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April 2, 2019

California Energy Commission Docket Office
Docket: 19-IEPR-09 - Southern California Energy Reliability
1516 Ninth Street
Sacramento, CA 95814-5512

Re: Summer Technical Assessment and System Reliability

Southern California Gas Company (SoCalGas), as part of our ongoing commitment to providing safe and reliable service to Southern California, has prepared the attached “Summer Technical Assessment.” As detailed in the attached assessment:

- Pipeline outages continue to impact the sendout capacity of the SoCalGas system;
- There will likely be the need to use gas stored at Aliso Canyon this summer;
- Sendout capacity may fall short of supporting all customer demand during extreme temperature conditions, without the use of Aliso Canyon; and
- Prudent and active management of storage inventory through the summer season, including potential withdrawals from Aliso Canyon and noncore customer curtailments, is likely necessary to support storage inventory management and to provide reliability to our core customers next winter.

SoCalGas remains committed to providing safe, reliable, and affordable natural gas service to our 21 million customers across our service territory as part of the State’s efforts to ensure a reliable supply of energy to California’s residents, businesses, and economy.

Sincerely,

A handwritten signature in blue ink that reads "Rodger R. Schwecke".

Rodger R. Schwecke
Senior Vice President
Gas Operations and Construction

Enclosure



SOUTHERN CALIFORNIA GAS COMPANY SUMMER 2019 TECHNICAL ASSESSMENT

April 2, 2019

Executive Summary

SoCalGas has prepared this technical assessment to provide a forecasted outlook of system reliability during the coming summer months, assess the preparedness of the system for this upcoming winter, and analyze the associated risks to energy reliability during these periods. For this assessment, SoCalGas analyzed the following: (1) pipeline capacity available to bring gas into the system, (2) the forecasted summer demand, (3) available system capacity to serve demand, and (4) the forecasted storage inventory for the following winter season. In performing this analysis, this assessment takes into consideration the various existing and potential outages and the operating restrictions on gas transmission and storage assets.

In assessing system reliability risks for the upcoming summer months, SoCalGas has found that the system in the “best case” is in a better position heading into this summer than during the summer season of 2018 because of potentially greater pipeline capacity. However, the “worst case” is similar to last year and could result in insufficient storage inventory heading into next winter. SoCalGas has calculated the maximum system-wide capacity range available to serve end-use customers this summer to be 3.6 – 4.3 billion cubic feet per day (BCFD), *with the use of the Aliso Canyon storage field*¹ which is currently restricted to specific requirements for withdrawal by the California Public Utilities Commission (CPUC). *Without the use of Aliso Canyon*, this range is reduced to 3.1 – 3.6 BCFD. SoCalGas projects this summer’s peak demand forecast to be 3.4 BCFD, which may require the use of Aliso Canyon to serve. This analysis demonstrates that with current system conditions, it is likely that SoCalGas will need to withdraw gas supply from Aliso Canyon to meet the peak summer demand forecast both in total daily and peak hourly demand, in addition to withdrawals from the other storage fields to meet non-peak demands.

Next, to prepare for the 2019-20 winter season, SoCalGas performed a preliminary analysis of projected storage injection and resulting inventory through the summer. Using demand forecast data prepared for the 2018 California Gas Report (CGR), the projected SoCalGas capacity to receive pipeline supplies, and an estimate of storage field inventory levels on April 1, SoCalGas finds that the maximum system storage inventory that can be reached by November 1 is approximately 17 billion cubic feet (BCF) under a “worst case” supply assumption and approximately 82 BCF under a “best case” supply assumption.² If

¹ SoCalGas may only withdraw from Aliso Canyon pursuant to the CPUC’s “Aliso Canyon Withdrawal Protocol” dated November 2, 2017.

² SoCalGas ended the 2017 summer season with storage inventory of 80.5 BCF. This was a result of sufficient injections and lower than forecast customer demand.

storage inventory levels are trending toward this “worst case”, SoCalGas and the CPUC may need to take action to further enhance storage injections, preserve inventory to meet winter inventory targets, and/or place greater restrictions on the use of storage in the 2019-20 winter season to support noncore demand than were in effect during the last winter season.

System Reliability Assessment of Summer Months

SoCalGas does not have a design standard for summer operations. This is partly because the SoCalGas system is a winter peaking system and service to the core customers is not at risk in the summer season. Although noncore customers are fully interruptible pursuant to the CPUC-approved SoCalGas Tariff Rule No. 23 and SDG&E Gas Rule No. 14, the CPUC and SoCalGas have recognized that supply and operating constraints placed upon the electric grid balancing authorities³ in SoCalGas’ service territory can place electric reliability at risk and understand the importance of working to maintain service to local electric generating (EG) plants in southern California.

In assessing reliability in the upcoming summer months, SoCalGas analyzed the supply outlook for the system and the peak demand forecast. These are addressed in turn, below.

Supply Outlook

Available Flowing Pipeline Supplies and Storage Withdrawal Capacities

In order to calculate the capacity of the system to serve customer demand, assumptions must be made regarding the available supply. Because the peak summer demand period is expected to occur after July, SoCalGas determined ranges of flowing pipeline supplies by analyzing “best” and “worst” case scenarios for this period. The “best case” scenario assumes Line 235-2 is restored and Line 4000 is returned to service, operating at reduced pressures during the summer season,⁴ and that gas supply is available at the Otay Mesa receipt point. The “worst case” scenario assumes both Line 235-2 and Line 4000 are removed from service for remediation following findings from their internal inspection and validation digs, and reduced gas supply at Otay Mesa reflecting historical performance.

In addition to the outages and restrictions discussed above, SoCalGas factored in that customers do not typically fully balance their supply with their demand, even given SoCalGas’ balancing rules. A review of scheduled deliveries shows that customers have used on average 80% of available interstate receipt capacity. However, in a situation with significant infrastructure outages and limited storage supply, SoCalGas expects to require tighter balancing requirements and see higher capacity utilization in response to the storage capabilities and supply outlook.

Given these considerations, for the purpose of this capacity calculation, SoCalGas has adopted a utilization assumption of 85% for the “best case” supply scenario and 95% for the “worst case” supply

³ California Independent System Operator (CAISO), Los Angeles Department of Water and Power (LADWP), and Imperial Irrigation District (IID).

⁴ SoCalGas does not expect to be able to operate this way for the entire summer operating season. Rather, these pipelines may be available to operate only at lower pressure until the mid- to late-summer season.

scenario for all supplies except for local California production, which is assumed at the current production rate.⁵

Using the scenario information outlined above, the resulting “best” and “worst” case receipt capacities during the peak summer period are detailed below in Tables 1 and 2.

Table 1. “Best Case” Available Flowing Pipeline Supplies

Receipt Point	Capacity/Supply (MMcfd)	Details
North Needles	430	Reduced receipt capacity due to Line 235 and Line 4000 temporary pressure reduction.
Topock	400	Reduced receipt capacity due to Line 3000 temporary pressure reduction.
Kramer Junction	420	Limited due to supply from North Needles and Topock.
Blythe	980	Reduced receipt capacity due to loss of pipeline on Southern System
Otay Mesa	230	Otay Mesa has a firm receipt capacity of 400 MMcfd, but is limited by the total 1,210 MMcfd receipt capacity of the Southern System. 230 MMcfd represents the remaining capacity to receive firm supply. Historically, little supply has been delivered at Otay Mesa.
Wheeler Ridge & Kern River Station	765	
California production	70	SoCalGas’ firm receipt capacity is reduced from 310 MMcfd to 210 MMcfd following the derating of pipeline in the Line 85 Zone. However, local California producers are currently utilizing only approximately 70 MMcfd of that capacity.
Total	3,295	
Assume 85% pipeline utilization	2,811	

⁵ In Energy Division’s final Scenarios Framework in I.17-02-002, adopted by the CPUC on January 4, 2019, Energy Division used an 85% utilization factor for certain aspects of its analysis. SoCalGas believes that 85% is more appropriate for that framework given the planning horizons used in the framework versus the single operating season used in this technical assessment.

Table 2. “Worst Case” Available Flowing Pipeline Supplies

Receipt Point	Capacity/Supply (MMcfd)	Details
North Needles	0	No receipt capacity due to Line 235 and Line 4000 outage.
Topock	0	No receipt capacity due to Line 235 and Line 4000 outage.
Kramer Junction	700	Increased capacity due to lost receipt capacity at North Needles and Topock
Blythe	980	Reduced receipt capacity due to loss of pipeline on Southern System
Otay Mesa	150	Historically, little supply has been delivered at Otay Mesa, and only 150 MMcfd of capacity is available on the upstream pipelines supplying the receipt point in the summer operating season.
Wheeler Ridge & Kern River Station	765	
California production	70	SoCalGas’ firm receipt capacity is reduced from 310 MMcfd to 210 MMcfd following the derating of pipeline in the Line 85 Zone. However, local California producers are currently utilizing only approximately 70 MMcfd of that capacity.
Total	2,665	
Assume 95% pipeline utilization	2,535	

SoCalGas has labeled the capacities shown in Table 2 as “worst case,” based upon current known potential projects which may impact receipt capacity. However, unexpected outages on the transmission system, such as those resulting from third-party damage and safety related conditions, may still occur throughout the summer season, further reducing receipt capacity beyond the level projected in Table 2.

For this assessment, based on current storage field withdrawal capacities, SoCalGas assumed that 2.34 BCFD (best case) and 1.39 BCFD (worst case) of withdrawal capacity would be available during the peak summer season with the use of Aliso Canyon. Without Aliso Canyon, withdrawal capacity is reduced to 1.20 BCFD (best case) and 0.62 BCFD (worst case). As always, these withdrawal capabilities are dependent on having sufficient inventory already in storage to sustain these withdrawal capacities. The lower withdrawal rates available under the “worst case” supply assumption reflects the lower levels of storage inventory that could be attained with the reduced pipeline supplies.

Peak Summer Demand Forecast and System Capacity Calculation

For the upcoming summer season, the forecast level of total system demand is approximately 3.4 BCFD as itemized by customer type as shown below Table 3:

Table 3. Forecast Customer Demand, Summer 2019

Customer Type	Summer Demand (BCFD)
Core	0.808
Noncore, Non-Electric Generation (EG)	0.794
Noncore Electric Generation (EG) ¹	1.766
Total	3.368

¹ 2018 CGR forecast for 2019.

SoCalGas also completed the following analysis to determine how much SoCalGas' system can sustain of the above calculated demand using hydraulic simulations of its gas transmission and storage system under both the "best" and "worst" case pipeline supply scenarios described in Tables 1 and 2, with and without Aliso Canyon. These system capacities are also segregated by customer type in Table 4 below.

Table 4. Summer 2019 System Capacity

Customer Type	"Best Case" Pipeline Supplies		"Worst Case" Pipeline Supplies	
	With Aliso Canyon Supply	Without Aliso Canyon Supply	With Aliso Canyon Supply	Without Aliso Canyon Supply
Core	0.808	0.808	0.808	0.808
Noncore, Non-EG	0.794	0.794	0.794	0.794
Noncore EG	2.700	2.046	1.955	1.450
Total	4.302	3.648	3.557	3.052

Based on the forecasted summer 2019 demand and system capacity, SoCalGas will be able to meet forecast peak day demand under a "best case" and "worst case" scenario with the use of Aliso Canyon. Without the use of Aliso Canyon, SoCalGas is unable to meet forecast peak day demand under a "worst case" scenario.

Note that in all scenarios, the system capacity is always less than the sum of the available pipeline and storage supplies. This is a result of the system hydraulics. Customer demand is not constant over the course of the day, particularly with the electric generation customer type, and gas supplies from interstate pipelines travel slowly across the pipeline network. Those supplies simply cannot meet the changing customer demand in time before minimum operating pressures are reached, and are also scheduled on a ratable basis based on daily expected demand rather than hourly peaks. SoCalGas' storage fields are closer to the customer demand center in the Los Angeles Basin than the interstate pipeline receipt points, and are the "flex supply" available to meet imbalances between the scheduled pipeline supplies and intraday customer demand.

Likewise, when customer demand drops off, gas supplies must also be reduced to avoid overpressuring the pipeline system. Once again, storage supplies serve the “flex supply” purpose, and are reduced by SoCalGas’ Gas Control department to keep the pipeline supplies flowing. In theory, SoCalGas can also begin injecting gas supply into its storage fields if the pipeline supplies far exceed the customer demand even with all withdrawal reduced to zero. However, as system-wide injection capacity is diminished, it may become increasingly difficult to achieve high levels of pipeline utilization consistently through the summer season.

System Reliability Assessment for 2019-2020 Winter

While the summer season is known as a peak electric generation demand period, the summer season also is when SoCalGas prepares for the upcoming winter season by injecting gas supply into storage for use during the winter season.⁶

For this mass balance assessment, SoCalGas assumed varying levels of receipt point utilization depending upon which assets are expected to be in service and when. Under the “best case” supply scenario, Line 235-2 and Line 4000 are assumed to be in service at various capacities throughout the summer, increasing later in the year. Because of this increased receipt capacity, SoCalGas has assumed a utilization of 85%, representative of historical performance. Throughout May and June, either Line 235 or Line 4000 are assumed to be out of service for validation digs and potential remediation. With the reduced receipt capacity, SoCalGas has assumed an increased utilization of 90%, reflecting tighter balancing requirements. As the pipelines return to service at increased capacities, SoCalGas lowered the utilization factor to 85% to again reflect historical performance, with the exception of August which was assumed to be 90% utilization reflecting greater demand.

Under the “worst case” supply scenario, both Line 235-2 and Line 4000 are assumed to be out of service for the entire summer season. Because of the reduced receipt capacity, SoCalGas assumed a utilization factor of 90% to reflect tighter balancing requirements. This was increased to 95% during the peak summer months when storage withdrawal was necessary to reflect the severely diminished level of gas in storage and the need to preserve that gas supply for the winter season with even tighter balancing requirements.

Using public demand forecast data published in the 2018 CGR workpapers for the summer season (April through October 2019, average temperature with base hydro condition), a projection of the expected storage inventory levels on April 1 (37.7 BCF), and estimates for injection capacity at each field, SoCalGas performed a mass balance examining the ability to fill storage under both the “best” and “worst” case supply scenarios. This mass balance is presented below in Table 5.

⁶ SoCalGas Operations does not purchase and store any gas supply for the use of any customer. SoCalGas’ Gas Acquisition department purchases supplies for storage only for the SoCalGas retail core and the SDG&E wholesale core market segment, excluding those core customers served by Core Transport Agents as part of a Core Aggregation Transportation program (CAT) and other wholesale providers.

Table 5. Monthly Storage Injection Assessment (CGR Average Temperature with Base Hydro) (MMCF)

		2019						
		April	May	June	July	August	September	October
Best Case	Supply Utilization	90%	90%	90%	85%	90%	85%	85%
	CGR Demand	76320	67983	65490	75485	82429	78780	73594
	Pipeline Supply	78915	81546	78915	79244	83778	84338	87149
	Storage Injection ¹	2595	12014	13425	3759	1364	4837	6901
	Month End Inventory (BCF) ²	40.25	52.26	65.68	69.44	70.81	75.64	82.12
Worst Case	Supply Utilization	90%	90%	90%	90%	95%	95%	90%
	CGR Demand	76320	67983	65490	75485	82429	78780	73594
	Pipeline Supply	60555	62574	72165	74571	78593	76058	74571
	Storage Injection ¹	-15765	-5410	6675	-914	-3836	-2723	976
	Month End Inventory (BCF) ²	21.89	16.48	23.15	22.24	18.40	15.68	16.65

¹ Storage injection is the lesser of the available supply or the available injection capacity (negative numbers represent withdrawal).

² Combined potential capacity is 83.9 BCF.

Under the “best case” supply scenario, SoCalGas expects to have sufficient capacity and supply to fill its storage fields by the end of the summer season (pre-November 1). Under the “worst case” supply scenario, SoCalGas projects that storage inventory will reach only approximately 17 BCF by the end of the summer season. Without customer curtailments and/or tighter balancing requirements, SoCalGas will not have the storage inventory to be fully prepared for the upcoming winter season under this scenario.

Assuming that SoCalGas could maintain a 95% receipt point utilization factor through the entire summer season, which corresponds to a 5% daily balancing requirement, the season-ending inventory could be increased by approximately 18 BCF to approximately 35 BCF under the “worst case” supply scenario.

Conclusion

This technical assessment provides preliminary forecasts of the upcoming summer and winter season and indicates that there may be a need to enact measures to support system reliability. For the upcoming summer season, SoCalGas forecasts that it will be able to meet the forecasted peak day demand under a “best case” supply assumption even without supply from Aliso Canyon. Under a “worst case” supply assumption, supply from Aliso Canyon will be necessary to meet that forecasted peak day demand.

SoCalGas also expects to be able to fill its storage inventory under the “best case” supply assumption in preparation for the winter 2019-20 season. However, under the “worst case” supply assumption, or one in which all supply assumptions in the “best case” supply scenario do not materialize, SoCalGas is unable to fully fill storage. This may result in greater restrictions on the use of storage supply to support noncore demand, and corresponding noncore customer curtailment, in the winter season to preserve inventory and associated withdrawal capacity for core customer reliability.