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**BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA**

Application of Southern California Gas Company (U904G) and San Diego Gas & Electric Company (U902G) Regarding Feasibility of Incorporating Advanced Meter Data Into the Core Balancing Process.

Application 17-10-002

**DECISION DIRECTING, AMONG OTHER THINGS, SOUTHERN CALIFORNIA GAS COMPANY TO INCORPORATE ADVANCED METERING INFRASTRUCTURE DATA INTO ITS SCHEDULING AND BALANCING PROCESS**

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**DECISION DIRECTING, AMONG OTHER THINGS, SOUTHERN CALIFORNIA GAS COMPANY TO INCORPORATE ADVANCED METERING INFRASTRUCTURE DATA INTO ITS SCHEDULING AND BALANCING PROCESS**

**Summary**

Today's decision directs Southern California Gas Company (SoCalGas) to incorporate historical Advanced Metering Infrastructure (AMI) data into SoCalGas's Gas Acquisition Department's scheduling and balancing process immediately, within seven days of the effective date of this decision.

We require the Applicants, SoCalGas and San Diego Gas & Electric Company, to balance gas deliveries to their estimated actual consumption, rather than a forecast, beginning April 1, 2020.

We direct Applicants to begin building the AMI Data Aggregation System, including the Scheduled Quantity imbalance trading automation buildout. Applicants shall file an Advice Letter to establish a Memorandum Account to record costs to build the AMI Data Aggregation system which shall include a function to automate Scheduled Quantity trading. We expect the AMI Data Aggregation System to be operational by April 1, 2020 with a review of recorded expenditures in the Applicants' next General Rate Case.

We decline to make changes to extend Cycle 6.

Application 17-10-002 is closed.

**1. Background**

On October 2, 2017, Southern California Gas Company (SoCalGas) and San Diego Gas & Electric Company (SDG&E) filed this Application in compliance with Decision (D.) 16-12-015. In D.16-12-015, the Commission approved the Second Daily Balancing Settlement Agreement, which included, among other things, settlement term 14. Term 14 provided that: "By

September 30, 2017, SoCalGas and SDG&E shall file an application to address the feasibility of incorporating Advanced Metering Infrastructure (AMI) data into the core balancing process and will provide testimony supporting their proposal, including details of the potential costs and technical issues, if any, that are associated with such an approach.”<sup>1</sup> As such, the request in this Application to consider incorporating AMI data into core balancing is submitted in accordance with this settlement term of the Second Daily Balancing Settlement Agreement.

This proceeding also refers to rules adopted by the Commission in 2007. In D.07-12-019, the Omnibus Decision,<sup>2</sup> the Commission determined that SoCalGas’s core market must balance to a forecast rather than actual usage because “it is not physically possible to obtain real-time usage information from each core customer.”<sup>3</sup> Applicants’ state that, while it is still the case today, that SDG&E’s core load forecasts have, since December 1, 2016, been informed by and modified to incorporate historical AMI data.<sup>4</sup> This Application describes the positive impact of this modification and recommends that historical AMI data also be used as a basis for SoCalGas’s core load forecast once sufficient historical AMI data is available.

Additionally, an event that influences the Commission’s overall approach to this proceeding occurred on October 23, 2015. On this date, a major leak in a gas well was discovered at SoCalGas’s largest storage facility, the Aliso Canyon

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<sup>1</sup> D.16-12-015, Attachment 2 at A-6.

<sup>2</sup> D.07-12-019 adopted the current natural gas delivery balancing framework.

<sup>3</sup> D.17-12-019 at 57.

<sup>4</sup> D.07-12-019 has no definition for “real-time usage information.” “Real-time data” is not currently provided to consumers either by California’s electric nor gas AMI installations. It is day-after, hourly data that is provided.

Storage Facility (Aliso Canyon). This leak and its impact have triggered a number of actions both at the Commission and at other state and local agencies to improve safety at the facility and reliability in the SoCalGas service territory. Aliso Canyon continues to be subject to restrictions, and a separate investigation is underway to determine the long-term feasibility of minimizing or eliminating the use of the facility while still maintaining energy and electric reliability for the Los Angeles region, consistent with maintaining just and reasonable rates.

Related to the Aliso Canyon event, Southern California Edison Company (SCE) protested this Application and suggested that the scope of the Application should be expanded to include the issue of requiring SoCalGas to balance its core customer load to estimated actual usage, rather than forecasted usage. In support of its protest, SCE pointed to the Aliso Canyon Gas and Electric Reliability Winter Action Plan (Action Plan) prepared by the Commission, the California Energy Commission, the California Independent System Operator, and the Los Angeles Department of Water and Power. The Action Plan recommended that Applicants “achieve a better match of core customer gas purchases and actual core gas demand” and noted that Commission “action will be required to put this measure in place.”<sup>5</sup> SCE’s protest suggested that this proceeding was the appropriate forum to consider this issue. As a result, the scoping memo in this proceeding included this issue and the issue of core balancing is addressed in today’s decision.

## **2. Procedural History**

SDG&E and SoCalGas filed this Application on October 2, 2017.<sup>6</sup> Protests were filed on November 8, 2017, by numerous parties, including SCE, Indicated

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<sup>5</sup> Action Plan at 21.

<sup>6</sup> SoCalGas and SDG&E are affiliated companies, both being subsidiaries of Sempra Energy.

Shippers (IS), Shell Energy North America (US), L.P., Environmental Defense Fund (EDF), and the Southern California Generation Coalition (SCGC). SDG&E and SoCalGas filed a reply to these protests on November 20, 2018. A prehearing conference was held on March 8, 2018, to discuss the scope and the schedule of this proceeding. A scoping ruling was issued by the assigned Commissioner and assigned Administrative Law Judge (ALJ) on April 25, 2018. No party requested evidentiary hearings (EHs). On November 5, 2018, the ALJ issued a ruling requesting supplemental testimony. In the absence of EHs, parties moved to receive various exhibits into evidence. These motions are discussed in more detail below. Opening and reply briefs were filed on January 16, 2019 and February 6, 2019, respectively.

Several motions for party status were filed, including by the Alliance for Retail Energy Markets, Tiger Natural Gas, Inc., (Tiger Natural Gas), XOOM Energy, North Star Gas Company, LLC dba YEP Energy (YEP Energy), and by the Office of Ratepayer Advocates (now known as the Public Advocates Office). These motions were granted by ALJ ruling. All motions granted by the assigned ALJ are affirmed herein. This matter was submitted on February 6, 2019, upon submission of reply briefs.

### **3. The Proceeding Record**

The evidentiary record in this proceeding is established through entering exhibits into the record via various motions. Motions to enter exhibits into the record were filed as follows:

- 1) SCE motion to enter Exhibit 3 into the evidentiary record on January 16, 2019;
- 2) IS, SoCalGas, SCGC, Environmental Defense Fund, SCE, and SDG&E joint motion to enter exhibits into the evidentiary record on January 15, 2019;

- 3) EDF motion to enter exhibits into the evidentiary record on October 12, 2018; and
- 4) SCGC and IS joint motion to enter exhibits into the evidentiary record on October 9, 2018.

All these motions are granted, and the related exhibits are, accordingly, entered into the evidentiary record.

On January 30, 2019, XOOM Energy, Tiger Natural Gas, and YEP Energy filed a motion to strike portions of the opening brief of SCE and SCGC. We deny this motion. However, we note that the arguments in the briefs can be weighed based on the persuasiveness of the underlying evidence and need not be stricken from the record. Furthermore, to the extent the issues raised in briefs are outside the scope of this proceeding, the issues will not be considered.

#### **4. Issues Before the Commission**

On April 25, 2018, the assigned Commissioner and ALJ issued a scoping memo setting forth the issues to be addressed in this proceeding. The issues to be addresses in today's decision are as follows:

1. Should the Commission approve SoCalGas and SDG&E's proposal to incorporate AMI data into the core forecasting process?
  - a. What are the proper threshold requirements for the incorporation of AMI into the forecasting methodology?
    - i. Does the buildout of the AMI need to be complete before SoCalGas and SDG&E are able to build valid statistical models?
    - ii. Are there other appropriate thresholds which SoCalGas and SDG&E should meet prior to being required to incorporate AMI data into the core forecasting process?
  - b. How accurate has SoCalGas and SDG&E's current core forecasting methodology been in recent years?

- c. Does the current daily core load forecasting approach result in excess core gas deliveries and/or contribute to the frequency of the occurrence of Operational Flow Orders (OFOs) or emergency flow orders on the SoCalGas and SDG&E system?
  - d. How does the combination of forecast error and core imbalances affect system operation and reliability?
  - e. How do SoCalGas and SDG&E develop their daily core load forecasts?
  - f. What variables are the two utilities incorporating into their forecasting methodologies?
  - g. Would SoCalGas and SDG&E's proposed integration of AMI data into forecasting materially improve forecast accuracy, improve system reliability, or reduce costs to core and non-core ratepayers?
  - h. Does the current daily core load forecast approach used in core balancing affect the manner by which SoCalGas and SDG&E purchases and schedules deliveries for its core customers?
2. Should SoCalGas and SDG&E be required to balance core gas deliveries to actuals as opposed to a forecast?
- a. Does balancing to a forecast rather than actuals cause SoCalGas and SDG&E to need to impose more OFOs on non-core customers?
  - b. Do SoCalGas and SDG&E have the technical capability, including but not limited to the use of AMI data, to produce accurate actual core gas customer usage information at the end of a Gas Day?
  - c. Would there be reliability benefits by requiring SoCalGas and SDG&E to balance to core gas deliveries?
  - d. Would there be incremental reliability risks to core gas customers as a result of requiring SoCalGas and SDG&E to balance to core gas deliveries?
  - e. Would there be additional costs and/or potential penalty payments to core gas customers (in the event of

core imbalances) as a result of requiring SoCalGas and SDG&E to balance to core gas deliveries?

- f. Does the current daily core load forecast approach provide an accurate measure of whether SoCalGas's core deliveries are in balance with actual core gas usage on a daily basis?
3. Is SoCalGas and SDG&E's cost estimate for enabling AMI to provide near real-time hourly data reasonable?
  - a. How do the estimates in SoCalGas and SDG&E's testimony in this Application relate and differ to the cost estimates provided in SoCalGas and SDG&E's September 16, 2016 motion in Application (A.) 15-06-020?
4. What alternatives to SoCalGas and SDG&E's proposal are available?
5. Does SoCalGas and SDG&E's AMI meet the expectations to provide near real time data as articulated by the Commission in D.10-04-027?
6. Are there other concerns of reliability that should be addressed in this proceeding?

The issues set forth in the scoping memo are addressed below.

**5. Should the Commission approve SoCalGas's and SDG&E's proposal to incorporate AMI data into the core forecasting process?**

We adopt, in part, the Applicants' proposal to incorporate AMI data into the core forecasting process.

Applicants propose to "incorporate SoCalGas's Advanced Meter data into the core forecasting process when SoCalGas's AMI installation is complete and sufficient historical AMI data is available for SoCalGas's retail core customers

with which to develop a statistical model.”<sup>7</sup> SDG&E is already incorporating AMI data into its core forecasting process.<sup>8</sup>

Applicants contend that SoCalGas’s statistical forecasting model that forecasts daily retail core gas demand, the Demand Load Forecasting Model, requires as least one year of historical AMI usage data after AMI installation is complete. Applicants explain that if AMI usage data for a period of less than one year is used, missing information renders the estimates inadequate. Regarding whether the AMI installation is complete, Applicants state that the installation is nearly complete and implemented for 99.24% of SoCalGas’s total eligible core customers as of April 30, 2018.<sup>9</sup> Applicants’ estimate that SoCalGas “will be able to develop and implement a core forecasting process based on historical AMI usage data by July 1, 2019.”<sup>10</sup>

### **5.1. The AMI System is Sufficiently Complete**

On the question of whether SoCalGas’s AMI installation is sufficiently complete now to permit its use in forecasting, we find that the system is sufficiently complete. There are three main components of SoCalGas’s AMI deployment:<sup>11</sup>

1. Meter Transmission Units – a transmission device installed on nearly six million gas meters that automatically and securely transmits hourly gas meter reads to the Data Collection Units;

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<sup>7</sup> Application at 5.

<sup>8</sup> Ex. SCGC/IS-1 at 13, SCGC Opening Brief at 18.

<sup>9</sup> SDG&E & SoCalGas Opening Brief at 5.

<sup>10</sup> SDG&E & SoCalGas Opening Brief at 5.

<sup>11</sup> SoCalGas & SDG&E, Mercer Direct at 4.

2. Data Collection Units – transmit gas meter reads to SoCalGas back-office systems and billing department, thereby eliminating the need for manual meter reading; there are nearly 4,600 constructed throughout the service territory; and
3. Head-End and Meter Data Management Systems, which are back-office systems for collection and management of the AMI data for billing and customer presentation purposes.

We find that the buildout of AMI is virtually complete and sufficient to build valid statistical models. As of December 4, 2018, there were 5,965,988 customers with Meter Transmission Units installed on their meters, with only 3,126 still awaiting installation. A very small group is still awaiting the Data Collection Units to be installed near their premises, which collect and transmit customer data back to the Head End system. Since there are multiple Data Collection Unit pathways through which each Meter Transmission Unit can deliver its data, this is not an issue for collection of the vast majority of the data.

The number of opt outs is declining because customers have to pay both an initial and an ongoing monthly fee to remain in that status. The number of opt outs have declined from 28,990 in 2016, to 25,139 in 2017, to 21,321 in 2018. As of December 4, 2018, the number had declined to 19,874. Moreover, as explained by the Applicants, as of April 2018, SoCalGas was successfully collecting a very high percentage (nearly 99%) of its core customers' monthly usage data through its AMI system.<sup>12</sup> Therefore, one year of historical hourly data is already available for nearly 99% of SoCalGas's customers' usage, which it states is the minimum required to incorporate into forecasting. SDG&E has over

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<sup>12</sup> SoCalGas/SDG&E Ex -9 Supplemental Testimony of Chaudhury, Mercer and Borkovich, November 28, 2019 at 1.

three years of historical AMI daily data, which it has been incorporating into the Demand Load Forecasting Model for several years.<sup>13</sup>

We therefore find that SoCalGas's AMI system is sufficiently complete to begin incorporating data into its forecasting.

## **5.2. Incorporating AMI data should begin soon**

Regarding the timing of when SoCalGas should be incorporating AMI data into its Demand Load Forecasting Model, we find that SoCalGas should begin within seven days of the effective date of this decision.

Applicants state that they could begin incorporating the historical data by July 1, 2019. Benefits exist to accomplishing this goal as soon as possible. SCGC and SCE explain that incorporating AMI data will help to improve SoCalGas's retail core forecast and, therefore, this should be done as soon as possible. SCGC further states that the Commission should not wait for "perfection" to start incorporating AMI data. IS contend that now is the appropriate time for incorporating this data.<sup>14</sup> Applicants state that currently, not all customers are captured through the AMI system, for example, as indicated above, opt-out customers and customers that do not have their data transmitted through the AMI system.<sup>15</sup> Applicants explain that additional time is needed to ensure accuracy.

We disagree that additional time is needed. We find that incorporating data should be done immediately so that any improvements can be taken advantage of as soon as possible. Applicants can statistically extrapolate for the very small percentage (<1%) of retail core customers who do not have their gas

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<sup>13</sup> SDG&E & SoCalGas Opening Brief at 5.

<sup>14</sup> IS Opening Brief at 11.

<sup>15</sup> Ex. SoCalGas/SDGE-9 and 6.

usage transmitted through the AMI system. SoCalGas's Gas Acquisition Department (Gas Acquisition) purchases gas on behalf of nearly six million small retail "core" users. We expect the incorporation of this historical AMI data will help to improve the accuracy of Gas Acquisition's forecast. Greater accuracy in core balancing will ease current strains on the SoCalGas system due to pipeline outages and storage limitations.

Therefore, we find that SoCalGas should start incorporating historical AMI data into its Demand Load Forecasting Model soon, within seven days of the effective date of this decision. We find that no additional thresholds need to be met prior to requiring AMI data be incorporated into core forecasting process. The appropriate thresholds have been achieved.

**6. Should SoCalGas and SDG&E be required to balance core gas deliveries to actuals as opposed to a forecast?**

In today's decision, we require Applicants to balance core deliveries to estimated actual consumption instead of a forecast, beginning April 1, 2020. On that date, we require Applicants to begin balancing to estimated actual consumption regardless of whether the AMI Data Aggregation system is completed.

Applicants state that Gas Acquisition should not be required to balance to actual usage for the following reasons: (1) the core does not have access to real-time usage data; (2) there is no factual evidence showing that the current forecasting process causes an increase in frequency of OFOs or is detrimental to system reliability; (3) there is no factual evidence showing that requiring core customers to balance to actual demand would cause a decrease in the frequency

of OFOs or improve system reliability; and (4) costs for core customers would likely increase.<sup>16</sup> We address each of Applicants' arguments below.

### **6.1. Real-Time Data**

We first address Applicants' argument that balancing to estimated actual consumption is not possible because "real-time" data is not available.

Applicant's argument relies largely on the language in D.07-12-019 that found that the core market must balance to a forecast rather than to actual usage because "it is not physically possible to obtain real-time usage information for each core customer."<sup>17</sup> Today, however, circumstances are different than in 2007 when the Commission issued D.07-12-019. Metering infrastructure has changed significantly. In addition, the total system inventory and storage that existed at the time of D.07-12-019 has become much more constrained, which has rendered the underlying reasoning for the 2007 decision stale.

The circumstances that existed when the Commission adopted D.07-12-019 no longer apply because Applicants now have access to their customers' daily data through the AMI systems on the day after the Measurement Day. SCE, SCGC, and IS all point to the current use of AMI enabled meters.<sup>18</sup> SCE explains that the AMI system gives Gas Acquisition access to customer usage data during the Gas Day (or flow day), which allows it to refine its data and more effectively balance its customers' supply to expected usage.<sup>19</sup> Applicants counter that the AMI system was designed to support billing and not designed to provide

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<sup>16</sup> SDG&E and SoCalGas Opening Brief at 23.

<sup>17</sup> D.07-12-019 at 57.

<sup>18</sup> SCE Opening Brief at 10, SCGC Reply Brief at 25, IS Opening Brief at 12.

<sup>19</sup> SCE Opening Brief at 10.

real-time data for balancing.<sup>20</sup> However, as pointed out by SCE and others, real-time data is not needed<sup>21</sup> and is seldom available to other shippers on the system, which are able to balance more closely to their estimated actual consumption than has Gas Acquisition, the largest shipper on the system.<sup>22</sup>

We agree that the circumstances have changed due to the availability of AMI data, which provides significantly more data than was available in the past. Sufficient information exists now for Applicants to balance to estimated actual consumption.

Likewise, the rationale in D.07-12-019 no longer applies because total system inventory has changed dramatically with the limitations on use of Aliso Canyon, by far the largest storage facility in the SoCalGas system. SCE points out that D.07-12-019 assumed total system inventory capacity of about 131 Billion cubic feet (Bcf), and on that basis concluded a delivery imbalance at an expected level of about 2 Bcf could be managed. Due to the partial or potentially total unavailability of Aliso Canyon and numerous pipeline outages, the entire system is much more constrained.

Therefore, due to this change in system inventory together with the development of AMI systems, we find D.07-12-019 was decided within a different set of circumstances and does not stand in the way of requiring balancing to actuals.

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<sup>20</sup> SDG&E & SoCalGas Opening Brief at 24.

<sup>21</sup> SCE Opening Brief at 11.

<sup>22</sup> SCE Opening Brief at 11

## 6.2. OFOs and Reliability

Next, we address the Applicants' argument that balancing to estimated actuals is not necessary because current procedures do not increase or decrease OFOs or adversely impact system reliability.

We find that evidence exists that current procedures do adversely impact system reliability and increase OFOs. SCGC presented evidence showing how permitting Gas Acquisition to balance its Gas Day<sup>23</sup> scheduled deliveries to a forecast of Measurement Day<sup>24</sup> usage can impact system reliability, particularly on winter high flow days when the SoCalGas System Operator declares a low OFO, meaning there is not enough gas flowing to meet demand.<sup>25</sup>

Likewise, SCE explains that Gas Acquisition's imbalances due to their erroneous forecasts contribute to the need to call OFOs and suggests that Applicants concede this point in testimony.<sup>26</sup> SCE states that the determination of when to call an OFO is based on the physical capabilities of the system and the behavior of all customers, which necessarily includes the largest customer on the gas system on winter days, which is Gas Acquisition.<sup>27</sup>

EDF points to the improved overall accuracy and efficiency of the gas scheduling and balancing process, which will result with the use of estimated actuals and asserts this will minimize the need for gas storage, unnecessary gas deliveries and inaccurate price formation that undermine alternatives to gas.<sup>28</sup>

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<sup>24</sup> The Measurement Day is the day before Gas Day (or flow day), when AMI data is being collected and transmitted.

<sup>25</sup> SCGC Reply Brief at 26.

<sup>26</sup> SCE Reply Brief at 8.

<sup>27</sup> SCE Reply Brief at 8-9

<sup>28</sup> EDF Opening Brief at 2.

On the topic of reliability and OFOs, IS expresses concern that imbalances on the system result in curtailing deliveries to gas-fired electric generators resulting in severe consequences for the California Independent System Operator-controlled grid.<sup>29</sup> IS explain that addressing imbalances will minimize unnecessary OFOs and related penalties for noncore customers.<sup>30</sup> IS argues that OFOs could be avoided or minimized if core customers are required to balance to actual consumption because forecasts are inherently unreliable and because SoCalGas's forecasting has shown material inaccuracy.<sup>31</sup> SCE, SCGC, and EDF present similar arguments.<sup>32</sup>

As such, contrary to Applicants' assertions, we find that evidence exists that requiring core to balance to estimated actual consumption may enhance reliability and decrease the need to call OFOs. Balancing to estimated actual consumption may increase the overall accuracy and efficiency of the gas scheduling and balancing process.

### **6.3. Costs**

Lastly, Applicants argue that "costs for consumers will likely increase" if required to balance to actual usage. Parties, on the other hand, present arguments regarding cost increases to electricity consumers as a result of Gas Acquisition's current balancing behavior.

SCE testifies that Gas Acquisition's balancing to a forecast rather than to estimated actual consumption on OFO days unnecessarily drives up costs for electric customers. Since electric generation is the first to be curtailed, electric

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<sup>29</sup> IS Opening Brief at 2.

<sup>30</sup> IS Opening Brief at 2.

<sup>31</sup> IS Opening Brief at 6.

<sup>32</sup> EDF Opening Brief at 4; SCGC Opening Brief at 22-25; SCE Opening Brief at 11-13.

generators' customers are not protected against outages as are core gas customers. SCE also quotes the Aliso Canyon Action Plan, which states: "SoCalGas is responsible for doing nothing to reduce a core customer imbalance that could be large enough to put the system in stress."<sup>33</sup>

SCGC adds that Gas Acquisition could mitigate costs to the core by the following: 1) on low OFO days, nominating deliveries of an incremental volume of gas to protect against the possibility of not meeting a low OFO tolerance; 2) obtaining updated usage forecasts from the SoCalGas Demand Forecasting Group, particularly during the winter to reflect updated weather information; 3) incorporating updated daily usage information delivered from the AMI system; and 4) trading scheduled quantities that create imbalances on low OFO days with other customers.<sup>34</sup> These processes would assist in mitigating costs to core customers. Similarly, SCE explains that imbalance trading, buying or selling gas to customers or other suppliers or customers outside of their system, and use of available storage could mitigate any increased costs for Applicants' customers.<sup>35</sup>

We find that while evidence exists that costs to core may increase, there is evidence that such costs can be mitigated through imbalance trading and other processes, and offset by savings to other customers, such as core electric customers. Nonetheless, the cost impact to core customers remains an important consideration. We will monitor the situation to ensure that core customers are not significantly impacted. Applicants shall biannually submit an information

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<sup>33</sup> Aliso Canyon Gas and Electric Reliability Winter Action Plan, Prepared by the Staff of the California PUC, the CEC, the CAISO and the LADWP, August 22, 2016 at 21, 25.

<sup>34</sup> Ex. SCGC/IS-1 at 45-46.

<sup>35</sup> Ex. SCE-1 at 21.

only advice letter that reports any cost impacts to core customers as a result of balancing to actual usage, including number of OFO days and Gas Acquisition mitigation measures taken; the first report is due no later than December 31, 2019.

In short, we disagree with Applicants' arguments for disputing the need for Gas Acquisition to balance to actuals. Rather, we find that balancing to estimated actuals will likely increase forecasting accuracy, reduce OFOs and ease reliability concerns. Applicants request that if we approve proposals to require Gas Acquisition to balance to actual estimated consumption using AMI data, which we do herein, that we do so in a measured approach.<sup>36</sup> Beginning April 1, 2020, we require Applicants to begin balancing to estimated actual consumption year-round.

If the AIM Data Aggregation System is not complete by April 1, 2020, Applicants shall use the following formula to balance to estimated actual consumption: "The retail core estimated actual demand for SoCalGas is the physical residual after subtracting noncore and core transport agents physical gas demand from the measured daily total system gas sendout."<sup>37</sup> Immediately upon the completion of the AMI Data Aggregation System, Applicants shall balance to estimated actual consumption using the historical and daily/hourly data available through use of the AMI Data Aggregation System as detailed below.<sup>38</sup>

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<sup>36</sup> SoCalGas & SDG&E Reply Brief at 12.

<sup>37</sup> Letter from Joseph Mock to Franz Cheng, SoCalGas and SDG&E Monthly Core Forecasting Report, March 2017, April 28, 2017, quoted in Ex. SCE-1 at 7.

<sup>38</sup> Cycle 6 issues are not addressed in this decision and no changes are made to Cycle 6.

**7. Is SoCal Gas and SDG&E's cost estimate for enabling AMI to provide near-real-time hourly data reasonable?**

We find that enabling AMI to provide near-real-time hourly data is unnecessary for Applicants to balance to estimated actual consumption.

Applicants propose to spend approximately \$750 million to redesign and replace the existing SoCalGas AMI system to obtain hour-lag data.<sup>39</sup>

In SCGC's opinion, utilizing the data produced by existing AMI systems by expanding Applicants' programming and data analytics capabilities is sufficient and should cost only an additional \$1.25 million.<sup>40</sup> IS and SCE state that Gas Acquisition has the tools to balance to estimated actual consumption now and that real-time data is not needed.<sup>41</sup> EDF also finds that the issue is not the reasonableness of the cost; it is that it is not necessary to have all the meters provide near-real-time data in order for Gas Acquisition to balance scheduled gas to actual consumption. However, EDF provides an estimate of less than \$300,000 to perform the design, programming and testing of the necessary system architecture.<sup>42</sup>

For the reasons discussed above, we find that enabling AMI to provide near-real-time hourly data is not necessary to improve Gas Acquisition's forecast. The information that Applicants currently have access to through the AMI system is sufficient to permit balancing to estimated actual consumption. We therefore do not need to address the issue of cost reasonableness for building a real-time system.

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<sup>39</sup> "Hour-lag" data is data taken at the top of each hour which is made available to balancing agents at the top of the following hour. Ex. SDGE/SoCalGas-3 at 6-9.

<sup>40</sup> SCGC Reply Brief at 37.

<sup>41</sup> IS Opening Brief at 18; SCE Reply Brief at 4.

<sup>42</sup> Ex. EDF-2 at 17.

## **8. What alternatives to SoCalGas and SDG&E's proposal are available?**

Applicants propose an alternative, a new data system, the AMI Data Aggregation System.<sup>43</sup> This new system would aggregate daily core AMI usage data by each utility's retail core customers and by core balancing agents and enable it to be posted on SoCalGas's Electronic Bulletin Board, known as Envoy.<sup>44</sup>

This system would collect and update usage data throughout the Measurement Day and deliver it to Envoy for posting by 3:00 p.m. the next day. This is the earliest time SoCalGas & SDG&E expect to be able to reliably produce usage data by core balancing agents given the time when AMI data is available for processing.<sup>45</sup>

Regarding costs and timing, Applicants state that vendor bids are not attainable because much of the work would be done in-house. However, SoCalGas and SDG&E preliminarily estimate that such an AMI Data Aggregation System would cost up to \$7 million<sup>46</sup> and would take up to 18 months to complete. In comments on the Proposed Decision<sup>47</sup>, the Applicants stated that the Scheduled Quantity imbalance trading automation buildout

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<sup>43</sup> Ex. SDG&E/SoCalGas -9 at 10.

<sup>44</sup> Ex. SDG&E/SoCalGas - 9 at 10.

<sup>45</sup> SoCalGas and SDG&E's Measurement Days are different. SoCalGas's Measurement Day is 12:00 a.m. (00:00 hours) to 12:00 a.m. SDG&E's is 10:00 p.m. (or 22:00 hours) to 10:00 p.m. Hence, the testimony proposes that for the AMI Data Aggregation System, the usage data for each SoCalGas Measurement Day would be based on core AMI usage data as of 00:00 hours (12:00 a.m.) while usage for SDG&E would be based on core data recorded as of 22:00 hours, or 10:00 p.m. of the Measurement Day

<sup>46</sup> Ex. SDG&E/SoCalGas -9 at 11. The \$7 million does not include necessary changes and modifications to other SoCalGas & SDG&E systems that may be required.

<sup>47</sup> SDG&E/SoCalGas Opening Comments on Proposed Decision at 6.

would be a separate system from the AMI Data Aggregation System and would cost approximately \$1.7 Million and take approximately 13 months to complete. In the event the Commission orders incremental expenditures to undertake this work, Applicants recommend that a regulatory mechanism should be created for recording and recovering reasonably incurred incremental costs.<sup>48</sup>

SCGC and IS support the Applicants' proposal, stating that they may need to expand their IT systems. EDF similarly supports the Applicants' proposal.<sup>49</sup> EDF also supports automating gas imbalance trading, asserting that it will bring greater reliability and customer service to the SoCalGas system. EDF explains that automation could enable both monthly and daily as well as within-day imbalance trading. EDF also states that automation could, by reducing system imbalances, result in lessening the demand for Aliso Canyon since existing resources would likely be scheduled more quickly and posted on Envoy with less lag time.

SCGC and IS agree that the proposed AMI Data Aggregation System is a worthwhile endeavor but that some degree of cost uncertainty in this endeavor is understandable. The costs for the AMI Aggregation System were not included in the Applicant's Test Year 2019. SCGC, EDF and IS recommend that a Memorandum Account be established in which Applicants record incremental costs for consideration in the next General Rate Case (GRC) following completion of the AMI Data Aggregation System for placement into rates thereafter, if found reasonable by the Commission. SCGC and IS recommend a cap of \$7 million on the maximum amount the Applicants can recover.<sup>50</sup>

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<sup>48</sup> Ex. SDG&E/SoCalGas -9 at 11.

<sup>49</sup> EDF Opening Brief at 7.

<sup>50</sup> SCGC Opening Brief at 32.

We find that the AMI Aggregation System as proposed by Applicants is a reasonable approach to resolving how to incorporate AMI data into the forecast. Currently, AMI data is uploaded every 15 minutes to the Head End from the Data Collection Units and sent to the Meter Data Management System, which then interfaces with billing and customer services systems for monthly billing and consumer informational purposes. The new system should interface with the forecasting process in a similar manner, incorporating the same 15-minute data streams of day-before load variations by 3:00 p.m. on the day following a Gas Day. To build the new AMI Data Aggregation System is mostly a programming exercise, and SCGC points out that it is less complex than the programming required for the Integrated Customer Data Analytics project that SoCalGas has recently completed.

Applicants propose that the AMI Data Aggregation System would “aggregate daily core AMI usage data by core balancing agent and enable the posting of that information on SoCalGas’s Electronic Bulletin Board, Envoy. At a high level, for each Measurement Day the AMI Data Aggregation system would:

1. Continuously collect and update SoCalGas AMI usage data throughout the day and as the data become available;
2. Once or twice daily, collect and update SDG&E AMI usage data as data is available through SDG&E’s normal Meter Data Management System load processes; and
3. Aggregate all customer usage data by core balancing agent (with forecasts for Lost & Unaccounted Fuel, Company Fuel Use, and non-AMI usage data) to Envoy for posting by 3:00 p.m. on the next day. AMI usage data for each SoCalGas Measurement Day (12:00 a.m. to 12:00 a.m.) would be based on core AMI usage data recorded as of 12:00 a.m. PST of the Measurement Day, while AMI usage data for each SDG&E Measurement Day (10:00 p.m. to 10:00 p.m.) would be based

on core AMI usage data recorded as of 10:00 p.m. of the Measurement Day.”<sup>51</sup>

Although both SCGC/IS and EDF had lower estimates of the cost of the work required, none of the parties found the \$7 million cost estimate provided by Applicants to be unreasonable. Therefore, we find that a cost estimate of \$7 million on this effort is reasonable.

In addition to the above functionalities and others necessary for incorporating AMI data into forecasting, as noted above EDF and others have testified on the need for automation of gas imbalance trading, which is currently done manually with emails, faxes and phone calls.<sup>52</sup> We agree. We find that the AMI Data Aggregation System should include automation of daily gas imbalance trading, or Scheduled Quantity trading, which is the trading of scheduled quantities between balancing agents by 9:00 p.m. on the first business day following the Gas Day for which an OFO is declared. Automated Scheduled Quantity trading will bring greater reliability and expedite the transactions necessary for the smooth functioning of the SoCalGas system. Quicker resolution of imbalances puts less strain on the operational aspects of the entire system.<sup>53</sup>

In reply comments on the Proposed Decision, no parties contested the cost estimate of \$1.7 Million for the Automated Scheduled Quantity Trading System with a 13-month implementation schedule as being unreasonable. Therefore, we find that the cost estimate of \$1.7 Million for the Automated Scheduled Quantity Trading System with a 13-month implementation schedule is reasonable.

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<sup>51</sup> Ex SDG&E/SoCalGas -9 at 10.

<sup>52</sup> Ex SDG&E/SoCalGas -9.

<sup>53</sup> Ex. EDF-2 at 23.

We find that a Memorandum Account should be established through an Advice Letter in which Applicants record costs for consideration in the next GRC following completion of the AMI Data Aggregation System, including the Scheduled Quantity imbalance trading automation buildout.

Further, we find that the AMI Data Aggregation System shall be built and transmitting data streams for scheduling and balancing purposes by April 1, 2020, the start of the summer season, when it will have maximum value for the reliability of the system. To ensure that this deadline is adhered to, Applicants are directed to submit an Advice Letter to Energy Division with a timetable, roadmap and plan for accomplishing this goal within 30 days of the effective date of this decision.

We do not provide detailed specifications at this time for SoCalGas to follow in its design of the AMI Aggregation System because we believe the company is more than capable of designing it to achieve the purpose for which it is intended, and time is of the essence.

**9. Does SoCalGas and SDG&E's AMI meet the expectations to provide near real-time data as articulated by the Commission in D.10-04-027?**

We find that SoCalGas and SDG&E's AMI system does not provide near real-time data as articulated by the Commission in D.10-04-027 but that it does not need to in order to utilize AMI data to better balance Gas Acquisition's deliveries to the actual consumption of its retail core customers. While the Commission did not define "real-time" data in D.10-04-027, it did articulate a broad vision for the AMI system, as follows:

"The proposal also provides a system-wide technology platform with the ability to expand operating benefits as new applications emerge. We hope and expect that this AMI system will yield further, unforeseen benefits in the future,

improving customer service, allowing utilities to operate more safely and efficiently, and reducing utility operating costs.”<sup>54</sup>

Relying on data from the AMI system to improve balancing is consistent with the broad vision in D.10-04-027 that the AMI system results in new applications and unforeseen benefits. The Applicants explain that using the AMI data collection system together with the AMI Data Aggregation System would “be a high reliability system capable of performing the aggregation tasks necessary to support the requirements to allow core balancing agents to balance to AMI usage data.”<sup>55</sup> This carries forth the Commission’s goals for the AMI system to a new application and operating benefit as originally envisioned.

Therefore, while real-time data is not available, it is not needed to better balance deliveries to actual consumption of the retail core and achieve the goals set for the AMI system in D.10-04-027.

#### **10. Extension of Cycle 6 in Rule 30**

Applicants request that if they are ordered to schedule and balance to estimated actual consumption, as we do herein, that SoCalGas Rule 30 be amended to extend Intraday Cycle 4, which is also known as Cycle 6, from 9:00 p.m. on the Gas Day to 9:00 p.m. on the day following the Gas Day. They argue that this change will give Gas Acquisition time to respond to the AMI data that will be made available by the proposed Data Aggregation System at 3:00 p.m. on the day following the gas day. SCGC supported this proposal with the proviso that if this change to Cycle 6 is allowed, that the deadline for imbalance trading should also be extended to 9:00 p.m. on the business day following the close of Cycle 6.

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<sup>54</sup> D.10-04-027 at 40.

<sup>55</sup> SDG&E/SoCalGas Ex-9 at 11.

We deny without prejudice the proposal to extend Cycle 6. We find that we do not have sufficient record in this proceeding to determine whether extension of Cycle 6 diminishes the effectiveness of the changes we adopt in requiring core to balance to actuals. Also, issues regarding imbalance trading are being addressed in another proceeding, the Triennial Cost Allocation Proceeding (A.18-07-024).

#### **11. Comments on Proposed Decision**

The proposed decision of ALJ Brian R. Stevens in this matter was mailed to the parties in accordance with Section 311 of the Public Utilities Code and comments were allowed under Rule 14.3 of the Commission's Rules of Practice and Procedure. Comments were filed on June 27, 2019 by IS, EDF, SCE, SCGC, and the Applicants.

Reply comments were filed on June 1, 2019 by SCE and on June 2, 2019 by the Alliance for Retail Energy Markets, EDF, and the Applicants.

In response to comments, the cost cap for the buildout of the AMI Data Aggregation system of \$7 million has been removed and replaced with an estimated cost of \$7 million. Additionally, we adopted the cost estimate of \$1.7 million for the Scheduled Quantity imbalance trading automation buildout. We expect that the system will generally conform to, or be less than, the estimates of approximately \$8.7 million SoCalGas has given in its testimony and comments for the two systems. The reasonableness review for these expenditures will occur in the Applicants' next GRC.

Further in response to comments, we find merit in SoCalGas' position that the Proposed Decision's requirement that Gas Acquisition begin balancing to estimated actuals immediately may affect system reliability this winter. SoCalGas states that "[i]f Gas Acquisition decreases its target deliveries during

injection season to mitigate potential noncompliance charges from the uncertainty inherent to estimated actual consumption, this would result in lower storage injections. Such an outcome would be inapposite to Gas Acquisition's injection targets to maintain core winter reliability."<sup>56</sup>

The circumstances surrounding the SoCalGas system have changed significantly as this proceeding has unfolded. The return-to-service date for Line 235-2, a major conduit feeding gas to the greater Los Angeles and Coastal zones, has been repeatedly delayed due to the discovery of new leaks on the pipeline. As of July 22, 2019, ENVOY is reporting three new leaks on Line 235-2 discovered since July 15, 2019. Since March 23, 2019, 13 leaks have been found on this line, which is nearly 70 years old. Such leaks are of high concern to this Commission and require careful repair, oversight and management as they are in difficult, remote, desert access locations. These pipeline constraints, combined with limited storage injection capacity, have caused the non-Aliso gas storage fields to fill very slowly. If Gas Acquisition is required to balance to estimated actuals this summer, that may provide an incentive for the company to avoid high OFO penalties by bringing in less gas than it would have under the current forecasting process. This could lead to reliability problems such as curtailments and market disruptions this coming winter.

Therefore, we have decided to modify the Proposed Decision to postpone our requirement that the company begin balancing to estimated actuals until April 1, 2020. We also order the company to begin building the AMI Data Integration and Scheduled Quantity imbalance trading automation buildout, with the goal of having them up and running by April 1, 2019. If they are not

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<sup>56</sup> SDG&E/SoCalGas Opening Comments on Proposed Decision at 4.

functional by that time, the company will still be required to begin balancing to estimated actuals as of April 1, 2020.

## **12. Assignment of Proceeding**

Michael Picker is the assigned Commissioner and Brian R. Stevens is the assigned ALJ in this proceeding.

### **Findings of Fact**

1. Gas Acquisition, a division of SoCalGas which purchases gas for the core customers of SoCalGas and SDG&E, currently balances to forecasts rather than actual usage.

2. SDG&E's core load forecasts have, since December 1, 2016, been informed by and modified to incorporate historical AMI data.

3. On October 23, 2015, a major leak in a gas well was discovered at SoCalGas's largest storage facility, the Aliso Canyon Storage Facility.

4. The leak in the gas well at the Aliso Canyon Storage Facility and its impact have triggered a number of actions both at the Commission and at other state and local agencies to improve safety at the facility and reliability in the SoCalGas service territory.

5. The Aliso Canyon Storage Facility continues to be subject to restrictions, and a separate investigation is underway to determine the long-term feasibility of minimizing or eliminating the use of the facility while still maintaining energy and electric reliability for the Los Angeles region, consistent with maintaining just and reasonable rates.

6. The Commission, the California Energy Commission, the California Independent System Operator, and the Los Angeles Department of Water and Power prepared the Aliso Canyon Gas and Electric Reliability Winter Action Plan that recommends that Applicants "achieve a better match of core customer

gas purchases and actual core gas demand” and noted that Commission “action will be required to put this measure in place.”

7. As of December 4, 2018, there were 5,965,988 customers with Meter Transmission Units installed on their meters, with only 3,126 still awaiting installation.

8. A very small group of customers are still awaiting the Data Collection Units to be installed near their premises, which collect and transmit customer data back to the Head End system. Since there are multiple Data Collection Unit pathways through which each Meter Transmission Unit can deliver its data, this is not an issue for collection of the vast majority of the data.

9. One year of historical hourly data is already available for nearly 99% of SoCalGas’s customers’ usage, which it states is the minimum required to incorporate into forecasting. SDG&E has over three years of historical AMI daily data, which it has been incorporating into the Demand Load Forecasting Model for several years.

10. No additional thresholds need to be met prior to requiring historical AMI data be incorporated into Gas Acquisition’s core forecasting process.

11. Real-time data is not needed for Gas Acquisition to schedule and balance to estimated actual consumption and is seldom available to other shippers on the system.

12. Total system storage inventory has changed dramatically since the adoption of D.07-12-019 with the limitations on use of Aliso Canyon, by far the largest storage facility in the SoCalGas system, and other system constraints.

13. Requiring Gas Acquisition to schedule and balance to estimated actual consumption may enhance reliability and decrease the need to call OFOs.

14. Balancing to estimated actual consumption may increase the overall accuracy and efficiency of Gas Acquisition's scheduling and balancing process.

15. We find that while evidence exists that requiring core to balance to estimated actuals may increase costs for core gas customers, there is evidence that such costs can be mitigated through imbalance trading and other processes, and offset by savings to other customers, such as core electric customers.

16. A new data system, the AMI Data Aggregation System, including a Scheduled Quantity imbalance trading automation buildout, could aggregate daily core AMI usage data by each utility's retail core customers and by core balancing agents by 3:00 p.m. on the day following the Gas Day and enable it to be posted on SoCalGas's Electronic Bulletin Board, known as Envoy.

17. A preliminary cost estimate of \$8.7 million for the buildout of the AMI Data Aggregation System, including the Automated Scheduled Quantity Trading System, is reasonable.

18. Automation of Scheduled Quantity trading for ENVOY shall occur at the same time as building and implementing the AMI Data Aggregation System.

19. Quicker resolution of imbalances puts less strain on the operational aspects of the Applicants' systems.

### **Conclusions of Law**

1. Because the buildout of the SoCalGas's AMI is virtually complete and sufficient to build valid statistical models, incorporating historical AMI data into SoCalGas's forecast should be done as soon as possible.

2. SoCalGas should begin incorporating historical AMI data into its Demand Load Forecasting Model within seven days of the effective date of this decision.

3. We should require Applicants to balance core deliveries to estimated actual consumption instead of a forecast beginning April 1, 2020.

4. If the AMI Data Aggregation System is not completed by April 1, 2020, Applicants should use the following formula to balance to estimated actual consumption: “The retail core estimated actual demand for SoCalGas is the physical residual after subtracting noncore and core transport agents physical gas demand from the measured daily total system gas sendout.” Immediately upon completion of the AMI Data Aggregation System, Applicants should balance to estimated actual consumption using the historical and daily/hourly data available through use of the AMI Data Aggregation System.

5. Applicants should biannually submit an information-only advice letter that reports any cost impacts to core customers as a result of balancing to estimated actual usage, including number of OFO days and Gas Acquisition mitigation measures taken; the first report should be due no later than December 31, 2019.

6. The information that Applicants currently have access to through the AMI system is sufficient to permit balancing to estimated actual consumption. We therefore should not address the issue of cost reasonableness for building a real-time system.

7. We find that the AMI Aggregation System as proposed by Applicants should be considered a reasonable approach to resolving how to incorporate AMI data, and Applicants should proceed with the buildout.

8. Automation of Scheduled Quantity trading for ENVOY should occur at the same time as building and implementing the AMI Data Aggregation System.

9. A preliminary cost estimate of \$8.7 million for the AMI Data Aggregation System including costs for the Scheduled Quantity imbalance trading automation buildout for ENVOY is reasonable and should be established.

10. A Memorandum Account should be established through an Advice Letter in which Applicants record costs for consideration in the next GRC following completion of the AMI Data Aggregation System and automation of Scheduled Quantity trading.

11. The AMI Data Aggregation System should be built and transmitting data streams by April 1, 2020, the start of the summer season, when it will have maximum value for the reliability of the system. To ensure that this deadline is adhered to, Applicants should be directed to submit an Advice Letter to Energy Division with a timetable, roadmap and plan for accomplishing this goal within 30 days of the effective date of this decision.

12. We should deny without prejudice the proposal to extend Cycle 6 and should find that we do not have sufficient record in this proceeding to determine the merits of the matter.

13. A.17-10-002 should be closed.

## **ORDER**

**IT IS ORDERED** that:

1. Southern California Gas Company shall begin incorporating historical Advanced Metering Infrastructure data into its Demand Load Forecasting Model within seven days of the effective date of this decision.

2. Applicants must balance core deliveries to estimated actual consumption instead of a forecast, beginning April 1, 2020.

3. If the Advanced Metering Infrastructure Data Aggregation System is not completed by April 1, 2020, Applicants shall use the following formula to balance to actual consumption: "The retail core estimated actual demand for Southern California Gas Company is the physical residual after subtracting noncore and core transport agents physical gas demand from the measured daily total system

gas sendout.” Immediately upon completion of the Advanced Metering Infrastructure Data Aggregation System, Applicants shall balance to estimated actual consumption using the historical and daily/hourly data available through use of the Advanced Metering Infrastructure Data Aggregation System.

4. Applicants shall biannually submit an information only advice letter that reports any cost impacts to core customers as a result of balancing to actual usage, including number of operational flow order days and Gas Acquisition mitigation measures taken; the first report is due no later than December 31, 2019.

5. Applicants shall proceed with the buildout of the Advanced Metering Infrastructure (AMI) Data Aggregation System to incorporate AMI data into Gas Acquisition’s scheduling and balancing process and the buildout of Scheduled Quantity trading system to automate scheduled trading immediately.

6. Automation of Scheduled Quantity trading for ENVOY shall occur at the same time as building and implementing the Advanced Metering Infrastructure Data Aggregation System.

7. A preliminary cost estimate of \$8.7 million for the Advanced Metering Infrastructure Data Aggregation System including costs for the Scheduled Quantity imbalance trading automation buildout for ENVOY is established.

8. Applicants shall file a Tier 1 Advice Letter to establish a Memorandum Account in which Applicants may record costs of the Advanced Metering Infrastructure Data Aggregation System, automation of Scheduled Quantity trading for ENVOY, and other costs associated with requiring Gas Acquisition to balance to estimated actual consumption, for consideration in the next General Rate Case.

9. Applicants shall make all reasonable efforts to ensure the Advanced Metering Infrastructure Data Aggregation System is built and transmitting data streams for scheduling and balancing purposes by April 1, 2020, the start of the summer season, when it will have maximum value for the reliability of the system. In support of this deadline, Applicants are directed to file, within 30 days of the effective date of this decision, a Tier 1 Advice Letter to Energy Division with a timetable, roadmap and plan for accomplishing this goal.

10. Application 17-10-002 is closed.

This order is effective today.

Dated August 1, 2019, at San Francisco, California.

MICHAEL PICKER

President

LIANE M. RANDOLPH

MARTHA GUZMAN ACEVES

CLIFFORD RECHTSCHAFFEN

GENEVIEVE SHIROMA

Commissioners