



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

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Order Instituting Investigation pursuant to Senate Bill 380 to determine the feasibility of minimizing or eliminating the use of the Aliso Canyon natural gas storage facility located in the County of Los Angeles while still maintaining energy and electric reliability for the region.

I.17-02-002
(Filed February 9, 2017)

**JOINT MOTION OF SOUTHERN CALIFORNIA EDISON COMPANY (U 338-E) AND
SOUTHERN CALIFORNIA GENERATION COALITION FOR EXPEDITED RELIEF**

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Dated: **August 10, 2018**

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

Order Instituting Investigation pursuant to Senate Bill 380 to determine the feasibility of minimizing or eliminating the use of the Aliso Canyon natural gas storage facility located in the County of Los Angeles while still maintaining energy and electric reliability for the region.

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Pursuant to Rule 11.1 of the California Public Utilities Commission's (Commission's or CPUC's) Rules of Practice and Procedure, Southern California Edison Company (SCE) and Southern California Generation Coalition (SCGC) respectfully move the Commission for the expedited relief described below. Given that time is of the essence, by concurrent, separate motion, SCE and SCGC also respectfully request the Commission issue an order shortening the parties' time to respond to this motion to five days. If SCE and SCGC request the opportunity to reply to responses, they agree to shorten their reply period to three days.

I.

INTRODUCTION

SCE and SCGC¹ seek expedited action by the Commission to ameliorate the sharp spikes in SoCalGas citygate gas prices, which are significantly increasing end-use customer electricity

¹ SCGC members include utilities that own, operate, and are responsible for obtaining fuel for natural gas-fired electric generation facilities in the SoCalGas service territory. SCGC's utility members include the Los Angeles Department of Water and Power, Burbank Water and Power, Pasadena Water and Power, and the Imperial Irrigation District.

costs that appear to be driven by the application of Southern California Gas Company's (SoCalGas') Tariff Rule 30, Paragraph G, Operational Flow Order (OFO) noncompliance charges. This effect appears to be particularly acute during periods of high temperatures that have coincided with a period of restricted operations at the Aliso Canyon Natural Gas Storage Facility (Aliso Canyon), in combination with SoCalGas' current transmission pipeline capacity reductions.

As discussed in detail in Section II below, the SoCalGas OFO system balancing rule provides for increasing noncompliance charges that give shippers an economic incentive to ensure their scheduled deliveries match their demand within a prescribed tolerance level. The OFO structure has five Stages, plus a final Emergency Flow Order (EFO) Stage, with each successive Stage imposing greater financial noncompliance charges for imbalances that exceed a prescribed tolerance. The OFO structure assumes noncore customers can avail themselves of sufficient gas supply flexibility, which is not the case when storage and gas transmission capacity are restricted. As a result, under current conditions, noncore shippers have very limited ability to bring their daily gas deliveries into balance with their daily gas demand if they observe that they will be in an imbalance situation after the conclusion of gas trading by approximately 8:00 a.m. the day before the gas day (*i.e.*, Cycle 1).

For electric generators in particular, which are usually among the largest gas shippers during summer months (approximately 60% of demand), significant imbalances between scheduled gas supplies and forecast burns can occur after the Cycle 1 process because of the changes that regularly occur to the electric grid topology that can greatly influence gas burns in a manner that cannot always be anticipated, and electric customer demands that are often difficult to accurately predict more than one day in advance. This situation is exacerbated for electric generators that participate in the California Independent System Operators (CAISO) wholesale energy markets because they do not receive their generation schedules from the CAISO until after the SoCalGas Cycle 1 scheduling process has concluded.

Declarations of Stage 4 and 5 OFOs with noncompliance charges starting at \$25/dth appear to be a significant contributor to the substantial recent increases in SoCalGas citygate and corresponding CAISO wholesale power prices without providing a meaningful increase in gas and electric system reliability. This is the case, in part, due to procurement and scheduling timing disconnects between the gas and power markets in which gas shippers buy and schedule gas prior to generators receiving CAISO market awards. Additionally, OFOs are issued after the time has expired to make meaningful adjustments to respond to the OFO because currently gas purchasers are generally only able to buy/sell gas that is already flowing given the storage and pipeline constraints on the SoCalGas/SDG&E gas system. However, low OFOs can have the effect of increasing the wholesale gas price without affecting the amount of gas flowing into the SoCalGas/SDG&E gas system. The abnormally high wholesale gas prices that have been recently experienced at the SoCalGas citygate are the result of the market's expectation SoCalGas will issue a low OFOs at Stage 4 or 5 after the Cycle 1 (and possible the evening day ahead gas nomination cycle) gas transaction window has closed.

As an example of the corresponding harm to wholesale power prices the noncompliance charges are driving, since July 22, SCE's end-use customers have incurred **more than \$200 million above historical average heatwave Energy Resource Recovery Account (ERRA)-related costs**. As a result, SCE's ERRA balancing account has triggered above the Assembly Bill (AB) 57 5% threshold in July. SCE currently does not expect the ERRA balance to self-correct below this threshold by year-end. As required, SCE will be submitting an ERRA Trigger filing with the Commission in the near future. Absent expedited Commission intervention, SCE anticipates this phenomenon will likely repeat itself (perhaps several times) over the remaining summer months, and potentially into the winter, causing gas and electric customers to unreasonably incur many hundreds of millions of dollars of additional costs in excess of what

would otherwise be the case in a rationally operating market.² This is avoidable with a temporary tariff change that will benefit electric and gas customers.

The immediate short-term remedy SCE and SCGC request is that the Commission temporarily cap the \$25/dth component of the Stage 4 and Stage 5³ OFO noncompliance charges in SoCalGas Rule 30.G at the \$5/dth level until the Commission can assess if a replacement OFO noncompliance charge structure is necessary given the significant constraints on the SoCalGas/SDG&E gas system, or until the storage and gas transmission system is substantially operational and capable of delivering sufficient gas to SoCalGas/SDG&E's customers after Cycle 1 schedules have been finalized. If the Commission implements SCE and SCGC's requested relief, a Stage 4 and Stage 3 OFO would have the same noncompliance charge, but a Stage 5 OFO would have a noncompliance charge of \$5/dth (*i.e.*, the current Stage 3 amount) **plus** an additional G-IMB daily balancing standby rate.

Temporarily capping the dollar/dth noncompliance charge component of a Stage 4 and Stage 5 OFO is an easy-to-implement solution to the price spikes that are causing substantial cost increases to gas and retail electric consumers. The cap on the dollar Stage 4 and 5 noncompliance charge should not negatively impact gas and electric system reliability because the noncompliance charge of \$5/dth is still sufficiently high to incent appropriate behavior by noncore customers. The \$5/dth noncompliance charge is more than 100% greater than the recent traded prices in the supply basins delivering to gas California.

² See Cal. Pub. Util. Code § 451 (requiring rates to be just and reasonable, stating "All charges demanded or received by any public utility, or by any two or more public utilities, for any product or commodity furnished or to be furnished or any service rendered or to be rendered shall be just and reasonable. Every unjust or unreasonable charge demanded or received for such product or commodity or service is unlawful.").

³ For Stage 5, the proposal is to cap the noncompliance charge at \$5/dth, but keep the additional Rate Schedule G-IMB daily balancing standby rate that is currently applicable.

II.

CAPPING THE STAGE 4 AND STAGE 5 OFO DOLLAR/DTH NONCOMPLIANCE CHARGES WILL RESOLVE THE CITYGATE PRICE SPIKE PROBLEM WITHOUT JEOPARDIZING RATES OR RELIABILITY⁴

A. Introduction to Operational and Emergency Flow Orders

OFOs and Emergency Flow Orders (EFOs) are system balancing tools to give gas shippers economic incentive to ensure their scheduled deliveries match their demand within a prescribed tolerance. SoCalGas issues OFOs when the system forecast of gas supply is not in balance with the system forecast of demand, after considering storage withdrawal or injection capacity allocated to the balancing function.⁵ The goal of an OFO is to keep the system in balance, *i.e.*, within acceptable limits, by using the threat of financial penalties known as noncompliance or imbalance charges against shippers who do not take action to either deliver additional supply or limit supply to balance their supply with their usage on a daily basis within a specified tolerance band. If SoCalGas issues an OFO, it must make that OFO declaration by 8:00 p.m. for the next gas day.⁶

The OFO rules operate on the assumption that sufficient gas is available for noncore customers to procure to serve anticipated negative imbalances. They are not designed to

⁴ All of the content in this section is supported by the Declaration of Robert Grimm attached hereto as Attachment A.

⁵ SoCalGas Rule 41 provides: “The Gas Control Department is the sole authority for: operating the pipeline and storage system, developing the system sendout (*i.e.*, demand) forecasts to be used for purposes of determining on a daily basis Southern System minimum flow requirements, and for issuing Operational Flow Orders (“OFOs”). The Gas Control Department is responsible for calculating forecasted sendout and physical storage injection capacity. For every nomination cycle, the Gas Scheduling Department shall calculate the system capacity as the sum of forecasted sendout, physical storage injection capacity, off-system scheduled quantities, and, through October 31, 2018, incremental injection capacity; and where the incremental injection capacity is the sum of the prior cycle scheduled withdrawal and withdrawal capacity used for balancing.”

⁶ For example, an OFO declaration called for a Tuesday must be called by 8:00 p.m. on Monday. A more detailed explanation is set forth in Section C of this Motion. 8:00 p.m. is temporary as part of the Daily Balancing settlement the Commission adopted in D.16-06-039, Appendix 1.

address conditions when gas is constrained by restricted storage and/or transmission capacity, as is the case currently.⁷

If the system inventory or line pack level is high or low, SoCalGas/SDG&E may issue and implement a high or low OFO or EFO. SoCalGas will issue a high or low OFO if, on a day prior to this Gas Day, the system forecast of storage withdrawal or injection used for balancing exceeds the withdrawal or injection capacity allocated to the balancing function.⁸

Under SoCalGas Rule 30.G, both high and low OFOs are issued in Stages that correspond to increasing noncompliance charges as depicted in Table I below.⁹

Table I

Stage	Daily Imbalance Tolerance	Noncompliance Charge (\$/therm)
1	Up to +/-25%	0.025
2	Up to +/-20%	0.10
3	Up to +/-15%	0.50 ¹⁰ (\$5/dth charge at any percentage tolerance between 0 to 15%)
4	Up to +/-5%	2.50 (\$25/dth charge for 5% daily imbalance tolerance) ¹¹
5	Up to +/-5%	2.50 (\$25/dth plus Rate Schedule G-IMB ¹² daily balancing standby rate (\$25/dth + standby)
EFO	Zero	5.00 (\$50/dth plus Rate Schedule G-IMB daily balancing standby rate

⁷ In addition to the reduced operation of Aliso Canyon, *see* the 6/18/18 Letter from CPUC Energy Division Director Edward Randolph to Bret Lane, President & CEO of SoCalGas, addressing the reduced transmission capacity of the SoCalGas/SDG&E pipelines, available at: http://www.cpuc.ca.gov/uploadedFiles/CPUC_Public_Website/Content/News_Room/Letter%20to%20SoCalGas%20Aliso%206-18-18.pdf.

⁸ SoCalGas Rule 41.4.

⁹ SoCalGas Rule 30.G. Note the conversion is 10 therms = 1 decatherm = 1 dth.

¹⁰ SoCalGas can set the tolerance at Stage 3 at any percentage tolerance between 0 to 15%, but SoCalGas has largely set its OFO tolerances at 5%.

¹¹ For Stages 1-4, the OFO noncompliance charges do not include the cost of the commodity, which still must be purchased by month-end for any shortfalls. Stages 1 through 4 only use a single noncompliance charge to incentivize behavior.

¹² Stage 5 and the EFO stage impose a noncompliance charge *plus* the additional G-IMB daily balancing standby rate, which most shippers would internalize as the highest price of gas traded during the gas day (an amount by itself that could be expected to incent appropriate scheduling behavior because the shipper is not able to avoid the high prices by underdelivering).

The logic behind the Stages for noncompliance charges is that noncompliance charges should be higher than a shipper's other alternatives to give the shipper financial incentive to adjust its gas nominations to match its expected gas demand within a prescribed tolerance. For instance, during some situations, a charge of \$0.25/dth may be sufficient incentive for customers to make changes to their gas supply to avoid the applicable noncompliance charge. In other situations, a higher OFO may be needed to encourage customers to change their gas nominations to avoid imbalance charges (assuming the gas system has sufficient flexibility to support the desired change in flowing supplies). If there is a supply shortage so extreme that an OFO will not financially incentivize customers to rectify the imbalance, the Gas System Operator may issue an EFO. An EFO requires customers to deliver all of the gas they use on that day or pay a fee of \$50/dth plus the G-IMB daily balancing standby rate for all gas burned in excess of scheduled gas deliveries.

SCE and SCGC request the Commission temporarily cap (*i.e.*, replace) the \$25/dth component of the Stage 4 and Stage 5 OFO noncompliance charge at the Stage 3 price, *i.e.*, \$5/dth.¹³ The requested temporary tariff modification is appropriate and necessary for the reasons discussed below.

B. The OFO Noncompliance Charge Structure Is Driving Up Citygate Gas Prices Without Correspondingly Enhancing Gas System Reliability

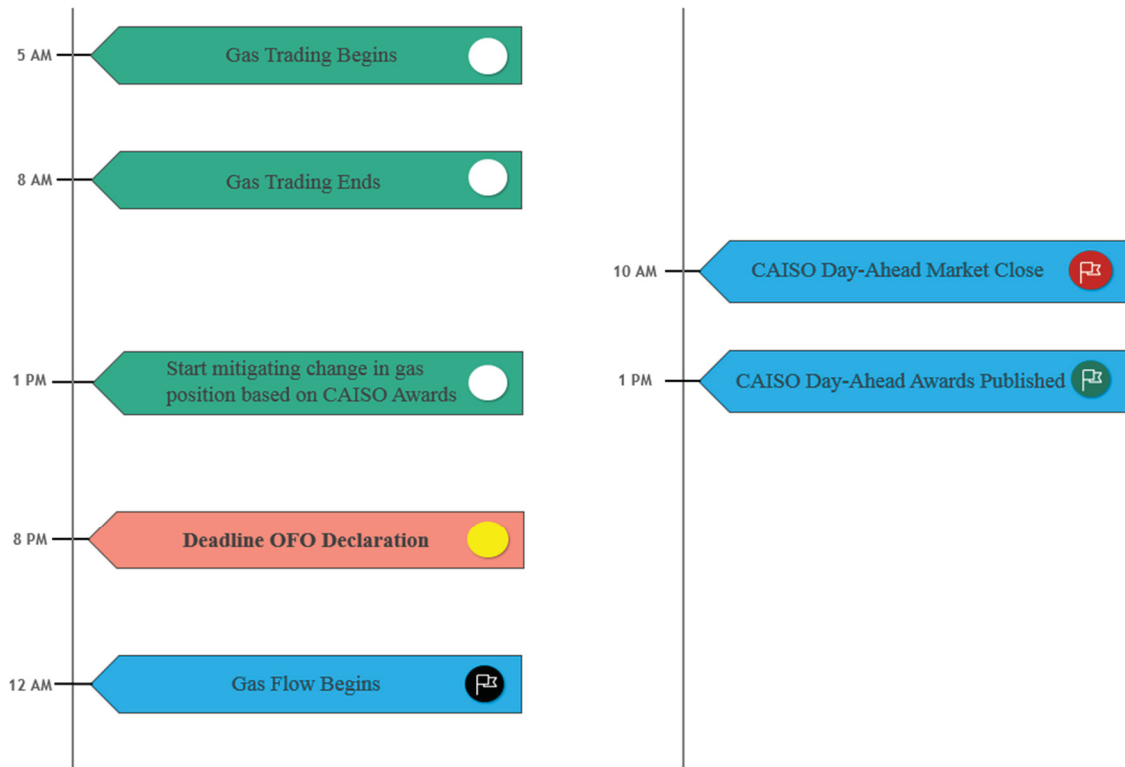
As explained above, SoCalGas' OFO rules are a financially-based balancing incentive mechanism intended to provide price incentives to customers to manage gas imbalances, but the framework assumes noncore customers can avail themselves of sufficient gas supply flexibility. The OFO framework is not effective when some or all of the following conditions exist: (1) backbone transmission pipeline capacity is significantly constrained; (2) gas storage is not

¹³ If the Commission implements SCE and SCGC's requested relief, the noncompliance charge for a Stage 5 OFO would be \$5/dth (Stage 3 amount) **plus** the additional G-IMB daily balancing standby rate.

available to noncore customers; and (3) there is great uncertainty about what stage of OFO, if any, will be declared. Yet, those are the precise conditions under which the OFO framework is operating this summer. As a result, the OFO structure is greatly increasing gas costs to noncore customers with no attendant increase in system reliability, and because of its direct impact on wholesale CAISO power prices, is creating an amplified cost increase impact for end-use electric consumers that cannot be readily addressed through “better” gas scheduling.

This is due, in part, to a misalignment of the procurement and scheduling timelines of the gas and power markets. The vast majority of gas trades occur before generators that participate in the CAISO market know their Day-Ahead Market awards from the CAISO. As a result, CAISO generators have to forecast what their next day gas burn will be within 5% of actual demand, which is inherently challenging because the daily variance in the gas burn for electric generators is often multiples greater than 5%. And, because OFOs are called after Cycle 1 gas schedules have been finalized, electric generators have limited ability to respond to the financial incentives for the day the OFO is issued, particularly when storage is unavailable to them and pipelines are constrained. Instead, the financial incentives cause gas marketers and generators to speculate about what future increased stages of OFO penalties will be assessed, driving up prices as marketers seek to optimize the value of their flowing gas supplies and generators seek to procure sufficient gas to ensure they can meet any CAISO generation schedule they are awarded and/or instructed. As a result, under the current constrained storage and pipeline conditions on the SoCalGas/SDG&E system, the OFO rules do not enhance system reliability. Table II below is a high-level diagram and timeline for how the gas and power scheduling systems operate for CAISO participants.

Table II



- Gas is purchased by 8 am for next day gas operations based on an uncertain forecasted gas burn (Cycle 1). As previously identified, generators that participate in the CAISO market do not know what their electric generation schedules will be until later in the day and therefore can only rely on their best estimates. CAISO generators submit supply bid curves to the CAISO reflecting gas purchase costs incurred and potential noncompliance charge exposure by 10 a.m. for next day electric grid operations. Generators base their supply curves on purchased gas prices and projected noncompliance charges for gas burns in excess of scheduled flows, *i.e.*, “hockey stick” supply curves to recover potential OFO charges for imbalance gas burn exposure.
- CAISO issues Day-Ahead Market (DAM) awards to generators around 1 pm for next day electric grid operations; there is very limited ability for generators to purchase

gas at this time to adjust flowing gas supplies to meet the published DAM results if electric schedules exceed previously purchased gas supplies. Generally, large gas-fired generation fleet managers will have limited opportunities to contract for more than 10% of their gas burns after 8:00 a.m.

- SoCalGas usually issues any OFOs it finds necessary by 4:00 p.m. for the next day's gas operations.
- SoCalGas' final opportunity to declare an OFO for the next day's gas operations is at 8:00 p.m.
- If SoCalGas declares an OFO, electric generators will update Real-Time electric supply bids/curves (HASP) to account for the posted OFO noncompliance charge if they will incur a gas imbalance by being incrementally dispatched.

SoCalGas' system tolerance leaves little margin for forecast burn error. While OFO Stages 1-3 allow for tolerances up to 25-15%, respectively, SoCalGas has been defaulting to 5% tolerance regardless of the Stage of OFO since the reduced operation of Aliso Canyon. A 5% daily gas imbalance tolerance provides a very small margin of forecasting error for CAISO generators in an environment where their individual gas burns can vary significantly day-to-day because of changes to grid operations and weather-driven customer demand. Because most noncore shippers have limited gas burn flexibility and SoCalGas' core controls almost all storage capacity on the SoCalGas system, noncore customers often have to transact with SoCalGas' Gas Acquisition Department to meet their unavoidable gas imbalances. Regardless of whether a counterparty is the SoCalGas Gas Acquisition Department or another market participant, the thinly traded post-Cycle 1 gas transactions often are priced at the noncompliance charge exposure to which that the prospective gas buyer is subject.

The week of July 23 provides a compelling, real world example of how Stage 4 and above low OFO noncompliance charges influence citygate gas prices, and how the proposed temporary relief would address the problem without any downstream negative consequences.

1. The Week of July 23 Demonstrates that OFO Noncompliance Charges Above Stage 3 Can Have the Unintended Consequence of Driving Up Citygate Gas Prices

Gas purchasing for Friday, July 20, for the weekend of Saturday, July 21, and Sunday, July 22, and for Monday, July 23, began on Friday, July 20, and was essentially closed by 8 a.m. on Friday, July 20, (Cycle 1). SoCalGas issued a Stage 4 Low OFO (\$25/dth imbalance charge) on Sunday, July 22, 2:47 p.m., for Monday, July 23. SoCalGas did not issue an OFO on Monday, July 23, for Tuesday, July 24, but SoCalGas issued a Stage 3 OFO on Tuesday, July 24, for Wednesday, July 25. The timeline below of Friday, July 20, to Monday, July 23 demonstrates the financial impact of the potential for a high-priced OFO event without adequate ability for shippers to increase gas deliveries beyond Cycle 1 nominations.

- 8:00 a.m. Friday, July 20: Trading for the weekend gas strip (Saturday, Sunday, and Monday) ended with prices at \$13-14/dth.
- 11:14 a.m. Friday, July 20: SoCalGas issued a System Condition Update with a Curtailment Watch for Monday.
- 2:47 p.m. Sunday, July 22: SoCalGas declared Stage 4 Low OFO (\$25/dth) for Monday, July 23.
- 8:00 a.m. Monday, July 23: With temperatures forecasted to continue to increase on Tuesday and potentially peak on Wednesday, July 25, and a Stage 4 Low OFO already having been declared for Monday, July 23, trading on Monday for Tuesday spiked to ~\$40/dth.
- 2:00 p.m. Monday, July 23: CAISO Day-Ahead Market power prices published with the South of Path 15 (SP15) trade hub on-peak, Hour Ending 7:00 a.m. (HE07) to Hour Ending 10:00 p.m. (HE22), average of \$377/MWh, and with HE20 published close to the price cap of \$1,000/MWh.¹⁴

¹⁴ Please reference the CAISO website at www.caiso.com for published prices.

- 8:00 p.m. Monday, July 23: SoCalGas did not declare an OFO for Tuesday, July 24, which was its final opportunity to do so.

The very high Stage 4 OFO \$25/dth charge did not meaningfully enhance reliability on the day it was issued because trading closed at 8:00 a.m. on Sunday; instead, it adversely affected the prices for the next flow day, Tuesday, July 24. The result of declaring the Stage 4 low OFO on Sunday for Monday was a dramatic increase in wholesale gas prices traded on Monday for Tuesday, a day for which SoCalGas did not issue an OFO.

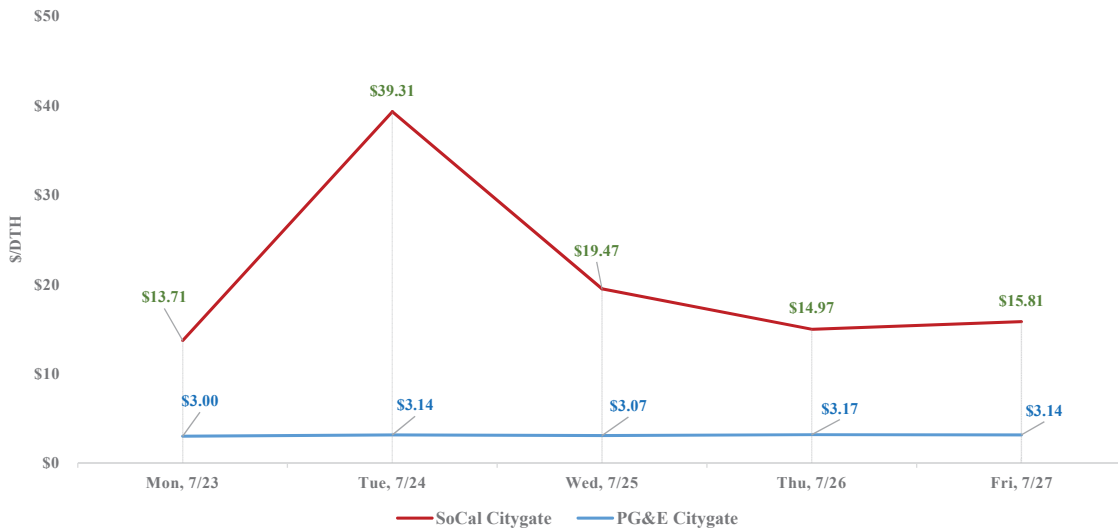
By comparison, PG&E's citygate prices have remained near seasonally normal prices while gas prices in Southern California have been disproportionately volatile. Gas has traded around \$3 to \$4/dth for PG&E citygate but between \$10/dth and \$40/dth at the SoCalGas citygate. It is evident from very dissimilar outcomes in PG&E's territory that the market response to SoCalGas' Stage 4 low OFO was neither due to limited gas supplies east of the California border, which would also impact PG&E, nor excessive gas demand as the entire State was confronted with very high temperatures. These remarkably different outcomes occurred because PG&E's system had sufficient flexibility.

The graphs in Tables III and IV below compare the Monday, July 23, through Friday, July 27, wholesale energy price results for (1) SoCalGas citygate and PG&E citygate; and (2) On-Peak wholesale power prices for South of Path 15 (SP15) and North of Path 15 (NP15). The first chart demonstrates how the low OFO Stage 4 (\$25/dth imbalance charge) declared on Sunday, July 22, for Monday, July 23, affected gas trading for Tuesday, July 24.¹⁵

¹⁵ All tables with pricing figures are populated with data SCE obtained through its subscription to Platt's Gas Daily.

Table III

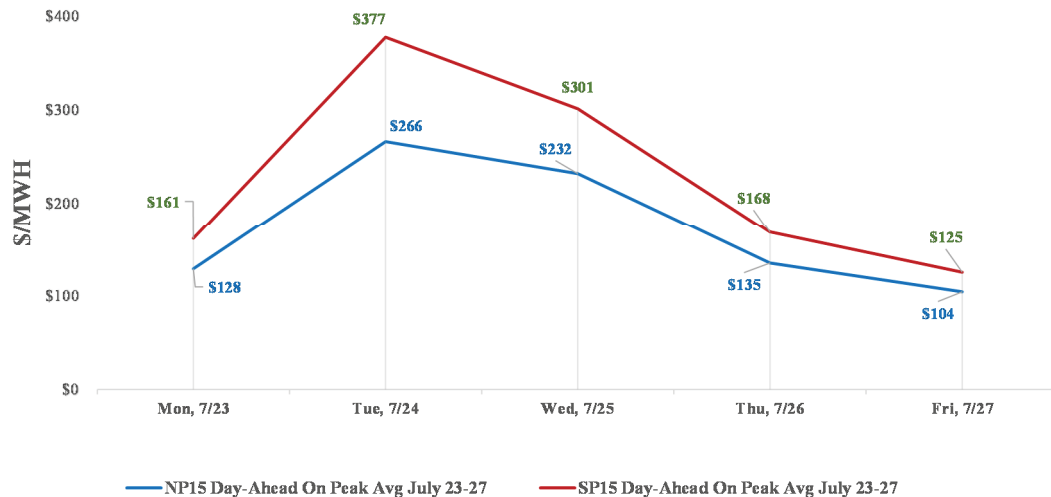
SoCal Citygate vs. PG&E Citygate



The graph in Table IV demonstrates the SoCalGas citygate prices for the flow day, Tuesday, July 24, affected wholesale power prices across the CAISO, but more so in SP15 than NP15.

Table IV

SP15 Day-Ahead vs. NP15 Day-Ahead



It is clear from this comparison that the significantly high gas prices in Southern California, and the \$25/dth Stage 4 OFO noncompliance charge in particular, directly affected CAISO wholesale power prices. Instead of enhancing reliability, the potential for OFO charges

resulted in significant gas price run-ups in the market because generators were trying to avoid the OFO noncompliance charges, and these much higher than necessary citygate prices led to a very costly amplification on CAISO wholesale power prices.¹⁶

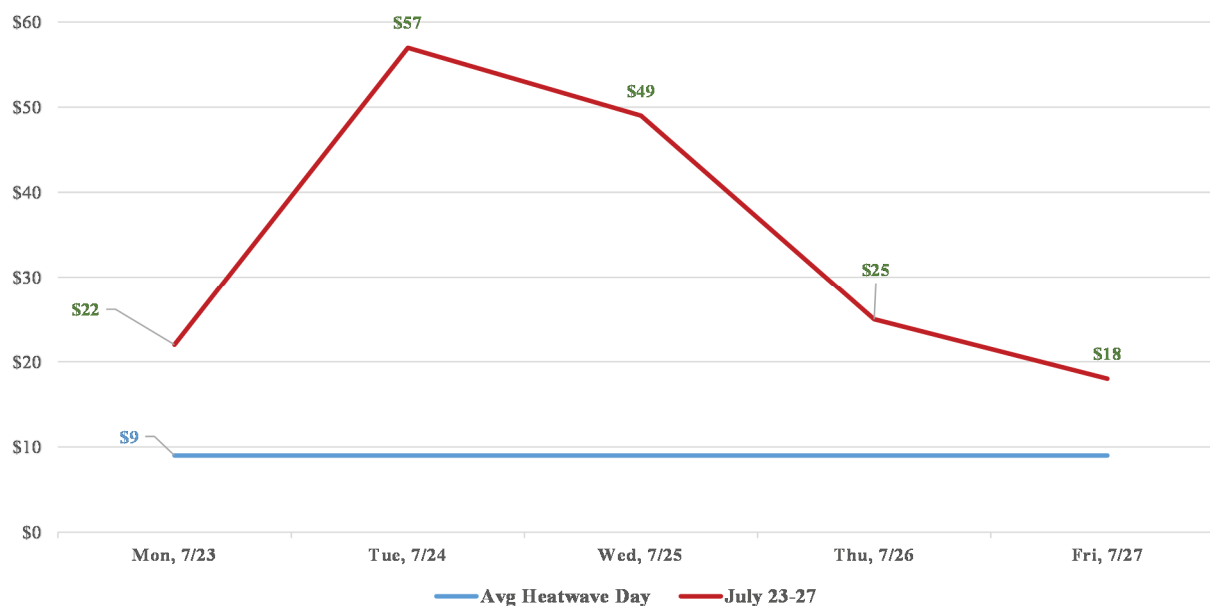
Since July 22, the significant increase in wholesale power prices resulting from SoCalGas' OFO structure and constrained system operations has led to more than \$200 million of purchased power expenses for SCE's bundled service customers above its average summer heatwave ERRA-related costs. As a result, the ERRA balancing account has triggered above the AB 57 5% threshold in July. SCE currently does not expect the ERRA balance to self-correct below this threshold by year-end. As required, SCE will be submitting an ERRA Trigger filing with the Commission in the near future.

More specifically, SCE's week of July 23 Day-Ahead net wholesale CAISO costs increased approximately \$150 million over average July prices and approximately \$120 million over average summer heatwave prices. Table V below is a graph of SCE's week of July 23 net wholesale energy costs.

¹⁶ For example, a marginal generator may only have a noncompliance charge exposed imbalance burn potential of 10,000 dth, but the potential exposure to a \$25/dth Stage 4 or 5 charge plus the cost of the gas commodity can result in many fold greater wholesale power costs. To illustrate, the potential 10,000 dth imbalance gas would cost the generator approximately \$300,000 if the gas imbalance was cashed out at \$5/dth commodity cost plus the \$25/dth noncompliance charge price (10,000 dth X \$30/dth = \$300,000). As a result, if the generator pays up to \$30/dth in the Cycle 1 nomination process or incurs the \$30/dth imbalance charge, the electric generator needs to recover at least \$300,000 from the CAISO power markets to offset its incremental gas cost. But, by bidding its electric generation resource to recover \$30/dth, a hypothetical electric generator with an "all-in" heat rate of 10,000 Btu/kWh will need to bid at least \$300/MWh. If this generator sets the marginal clearing price for the CAISO Day-Ahead Market, electric consumers are paying at least \$300/MWh for all energy their load-serving entity was required to purchase to meet their demand. Conservatively assuming that 10,000 MWh were purchased in the CAISO markets above the generation supply that load serving entities provided for the given hour, the \$300/MWh market clearing power price results in \$3 million of purchased power expense (10,000 MWh X \$300/MWh = \$3 million), or a 10-fold increase over the generator's gas costs for the hour. Notably, this amplification effect can happen with just a few MWh of energy dispatch instructed by the CAISO on an electric generator that has had to incorporate a Stage 4 or 5 OFO noncompliance charge into its energy supply bid curve, and the impact is multiplied by the number of hours in which gas OFO noncompliance charges adversely impact CAISO wholesale power prices.

Table V

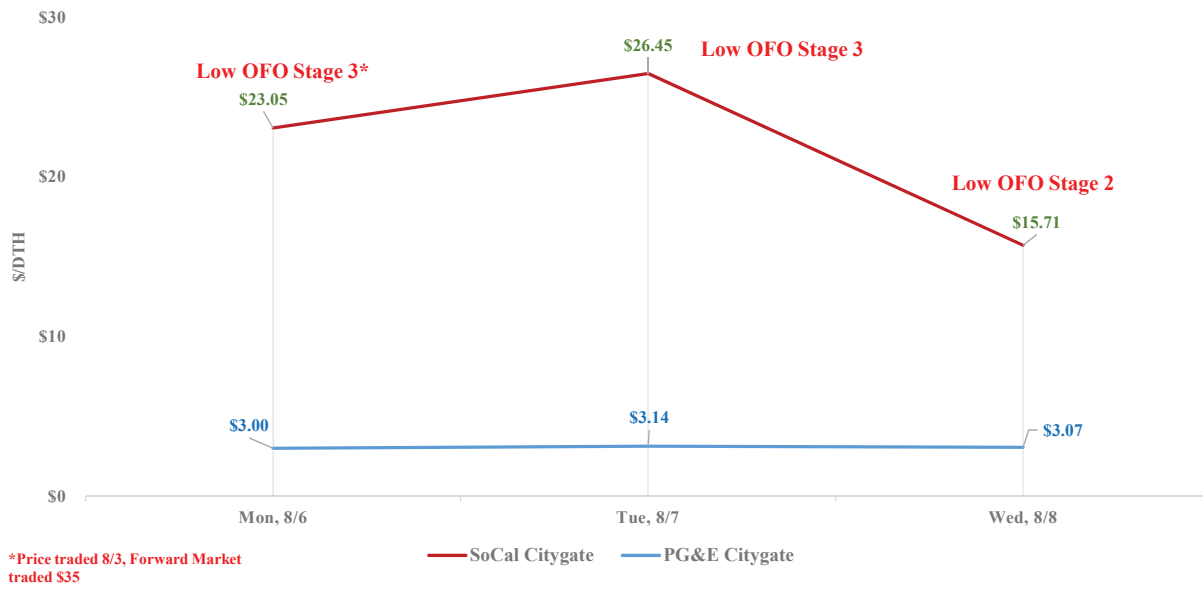
ERRA Costs vs. Average Heatwave Day (\$MM)



Of concern, the adverse cost impact described above is repeating in August. As demonstrated in the graph in Table VI below, gas trading on August 3 for the weekend strip August 4 through 6 traded at \$23/dth, and at \$35/dth for Monday-only (August 6), with an expectation of a possible Low OFO Stage 4 declaration to be made on Sunday, August 5, for Monday, August 6, based on similar operating and market conditions the week of July 22.

Table VI

SoCal Citygate vs PG&E Citygate



The most current gas/power market prices at the time of this Motion’s filing are depicted in Tables VII and Table VIII below.

Table VII

Gas (\$/dth)		
Date	SoCal Citygate	PG&E Citygate
Friday, 8/3/18	\$13.41	\$3.28
Saturday, 8/4/18	\$23.05	\$3.30
Sunday, 8/5/18	\$23.05	\$3.30
Monday, 8/6/18*	\$26.45	\$3.37
Tuesday, 8/7/18	\$15.71	\$3.39

*Price traded on 8/3/18 with 8/6/18 only trading \$35

Table VIII

CAISO Power Prices (\$/dth)				
	SP15		NP15	
Date	Day-Ahead On-Peak	Day-Ahead Off-Peak	Day-Ahead On-Peak	Day-Ahead Off-Peak
Friday, 8/3/18	\$100	\$53	\$50	\$41
Saturday, 8/4/18	\$103	\$46	\$46	\$41
Sunday, 8/5/18	\$106	\$47	\$44	\$39
Monday, 8/6/18	\$237	\$64	\$82	\$39
Tuesday, 8/7/18	\$278	\$79	\$132	\$50

2. SCE and SCGC Recommend that the Commission Temporarily Cap the \$25/dth Component of the Stage 4 and Stage 5 Low OFO Noncompliance Charges at the Stage 3 Low OFO Noncompliance Charge of \$5/dth

To address in the short term the immediate problem of the misalignment of the OFO framework during a period of restricted storage and transmission capacity, the Commission should immediately and temporarily cap the \$25/dth component of the Stage 4 and Stage 5 OFO noncompliance charges in SoCalGas Rule 30.G at the Stage 3 OFO level of \$5/dth until the storage and gas transmission system is substantially operational and capable of delivering sufficient gas to SoCalGas/SDG&E's customers, or until the Commission can more fully assess and adopt a gas imbalance framework for the current constrained storage and pipeline operations on the SoCalGas/SDG&E systems. If the Commission implements SCE and SCGC's requested relief, a Stage 4 and Stage 3 OFO would have the same noncompliance charge, but a Stage 5 OFO would have a noncompliance charge of \$5/dth (*i.e.*, the current Stage 3 amount) **plus** an additional G-IMB daily balancing standby rate.

Temporarily capping the Stage 4 and Stage 5 OFO noncompliance charge component is an easy-to-implement solution that should not be controversial among parties or to the Commission because it is a remedy that should not negatively impact gas system reliability, and it should be expected to bring immediate cost relief to end-use gas and electric customers. This temporary tariff modification will eliminate the OFO noncompliance charge-driven volatility in the wholesale power markets that are doing nothing more than creating a massive

transfers of wealth at the expense of gas and electric customers, as opposed to enhancing system reliability.

The proposed temporary changes to the SoCalGas Rule 30.G are depicted in red in Table IX below:

Table IX

Stage	Daily Imbalance Tolerance	Noncompliance Charge (\$/therm)
1	Up to +/-25%	0.025
2	Up to +/-20%	0.10
3	Up to +/-15%	0.50
4	Up to +/-5%	2.50 0.50
5	Up to +/-5%	2.50 0.50 plus Rate Schedule G-IMB daily balancing standby rate
EFO	Zero	5.00 plus Rate Schedule G-IMB daily balancing standby rate

III.

CONCLUSION

For the foregoing reasons, SCE and SCGC respectfully requests the Commission immediately institute the expedited and temporary relief requested in this Motion.

Respectfully submitted,

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August 10, 2018

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

Order Instituting Investigation pursuant to Senate Bill 380 to determine the feasibility of minimizing or eliminating the use of the Aliso Canyon natural gas storage facility located in the County of Los Angeles while still maintaining energy and electric reliability for the region.

I.17-02-002
(Filed February 9, 2017)

**ADMINISTRATIVE LAW JUDGE’S [PROPOSED] RULING ON JOINT MOTION OF
SOUTHERN CALIFORNIA EDISON COMPANY (U 338-E) AND SOUTHERN
CALIFORNIA GENERATION COALITION FOR EXPEDITED RELIEF**

On August 10, 2018, Southern California Edison Company (“SCE”) and Southern California Generation Coalition (“SCGC”) filed a Joint Motion for Expedited Relief (the “Joint Motion”). In accordance with the Rules of Practice and Procedure, the California Public Utilities Commission (“Commission”) has considered and grants the Joint Motion.

Accordingly, it is ORDERED that:

1. The Joint Motion is granted.
2. The Commission approves and hereby implements the following changes to the SoCalGas Rule 30.G, which shall remain in effect until the storage and gas transmission system is substantially operational and capable of delivering sufficient gas to SoCalGas/SDG&E’s customers, or until the Commission can more fully assess and adopt a gas imbalance framework for the current constrained storage and pipeline operations on the SoCalGas/SDG&E systems:

Stage	Daily Imbalance Tolerance	Noncompliance Charge (\$/therm)
1	Up to +/-25%	0.025
2	Up to +/-20%	0.10
3	Up to +/-15%	0.50

4	Up to +/-5%	2.50 0.50
5	Up to +/-5%	2.50 0.50 plus Rate Schedule G-IMB daily balancing standby rate
EFO	Zero	5.00 plus Rate Schedule G-IMB daily balancing standby rate

Dated _____, 2018, at San Francisco, California.

Administrative Law Judge

Attachment A

Declaration of Robert Grimm

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1 specified tolerance band. If SoCalGas issues an OFO, it must make that OFO declaration by
2 8:00 p.m. for the next gas day.²

3 3. **The OFO rules operate on the assumption that sufficient gas is available for**
4 **noncore customers to procure to serve anticipated negative imbalances. They are not designed**
5 **to address conditions when gas is constrained by restricted storage and/or transmission**
6 **capacity, as is the case currently.**³

7 4. If the system inventory or line pack level is high or low, SoCalGas/SDG&E may
8 issue and implement a high or low OFO or EFO. SoCalGas will issue a high or low OFO if, on a
9 day prior to this Gas Day, the system forecast of storage withdrawal or injection used for
10 balancing exceeds the withdrawal or injection capacity allocated to the balancing function.⁴

11 5. Under SoCalGas Rule 30.G, both high and low OFOs are issued in Stages that
12 correspond to increasing noncompliance charges as depicted in Table I below.⁵

² For example, an OFO declaration called for a Tuesday must be called by 8:00 p.m. on Monday.
A more detailed explanation is set forth in Section C of this Motion. 8:00 p.m. is temporary as part of
the Daily Balancing settlement the Commission adopted in D.16-06-039, Appendix 1.

³ In addition to the reduced operation of Aliso Canyon, *see* the 6/18/18 Letter from CPUC Energy
Division Director Edward Randolph to Bret Lane, President & CEO of SoCalGas, addressing the
reduced transmission capacity of the SoCalGas/SDG&E pipelines, available at:
http://www.cpuc.ca.gov/uploadedFiles/CPUC_Public_Website/Content/News_Room/Letter%20to%20SoCalGas%20Aliso%206-18-18.pdf

⁴ SoCalGas Rule 41.4.

⁵ SoCalGas Rule 30.G. Note the conversion is 10 therms = 1 decatherm = 1 dth

Table I

Stage	Daily Imbalance Tolerance	Noncompliance Charge (\$/therm)
1	Up to +/-25%	0.025
2	Up to +/-20%	0.10
3	Up to +/-15%	0.50 ⁶ (\$5/dth charge at any percentage tolerance between 0 to 15%)
4	Up to +/-5%	2.50 (\$25/dth charge for 5% daily imbalance tolerance) ⁷
5	Up to +/-5%	2.50 (\$25/dth plus Rate Schedule G-IMB ⁸ daily balancing standby rate (\$25/dth + standby)
EFO	Zero	5.00 (\$50/dth plus Rate Schedule G-IMB daily balancing standby rate

6. The logic behind the Stages for noncompliance charges is that noncompliance charges should be higher than a shipper's other alternatives to give the shipper financial incentive to adjust its gas nominations to match its expected gas demand within a prescribed tolerance. For instance, during some situations, a charge of \$0.25/dth may be sufficient incentive for customers to make changes to their gas supply to avoid the applicable noncompliance charge. In other situations, a higher OFO may be needed to encourage customers to change their gas nominations to avoid imbalance charges (assuming the gas system has sufficient flexibility to support the desired change in flowing supplies). If there is a supply shortage so extreme that an OFO will not financially incentivize customers to rectify the imbalance, the Gas System Operator may issue an EFO. An EFO requires customers to deliver all of the gas they use on that day or pay a fee of \$50/dth plus the G-IMB daily balancing standby rate for all gas burned in excess of scheduled gas deliveries.

7. In my opinion, SCE and SCGC request that the Commission temporarily cap (*i.e.*, replace) the \$25/dth component of the Stage 4 and Stage 5 OFO noncompliance charge at the Stage 3 price, *i.e.*, \$5/dth² is appropriate and necessary for the reasons discussed below.

⁶ SoCalGas can set the tolerance at Stage 3 at any percentage tolerance between 0 to 15%, but SoCalGas has largely set its OFO tolerances at 5%.

⁷ For Stages 1-4, the OFO noncompliance charges do not include the cost of the commodity, which still must be purchased by month-end for any shortfalls. Stages 1 through 4 only use a single noncompliance charge to incentivize behavior.

⁸ Stage 5 and the EFO stage impose a noncompliance charge plus the additional G-IMB daily balancing standby rate, which most shippers would internalize as the highest price of gas traded during the gas day (an amount by itself that could be expected to incent appropriate scheduling behavior because the shipper is not able to avoid the high prices by underdelivering).

1 **B. The OFO Noncompliance Charge Structure Is Driving Up Citygate Gas Prices**
2 **Without Correspondingly Enhancing Gas System Reliability**

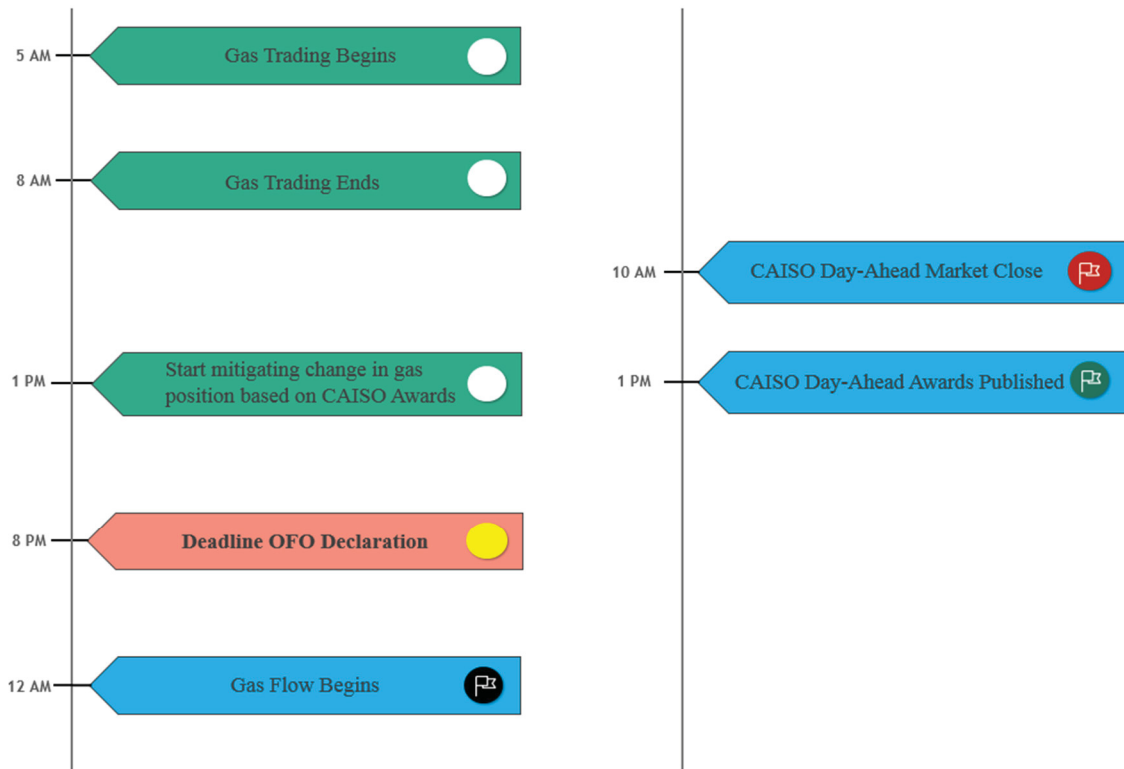
3 8. As explained above, SoCalGas' OFO rules are a financially-based balancing
4 incentive mechanism intended to provide price incentives to customers to manage gas
5 imbalances, but the framework assumes noncore customers can avail themselves of sufficient gas
6 supply flexibility. The OFO framework is not effective when some or all of the flowing
7 conditions exist: (1) backbone transmission pipeline capacity is significantly constrained; (2) gas
8 storage is not available to noncore customers; and (3) there is great uncertainty about what stage
9 of OFO, if any, will be declared. Yet, those are the precise conditions under which the OFO
10 framework is operating this summer. As a result, the OFO structure is greatly increasing gas
11 costs to noncore customers with no attendant increase in system reliability, and because of its
12 direct impact on wholesale CAISO power prices, is creating an amplified cost increase impact
13 for end-use electric consumers that cannot be readily addressed through "better" gas scheduling.

14 9. This is due, in part, to a misalignment of the procurement and scheduling
15 timelines of the gas and power markets. The vast majority of gas trades occur before generators
16 that participate in the CAISO market know their Day-Ahead Market awards from the CAISO.
17 As a result, CAISO generators have to forecast what their next day gas burn will be within 5% of
18 actual demand, which is inherently challenging because the daily variance in the gas burn for
19 electric generators is often multiples greater than 5%. And, because OFOs are called after Cycle
20 1 gas schedules have been finalized, electric generators have limited ability to respond to the
21 financial incentives for the day the OFO is issued, particularly when storage is unavailable to
22 them and pipelines are constrained. Instead, the financial incentives cause gas marketers and
23 generators to speculate about what future increased stages of OFO penalties will be assessed,
24 driving up prices as marketers seek to optimize the value of their flowing gas supplies and
25 generators seek to procure sufficient gas to ensure they can meet any CAISO generation schedule
26 they are awarded and/or instructed. As a result, under the current constrained storage and
27 pipeline conditions on the SoCalGas/SDG&E system, the OFO rules do not enhance system
28 reliability.

2 ² If the Commission implements SCE and SCGC's requested relief, a Stage 5 OFO, the noncompliance charge would be \$5/dth (Stage 3 amount) **plus** the additional G-IMB daily balancing standby rate.

10. Table II below is a high-level diagram and timeline for how the gas and power scheduling systems operate for CAISO participants.

Table II



- Gas is purchased by 8 am for next day gas operations based on an uncertain forecasted gas burn (Cycle 1). As previously identified, generators that participate in the CAISO market do not know what their electric generation schedules will be until later in the day and therefore can only rely on their best estimates. CAISO generators submit supply bid curves to the CAISO reflecting gas purchase costs incurred and potential noncompliance charge exposure by 10 a.m. for next day electric grid operations. Generators base their supply curves on purchased gas prices and projected noncompliance charges for gas burns in excess of scheduled flows, *i.e.*, “hockey stick” supply curves to recover potential OFO charges for imbalance gas burn exposure.

- CAISO issues Day-Ahead Market (DAM) awards to generators around 1 pm for next day electric grid operations; there is very limited ability for generators to purchase gas at this time to adjust flowing gas supplies to meet the published DAM results if electric schedules exceed previously purchased gas supplies. Generally, large gas-fired generation fleet managers will have limited opportunities to contract for more than 10% of their gas burns after 8:00 a.m.
- SoCalGas usually issues any OFOs it finds necessary by 4:00 p.m. for the next day's gas operations.
- SoCalGas' final opportunity to declare an OFO for the next day's gas operations is at 8:00 p.m.
- If SoCalGas declares an OFO, electric generators will update Real-Time electric supply bids/curves (HASP) to account for the posted OFO noncompliance charge if they will incur a gas imbalance by being incrementally dispatched.

11. SoCalGas' system tolerance leaves little margin for forecast burn error.

While OFO Stages 1-3 allow for tolerances up to 25-15%, respectively, SoCalGas has been defaulting to 5% tolerance regardless of the Stage of OFO since the reduced operation of Aliso Canyon. A 5% daily gas imbalance tolerance provides a very small margin of forecasting error for CAISO generators in an environment where their individual gas burns can vary significantly day-to-day because of changes to grid operations and weather-driven customer demand. Because most noncore shippers have limited gas burn flexibility and SoCalGas' core controls almost all storage capacity on the SoCalGas system, noncore customers often have to transact with SoCalGas' Gas Acquisition Department to meet their unavoidable gas imbalances. Regardless of whether a counterparty is the SoCalGas Gas Acquisition Department or another market participant, the thinly traded post-Cycle 1 gas transactions often are priced at the noncompliance charge exposure to which that the prospective gas buyer is subject.

12. On information and belief, the week of July 23 provides a compelling, real world example of how Stage 4 and above low OFO noncompliance charges influence citygate gas

prices, and how the proposed temporary relief should address the problem without downstream negative consequences.

1. The Week of July 23 Demonstrates that OFO Noncompliance Charges Above Stage 3 Can Have the Unintended Consequence of Driving Up Citygate Gas Prices

13. Gas purchasing for Friday, July 20, for the weekend of Saturday, July 21, and Sunday, July 22, and for Monday, July 23, began on Friday, July 20, and was essentially closed by 8 a.m. on Friday, July 20, (Cycle 1). SoCalGas issued a Stage 4 Low OFO (\$25/dth imbalance charge) on Sunday, July 22, 2:47 p.m., for Monday, July 23. SoCalGas did not issue an OFO on Monday, July 23, for Tuesday, July 24, but SoCalGas issued a Stage 3 OFO on Tuesday, July 24, for Wednesday, July 25. The timeline below of Friday, July 20, to Monday, July 23 demonstrates the financial impact of the potential for a high-priced OFO event without adequate ability for shippers to increase gas deliveries beyond Cycle 1 nominations.

- 8:00 a.m. Friday, July 20: Trading for the weekend gas strip (Saturday, Sunday, and Monday) ended with prices at \$13-14/dth.
- 11:14 a.m. Friday, July 20: SoCalGas issued a System Condition Update with a Curtailment Watch for Monday.
- 2:47 p.m. Sunday, July 22: SoCalGas declared Stage 4 Low OFO (\$25/dth) for Monday, July 23.
- 8:00 a.m. Monday, July 23: With temperatures forecasted to continue to increase on Tuesday and potentially peak on Wednesday, July 25, and a Stage 4 Low OFO already having been declared for Monday, July 23, trading on Monday for Tuesday spiked to ~\$40/dth.
- 2:00 p.m. Monday, July 23: CAISO Day-Ahead Market power prices published with the South of Path 15 (SP15) trade hub on-peak, Hour Ending 7:00 a.m.

(HE07) to Hour Ending 10:00 p.m. (HE22), average of \$377/MWh, and with HE20 published close to the price cap of \$1,000/MWh.¹⁰

- 8:00 p.m. Monday, July 23: SoCalGas did not declare an OFO for Tuesday, July 24, which was its final opportunity to do so.

14. The very high Stage 4 \$25/dth noncompliance charge did not meaningfully enhance reliability on the day it was issued because trading closed at 8:00 a.m. on Sunday; instead, it adversely affected the prices for the next flow day, Tuesday, July 24. The result of declaring the Stage 4 low OFO on Sunday for Monday was a dramatic increase in wholesale gas prices traded on Monday for Tuesday, a day for which SoCalGas did not issue an OFO.

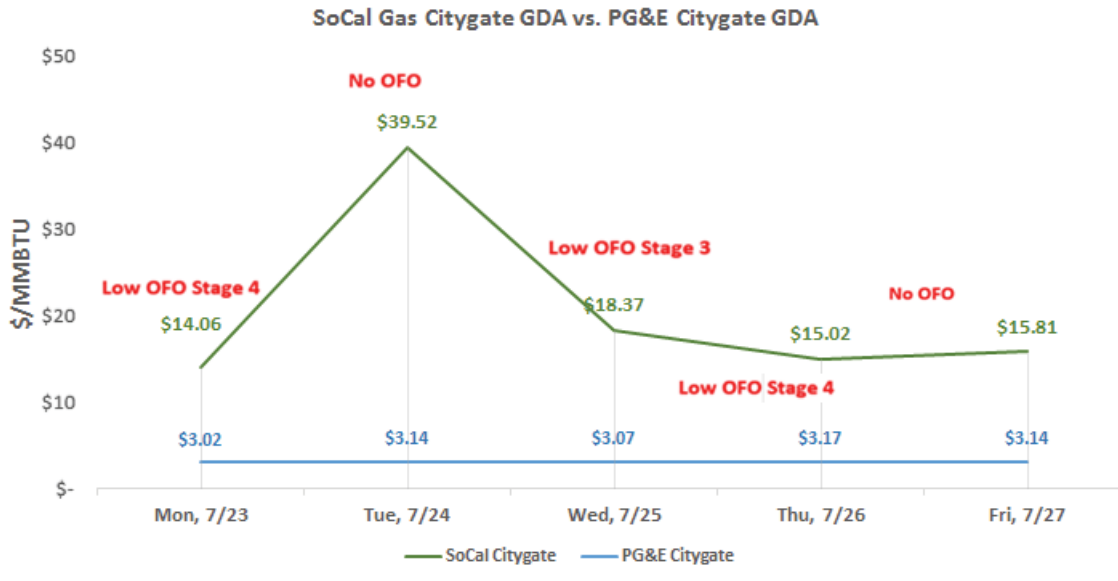
15. By comparison, PG&E's citygate prices have remained near seasonally normal prices while gas prices in Southern California have been disproportionately volatile. Gas has traded around \$3 to \$4/dth for PG&E citygate, but between \$10/dth and \$40/dth at the SoCalGas citygate. It is evident from very dissimilar outcomes in PG&E's territory that this market response to SoCalGas' Stage 4 low OFO was neither due to limited gas supplies east of the California border, which would also impact PG&E, nor excessive gas demand as the entire State was confronted with very high temperatures. These remarkably different outcomes occurred because PG&E's system had sufficient flexibility.

16. The graphs in Tables III and IV below compare the Monday, July 23, through Friday, July 27, wholesale energy price results for (1) SoCalGas citygate and PG&E citygate; and (2) On-Peak wholesale power prices for South of Path 15 (SP15) and North of Path 15 (NP15). The first chart demonstrates how the low OFO Stage 4 (\$25/dth imbalance charge) declared on Sunday, July 22, for Monday, July 23, affected gas trading for Tuesday, July 24.¹¹

¹⁰ Please reference the CAISO website at www.caiso.com for published prices.

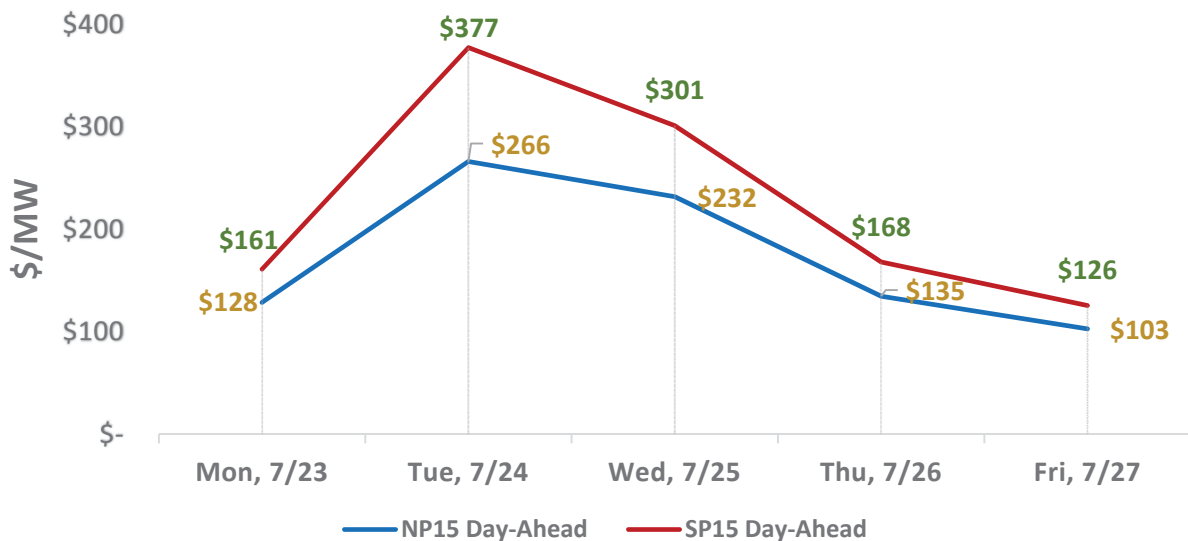
¹¹ All tables with pricing figures are populated with data SCE obtained through its subscription to Platt's Gas Daily.

Table III



17. The graph in Table IV demonstrates the SoCalGas citygate prices for the flow day, Tuesday, July 24, affected wholesale power prices across the CAISO, but more so in SP15 than NP15.

Table IV



18. It is clear from this comparison that the significantly high gas prices in Southern California, and the \$25/dth Stage 4 OFO noncompliance charge in particular, directly affected

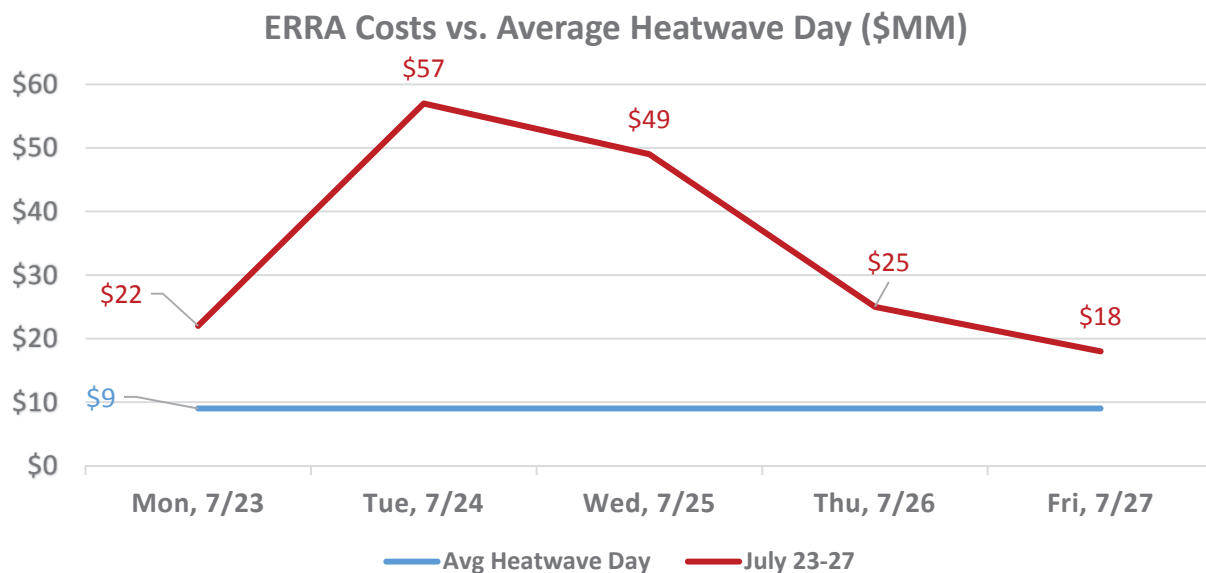
CAISO wholesale power prices. Instead of enhancing reliability, the potential for OFO charges resulted in significant gas price run-ups in the market because generators were trying to avoid the OFO noncompliance charges, and these much higher than necessary citygate prices led to a very costly amplification on CAISO wholesale power prices.¹²

19. On information and belief, since July 22, the significant increase in wholesale power prices resulting from SoCalGas' OFO structure and constrained system operations has led to more than \$200 million of purchased power expenses for SCE's bundled service customers above its average summer heatwave ERRR-related costs. As a result, on information and belief, the ERRR balancing account has triggered above the AB 57 5% threshold in July. I understand SCE currently does not expect the ERRR balance to self-correct below this threshold by year-end. I understand, SCE will be submitting an ERRR Trigger filing with the Commission in the near future.

20. More specifically, SCE's week of July 23 Day-Ahead net wholesale CAISO costs increased approximately \$150 million over average July prices and approximately \$120 million over average summer heatwave prices. Table V below is a graph of SCE's week of July 23 net wholesale energy costs.

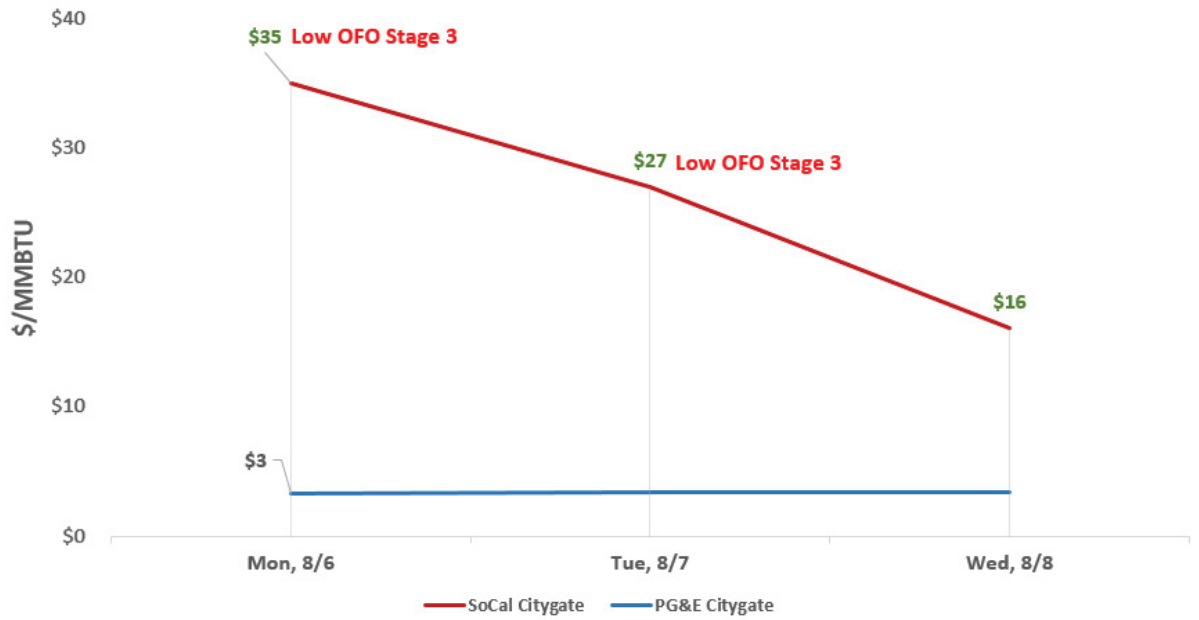
¹² For example, a marginal generator may only have a noncompliance charge exposed imbalance burn potential of 10,000 dth, but the potential exposure to a \$25/dth Stage 4 or 5 charge plus the cost of the gas commodity can result in many fold greater wholesale power costs. To illustrate, the potential 10,000 dth imbalance gas would cost the generator approximately \$300,000 if the gas imbalance was cashed out at \$5/dth commodity cost plus the \$25/dth noncompliance charge price (10,000 dth X \$30/dth = \$300,000). As a result, if the generator pays up to \$30/dth in the Cycle 1 nomination process or incurs the \$30/dth imbalance charge, the electric generator needs to recover at least \$300,000 from the CAISO power markets to offset its incremental gas cost. But, by bidding its electric generation resource to recover \$30/dth, a hypothetical electric generator with an "all-in" heat rate of 10,000 Btu/kWh will need to bid at least \$300/MWh. If this generator sets the marginal clearing price for the CAISO Day-Ahead Market, electric consumers are paying at least \$300/MWh for all energy their load-serving entity was required to purchase to meet their demand. Conservatively assuming that 10,000 MWh were purchased in the CAISO markets above the generation supply that load serving entities provided for the given hour, the \$300/MWh market clearing power price results in \$3 million of purchased power expense (10,000 MWh X \$300/MWh = \$3 million), or a 10-fold increase over the generator's gas costs for the hour. Notably, this amplification effect can happen with just a few MWh of energy dispatch instructed by the CAISO on an electric generator that has had to incorporate a Stage 4 or 5 OFO noncompliance charge into its energy supply bid curve, and the impact is multiplied by the number of hours in which gas OFO noncompliance charges adversely impact CAISO wholesale power prices.

Table V



21. Of concern, the adverse cost impact described above is repeating in August. As demonstrated in the graph in Table VI below, gas trading on August 3 for the weekend strip August 4 through 6 traded at \$23/dth, and at \$35/dth for Monday-only (August 6), with an expectation of a possible Low OFO Stage 4 declaration to be made on Sunday, August 5, for Monday, August 6, based on similar operating and market conditions the week of July 22.

Table VI



22. The most current gas/power market prices at the time of this Motion's filing are depicted in Tables VII and Table VIII below.

Table VII

Gas (\$/dth)		
Date	SoCal Citygate	PG&E Citygate
Friday, 8/3/18	\$13.34	\$3.28
Saturday-Sunday, 8/4-5/18	\$22.32	\$3.30
Monday, 8/6/18	\$35.00	\$3.30
Tuesday, 8/7/18	\$27.00	\$3.36
Wednesday, 8/8/18	\$16.10	\$3.37

Table VIII

CAISO Power Prices (\$/dth)				
	SP15		NP15	
Date	Day-Ahead On-Peak	Day-Ahead Off-Peak	Day-Ahead On-Peak	Day-Ahead Off-Peak
Friday, 8/3/18	\$100	\$53	\$50	\$41
Saturday, 8/4/18	\$103	\$46	\$46	\$41
Sunday, 8/5/18	\$106	\$47	\$44	\$39
Monday, 8/6/18	\$237	\$64	\$82	\$39
Tuesday, 8/7/18	\$277	\$79	\$132	\$50

23. SCE and SCGC Recommend that the Commission Temporarily Cap the \$25/dth Component of the Stage 4 and Stage 5 Low OFO Noncompliance Charges at the Stage 3 Low OFO Noncompliance Charge of \$5/dth

24. To address in the short term the immediate problem of the misalignment of the OFO framework during a period of restricted storage and transmission capacity, the Commission should immediately and temporarily cap the \$25/dth component of the Stage 4 and Stage 5 OFO noncompliance charges in SoCalGas Rule 30.G at the Stage 3 OFO level of \$5/dth until the storage and gas transmission system is substantially operational and capable of delivering sufficient gas to SoCalGas/SDG&E's customers, or until the Commission can more fully assess and adopt a gas imbalance framework for the current constrained storage and pipeline operations on the SoCalGas/SDG&E systems.

25. Temporarily capping the Stage 4 and Stage 5 OFO noncompliance charge component is an easy-to-implement solution that should not be controversial among parties or to the Commission because it is a remedy that should not negatively impact gas system reliability, and it can be expected to bring immediate cost relief to end-use gas and electric customers. This temporary tariff modification should eliminate the OFO noncompliance charge-driven volatility in the wholesale power markets that are doing nothing more than creating massive transfers of wealth at the expense of gas and electric customers, as opposed to enhancing system reliability.

26. The proposed temporary changes to the SoCalGas Rule 30.G are depicted in red in Table IX below:

Table IX

Stage	Daily Imbalance Tolerance	Noncompliance Charge (\$/therm)
1	Up to +/-25%	0.025
2	Up to +/-20%	0.10
3	Up to +/-15%	0.50
4	Up to +/-5%	2.50 0.50
5	Up to +/-5%	2.50 0.50 plus Rate Schedule G-IMB daily balancing standby rate
EFO	Zero	5.00 plus Rate Schedule G-IMB daily balancing standby rate

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct.

Executed on August 10, 2018 at Rosemead, California.

/s/ Robert Grimm
Robert Grimm