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## **SoCalGas Winter 2023-2024 Technical Assessment**

*Additional submitted attachment is included below.*



## SOUTHERN CALIFORNIA GAS COMPANY WINTER 2023-24 TECHNICAL ASSESSMENT

November 3, 2023

### Executive Summary

Southern California Gas Company (SoCalGas) has prepared this technical assessment to provide a forecasted outlook of system reliability during the coming winter season (November 1, 2023 through March 31, 2024) and analyzed the associated risks to energy reliability during this period. For this assessment, SoCalGas has analyzed the following: (1) pipeline capacity available to bring gas into the system, (2) available storage withdrawal capacity and inventory levels needed for core reliability, (3) forecasted winter demand, (4) available system capacity given the assumed winter supply and forecasted demand, and (5) forecasted winter storage inventory. In performing this analysis, this assessment takes into consideration the various existing outages and operating restrictions on gas transmission and storage assets.

The California Public Utilities Commission (CPUC) mandates two winter design standards for SoCalGas: a 1-in-35 year peak day in which all noncore customers are assumed to be fully curtailed, and a 1-in-10 year cold day design standard in which service is provided to both core and noncore customers. SoCalGas forecasts a demand of 3.40 billion cubic feet per day (BCFD) for the 1-in-35 year peak day design standard and 4.94 BCFD for the 1-in-10 year cold day design standard using a hybrid forecast.<sup>1</sup>

Pipeline receipt capacities have improved from previous years, and storage inventory has the potential to be much greater than the minimum necessary to maintain core reliability throughout the winter season. Assuming customers elect to utilize the available pipeline receipt capacity to deliver sufficient supply and no further infrastructure outages occur than those considered in this assessment, SoCalGas expects to meet both the 1-in-35 year peak day and the hybrid 1-in-10 year cold day design standards.

SoCalGas also analyzed a scenario where all active storage fields were at their minimum inventory levels required for core reliability.<sup>2</sup> Under this scenario, given the lower withdrawal rates associated with the lower inventory, SoCalGas is still able to meet the 1-in-35 year peak day design standard; however, SoCalGas has insufficient capacity to meet the hybrid 1-in-10 year cold day design standard. SoCalGas has calculated an approximate maximum system-wide daily capacity available to serve end-use customers at these minimum inventory levels of 4.32 BCFD. This capacity is sufficient to serve all core customers and all noncore, non-electric generation customers in the 1-in-10 year cold day design standard.

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<sup>1</sup> For the 1-in-10 year cold day design standard, SoCalGas has elected to use the 2020 California Gas Report (CGR) electric generation (EG) demand forecast combined with the 2022 CGR core and non-EG noncore demand forecasts, creating a hybrid between the two CGRs. For 1-in-35 year peak day design standard see 2022 CGR page 179.

<sup>2</sup> Maximum withdrawal rates are not available when SoCalGas' storage fields are at the minimum inventory levels for core reliability.

As always, unexpected outages on the transmission pipeline and storage system, such as those resulting from third-party damage and safety-related conditions, or impacts to maintaining these capacities due to potential employee availability or governmental orders in response to COVID-19, could still occur throughout the winter season and impact our capacity to serve demand as presented in this technical assessment.

### **System Reliability Assessment of Winter Months**

The CPUC has mandated two design standards for the winter operating season: the 1-in-10 year cold day standard, in which service is to be maintained to core customers and noncore customers under a temperature condition expected to recur once in a ten-year period; and the 1-in-35 year peak day standard, in which service is to be maintained to core customers under a temperature condition expected to recur once in a thirty-five-year period and service to all noncore customers is curtailed.

In assessing reliability in the upcoming winter, SoCalGas has analyzed the supply outlook for the system and the winter demand forecasts. These are addressed in turn below.

#### **Supply Outlook**

##### Available Flowing Pipeline Supplies

The SoCalGas/San Diego Gas and Electric (SDG&E) gas transmission system has a current capability to receive up to 3.775 BCFD of flowing supply on a firm basis. This means if customers deliver that much supply to the SoCalGas system, and there is sufficient customer demand, SoCalGas can redeliver that gas supply to customers.<sup>3</sup> Supplies delivered to the SoCalGas/SDG&E system, however, do not reach these available receipt levels for a variety of reasons, including that customers may choose to use SoCalGas' balancing service rather than deliver supplies, California production has declined over time, system demand frequently does not require maximum delivery of supply, or flowing supplies may not be available due to weather patterns or maintenance impacting the interstate pipelines upstream of the SoCalGas system, such as during a polar vortex event over the Midwest or an interstate pipeline outage. Additionally, planned and unplanned pipeline outages on the SoCalGas/SDG&E system can further reduce available receipt capacity.

To calculate this season's system capacity to serve customer demand, assumptions must be made regarding the available supply. The peak winter demand period is expected to occur either in December or January. During this timeframe, no projects or outages are planned on any major SoCalGas pipelines. There is sufficient supply assumed at Blythe to utilize the full 1,210 million cubic feet per day (MMcfd) of receipt capacity. Otay Mesa is still available to receive up to 400 MMcfd of supply, but the total Southern Zone receipt capacity is limited to 1,210 MMcfd. Line 4000 and Line 235 West have been restored to their maximum operating pressures, returning the Northern Zone receipt capacity back to its nominal 1,590 MMcfd.

In addition to the outages and restrictions discussed above, SoCalGas' analysis took into consideration that customers do not typically fully balance their supply with their demand given SoCalGas' balancing

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<sup>3</sup> Customer demand may also be required to be in a specific location, such as on the Southern Zone in order to receive the full receipt capacity of 1,210 MMcfd at Blythe and Otay Mesa.

rules. Reviewing scheduled deliveries shows that customers have historically used on average 80% of available interstate receipt capacity. In situations with significant infrastructure outages and limited storage supply, however, SoCalGas would require tighter balancing and expect to see higher capacity utilization as a result.

Given these considerations, and the lack of expected significant infrastructure outages, for the purpose of this peak day capacity calculation, SoCalGas has adopted a peak day utilization assumption of 80% for all supplies except for local California production, which is assumed at the current production rate.

SoCalGas’ ability to maintain uninterrupted service also depends upon customers delivering sufficient supply to the SoCalGas system. SoCalGas expects that there may be times during the winter season when gas supply from the interstate pipelines is unavailable due to weather conditions elsewhere in the country or pipeline constraints upstream of SoCalGas’ system, such that supplies delivered to the system may be less than assumed in this assessment. These situations are beyond the scope of this technical assessment, and additional customer curtailment may be necessary to maintain system integrity and service to core and critical noncore customers under such conditions.

While SoCalGas has factored in the known operating restrictions on its transmission pipelines, unexpected outages on the transmission system, such as those resulting from third-party damage and safety-related conditions, may still occur throughout the winter season, further reducing available receipt capacity beyond the levels projected in this assessment.

Based on the scenario information outlined above, the resulting receipt capacities during the peak winter period are detailed below in Table 1.

**Table 1.** Available Flowing Pipeline Supplies

Receipt Point	Capacity/Supply (MMCFD)	Details
North Needles	800	Line 4000 and Line 235 West restored to normal operating pressure. Topock limited to 350 MMcfd due to Line 3000 operational restrictions. Northern Zone capacity restored to 1,590 MMcfd.
Topock	350	
Kramer Junction	440	
Blythe	1,210	No outages planned for December or January to reduce Blythe capacity.
Otay Mesa	0	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.
Wheeler Ridge & Kern River Station	765	
California Production	70*	Current level of local California production.
<b>Total</b>	<b>3,635</b>	80% utilization except at California Production.
<b>Assume 80% pipeline utilization</b>	<b>2,922</b>	

Available Storage Supplies

The forecasted inventories with associated withdrawal rates for SoCalGas’ storage fields at the start of the winter season and at those levels necessary to provide core customer reliability are presented below in Table 2. Under all-temperature conditions, gas will be withdrawn from storage throughout the winter season. Therefore, SoCalGas does not expect to be at maximum inventory levels system-wide during the peak demand periods of December through January, resulting in withdrawal capability lower than the maximum rates shown below. However, as previously mentioned, due to improved pipeline receipt capacities, storage inventory during the peak demand periods of December through January, has the potential to be much greater than the minimum necessary to maintain core reliability throughout the winter season.

**Table 2.** Projected Storage Field Performance, Winter 2023-24, Typical Well Maintenance Activities

Maximum		Forecasted at November 1		Minimum Level for Peak Day Reliability *	
Inventory (BCF)	Withdrawal Capacity (MMcfd)	Inventory (BCF)	Withdrawal Capacity (MMcfd)	Inventory (BCF)	Withdrawal Capacity (MMcfd)
118.8	2,773	96.9	2,428	41.8	1,400

\* End of January

This data is based on wells currently or forecasted to be in service during the winter operating season and assumes a typical level of well outages at each field for routine maintenance and mandated reassessments. SoCalGas assumes in its forecast that there will be no outages beyond those already identified at any of the storage fields that would impact their ability to provide the winter withdrawal capacity assumed for this assessment. SoCalGas’ storage capacities are continually reassessed in light of performance and the safety-related work planned, in progress, or completed at our storage fields.

**Peak Winter Demand Forecast and System Capacity Calculation**

System Capacity

Using the pipeline supply and withdrawal assumptions presented in Tables 1 and 2, SoCalGas has calculated the system capacity to serve this winter’s peak demand to be 4.32 BCFD. The system capacity is calculated based on the withdrawal available at the minimum inventory levels necessary to maintain core reliability discussed later in this report.

Customer demand is not constant over the course of the day, and gas supplies from interstate pipelines travel slowly across the pipeline network at a steady rate. During those times of the day when demand exceeds the pipeline supply, SoCalGas must use supplies from its storage fields to make up the difference. When customer demand is reduced, SoCalGas will reduce the amount of supply taken from its storage fields or inject excess supply into storage to balance supply and demand and avoid overpressuring the system. Because storage supplies are not used at a constant rate for the entire day, the system capacity is often less than the sum of the available pipeline and storage supplies.

Demand Outlook: 1-in-10 Year Cold Day Event

For the upcoming winter season, SoCalGas forecasts a 1-in-10 year cold day demand of 4.94 BCFD, broken down by customer class in Table 3 below:

**Table 3. Customer Demand Forecast, 1-in-10 Year Cold Day Event**

Customer Type	Winter Demand (MMcfd)
Core (including Wholesale Core)	3,232
Noncore, Non-Electric Generation	787
Noncore, Electric Generation (EG)	918
Total	4,937

This level of demand exceeds the system capacity calculated based on the minimum inventory levels necessary to maintain core reliability. SoCalGas notes that higher inventory levels at its storage fields through the peak winter period would result in higher withdrawal rates than those shown for peak day reliability in Table 2. Under such conditions, SoCalGas could potentially have sufficient capacity to serve a 1-in-10 year cold day demand provided sufficient pipeline supply is delivered to the system. As further discussed in this assessment, an examination of the available pipeline receipt capacity and demand expected throughout the winter operating season indicates that storage inventory levels will be greater than those minimum levels needed for core reliability, and it is likely that capacity will be sufficient to meet the 1-in-10 year cold day demand forecast.

Demand Outlook: 1-in-35 Year Peak Day Event

SoCalGas forecasts a 1-in-35 year peak day demand of 3,401 MMcfd, consisting entirely of core demand<sup>4</sup> per the design standard. With prudent and active management of storage inventory, SoCalGas expects to have sufficient supply and capacity to meet this design standard.

SoCalGas must maintain minimum levels of storage supply throughout the winter season to protect core reliability. Using inventory and withdrawal relationships for the storage fields, SoCalGas has determined the minimum inventory level required at each storage field to produce the needed withdrawal rates for core reliability. These minimum inventory levels are shown below in Table 4. SoCalGas will use curtailment procedures (as necessary) to preserve these minimum inventory levels at all four storage fields throughout the winter season.

**Table 4. Month-End Minimum Inventory Requirements for Core Reliability**

Storage Field	Month-End Minimum Inventory (BCF)				
	NOV 2023	DEC 2023	JAN 2024	FEB 2024	MAR 2024
Aliso Canyon	21.0	20.2	19.5	13.0	6.6
Honor Rancho	13.9	13.5	13.1	7.0	5.0
La Goleta	8.0	7.9	7.7	7.6	7.5
Playa del Rey	1.6	1.6	1.5	1.1	0.7
<b>TOTAL</b>	<b>44.5</b>	<b>43.2</b>	<b>41.8</b>	<b>28.7</b>	<b>19.8</b>

<sup>4</sup> Retail and wholesale.

The Ventura compressor station is necessary to fill the La Goleta storage field, and because of the capacity at the station, if SoCalGas were to draw La Goleta inventory down to near zero inventory, it is expected that the field could not be refilled in the summer 2024 operating season to sufficient levels needed to support winter 2024-25 demand. SoCalGas will therefore manage its system to maintain 7.5 BCF at La Goleta through March 2024 and has included that additional inventory in Table 4 above.

**Seasonal Reliability Assessment**

Using the hybrid demand forecast data prepared for the 2020 and 2022 CGR for the winter season (November 2023 through March 2024, cold temperature conditions with dry hydro, and hot and average temperature conditions with base hydro) and the inventory levels on November 1 (96.9 BCF), SoCalGas has performed a mass balance examining the impact on its storage supplies and our ability to meet customer demand. The mass balance presented below in Table 5, is simply a comparison of forecasted demand against assumed supply and does not account for actual withdrawal capability.

**Table 5. Monthly Storage Assessment, 80% Utilization (MMcf)**

Month	Nov-23	Dec-23	Jan-24	Feb-24	Mar-24	Curtailment Total
Pipeline Supply	84,060	82,274	90,582	84,738	90,582	
<b>COLD TEMPERATURE CONDITION</b>						
CGR Monthly Demand	81,900	103,385	92,845	82,128	74,617	
Storage WD	-2,160	21,111	2,263	-2,610	-15,965	
Mth-end Inv	99,060	77,949	75,686	78,296	94,261	
Min Inv Req	44,500	43,200	41,800	28,700	19,800	
Curtailment	0	0	0	0	0	<b>0</b>
<b>AVERAGE TEMPERATURE CONDITION</b>						
CGR Monthly Demand	78,120	95,945	86,459	76,937	70,432	
Storage WD	-5,940	13,671	-4,123	-7,801	-20,150	
Mth-end Inv	102,840	89,169	93,292	101,093	121,243	
Min Inv Req	44,500	43,200	41,800	28,700	19,800	
Curtailment	0	0	0	0	0	<b>0</b>
<b>HOT TEMPERATURE CONDITION</b>						
CGR Monthly Demand	75,420	89,931	81,096	72,297	66,867	
Storage WD	-8,640	7,657	-9,486	-12,441	-23,715	
Mth-end Inv	105,540	97,883	107,369	119,810	143,525	
Min Inv Req	44,500	43,200	41,800	28,700	19,800	
Curtailment	0	0	0	0	0	<b>0</b>

This mass balance assessment is not predicting that all storage fields will be full or nearly full prior to the start of the summer injection season in April 2024. Rather this assessment shows that on a monthly basis under all temperature conditions, SoCalGas expects to have sufficient pipeline receipt capacity and storage inventory to serve all noncore customer demand without curtailment, and without impacting core reliability requirements. Storage levels should be much greater than those levels needed to



maintain core reliability throughout the winter season provided customers elect to utilize our available pipeline receipt capacity and deliver sufficient supply. These mass balance calculations assume that gas supplies are delivered to the SoCalGas system equal to the assumed pipeline capacities, including utilization assumptions. In this sense, the mass balance provides the most optimistic assessment of the capability to meet demand through the winter season. To the extent that customers are unwilling or unable to deliver supply to the SoCalGas system at these assumed levels, there will be a potential for the curtailment of noncore demand in order to maintain core reliability.