

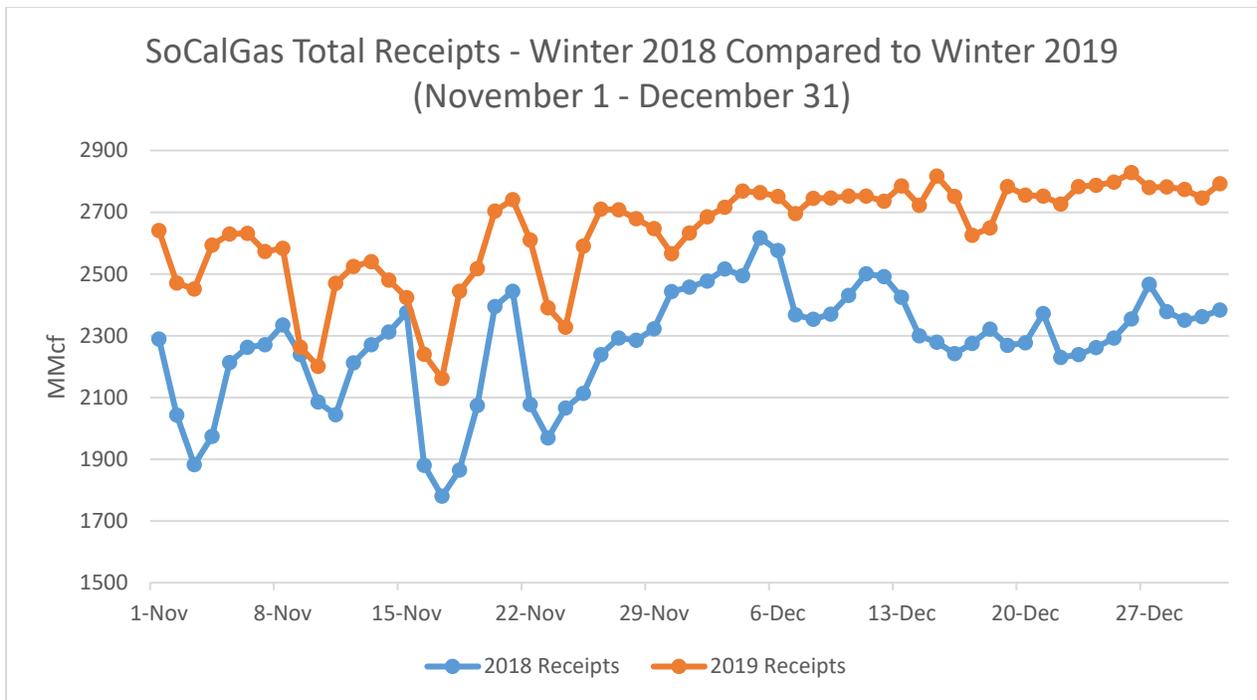
CPUC Staff Responses to Questions Received on 12/19/2019

This is a list of questions received by CPUC staff on December 19, 2019. Staff has provided responses below. These questions were not asked within the purview of any official CPUC proceeding. Staff is posting these response now so that all parties have access to the same information.

Question 1: Now that L235-2 and 4000 are supposed to be back in service at “reduced pressure,” the receipt capacity seems to remains stuck at 2.7 or 2.8 Bcfd, why?

Response: In the interest of providing the greatest clarity on this issue, staff undertook a review and analysis of available data and provide a more lengthy and robust response than might otherwise be expected. Staff is available to talk through these responses, if necessary, as we recognize the technical nature of the topics you raise.

To determine receipt point capacity since the return of Lines 235 and 4000, staff compared receipts from November through December 2019 to November through December 2018. Staff determined that receipts have increased by an average of 359 million cubic feet a day (MMcfd). The graph below uses Envoy data to depict this increase.



Analysis of total system capacity in the time between rupture of Line 235-2 and the return of Lines 235-2 and 4000 at reduced pressure shows that overall capacity has varied from 2.2 Bcf to 2.7 Bcf from April 2018 to December 2019 due to a combination of the return of these lines, interruptible capacity at Kramer Junction, and activity on the Southern Zone.

To understand the changes in total receipt point capacity and changes to the Northern Zone, it is worth looking at operational changes before the rupture, after the rupture, and after the

incremental returns of Lines 235-2 and 4000. It is also important to note that the total system capacity can be impacted by operational changes in any of the three major zones within the system (Northern Zone, Southern Zone, and Wheeler Ridge Zone).¹ Thus, even though Northern Zone capacity increased in October 2019 with the return of Lines 235-2 and 4000 at reduced pressure, Southern Zone capacity has often been lower than its nominal maximum due to losses in pipeline capacity caused by a pipeline safety-related pressure reduction on Line 2000, the loss of a right-of-way for Line 2000 across Morongo Reservation lands, and changes in demand within that zone.

Since there is no storage on the Southern System and only a limited amount of gas can be sent west toward Los Angeles from the Southern System, the SoCalGas System Operator cannot accept much more gas than is burned regionally and still stay below the maximum allowable pipeline pressure. Thus, on days with low demand in the Southern Zone, the capacity made available to shippers is set based on forecast demand. The reductions in demand on the Southern System are primarily due to declines in gas-fired electric generation.²

Before the Rupture

On January 1, 2016, a date prior to the rupture of Line 235-2, total receipt capacity on the SoCalGas system was 3.6 Bcf, with 1.2 Bcf available on the Southern System, 0.8 Bcf at Wheeler, and 1.6 Bcf on the Northern Zone. Within the Northern Zone, the available capacity at the Needles/Topock combined area zone was 1,331 MMcfd while the available capacity at Kramer Junction was 550 MMcfd. It's important to note that the available capacity for the Northern Zone as a whole is less than the sum of the amount of gas that can be accepted at each individual receipt point due to various chokepoints within the zone. Customers are able to choose to bring in gas at different receipt points, which service different natural gas basins with different gas commodity costs, based on what is most economical for them. Staff has learned that SoCalGas does not always update the Northern Zone total in Envoy to reflect all the chokepoints within the subzones, because the main focus of Envoy is to provide customers with the receipt point information needed to schedule their gas. This can cause confusion when spreadsheets are downloaded from Envoy after the fact, because the true Northern Zone capacity on a given day may be reflected in one of the subareas rather than what is listed as the Northern Zone total.³

Post-Rupture: Outages on Lines 235-2, 4000, and 3000

After Line 235-2 ruptured on October 1, 2017, SoCalGas removed nearby Line 4000 from service for inspection because the rupture of Line 235-2 burned the outside of an excavated section of Line 4000. Furthermore, Line 3000 was also already out of service for remediation

¹ For the purposes of this analysis, we do not consider California Production as it is a relatively minor factor due to declining California oil and gas production.

² We inquired with the CAISO about why electric generation demand in the Southern System has declined, and they thought it was likely due to: 1) the closure of the 965 MW once-through cooling plant at Encina in December 2018 and its replacement with the 530 MW Carlsbad generator, which is both more efficient and has a lower MW capability; 2) an increase in electric transmission necessitated by the closure of the Encina plant, which increases import capabilities and decreases reliance on local gas-fired generation; and 3) the continuing increase in rooftop solar that dampens electric generation demand during the daylight hours.

³ Please see appendix for more information.

purposes. On October 31, 2017, a date when Line 235-2, 4000, and 3000 were all out of service, total receipt capacity on the system was 2.7 Bcf. The Southern Zone was operating at its nominal maximum zonal capacity of 1.2 Bcf and Wheeler Ridge was operating at 0.8 Bcf. The Northern Zone was operating at approximately 0.7 Bcf solely due to the capacity of Kramer Junction. The available capacity at the Needles/Topock combined area zone was zero. Firm capacity at Kramer Junction was 550 MMcfd on this date. However, with Line 235-2 and 4000 both out, up to an additional 150 MMcfd of interruptible capacity was available at Kramer Junction, bringing the total capacity to 700 MMcfd.⁴

Post-Rupture: Outages on Lines 235-2 and Line 3000

On January 1, 2018, a date when Line 235-2 and Line 3000 were still out of service, the total receipt capacity on the SoCalGas system was 2.9 Bcf, with approximately 1.2 Bcf available on the Southern System, 0.8 Bcf available at Wheeler Ridge, and 0.9 Bcf available on the Northern Zone. Up to 266 MMcfd was available at the Needles/Topock area zone and up to 704 MMcfd could be scheduled through Kramer Junction, depending on how much was scheduled to come through the Needles/Topock area zone.

Post-Rupture: Outage on Lines 235-2 and Return of Line 3000

On September 28, 2018, a date when Line 235-2 was still out of service, but after Line 3000 was returned to service at reduced pressure, the total receipt capacity on the SoCalGas system was 2.3 Bcf with approximately 0.7 Bcf available on the Southern System, 0.7 Bcf at Wheeler Ridge, and 0.9 Bcf on the Northern System. Even though Line 3000 returned to service at reduced pressure, there was no increase in the maximum capacity available at the Needles/Topock area zone due to the downstream bottleneck caused by the Line 235-2 outage. Thus, 266 MMcfd was available at the Needles/Topock area zone and up to 700 MMcfd could be scheduled through Kramer Junction, depending on how much was scheduled to come through the Needles/Topock area zone. The significant decrease in available capacity on the Southern System, which was first posted to Envoy on Cycle 4 on March 10, 2018, was a solution to reconcile the amount of Backbone Transportation Service (BTS) capacity that had been sold to the market with the amount of actual demand on the Southern System.⁵ In other words, the Southern Zone capacity posted to Envoy had to be reduced in order to manage the potentially large amount of gas that would come into the Southern Zone to make up for customers' reduced ability to schedule in the Northern Zone.

Post-Rupture: Line 235-2 Still Out, Line 4000 Out for In-Line Inspection Validation Digs

On September 19, 2019, after Line 4000 was taken out of service for validation digs, total system capacity was 2.4 Bcf. There was 0.9 Bcf available on the Southern System, 0.8 Bcf at

⁴ When all three lines within the Needles/Topock area zone are in service (Lines 235-2, 4000, and 3000), then the maximum operational capacity at Kramer Junction is limited to 550 MMcfd due to a bottleneck.

⁵ Prior to the rupture of Line 235-2, much of the firm Backbone Transportation Service (BTS) capacity for the Southern System remained unsold. Customers historically avoided using the Southern Zone because it is more expensive to ship gas there on the interstate pipelines, and SoCalGas has a "postage stamp price" for gas delivered within its system. Thus, shippers get credit toward their burn for gas delivered into the Northern Zone even if their end-use is in the Southern Zone and vice versa. After the rupture, the remaining firm BTS capacity was bought up, and the total of these contracts was greater than actual Southern System demand. In response, the SoCalGas System Operator began reducing the Southern Zone available capacity based on demand as a way of rationing access among those who held firm contracts. This had not been necessary prior to the rupture due to low usage of the Southern Zone.

Wheeler Ridge, and 0.7 Bcf on the Northern Zone. With both Lines 235-2 and 4000 out of service, the Needles/Topock area zone operational capacity dropped to zero. Thus, the Northern Zone was relying solely on the 700 MMcfd available at Kramer Junction for operational capacity. The Southern Zone's available capacity was still lower than the historical nominal capacity but there was an increase of about 150 MMcfd in firm capacity due to the completion of crossover work between pipelines in July 2019. The additional 150 MMcfd can be found in the August 5, 2019, Maintenance Schedule Update on Envoy, which shows a 460 MMcfd reduction in the Southern Zone, while the prior Maintenance Schedule Updates indicated a decrease of 610 MMcfd.

Post-Rupture: Lines 235-2, 4000, and 3000 Operating at Reduced Capacity

The last date reviewed is December 31, 2019, a date after both Lines 235-2 and 4000 returned to service at reduced pressure. On this date, total system capacity was 2.7 Bcf, with 0.9 Bcf available on the Southern Zone, 0.8 Bcf at Wheeler Ridge, and 1 Bcf on the Northern System. With Lines 235-2 and 4000 back in service, the Needles/Topock area zone capacity increased to 442 MMcfd while the operational capacity of Kramer Junction dropped to 557 MMcfd, which is why there was not a stark change in overall Northern Zone receipt capacity.

**Prior to 235-2 Rupture
Available Operating Capacity on 1/1/2016**

Total Northern Zone	1,579 MMcfd
Needles/Topock Combined Zone	1,331 MMcfd
Kramer Junction	555 MMcfd
Total Southern Zone	1,220 MMcfd
Wheeler Ridge Zone	790 MMcfd
Total Receipt Point Capacity	3.6 Bcf

**After 235-2 and Line 4000 taken out of service
Available Operating Capacity on 10/31/17**

Total Northern Zone	696 MMcfd
Needles/Topock Combined Zone	0
Kramer Junction	696 MMcfd
Total Southern Zone	1,212 MMcfd
Wheeler Ridge Zone	797 MMcfd
Total Receipt Point Capacity	2.7 Bcf

**Line 4000 operating at reduced pressure
Available Operating Capacity on 1/1/18**

Total Northern Zone	859 MMcfd
Needles/Topock Combined Zone	266 MMcfd
Kramer Junction	704 MMcfd
Total Southern Zone	1,236 MMcfd
Wheeler Ridge Zone	806 MMcfd
Total Receipt Point Capacity	2.9 Bcf

**Line 3000 back in service + drop in Southern Zone capacity
Available Operating Capacity on 9/28/18**

Total Northern Zone	862 MMcfd
Needles/Topock Combined Zone	266 MMcfd
Kramer Junction	702 MMcfd
Total Southern Zone	602 MMcfd
Wheeler Ridge Zone	699 MMcfd
Total Receipt Point Capacity	2.2 Bcf

**Line 4000 out of service for validation digs
Available Operating Capacity on 9/19/19**

Total Northern Zone	710 MMcfd
Needles/Topock Combined Zone	0
Kramer Junction	710 MMcfd
Total Southern Zone	877 MMcfd
Wheeler Ridge Zone	812 MMcfd
Total Receipt Point Capacity	2.4 Bcf

**Lines 235-2 and 4000 returned to service at reduced pressure
Available Operating Capacity on 12/31/19**

Total Northern Zone	998 MMcfd
Needles/Topock Combined Zone	441 MMcfd
Kramer Junction	557 MMcfd
Total Southern Zone	910 MMcfd
Wheeler Ridge Zone	810 MMcfd
Total Receipt Point Capacity	2.7 Bcf

Data Source: Envoy Available Capacity vs. Scheduled Page Archives

Question 2: Is Aliso Canyon being used for gas banking by noncore customers?

Response: CPUC staff is not entirely clear on what is meant by “gas banking by non-core customers.” Noncore customers have not been able to purchase new direct storage contracts since the Aliso Canyon leak. Both core and noncore customers have access to storage through the balancing function, which is intended to “even out” the gap between supply and demand. Typically, 20 percent of total withdrawal capacity is allocated to the balancing function. Since 20 percent of Aliso’s withdrawal capacity combined with non-Aliso capacity is a larger figure than 20 percent of non-Aliso capacity alone, it is true that noncore customers as a whole have indirectly had more access to storage under the revised Withdrawal Protocol. However, individual customers cannot “bank” on storage to meet their gas burn. Noncore customers are aware that they must deliver enough gas to be within an 8% tolerance band of their actual gas burn by the end of a month. On low Operational Flow Order (OFO) days, they must be within a 5% tolerance band of their actual gas use; otherwise they face noncompliance penalties. The revised Withdrawal Protocol does not change these balancing rules or provide noncore customers individual access to storage.

Question 3: Since the DOGGR finding of July 2017 that the field can be used up to 68.6 Bcf, the CPUC has continued to restrict the volume and use of Aliso. Can you explain why? Was the CPUC waiting for the root-cause-analysis report or for the conclusion of I17-02-002?

Response: SB 380 laid out the path that both DOGGR and the CPUC have been following. It required DOGGR to approve the minimum and maximum allowable pressures for the safe operation of the Aliso facility. In compliance with that requirement, on July 19, 2017, DOGGR found that Aliso Canyon could be safely operated at pressures between a minimum of 1,080 pounds per square inch absolute (psia) and a maximum of 2,926 pounds psia. These pressures translate to inventory that can range from 0 Bcf to 68.6 Bcf.

SB 380 required the CPUC to make both short-term and long-term determinations on whether Aliso inventory is necessary to ensure reliability. In the short-term, it added Section 715 to the Public Utilities Code, which requires the CPUC to determine “the range of working gas necessary in Aliso Canyon to ensure safety and reliability for the region and just and reasonable rates in California.” Thus, the CPUC sets the Aliso maximum inventory at the lowest possible level that will still ensure safety, reliability, and just and reasonable rates under current conditions. In compliance with SB 380, the CPUC has authored several “715 Reports” that set the short-term Aliso maximum inventory, which can be found here: <https://www.cpuc.ca.gov/General.aspx?id=6442457392>. The last 715 Report was issued on July 2, 2018, and the CPUC has the discretion to update the report, if necessary.

For the long-term determination of Aliso inventory, SB 380 required the CPUC to “open a proceeding to determine the feasibility of minimizing or eliminating use of the Aliso Canyon natural gas storage facility... while still maintaining energy and electric reliability for the region...” That proceeding, Order Instituting Investigation 17-02-002, will determine the long-term fate of Aliso Canyon.

Question 4: On 12/17/2019, the total receipts for that day is listed on Envoy at 2,717,000 Dth, which is equivalent to 2.65 Bcfd, while the total deliveries was 3,679,000 Dth, which is equivalent to

3.58 Bcfd. This is a difference of 0.93 Bcf that had to be withdrawn from the fields. Why was the supply limited to 2.65 Bcfd, when the demand was so much higher?

Response: The Capacity Utilization page displays Operating Capacity for each zone. On December 17, 2019, the maximums on the Southern Zone, Northern Zone, and Wheeler Ridge were 926,000 Dth, 1,030,000 Dth, and 834,000, respectively, for a total of 2,790,000 Dth, or approximately 2.69 Bcf. Since California production is minimal, it can be left out for purposes of this response. On this date, the operating capacity available on the Northern Zone was up due to the return of pipelines 235-2 and 4000.

Question 4.1: The Envoy website says that they withdrew 0.93 Bcf on 12/17/2019, but the 12/17/2019 critical notice says: “Total withdrawal was 0.951 Bcf on that day.” First, does “total withdrawal” mean total withdrawal from Aliso Canyon or the total from all four fields? If the total is from all four fields, why are the numbers different? If the total is from Aliso, why is SoCalGas withdrawing everything from Aliso and none from the other fields?

Response: With regard to the first question about the discrepancy in the numbers, the 0.951 Bcf in the Critical Notice is withdrawals from Aliso Canyon. It is not clear where on Envoy you found the withdrawal figure of 0.93 Bcf. You may have taken it from the estimated withdrawals on the December 17 Daily Operations page,⁶ which were 933,783 Dth. The actual withdrawals for December 17, which can be found by looking at the December 18 Daily Operations page, were 963,000 Dth.⁷

With regard to the second question about Aliso usage, under the July 23, 2019, revised Withdrawal Protocol, Aliso Canyon is no longer an “asset of last resort.” This means that if one or more of the four conditions is met, Aliso Canyon’s withdrawal capacity “shall be made available for balancing and for scheduling to entities who both serve core and own storage rights.” By analyzing hourly and daily withdrawal, system receipt, and total demand figures, CPUC staff believe that Aliso Canyon withdrawals occurred simultaneously with modest withdrawal from the non-Aliso fields in order to preserve inventory in the non-Aliso fields, as the remainder of the winter is uncertain. Last winter, by the time cold temperatures settled into Southern California during some days in January and the majority of February, inventory at the non-Aliso fields was drawn down and their reduced withdrawal capacity was insufficient to meet demand. Staff witnessed extremely low inventory in the non-Aliso fields by the beginning of March. In the event there is another prolonged cold spell this winter, CPUC staff believe it would be prudent to preserve gas inventory and withdrawal capacity at the non-Aliso fields early in the winter season.

⁶ December 17 estimate:

<https://scgenvoy.sempra.com/#nav=/Public/ViewExternalDailyOperations.getDailyOperation%3FFileName%3D%26Class%3D%26estimateDate%3D12%252F17%252F2019%26hiddenEstimateDate%3D12%252F18%252F2019%26rand%3D167>

⁷ December 17 actuals:

<https://scgenvoy.sempra.com/#nav=/Public/ViewExternalDailyOperations.getDailyOperation%3FFileName%3D%26Class%3D%26estimateDate%3D12%252F18%252F2019%26hiddenEstimateDate%3D12%252F17%252F2019%26rand%3D68>

Question 4.2: Why does the Withdrawal Protocol allow SoCalGas to withdraw gas from Aliso even when they are not using the full capacity of their transmission system? What is the rationale for this?

Response: The phrasing of—“even when *they* [SoCalGas] are not using the full capacity of their transmission system”—suggests a possible misunderstanding. It’s important to note that the SoCalGas System Operator does not have the primary role of delivering gas onto the system.⁸ Core and noncore customers base gas delivery decisions on their own estimates of how much gas they will need and their own financial calculations, not on maximum transmission system capacity. The System Operator’s role is to react to the combined effect of customers’ decisions in a way that will ensure system reliability.

The recent Aliso Canyon withdrawals were prompted by fulfillment of Condition #1 of the Withdrawal Protocol, which relies upon the low Operational Flow Order calculation approved by the CPUC. The formula compares what customers have scheduled so far for the gas day to forecasted demand. It is the difference between scheduled receipts and demand that drive the need for an OFO, not the difference between maximum transmission capacity and demand.

Question 4.3: Would the CPUC consider modifying the Withdrawal Protocol to state that withdrawals under any condition can only be permitted after the full available capacity is utilized on that day?

Response: As noted in our response to question 4.2, the SoCalGas System Operator does not have the primary role of delivering gas onto the system. From a practical standpoint, it is difficult to conceive of a system where the System Operator could respond to customers’ fluctuating gas delivery and usage decisions in real time, execute contracts in the spot market for natural gas delivery to compensate for any underdeliveries, then get the gas to flow to California at the precise time it is needed to ensure that the pipelines are fully utilized without becoming over-pressurized. The gas transmission and distribution system in Southern California is a complex network that is very dynamic geographically, seasonally, and at any point in time. Pipeline pressures must be considered at various nodes on the system, which means receipt points in one region may experience higher utilization while receipt points at another experience lower utilization.

That said, the pipelines *were* operating at near-maximum capacity on the days that Aliso Canyon was used. Based on CPUC staff’s analysis of dates in December when Aliso Canyon was used, the pipelines were operating at an average of 99 percent capacity in both the Southern and Northern Zones,⁹ which is quite high compared to the 2014 historical average of 60 percent in the Southern Zone and 75 percent in the Northern Zone.¹⁰

⁸ In some specific instances, the System Operator can purchase gas to support Southern System reliability, see SoCalGas Rule No. 41: <https://www.socalgas.com/regulatory/tariffs/tm2/pdf/41.pdf>.

⁹ Total gas received into the pipelines each day is an approximate number and rounded. These percentages should not be used as exact nor final; however, the figures provide an indication of how much gas was flowing through the interstate pipelines into the SoCalGas system.

¹⁰ The instances in the table below that show more than 100% receipt point utilization are due to rounding error.

Aliso Canyon Usage Dates	Southern System Receipt Point Utilization %	Northern System Receipt Point Utilization %	Composite Weighted Avg. Temp
12/01/2019	101%	94%	58
12/02/2019	96%	97%	59
12/03/2019	99%	96%	58
12/04/2019	101%	101%	59
12/05/2019	100%	102%	60
12/11/2019	99%	99%	61
12/16/2019	99%	99%	55
12/17/2019	99%	93%	53
12/18/2019	91%	98%	54
12/19/2019	101%	100%	59
12/20/2019	100%	99%	60
12/23/2019	101%	100%	53
12/24/2019	99%	100%	52
12/25/2019	99%	101%	50
12/26/2019	101%	103%	52
12/27/2019	99%	101%	51
12/29/2019	100%	100%	56
12/30/2019	99%	97%	59
12/31/2019	98%	100%	56

Question 5: Clarify errors in data reported by SoCalGas. Here is an example: The Envoy database says that the “Average Composite Weighed temperature” for 11/28/2019 was 49° F, which translates into 16 HDD for that day. However, in SoCalGas’ withdrawal report to the CPUC posted on the CPUC website [here](#), the temperature on that day was 46 degrees, and the HDD was 19 (Table 5). In fact, the majority of the average temperature and HDD values in the November withdrawal report to the CPUC do not match the values in their archived database for November which can be downloaded from their website ([link here](#)). Can you find out why SoCalGas is reporting different numbers?

Response: You are correct, different temperatures are reported in different sources. The Composite Weighted Average Temperature was required to be posted to Envoy by the CPUC under Decision (D.) 07-12-019, also known as the “Omnibus Decision.” The Composite Weighted Average Temperature takes the midpoint of nine locations, then applies a weight for each location. Using a midpoint is a general statistical measure that leaves out the coldest moments of a day. As such, this temperature data is not used in gas scheduling or operations. Rather, SoCalGas’ experts within the company analyze various weather sources and other data points, then arrive to a forecasted system-wide temperature and demand sendout.

Appendix

On certain dates shown on Envoy’s Available Capacity vs. Scheduled and Capacity Utilization pages, the combined area zone total was lower than the total Northern Zone capacity shown, or the area zone total was higher than the available receipt point totals shown. On dates when there was only one active receipt point controlling the amount that could be scheduled through that area zone, SoCalGas did not reduce the capacity reflected for the area zone, because the limitations were reflected by the individual receipt points. Moreover, if the Northern Zone was limited by a single area zone, the capacity shown for the total Northern Zone was not reduced because the limitation was reflected by a single area zone.

Example

This screenshot is for October 31, 2017, and was taken from the Capacity Utilization page on Envoy. The capacity limitation is reflected by the Kramer Junction, Topock, and North Needles receipt points. The Kramer receipt point was a single feed on that date with both Topock and North Needles set at zero. The Needles/Topock area zone capacity was not lowered because the limitations were reflected on the individual receipt points within that area zone. Moreover, the entire Northern Zone capacity was not lowered because the overall capacity available was reflected on the Kramer receipt point.

Total North Desert	545,935	0	0	871,000
Needles/Topock Area	0	0	0	1,375,000
Topock	0	0	0	0
El Paso - Topock	0	0	0	555,000
Transwestern - Topock	0	0	0	308,000
North Needles	0	0	0	0
Transwestern - Needles	0	0	0	820,000
Southern Trails- Needles	0	0	0	123,000
Kern River/Mojave - Kramer Junction	545,935	0	0	720,000
Kern River - Kramer Junction	485,909	0	0	720,000
Mojave - Kramer Junction	60,026	0	0	720,000