E system.

16.3.2. Does SoCalGas currently have database software that is capable of manipulating and querying the database of compiled AMI data?

16.3.3. If the answer to Q.16.3.1 is "yes," please describe the types of queries that SoCalGas believes would be necessary to develop the daily measurement quantities that could be attributed to the various core balancing agents.

16.3.4. If the answer to Q.16.3.1 is "no," please explain why SoCalGas has developed a database for the AMI metering data but failed to ensure that it has the software available to utilize the system.

16.3.5. If the answer to Q.16.3.1 is "no," please state what software would be required to convert the "hourly meter reads into daily measurement quantities that can be allocated and aggregated to the respective core balancing agents for the purpose of calculating OFO noncompliance charges."

16.3.6. Please identify specifically any hardware that would be needed to convert the "hourly meter reads into daily measurement quantities that can be allocated and aggregated to the respective core balancing agents for the purpose of calculating OFO noncompliance charges."

16.3.7. Has the cost of the IT software and, if necessary, the hardware that would be needed to convert the "hourly meter reads into daily measurement quantities that can be allocated and aggregated to the respective core balancing agents for the purpose of calculating OFO noncompliance charges." been determined since SoCalGas served Mr. Borkovich's testimony on April 11, 2016?

16.3.7.1. If not, please explain why not.

16.3.7.2. Please identify the cost associated with developing the necessary queries (if any) that were identified in response to Q.16.3.2.

16.3.7.3. Please identify the cost of any required IT software identified in the response to Q. 16.3.4.

16.3.7.4. Please identify the cost of any required IT hardware identified in the response to Q. 16.3.5.

16.3.8. Please identify the time it would take to:

16.3.8.1. Produce the queries described in response to Q.16.3.2.

16.3.8.2. Procure and install the IT software (if any) described in response to Q.16.3.4.

16.3.8.3. Procure and install the hardware (if any) described in response to Q.16.3.5.

RESPONSE 16.3:

16.3.1 The respective AMI systems for SoCalGas and SDG&E are different. But neither system is designed to convert daily meter read information into daily measurement quantities that can be aggregated and allocated to the respective core balancing agents for the purpose of calculating OFO noncompliance charges.

16.3.2 Yes.

16.3.3 Unknown. Functional requirements for this capability have not been developed.

16.3.4 Not applicable.

16.3.5 See response 16.3.3.

16.3.6 See response 16.3.3.

16.3.7 No requirements have been developed.

16.3.7.1 Neither SoCalGas nor SDG&E has been required by the Commission to make plans to alter their respective AMI systems as of this date.

16.3.7.2 Costs are unknown. Functional requirements for this capability have not been developed.

16.3.7.3 Not Applicable.

16.3.7.4 Costs are unknown. Functional requirements for this capability have not been developed.

16.3.8.1 Approximately 6-9 months.

16.3.8.2 Not Applicable.

16.3.8.3 Costs are unknown. Functional requirements for this capability have not been developed.

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QUESTION 16.4:

16.4. In his April 11, 2016 rebuttal testimony filed in A.15-07-014, Paul Borkovich discusses (at 4) systems that "have been developed to manage and store the hourly meter reads collected from all AMI-enabled gas meters." Mr. Borkovich states (at 5) that "the cost to establish and maintain minimum and maximum daily quantities for customers without AMI-enabled gas meters under the Smart Meter Opt-Out have not been determined as well."

16.4.1. Has the cost "to establish and maintain minimum and maximum daily quantities for customers without AMI-enabled gas meters under the Smart Meter Opt-Out" been determined since SoCalGas served Mr. Borkovich's testimony on April 11, 2016?

16.4.1.1. If not, please explain why not.

16.4.1.2. If so, please identify the cost.

RESPONSE 16.4:

16.4.1. No.

16.4.1.1. SoCalGas and SDG&E current and pending tariffs do not require it.

16.4.1.2. See response 16.4.1.1.

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QUESTION 16.5:

16.5. Regarding customers who have opted out of the SoCalGas and SDG&E AMI systems to date:

16.5.1. Please provide the percentage of the core population that these customers represent for SoCalGas and SDG&E respectively.

16.5.2. Please identify the percentage of average annual daily throughput that these customers represent for SoCalGas and SDG&E respectively.

16.5.3. Please describe how monthly and daily usage by opt-out customers is determined by SoCalGas and SDG&E respectively.

RESPONSE 16.5:

16.5.1. Less than 0.4% for SoCalGas and 0.001% for SDG&E.

16.5.2. Not known. Average throughput of SDG&E opt out customers is 65.5 CCF. SoCalGas has not determined the percentage of average annual daily throughput that the 0.4% of residential customers participating in the Opt-Out program represents.

16.5.3. Gas opt-out meters are read manually every other month and estimated the other month. Customer bills are “trued up” when actual meter reads are received.

Daily usage for these customers is not determined. Current tariffs for both SoCalGas and SDG&E do not require the use of daily usage for these customers.

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QUESTION 16.6:

16.6. Regarding the process or procedures that SoCalGas and SDG&E use to determine the usage for a Measurement Day for a Core Transport Agent ("CTA"):

16.6.1. Please confirm or disconfirm whether the usage for a Measurement Day for a CTA is determined under authority of Rule 14.C.

16.6.2. If the usage for a Measurement Day for a CTA is determined under authority of a rule other than Rule 14.C, please identify the governing rule.

16.6.3. Please explain in detail the process or procedures that SoCalGas and SDG&E use to determine the usage for a Measurement Day for a CTA.

RESPONSE 16.6:

16.6.1: No.

16.6.2: SoCalGas Rule 30.G.1.f.v and SDG&E Rule 30.G.1.f.v.

16.6.3: SoCalGas Rule 32.A.8 specifies that a CTA will be assigned a Daily Contract Quantity (DCQ) each month. A CTA's scheduled deliveries are compared to its DCQ for each OFO day. Deviations in excess of the specified imbalance tolerance for the OFO event are subject to either the applicable Low OFO noncompliance charges or High OFO buyback when they exceed 10,000 therms or more for each event.

QUESTION 16.7:

16.7. Regarding provisions of the SoCalGas and SDG&E Rules that provide for the determination of "estimated" usage, consumption, or bill for a customer or a CTA:

16.7.1. Please identify with specificity all provisions of the SoCalGas and SDG&E Rules that provide for the determination of "estimated" usage, consumption, or bill for a customer or a CTA.

16.7.2. Please identify the time after the end of a Measurement Day by which the estimated" usage, consumption, or bill will be determined.

16.7.3. Please identify with specificity all provisions of the SoCalGas and SDG&E Rules that establish the time after the end of a Measurement Day by which the estimated" usage, consumption, or bill will be determined.

16.7.4. If the answers to the questions above differ depending on whether the "estimate" is for a customer or a CTA, please identify the rules that apply to a customer and the rules that apply to a CTA.

RESPONSE 16.7:

16.7.1: Please see SoCalGas Rule 14.C for tariff provisions governing the estimation of customer usage for billing purposes when the meter serving an enduse customer cannot be read or accurate usage data is not available.

16.7.2: Customer usage is estimated after it has been determined that the meter cannot be read or that accurate usage is not available.

16.7.3: See Response 16.7.2 above.

16.7.4: Rule 14.C applies to end use customer meters. See Response 16.6.3 for the Measurement Day treatment for CTA's on OFO days.