Natural Gas Reliability Standards

R.20-01-007 Track 1A

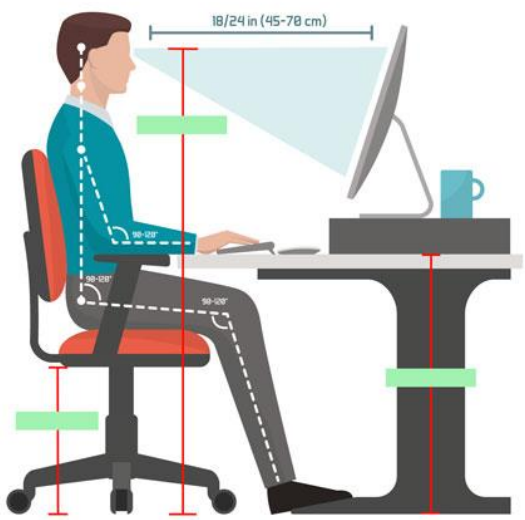
Staff Workshop

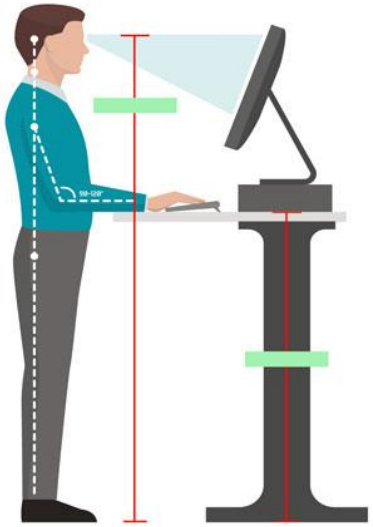
July 7, 2020

Workshop Logistics

- Online only
  - Audio through computer or phone
  - Toll-free 1-855-282-6330
  - Access code: 146 885 5452
  - ***This workshop is being recorded***
- Hosts:
  - Administrative Law Judge Ava Tran
  - Energy Division Staff:
    - Christina Ly Tan
    - Kristina Abadjian
    - Jean Spencer

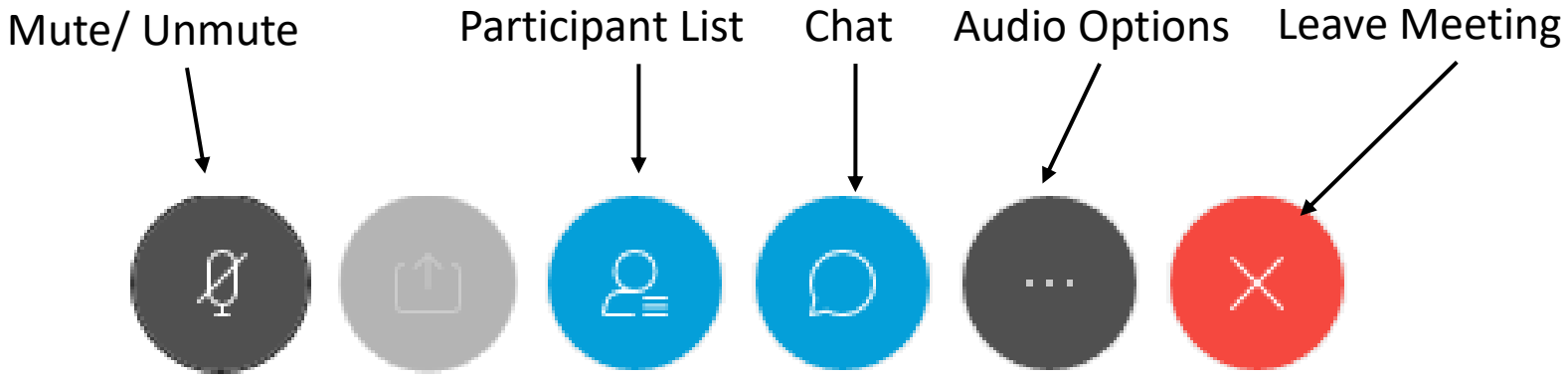
- Safety
  - Note surroundings and emergency exits
  - Ergonomic Check

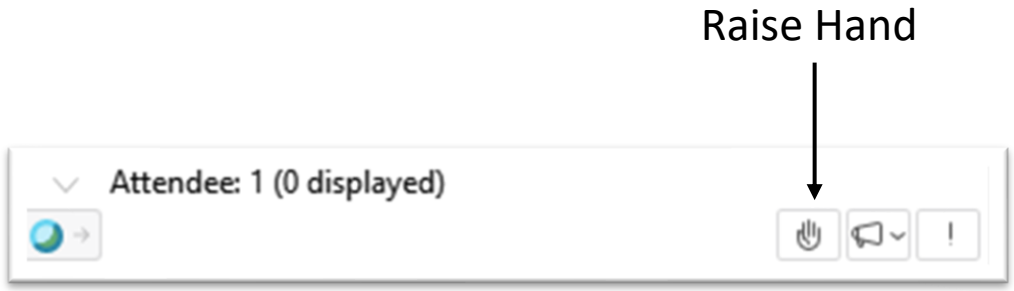




Workshop Logistics

- Today's presentations (.pdf) and agenda are available on the WebEx link under “Event Material” type password “Gasplanning0” into the box and click “View Info”
- Please submit questions for panelists in the Chat box
- Questions will be read aloud by staff but you will be unmuted to respond to the answer. (Reminder: Mute back!)





Purpose

- Assigned Commissioner's Scoping Memo and Ruling announced two workshops in July
- Gather information and facts
- Seek feedback and input
- Identify solutions
- Opportunity to:
  - Address the questions outlined in scoping memo and ruling
  - Hear views of parties and stakeholders
  - Ask questions
  - Voice concerns

Workshop Goals

- Gain a better understanding of the facts upon which testimony, hearings (if needed), and briefs (if needed) will proceed upon
- Energy Division staff will publish a workshop report in September providing recommendations or, at a minimum, a range of options for resolving the issues

Ground Rules

- Workshop is structured to stimulate an honest dialogue and engage different perspectives
- Keep comments friendly and respectful
- Chat feature is only for Q&A or technical issues. Do not start or respond to sidebar conversations

Overview of Existing Natural Gas Reliability Standards

Greg Reisinger, Energy Division Staff

Overview

- Current reliability framework the result of a 2004 Rulemaking, R.04-01-025 and two key follow-up decisions:
    - D.04-09-022
    - D.06-09-039
- Context for R.04-01-025

  "…ensure that California does not face a natural gas shortage in the future"
  - access to supply
  - firm inter- and intrastate pipeline capacity

Current Standards – Key Issues

Key issues concerning current standards

- Multiple measures, but reliability is not defined…

…and factors such as resilience and security that may be part of a definition are not discussed

Current Standards – Key Issues

Key issues concerning current standards:

- Reliability not defined
- Lack of underlying fact base
- Increased role of gas fired electric generation not fully anticipated
- Unclear link to utility performance
- Major shift in energy policy

Current Standards

There are 13 reliability standards. The standards differ based on:

- Utility
- Customer type
- Supply vs. Physical
- Season
- And within Physical, backbone vs. distribution

Reliability Standards

CUSTOMER CLASS	RELIABILITY TYPE	RELIABILITY STANDARD	
		PG&E	SoCalGas
CORE	PHYSICAL		
	Backbone	1-in-10 Dry/Cold Year	1-in-35 Peak Day (Core Only) plus 1-in-10 Dry/Cold Year
	Local	1-in-90 Abnormal Peak Day*	1-in-35 Peak Day (Core Only) plus 1-in-10 Cold Day
	SUPPLY		
	Winter	Range from 962-1,058 MMcfd	Range from 100% to 120% of Average Winter Daily Demand
	Summer	Range from 746-1,058 MMcfd	Range from 100% to 120% of Average Summer Daily Demand
NONCORE	PHYSICAL		
	Backbone	1-in-10 Dry/Cold Year	1-in-10 Dry/Cold Year
	Local	1-in-2 Cold Winter Day**	1-in-10 Dry/Cold Year ***
	SUPPLY		
		NA	NA

Slack Capacity

Slack capacity is also measured in addition to the previously mentioned standards.

- The measurement methodology differs across PG&E and SoCalGas/SDG&E
- Slack applies to backbone pipeline capacity
- There is no specific required level of slack

Slack Capacity

- For PG&E, slack is the average daily backbone capacity that would be used in a 1-in-10 Cold/Dry year
- For SoCalGas, slack is the amount of additional demand that could be accommodated in a Cold/Dry year

Recap

- Definition of Reliability
- Measures/standards that reflect the definition
- Standards based on a factual understanding of their impact
- A factual basis supporting differences or consistency across utilities


Questions or comments?
Submit questions in the chat or raise your hand

California
Energy Commission

Overview of Past, Ongoing, and Planned CEC Climate Research Relevant to Natural Gas Reliability Planning

Energy Research and Development Division

Susan Wilhelm
Energy Generation Research Office
July 7, 2020

Outline

Data and **results** from California's Fourth Climate Change Assessment:

- Climate projections (1950-2100)
  - Projected extreme heat
  - Climate-related changes to snowpack
  - Climate-related changes to residential natural gas consumption
  - Projected changes in minimum daily wintertime temperature
  - *Caveats on use of climate projections*
- Seasonal forecasts

Hourly temperature resources

- Observed historical
- Projected

Opportunities to engage with ongoing and planned research

California's Fourth Climate Change Assessment

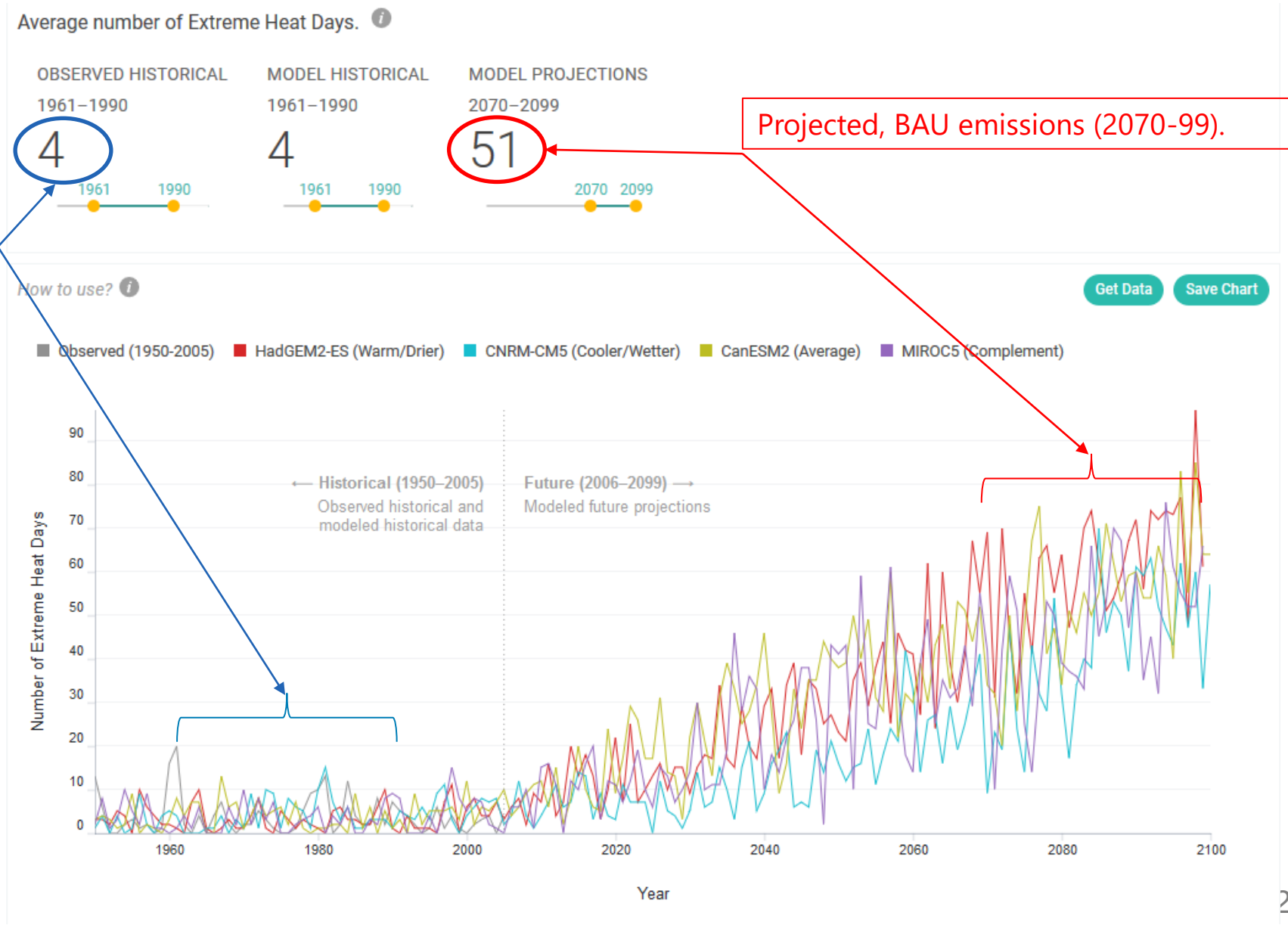
Climate projections, 1950-2100

Data are available at 1/16º (ca. 3.7 x 3.7 miles) for:

- Daily minimum & maximum temperature, precipitation
- Other key variables, including relative humidity, stream flow at select locations, hydrological variables *(e.g., snow cover, soil moisture)*
- Localized Constructed Analogues (LOCA) method designed to improve representation of daily temperature extremes and distribution of precipitation
- All data available through Cal-Adapt

Pierce et al (2018). *Climate, Drought, and Sea Level Rise Scenarios for the Fourth California Climate Assessment.* California Energy Commission. Publication no.: CCCA4-CEC-2018-006.

Projected extreme heat days, DAC in Fresno: frequency



Historical (1961-1990)

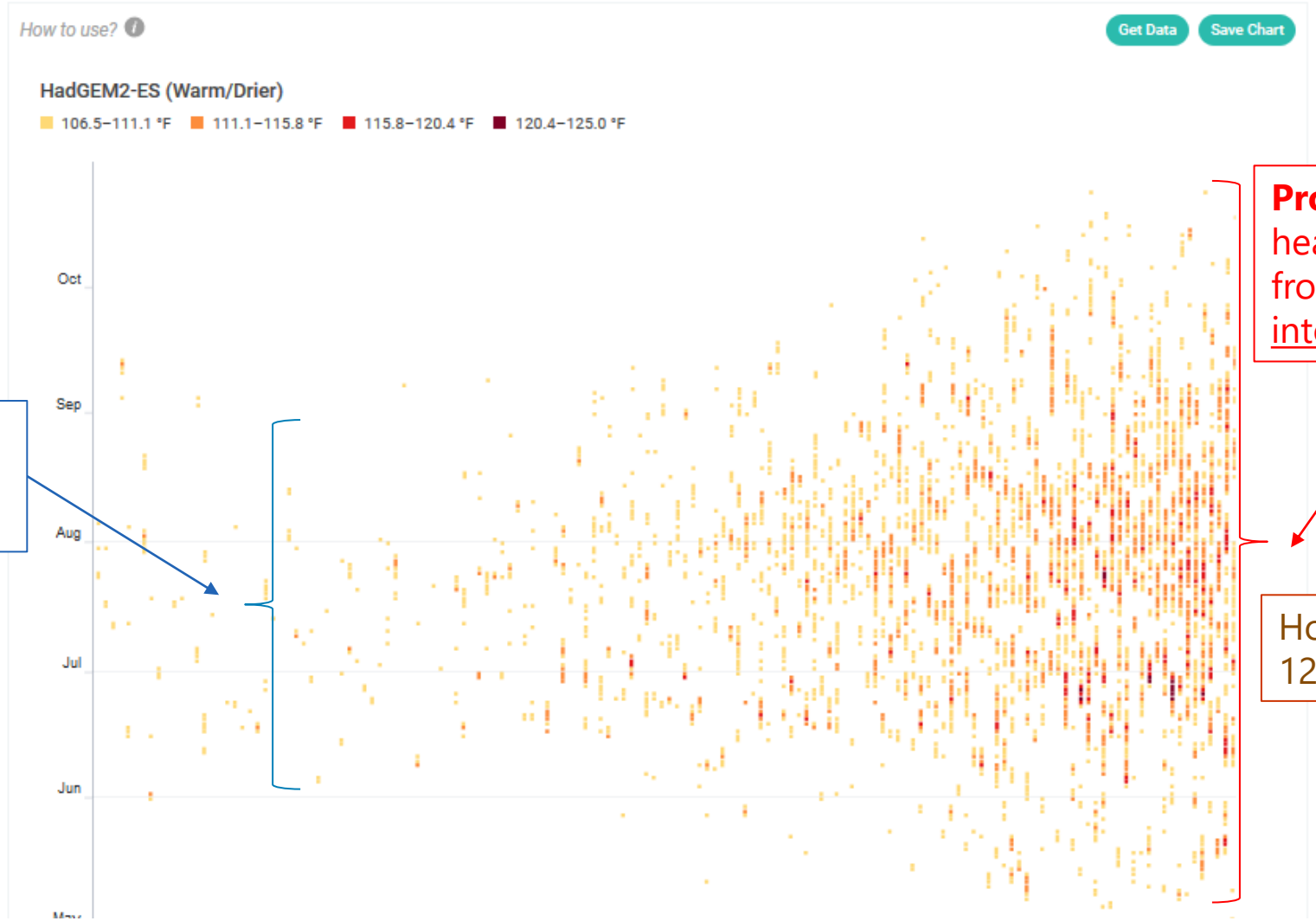
Projected, BAU emissions (2070-99).

More than **10-fold increase in average annual number of very hot days** (*above 106.3 F*) in Fresno DAC.

Figure source: Cal-Adapt

Projected extreme heat days, DAC in Fresno: timing

Extreme **heat season projected** to become **longer** and **hotter.**



Historically, extreme heat days occurred early June to early September.

Projected extreme heat season stretches from early May well into October**.**

Hottest days as hot as 120° to 125 ° F.

Figure source: Cal-Adapt

California's spring snowpack: highly variable, but expect continued decline on average

Figure: Observed (black dots) and projected (red and blue) average spring snowpack in the Sierra is expected to decline by more than 1/3 below historical average by mid-century.

Note: Shift in runoff from spring toward winter peak associated with decreased summertime hydro, but more resources to meet winter loads.

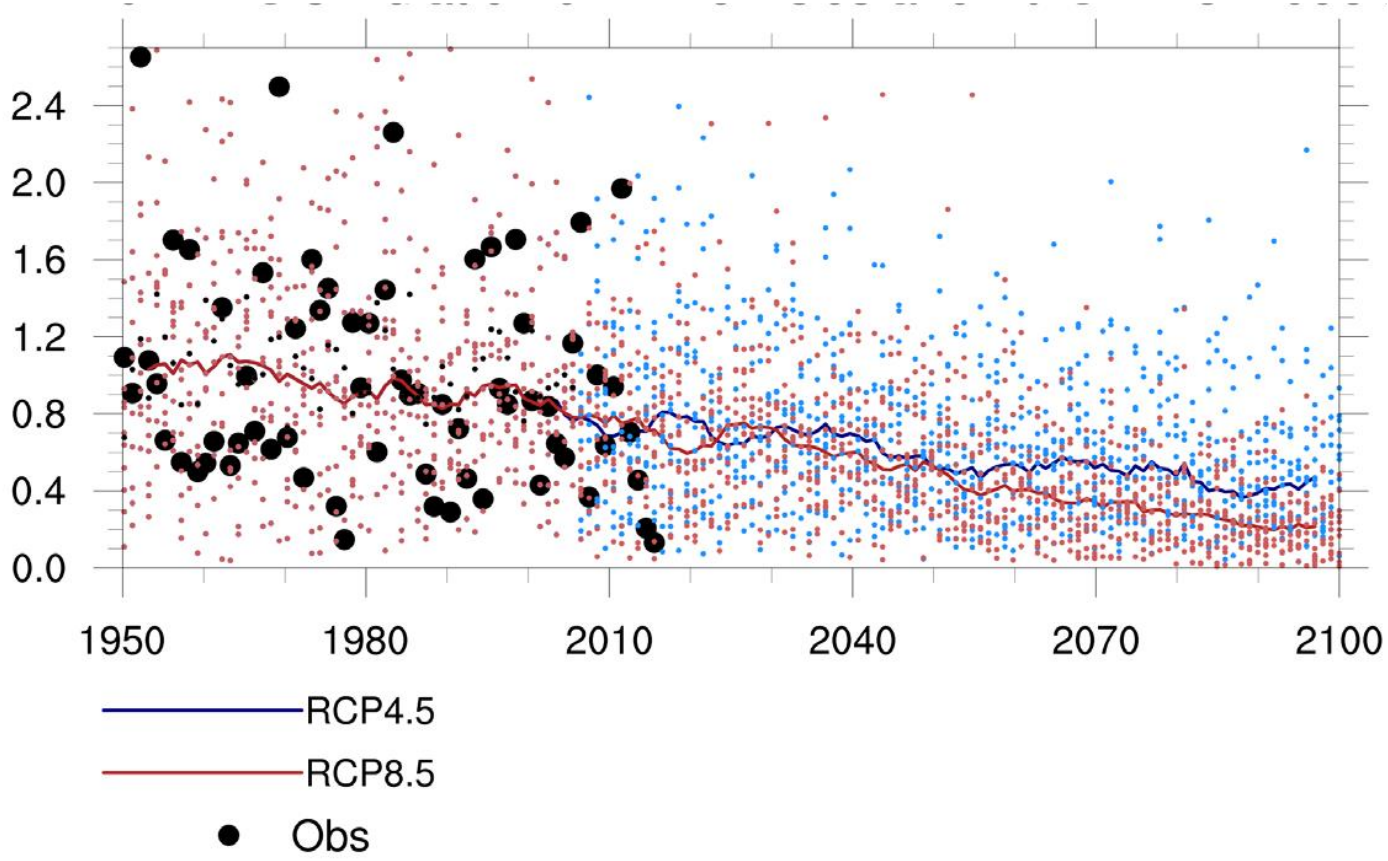


Figure source: Bedsworth et al (2018). *Statewide Summary Report*. California's Fourth Climate Change Assessment. Publication no.: SUM-CCCA4-2018-013.

Warmer winter temperatures, diminished heating demand

Figure: Statewide natural gas demand for the residential sector (blue) and heating degree days (red) show a decline in the 2000-2015 period, despite substantial economic growth over that period.

Figure source: Bedsworth et al (2018). *Statewide Summary Report*. California's Fourth Climate Change Assessment. Publication no.: SUM-CCCA4-2018-013. *Data source*: ARB Fuel Combustion Data, NOAA HDD Data.

Projected changes in residential natural gas and electricity demand

Analysis of billions of utility bills + projected climate suggests:

- Total and peak residential electricity consumption projected to rise due to increased use & adoption of air conditioning.
- Electricity demand increases especially pronounced in inland and Southern California.
- Decreased demand for natural gas approximately offsets Increased residential electricity consumption (end-use basis).

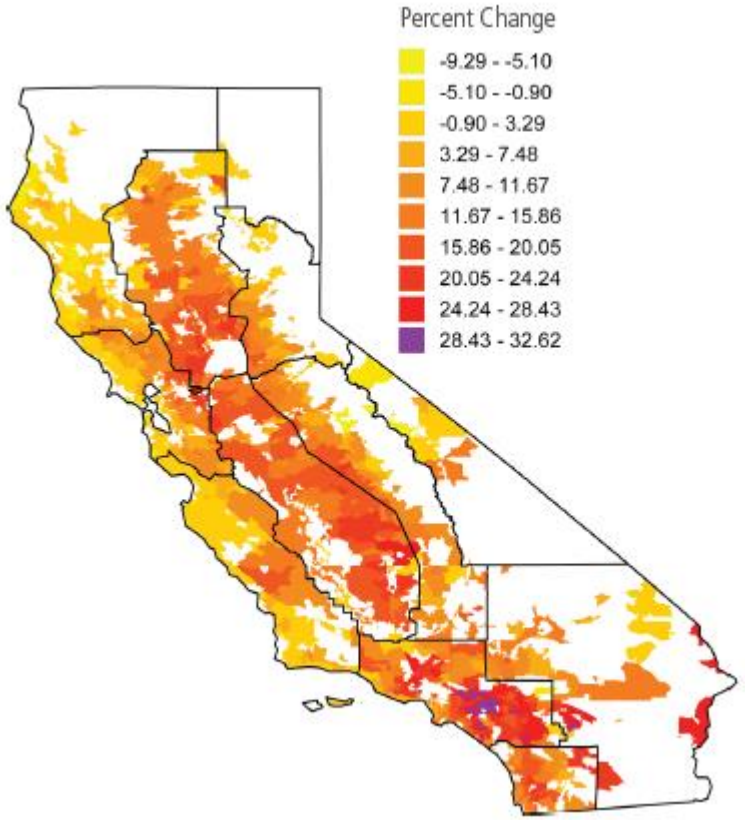


Figure: Projected end-of-century change in annual residential electricity consumption relative to 2000-2015 baseline.

Data and analysis: Auffhammer (2018). *Climate Adaptive Response Estimation: Short and Long Run Impacts of Climate Change on Residential Electricity and Natural Gas Consumption Using Big Data*. California's Fourth Climate Change Assessment. Publication no.: CCCA4-EXT-2018-005.
Figure source: Bedsworth et al (2018). *Statewide Summary Report*.

Projected changes in 1-in-10 “cold” event for downtown L.A.

example from a single climate model

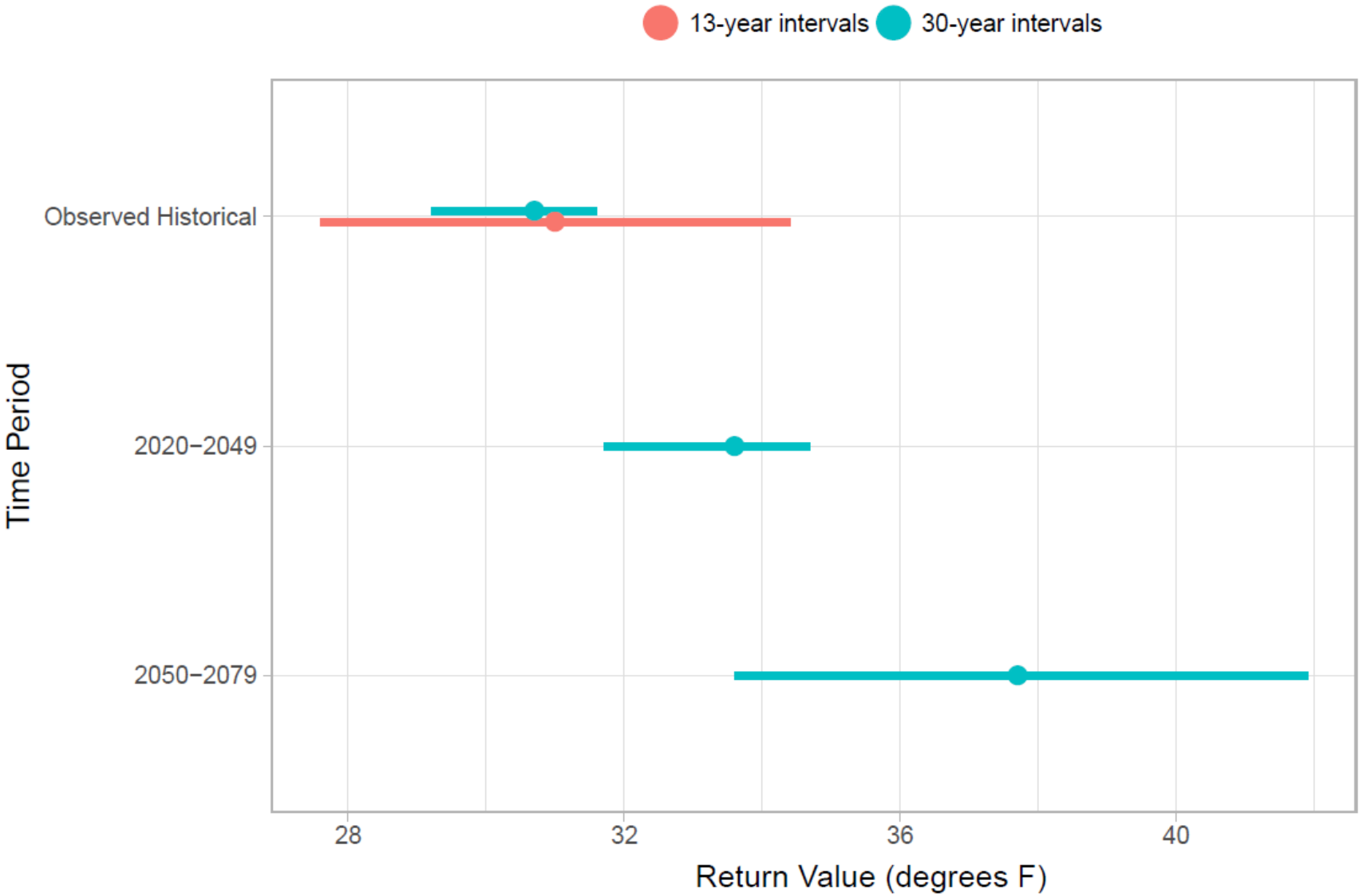


Figure: Dots show the daily minimum temperature that has a 10% chance of occurring in any given year for the period indicated, based on observed gridded data (upper bars) and downscaled climate projections based on a single GCM run (HadGEM-ES2, RCP8.5).

Bars show the 95% confidence interval.

Figure source: Eagle Rock Analytics/Cal-Adapt API

Interpreting projected climate data: some caveats

It is important to use the wealth of climate projection data with care.

- Interpreting near-term data: models were initialized decades ago, so near-term trends do not reflect current state of climate (which is very influential).
  - *Climate projections are not weather forecasts!*

- On short time scales, natural variability can overwhelm climate signal.
  - *Typically we look at 30-year periods when interpreting projected climate trends, variability, and other statistical properties of the projected data*.

- Probabilistic interpretation is complicated by a number of issues (e.g., multiplicity of models, scenarios).

Seasonal forecasts (3 - 6 months)

… another approach to tuning energy sector planning to climate.

- Pacific Ocean temperature: strong role in regulating coastal zone temperatures on monthly, seasonal and interannual basis.
  - Stronger correlation for minimum daily temperature than maximum
  - Correlation fades over inland regions
- The ocean dampens warming in coastal regions, relative to inland regions.
  - But Southern California Santa Ana events can cause extreme coastal heat waves.
- Seasonal forecasts could be improved by using statistical predictions during periods where they are known to be accurate, and using model predictions at other times.

Sources: Dias et al (2018). *Statistical prediction of minimum and maximum air temperature in California and western North America.* California Energy Commission (CEC). Publication no.: CCCA4-CEC-2018-011.
Doherty (2020). *Weather and Climate Informatics for the Electricity Sector*. CEC. Publication no.: CEC-500-2020-039.

Hourly temperature data

… projected and observed historical hourly temperature products have been developed under EPIC grants.

- **Projected hourly data**: future projections at 29 meteorological stations used by demand forecast office, using 19 years of quality-controlled observations and climate projections developed for Fourth Assessment.

  Source: Pierce and Cayan, EPC-16-063 (final report forthcoming).

- **Observed historical hourly dataset**: a curated record of hourly temperature at 39 meteorological stations across the state, each with long histories and consistent records, and with automated quality checks.
  - Will be live on Cal-Adapt ca. mid-July

  Source: Doherty (2020). Weather and Climate Informatics for the Electricity Sector. CEC-500-2020-039.

Opportunities to engage

CEC research grants exploring natural gas sector resilience include:

Ongoing

- Developing next-generation Cal-Adapt features to support natural gas sector resilience (Eagle Rock Analytics, Owen Doherty)

Kick-off in Q3 2020

- Climate analytics to support natural gas sector utilities (Eagle Rock Analytics, Owen Doherty)
- Development and evaluation of a high-resolution historical climate dataset over California, (UCSD, Dan Cayan, PI)

Opportunities to engage: planned work

An EPIC Grant Funding Opportunity will develop:

- **Climate change projections** for energy sector planning and as a foundation for California's anticipated Fifth Assessment;
- **Rigorous analytics** to fulfill decision support needs identified through targeted stakeholder engagement, and
- An **open data platform** to make climate projections and data publicly available.

GFO-19-311, "Climate Scenarios and Analytics to Support Electricity Sector Vulnerability Assessment and Resilient Planning." https://www.energy.ca.gov/solicitations/2020-06/gfo-19-311-climate-scenarios-and-analytics-support-electricity-sector

Thank you!

Please get in touch if you'd like to engage in our ongoing research.

Susan Fischer Wilhelm, Ph.D., M.S.E.
Team Lead for Energy-Related Environmental Research
California Energy Commission
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Overview of climate change impacts on CEC end-use natural gas forecasts

Cary Garcia, Demand Analysis Office

July 7, 2020

Background

- CEC staff prepare end-user natural gas consumption forecasts every two years (odd-year IEPRs) for three major utility planning areas
- Residential and commercial natural gas forecasts are adjusted to account for expected impacts from climate change
- Increasing average daily temperatures reduce annual natural gas consumption for heating end uses
- Most recent forecast, CED 2019, can be found at: https://www.energy.ca.gov/data-reports/reports/integrated-energy-policy-report/2019-integrated-energy-policy-report/2019-iepr

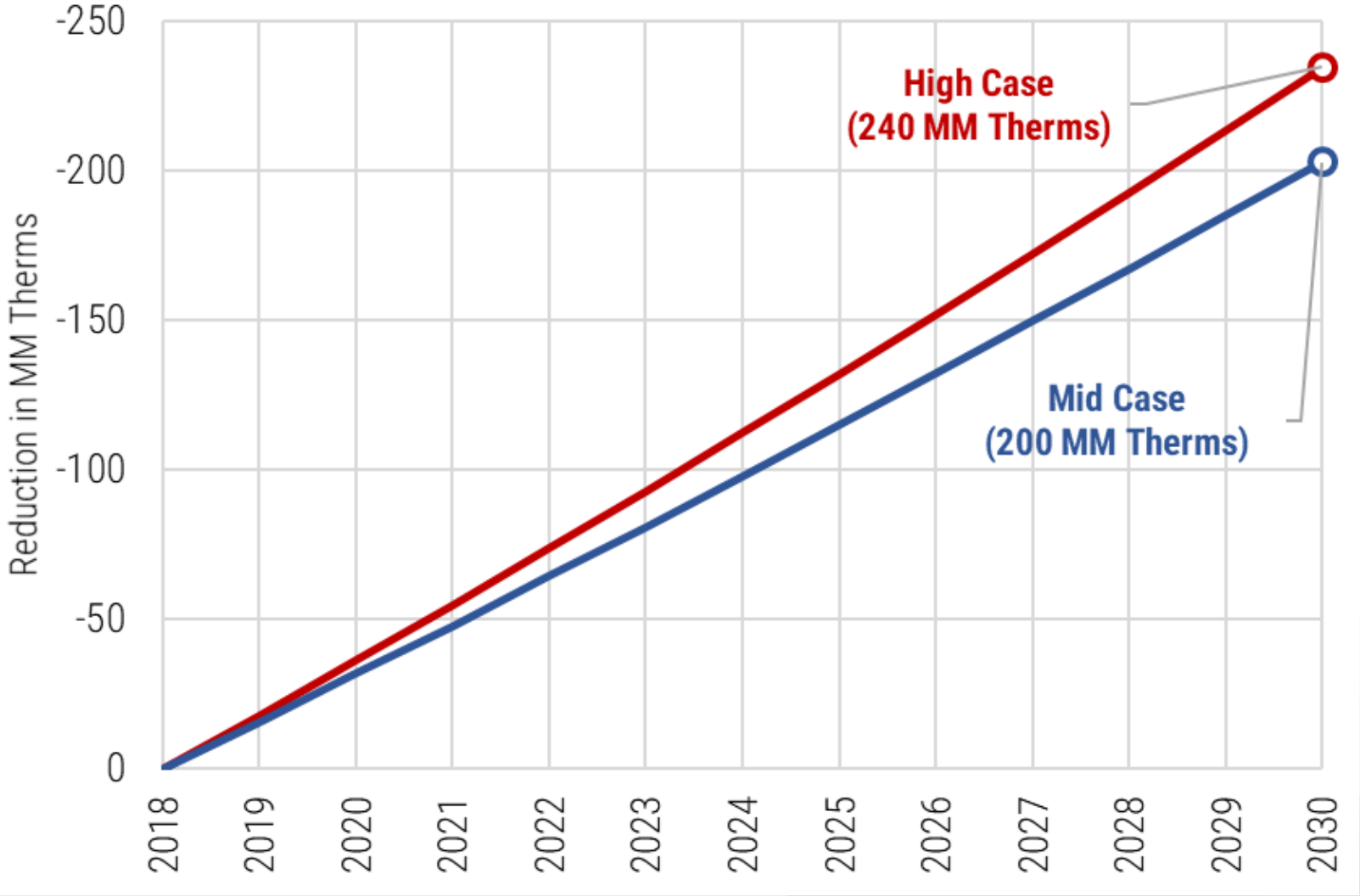
Data and Method

- Consumption models use heating and cooling degree days (HDD and CDD) for weather parameters focused on annual average residential and commercial sector consumption
- For natural gas, HDD is the primary parameter since cooling is not an end use associated with natural gas consumption
- Climate change scenarios suggest increasing daily temperatures over time – less HDD
- With less HDD in the future we should expect a decrease in natural gas consumption relative to normal temperatures

Data and Method

- Staff used temperature scenarios developed by the Scripps Institution of Oceanography to estimate the potential of future climate change to impact natural gas consumption
- Global climate change models were downscaled and mapped to weather stations used by forecasting staff, ~18 stations
- Energy Research and Development Division staff selected a “likely” and “hot” scenario for mid and high demand cases (CanESM2 8.5, MIROC 5 8.5)
- High and mid temperature scenarios are applied to weather-sensitive econometric models for residential and commercial sectors
- Compare models with and without climate change weather scenarios to estimate climate change impacts

Statewide Climate Change Impacts for End Use Natural Gas Consumption



- Results are annual average impacts, peak or hourly consumption may trend differently
- Decreasing HDD relative to normal result in less consumption
- 1.6 to 1.8% statewide reduction by 2030
- Residential sector accounts for about 80% of the impacts

Source: California Energy Commission, Demand Analysis Office, CED 2019

Additional Statewide Results

% reduction in end-use natural gas consumption due to climate change – increasing daily temperatures

Area	Scenario	2019	2020	2022	2024	2026	2028	2030
Statewide	**High**	-0.14%	-0.28%	-0.55%	-0.84%	-1.13%	-1.44%	-1.74%
	Mid	-0.12%	-0.25%	-0.50%	-0.76%	-1.02%	-1.29%	-1.57%
PG&E	**High**	-0.16%	-0.33%	-0.66%	-1.00%	-1.36%	-1.72%	-2.09%
	Mid	-0.14%	-0.28%	-0.56%	-0.86%	-1.17%	-1.48%	-1.80%
SoCal Gas	**High**	-0.12%	-0.23%	-0.47%	-0.71%	-0.96%	-1.22%	-1.48%
	Mid	-0.11%	-0.22%	-0.44%	-0.66%	-0.89%	-1.12%	-1.36%
SDG&E	**High**	-0.23%	-0.45%	-0.89%	-1.33%	-1.77%	-2.20%	-2.63%
	Mid	-0.22%	-0.45%	-0.90%	-1.34%	-1.79%	-2.24%	-2.68%

Source: California Energy Commission, Demand Analysis Office, CED 2019

Thank You! Questions?


BREAK
TIME !!
10 minutes, return at 10:55

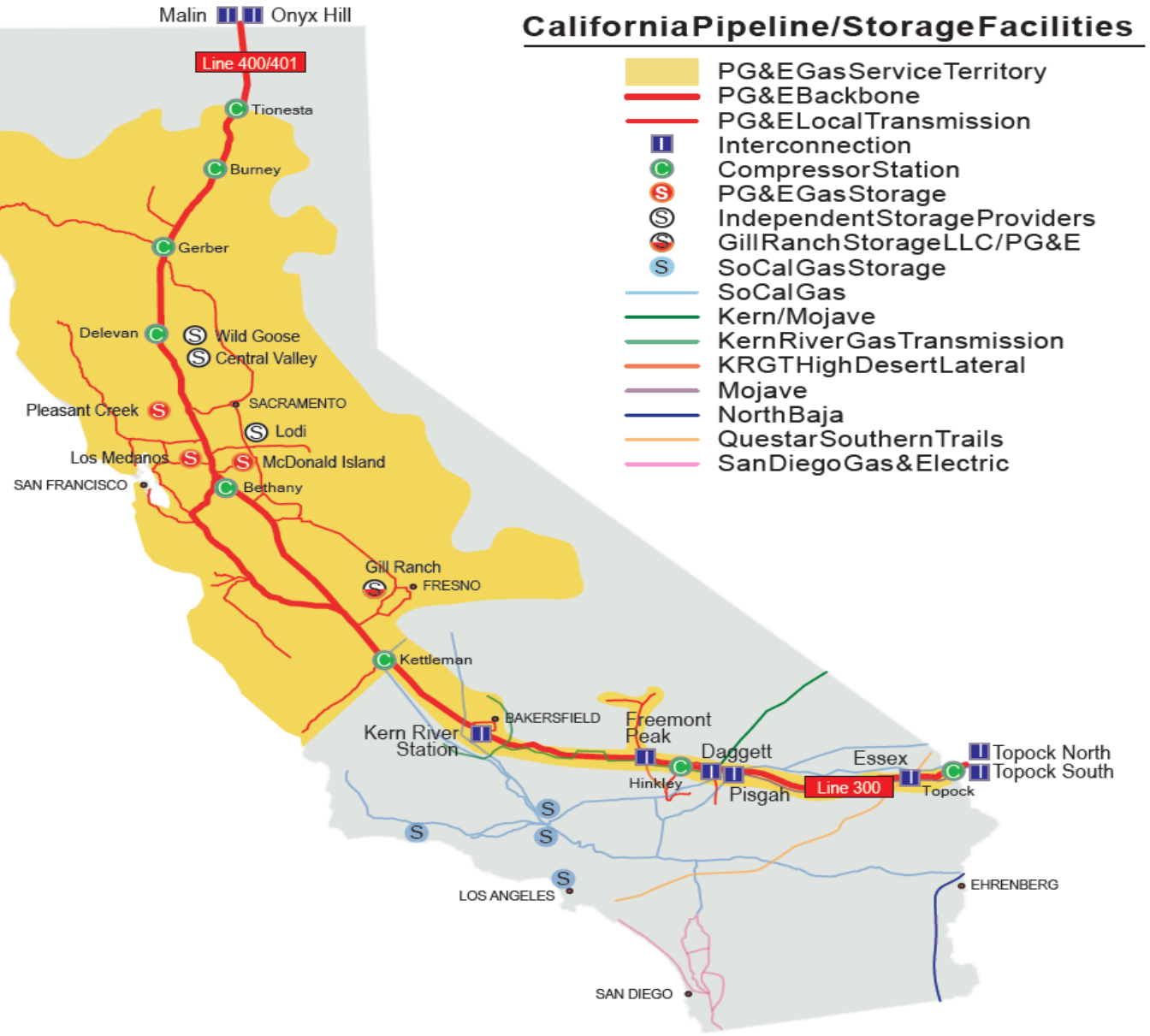
Gas System Planning OIR (R.20-01-007) Natural Gas Reliability Standards Track IA - Workshop

Presented by Roger Graham, Richard Beauregard, and Rick Brown

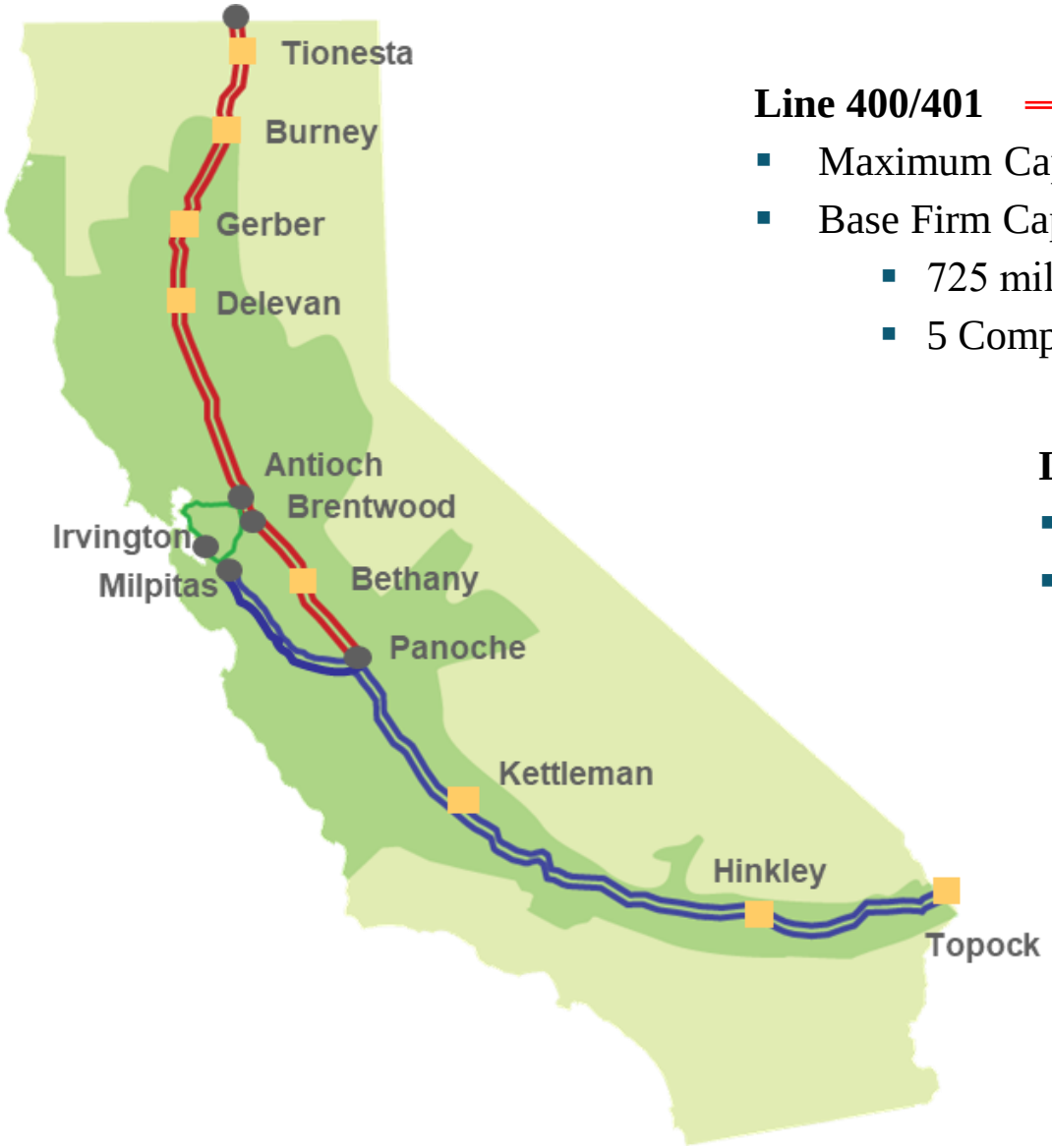
July 7, 2020

PG&E Backbone Transmission and Storage Capacity

PG&E Gas Transmission System



PG&E Backbone Transmission System Capacity



Line 400/401

- Maximum Capability = ~ 2,200 MMcfd
- Base Firm Capability = ~ 2,060 MMcfd
  - 725 miles of 36/42” dia. pipeline
  - 5 Compressor Sta. 110,000 HP

Line 300

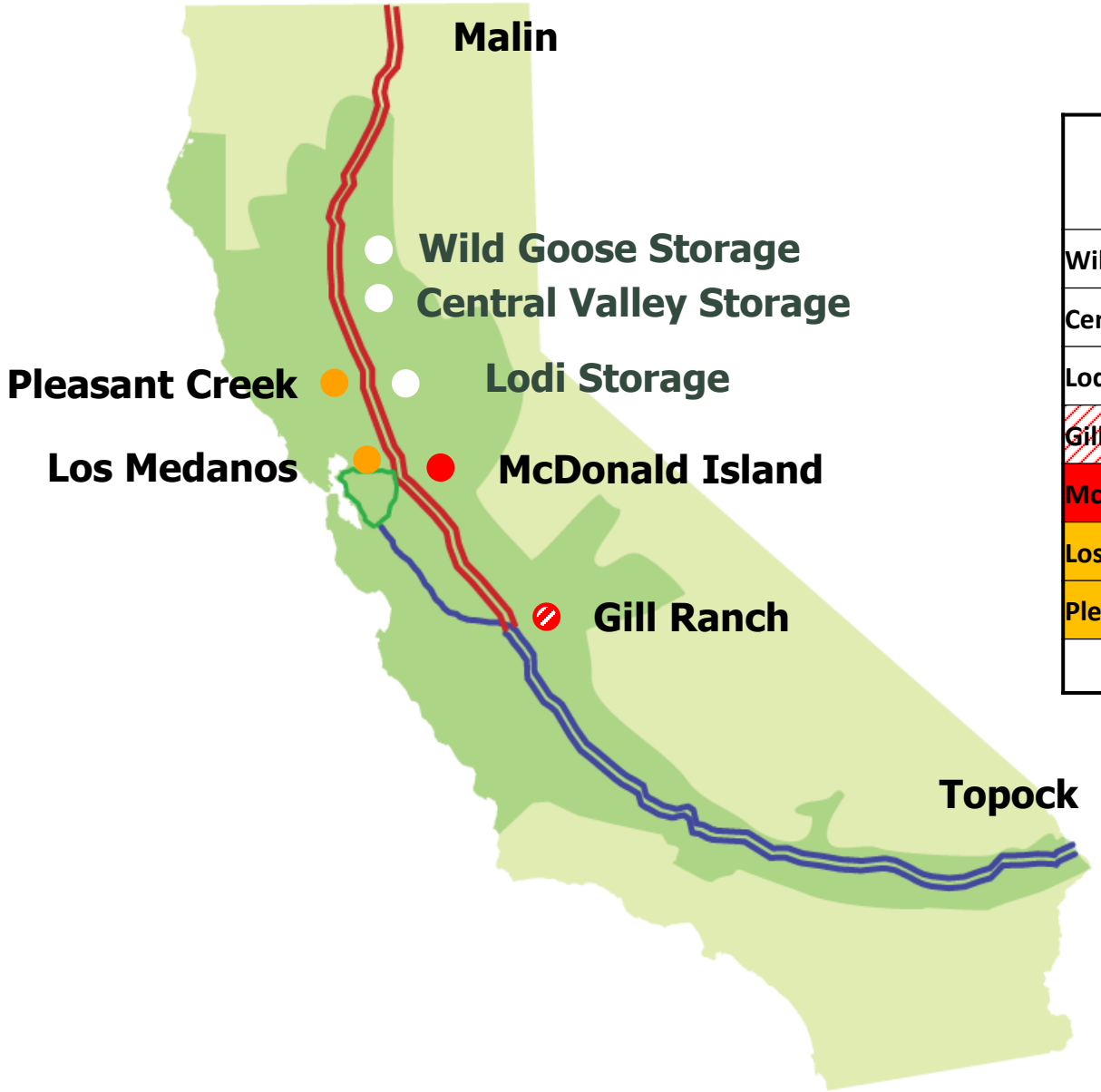
- Maximum Capability = ~ 1,000 MMcfd
- Base Firm Capability = ~ 960 MMcfd
  - 1000 miles of 34/34” dia. pipeline
  - 3 compressor sta. 95,000 HP

Silverado

- Historic flow = ~ 35 MMcfd

Total System Capacity = ~ 3,055 MMcfd

Northern California Storage Field Capacities



Gas Storage Field	Withdraw MMcfd	Injection MMcfd	Inventory Bcf
Wild Goose	960	525	75.0
Central valley	300	300	32.0
Lodi	750	650	11.0
Gill Ranch	400	240	20.0
McDonald Island	757	295	10.0
Los Medanos (to be Retired)	250	0	14.8
Pleasant Creek (Retired)	0	0	0.0
Total	3417	2010	162.8

Do PG&E and SoCalGas have the requisite gas transmission pipeline and storage capacity to meet the demand for an average day in a one-in-ten cold and dry-hydroelectric year for their respective backbone gas transmission systems and peak day demand for their combined backbone gas transmission and gas storage systems?

PG&E Backbone Reliability Standards

➢ Backbone Capacity Utilization Standard from D. 06-09-039

- 80% to 90% slack capacity
- Capacity - backbone only without gas storage withdrawals or injections
- Demands - 1-in-10 Cold and Dry Year annual average, based on preliminary 2020 California Gas Report numbers.

➢ Peak Day Standard from the Natural Gas Storage Strategy (NGSS) adopted in D.19-09-025

- Capacity - Backbone, PG&E and ISP gas storage withdrawal
- Core Demand - 1-in-10 peak day from preliminary 2020 California Gas Report numbers
- Noncore Non-EG demand - average daily winter (December) demand under 1-in-10 cold-and-dry conditions from preliminary 2020 California Gas Report numbers
- EG demand, including SMUD - the 95th percentile of daily demand November 1 - March 31 for winters 2016-2017 through 2019-2020 from Pipe Ranger
- Reserve capacity and Inventory Management requirements included

Backbone Capacity Utilization

2021-2030 (MMCF/D)

Line No.	Year	Average Demand[(a)]	1-in-10 Cold and Dry Year Demand[(a)]	Backbone Receipt Capacity	Capacity Utilization Cold and Dry Year Demand
1	2021	2,013	2,089	3,055	68%
2	2022	1,998	2,061	3,055	67%
3	2023	1,984	2,044	3,055	67%
4	2024	1,833	1,893	3,055	62%
5	2025	1,711	1,772	3,055	58%
6	2026	1,690	1,750	3,055	57%
7	2027	1,667	1,725	3,055	56%
8	2028	1,664	1,724	3,055	56%
9	2029	1,649	1,708	3,055	56%
10	2030	1,629	1,688	3,055	55%

Notes:
(a) Average Demands and 1-in-10 Cold and Dry Year Demands are based on preliminary 2020 California Gas Report numbers. Off-system contracts are reduced in 2023 and 2024 and are excluded entirely in 2025-2030 to reflect only PG&E's currently booked off-system contracts for those years.

Peak Day Standard

Line No.	Forecast	2020-2021	2021-2022	2022-2023
1	Core Peak Day Demand [a]	2,561	2,571	2,580
2	Noncore Non- EG Demand[b]	550	565	551
3	EG, Including SMUD [c]	894	894	894
4	Off System and Shrinkage [d]	128	128	128
5	Inventory Management	300	300	300
6	Reserve Capacity	250	250	250
7	Total Demands	4,683	4,708	4,703
8	Northern Supply Capacity	2,700	2,700	2,700
9	Southern Supply Capacity	1,160	1,160	1,160
10	PG&E McDonald Island and Los Medanos Storage [e]	960	860	810
11	California Production	35	35	35
12	Total Supply	4,855	4,755	4,705
13	Short Fall () or surplus	172	47	2

Forecast of Peak Day Demands for Capacity and Available Capacity

Footnotes:

(a) Core Demand calculated for 34.2 degrees Fahrenheit system composite temperature (1-in-10) taken from preliminary 2020 California Gas Report numbers

(b) Noncore Non-EG demand is the average daily winter (December) demand under 1-in-10 cold-and-dry conditions from preliminary 2020 California Gas Report numbers

(c) EG, including SMUD represents the 95th percentile of daily demand November 1 - March 31 for winters 2016-2017 through 2019-2020 from Pipe Ranger

(d) G-XF Contracts (77,704 MMcf/d) and Shrinkage

(e) Preliminary forecast capacity of McDonald Island and the capacity available from Los Medanos while maintaining 50% of the inventory in Los Medanos

Do PG&E and SoCalGas have the requisite gas transmission pipeline and storage capacity to meet the local transmission standards adopted in Decision (D.) 06-09-039?

Local Transmission Standard

All of PG&E's Local Transmission and Distribution systems meet the APD and CWD design standards.

- Decision (D.) 06-09-039 accepted PG&E's current local transmission design standards.
- PG&E's local gas transmission systems are designed to provide adequate capacity under all weather conditions including extreme cold weather. There are two cold weather design criteria:
  - **Cold Winter Day (CWD)** – the 1 day in 2 year recurrence interval design criterion ensures adequate capacity to meet all estimated demands, including noncore demands.
  - **Abnormal Peak Day (APD)** – the 1 day on 90 year recurrence interval design criterion ensures adequate capacity to meet estimated peak core customer demands alone. (APD assumes that all noncore customers are curtailed in order to support service to core customers.)

Thank You

R.20-01-007 Track 1A Workshop

RELIABILITY STANDARDS

July 7, 2020

SoCalGas

A Sempra Energy utility®

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Regulatory Policy Considerations

- Distinction between core and non-core customers
  - Core: Obligation to serve customers; presumed to have no alternative
  - Non-core: Can be curtailed; presumed to have alternatives to taking gas from system

- Core / non-core load profiles
  - Core: Predictable daily and hourly takes for which supply arrangements and system are designed to provide
  - Non-core: Intraday variability is increasingly more volatile and less predictable

Resolving Intraday Variability

- Gas market presumes ratable supply receipts and non-core takes (e.g., 1/24th of daily quantity per hour), matching hourly burn to hourly supply

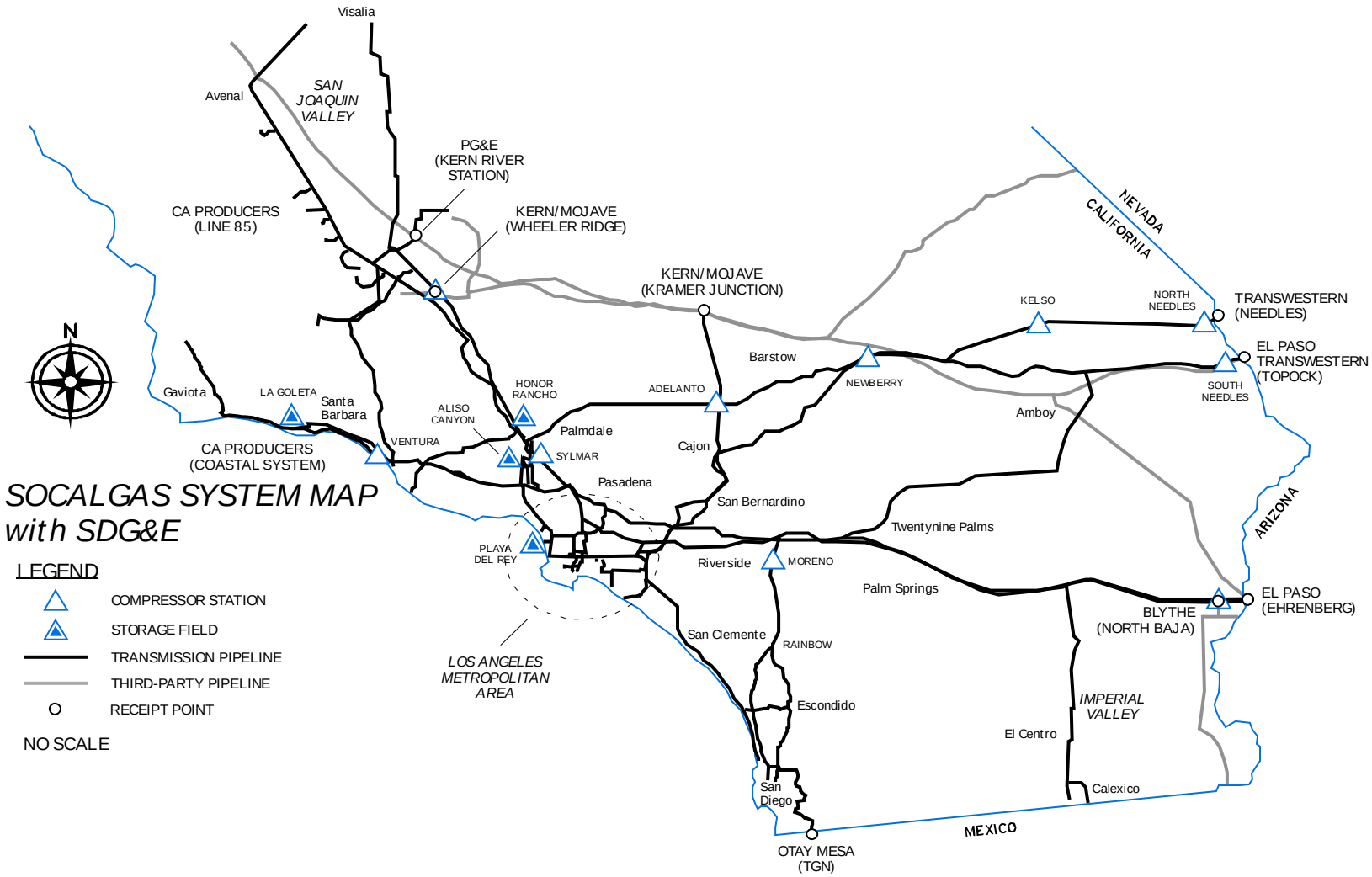
- Load following service for non-core
  - Non-core customers burning more or less than their 1/24th supply are using SoCalGas's supply contracts plus on-system assets (e.g., storage, line pack and draft) that enable ramp and de-ramp to occur—even though their supply into SoCalGas's system is 1/24th (i.e., ratable)

- Under current cost allocation principles, a majority of system costs are allocated to core customers, including the assets relied upon by non-core customers to resolve intraday variability

Scoping Memo Issues 1a-c and 2

- What are SoCalGas's and PG&E's **current** system capabilities?
  - Sufficient gas transmission pipeline and storage capacity to meet the demand for an average day in a 1-in-10 cold and dry-hydroelectric year for the backbone gas transmission systems
  - Sufficient gas transmission pipeline and storage capacity to meet the local transmission standards adopted in D.06-09-039
  - Commission response to a gas utility's sustained failure to meet minimum transmission system design standards
- Issue 2
  - Are the existing natural gas reliability standards for infrastructure and supply still adequate?
  - If not, how should they be changed?
- Issue 2a
  - Should the Commission establish uniform reliability standards for PG&E and SoCalGas, rather than allow the utilities to continue to use different standards?

SoCalGas/SDG&E System



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Current System State

- SoCalGas/SDG&E design standards are winter season standards
  - The SoCalGas/SDG&E system is a winter-peaking system

- The state of the system **today** may not represent the state during peak winter season conditions
  - SoCalGas plans to have Line 235-2 in service by 12/1/2020, ahead of the peak heating period
  - Storage inventory levels will be diminished by the peak heating period
    - Withdrawal rates will be at less than maximum

Issue 1a: Average Day 1-in-10/Dry-Hydro Demand

- Current receipt capacity of 2,965 MMcfd exceeds the average day 1-in-10/dry-hydro demand forecast of 2,566 MMcfd

- Receipt capacity assumptions
  - Southern (1210), North Desert (990), and Wheeler Zones (765) MMcfd
  - Excludes 210 MMcfd of capacity for CA producers
  - Excludes storage capacity, as D.06-09-039 established this standard to quantify excess receipt capacity

Issue 1a: Peak Day Demand

- Peak day demand = 1-in-35 year peak day design standard
  - All noncore demand assumed curtailed
  - Current peak day demand forecast is 3,490 MMcfd
- SoCalGas/SDG&E have sufficient transmission and storage capacity to meet that level of demand
  - 2,965 MMcfd of interstate pipeline receipt capacity
  - 60 MMcfd of current California production
  - 1,105 MMcfd of December-January withdrawal capacity

Issue 1b: Capacity to Meet Local Transmission Standards

» Peak Day (1-in-35 year) standard is met

» Cold Day (1-in-10 year) standard is not met

- Insufficient pipeline and storage capacity to meet the current demand forecast of 4.9 BCFD for core and noncore customers
  - Degraded withdrawal capacity
  - Backbone pipeline outages and operating limitations
  - Storage levels assumed for core reliability needs only
- Current system capacity with 90% receipt capacity utilization:
  - 3.4 BCFD without supply from Aliso Canyon
  - 3.8 BCFD with supply from Aliso Canyon

Ability to Meet the Current Reliability Standards

- Scoping memo sought the current capacity regarding the standards

- This workshop is addressing the ability to meet the current standards
  - Current standards are future-looking
  - Requires assumptions about:
    - Demand forecast
    - Transmission facilities
    - Storage facilities

Forecast Demand and Capacity

- Sufficient capacity to support forecast demand
  - Transmission pipelines restored to former capacities
    - Northern System at 1,590 MMcfd receipt capacity
  - Storage fields restored to former withdrawal capability (rates and drive-gas performance)

	1-in-35 Year Peak Day Demand (MMCFD)				1-in-10 Year Cold Day Demand (MMCFD)			
Operating Year	Core	Noncore C&I	EG	**Total**	Core	Noncore C&I	EG	**Total**
2025/26	3,314	0	0	**3,314**	3,113	628	977	**4,718**
2030/31	3,169	0	0	**3,169**	2,972	604	941	**4,517**
2035/36	3,162	0	0	**3,162**	2,965	597	939	**4,501**

Issue 1c: Commission Response to Sustained Failure to Meet Standards

- A failure to meet standards exists should be considered in the context of system and operating conditions

- Circumstances impacting a utility's ability to meet reliability standards include
  - Operational restrictions imposed on it by regulatory bodies
  - Regulatory requirements that are changed without consideration in a shorter time period
  - Regulatory challenges that affect the construction of infrastructure

- Regulatory certainty is also needed to support utility response

- Do the planning standards adequately reflect changing obligations to serve

Issue 2: Are Existing Standards Adequate or Are Changes Needed?

- If revised, the new standards should not be based on favored assets to retain or retire

- The 1-in-35 year peak standard assumptions are unrealistic
  - Monumental effort to curtail all noncore customers
  - Some curtailment non-compliance is a certainty
  - Some noncore customers should likely be core
    - Hospitals, refineries, airports, some level of electric generation

Issue 2: Are Existing Standards Adequate or Are Changes Needed?

- Re-examine the need for two different planning standards
  - Redefine noncore customers as those that can be curtailed as frequently and for as long as necessary
  - Revise the 1-in-35 year peak day standard to include those noncore customers that do not meet revised definition for noncore service
  - Those customers lose noncore status and must take core transportation service, though gas supply would likely need to be addressed if this change were to occur
  - Eliminate the 1-in-10 year cold day standard since all remaining noncore demand is interruptible at any time

Issue 2a: Uniform Reliability Standards

- Commission has previously recognized the design differences between the PG&E and SoCalGas/SDG&E system
- Existing infrastructure designed to meet different reliability standards
  - May require significant infrastructure improvements to be uniform
- Customer base between Northern and Southern California is also different and may have different gas supply needs
- Design standards can and should recognize these differences

Jim Caldwell

Center for Energy Efficiency and Renewable Technologies (CEERT)

Statement of UCAN in Stage IA of the California Public Utility Commission's Gas OIR

R. 20-10-007

Dr. Eric C. Woychik

On behalf of UCAN

7 July 2020

UCAN
UTILITY CONSUMERS' ACTION NETWORK
San Diego's Utility Watchdog

Introduction

- With climate legislation, gas flow constraints, major pipeline and storage incidents (like San Bruno and Aliso Canyon) it is indeed time to reevaluate gas policies, rules, and processes.
- Next headings summarize three key points
- Overall UCAN presents seven points

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Reduce gas demand to meet infrastructure…

- First, UCAN believes the existing gas system is inadequate as much of it is antiquated.
  - Costs for replacement, operations, and maintenance are very high.
  - The Commission should require gas demand be reduced to meet existing gas infrastructure, not the other way around, particularly as we unwind from gas.
- Second, require SoCal Gas, SDG&E, and PG&E to file gas infrastructure plans that fully explain capital and O&M spending of late for safety and reliability.
  - This data is needed to better define extant gas system capabilities.
  - We recommend a working group to modernize gas safety and reliability needs.

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UTILITY CONSUMERS' ACTION NETWORK
San Diego's Utility Watchdog

Focus on where gas demand is reduced…

- Third, gas utilities have strong incentives to continue gas market sales, capital expansion, and gas market growth. UCAN recommends that two gas utility incentives be removed as soon as possible, to preclude further infrastructure build-out.
  - Eliminate gas line extension allowances as these credits are not now appropriate.
  - Eliminate the Gas Cost Incentive Mechanism (GCIM), as it allows gas utilities to benefit from load balancing services in response to Operational Flow Orders (OFOs) and Emergency Flow Orders (EFOs) that these utilities control.
- Fourth, make gas utilities focus on where and how gas demand is reduced, as gas infrastructure should be retired locationally in lock-step with electrification.
  - UCAN recommends that all new single family residential gas hookups be prohibited in the San Diego Gas & Electric service territory.
  - With smart AMI data, new end-use electric needs can be define where gas is retired.

UCAN
UTILITY CONSUMERS' ACTION NETWORK
San Diego's Utility Watchdog

Authorize infrastructure to reverse expansion

- Fifth, California's core/non-core gas model needs reform.
  - While core gas is aimed to benefit residential and small customers, lack of noncore storage causes gas price spikes, which become electric price spikes that impact core customers.
- Sixth, if the Commission adopts gas supply tariffs, UCAN recommends gas generator retirement be directly coupled with new storage battery use.
  - Further review will be needed to rebalance core/noncore risks.
- Finally, the Commission should authorize only gas infrastructure essential for safety and reliability, as gas system expansion must be reversed.

UCAN
UTILITY CONSUMERS' ACTION NETWORK
San Diego's Utility Watchdog

OIR 20-01-007
Track 1A Workshop

(Scoping Memo Issues 1, 1(a)-(c), 2 and 2(a))

Comments of

MAURICE BRUBAKER

BRUBAKER & ASSOCIATES, INC.

On Behalf of:

INDICATED SHIPPERS

July 7, 2020

RELIABILITY STANDARDS

- There are several dimensions to Reliable Service
  - Design Standards
  - Building consistent with Design Standards
  - Operating and maintaining system to meet Standards
- Design Standards are not absolute, but are a practical way to achieve a desired outcome: Reliable Service
- Key question is whether the level of reliability experienced by customers is acceptable in their view and in the view of the regulators
- If the answer is that it is, nothing major needs to be done now, but the future needs to be considered

- To maintain acceptable reliability, utilities should model future conditions considering:
  - Customer demands
  - Climate/weather conditions
  - Asset performance in light of age-related deteriorations (probabilistic simulations may be useful)
- Special emphasis should be placed on asset management:
  - Maintaining key components of the system
  - Maintaining adequate records
  - Conducting an effective preventative maintenance program
  - Avoiding large capital outlays unless absolutely necessary

- If the current reliability of service provided to customers is not adequate—what is the reason?
  - Not because of load growth
  - Not because of insufficient infrastructure
  - More likely because of outages resulting from inadequate asset management (operations and maintenance)
- SoCalGas is a case in point
  - Aliso Canyon well failure
  - Large and extended outages of major backbone pipeline infrastructure
  - Other dockets are considering causes and specific remedies
  - Construction of new infrastructure should not be considered until Aliso's future has been decided, and existing pipelines have become safe and reliable

Not all OFOs are the result of impaired infrastructure, but the high 2019 numbers are indicative of impaired infrastructure, for SoCalGas in particular.

2019 Operational Flow Orders

	High OFOs	Low OFOs
PG&E	65	54
SoCalGas	75	139

- Should Standards for PG&E and SoCalGas be the same or different?
  - We don't think the customer experience, in terms of reliability of delivered service, should be different
  - Because of different system configurations and climate conditions, the Design Standards required to achieve that result may need to be different

RESPONSE TO INFERIOR PERFORMANCE

- How should the Commission respond to a gas utility's sustained failure to meet minimum transmission system design standards?
  - Presumably, this includes the reliability of service delivered to customers
  - More than occasional outages should receive a strong regulatory response
  - One approach is to require the utility to share in the cost of repair or replacement
  - Another is to reduce the allowed return on equity, (nothing gets the attention of utility executives and board members like a cut in ROE)
  - Any adjustments should be one-way. Adequate performance or better is expected. Rewards for superior performance could encourage over-building


Questions or comments?
Submit questions in the chat or raise your hand


RELAX
REFRESH
RECHARGE
Notes
Lunch ends at 1:20

Grid Reliability Needs Across All Seasons

Delphine Hou

Director, California Regulatory Affairs

Presented at California Public Utilities Commission R.20-01-007 Track 1A Workshop: Natural Gas Reliability Standards

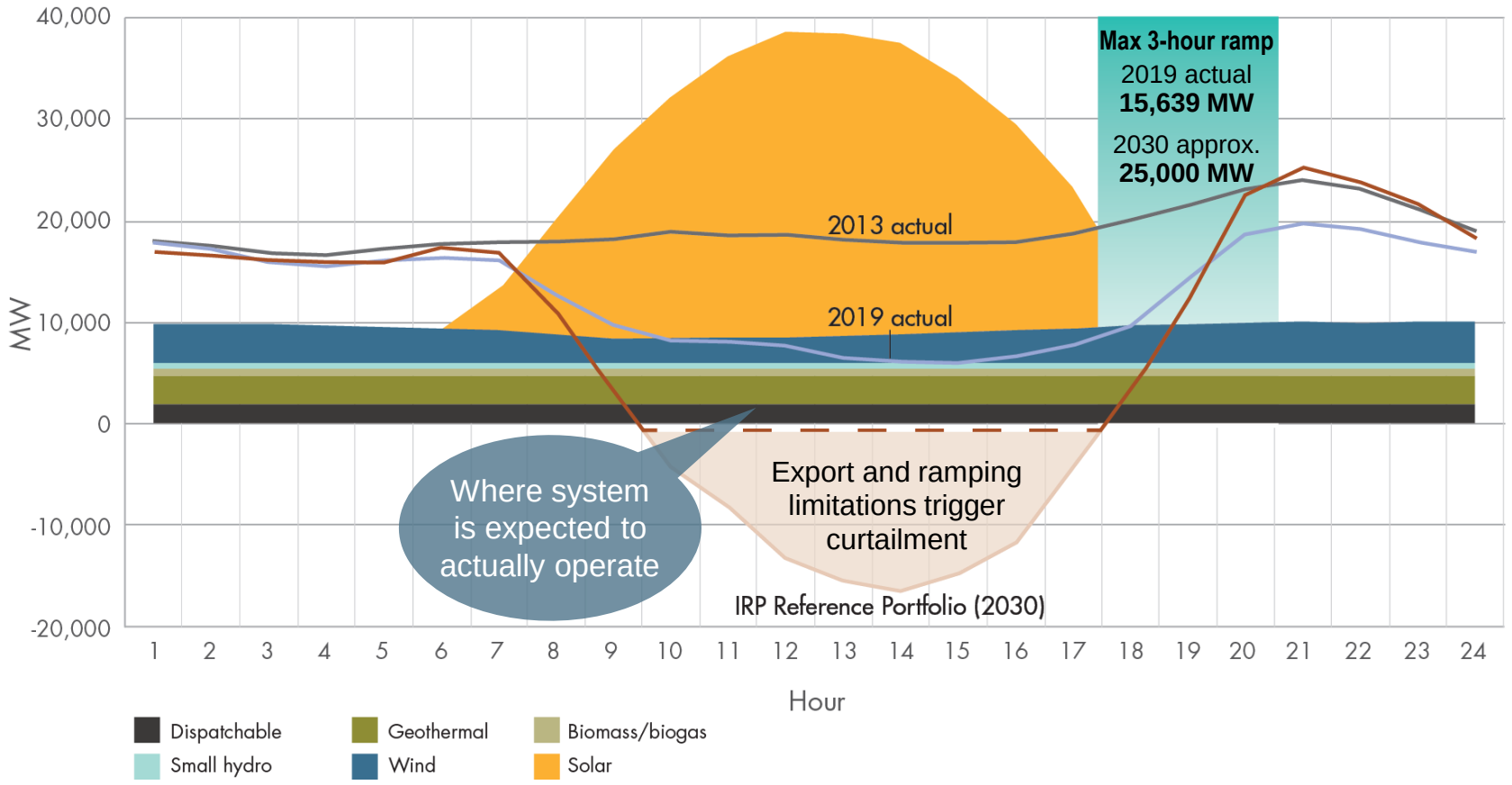
July 7, 2020

"Is a summer reliability standard needed?"

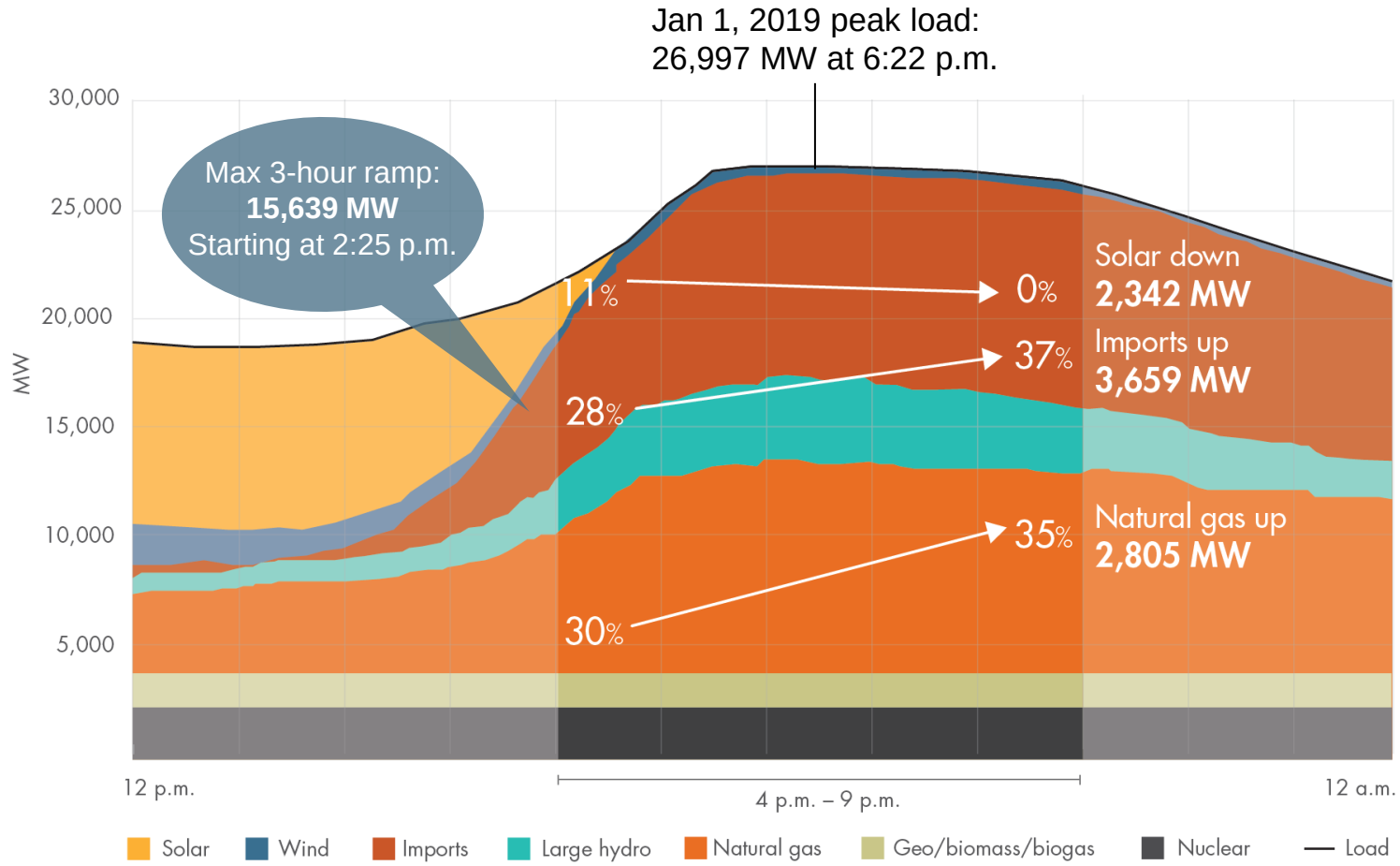
- While summer readiness remains critical to CAISO grid operations, it is important to consider **all seasons** and **all hours** of need
  - Lessons from 2017 – 2018
  - Changing load shape from impacts such as fuel substitution
  - Changing supply side resources such as greater intermittent resource and short-duration shortage penetration

By 2030, solar is expected to contribute to increasing ramping needs

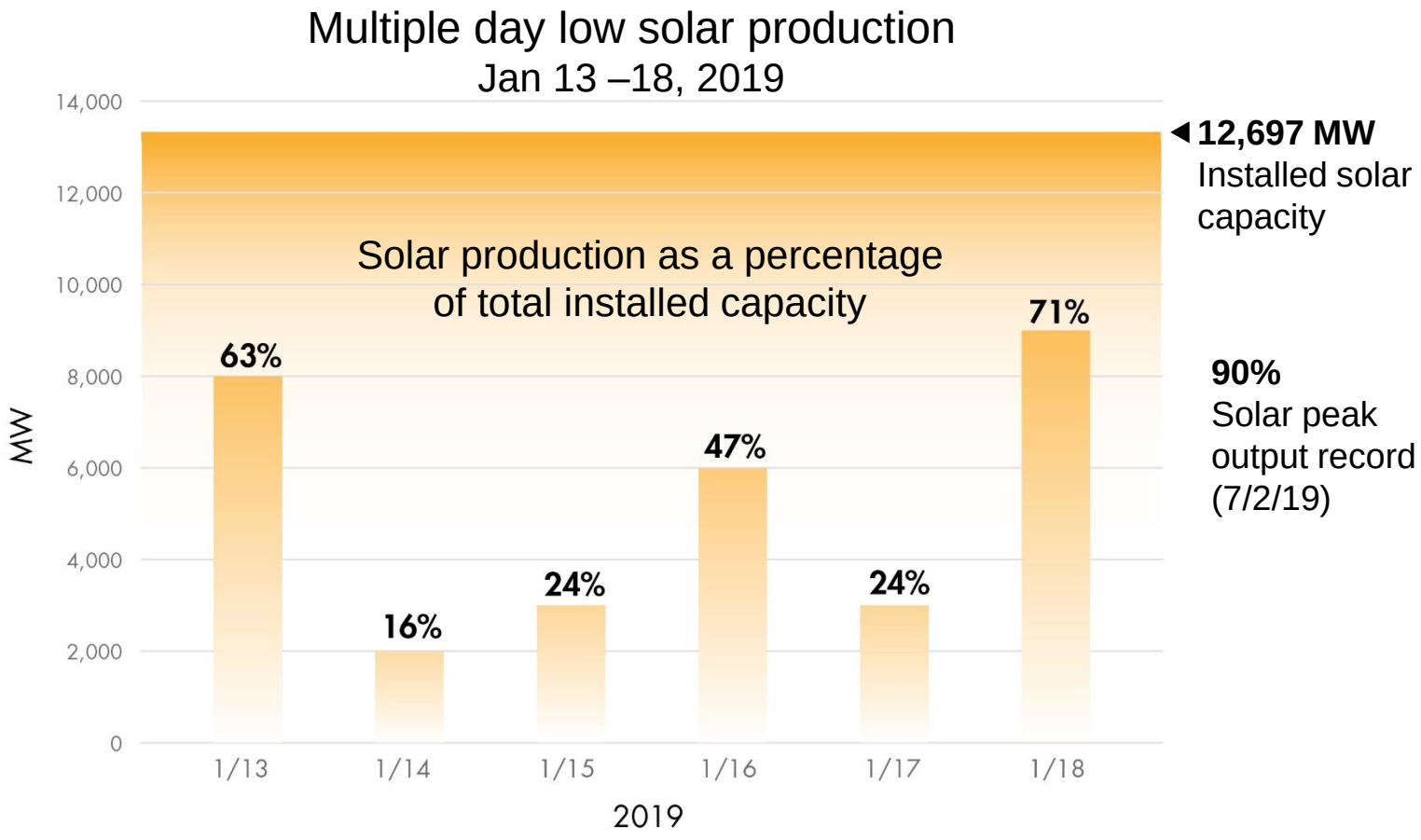
- Actual and projected maximum three hour ramp



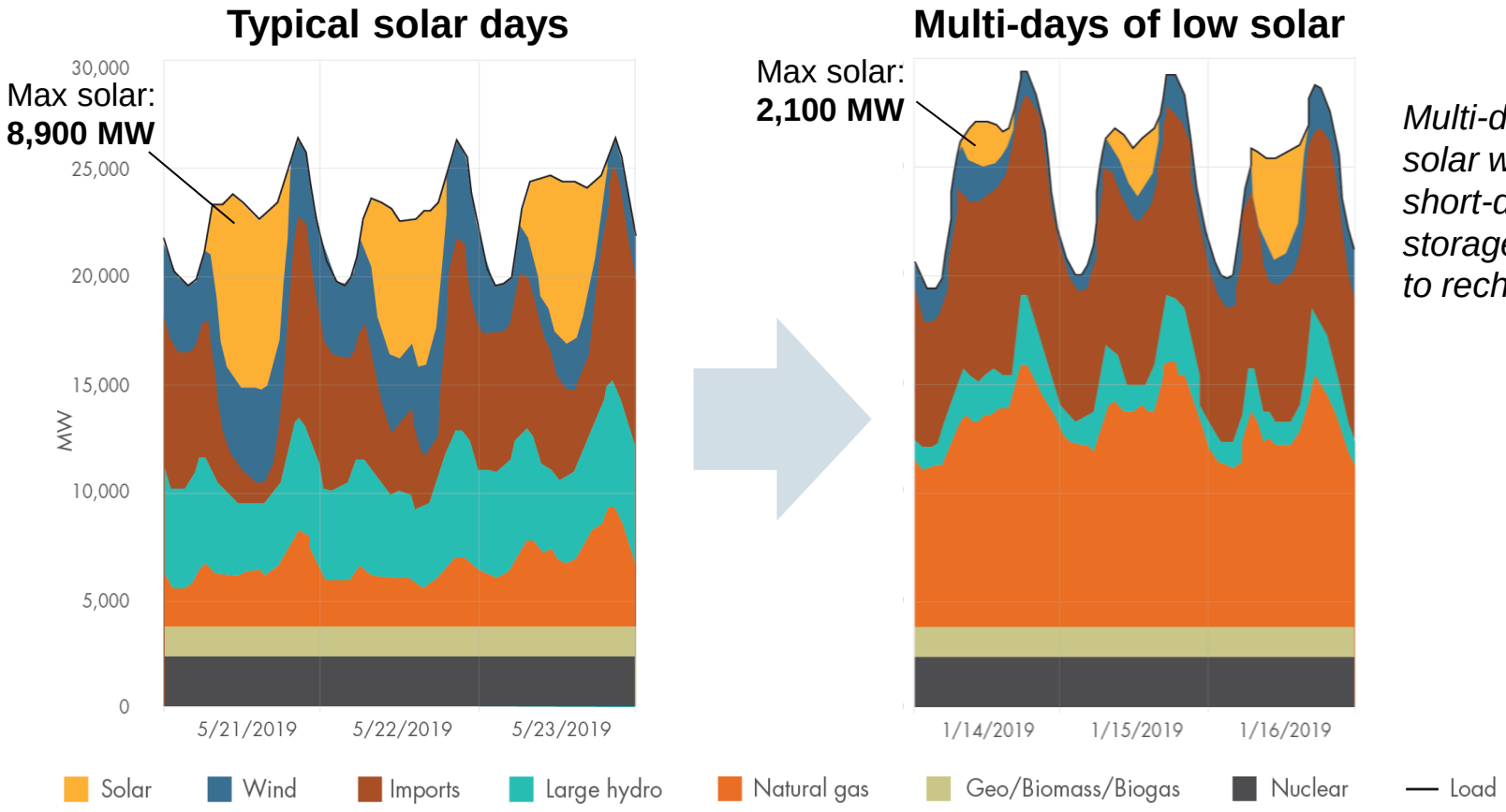
Gas and imports respond to meet maximum ramp rate after the sun sets



Multiple days of low solar production hinders ability of storage to recharge



Low solar production across multi-day event – high reliance on natural gas and imports



Multi-day low solar will hinder short-duration storage ability to recharge

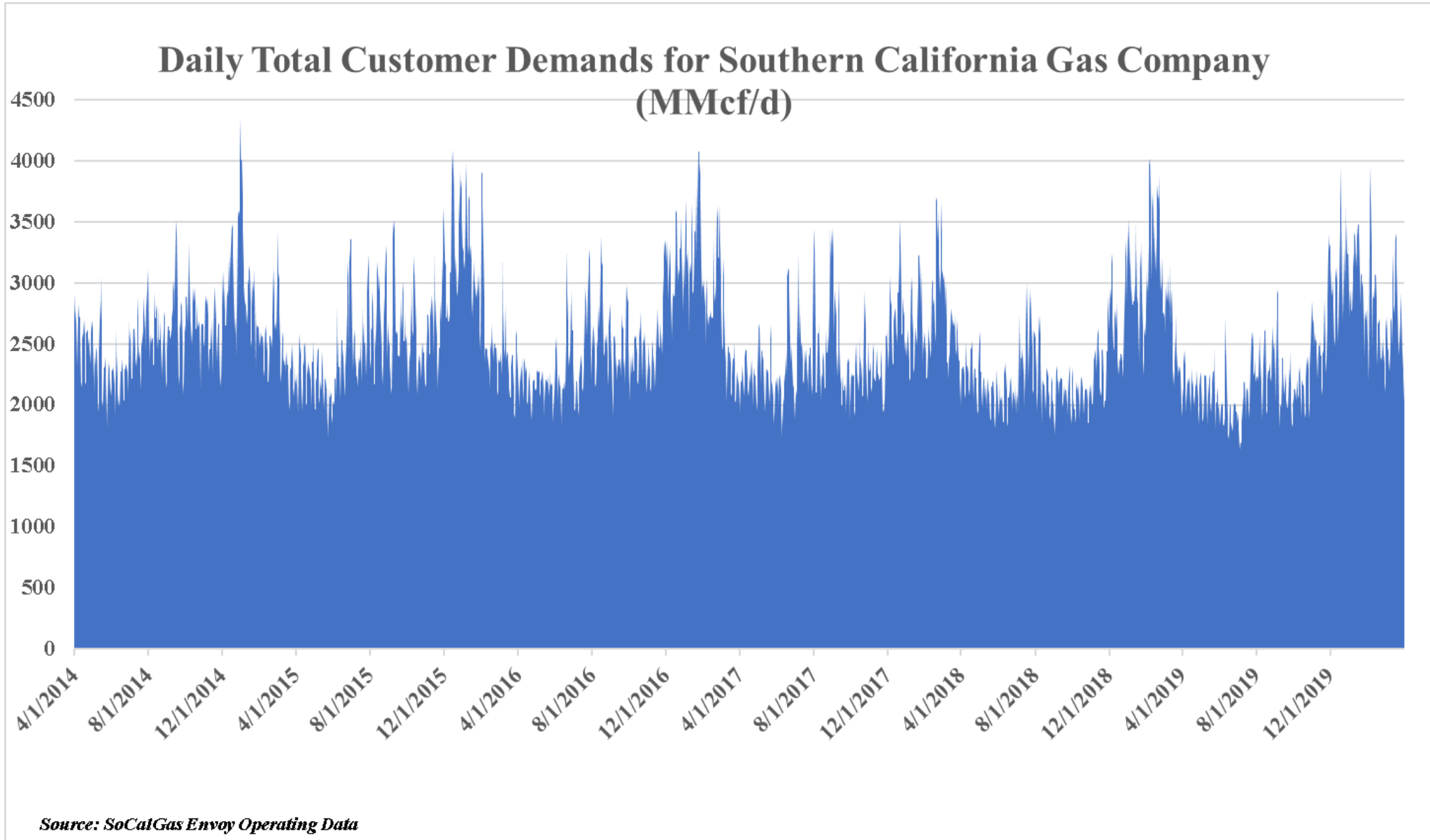
OIR 20-01-007 TRACK 1A WORKSHOP
TUESDAY, JULY 7, 2020
GENERATORS' RESPONSE TO PHASE 1A, ISSUE 2C

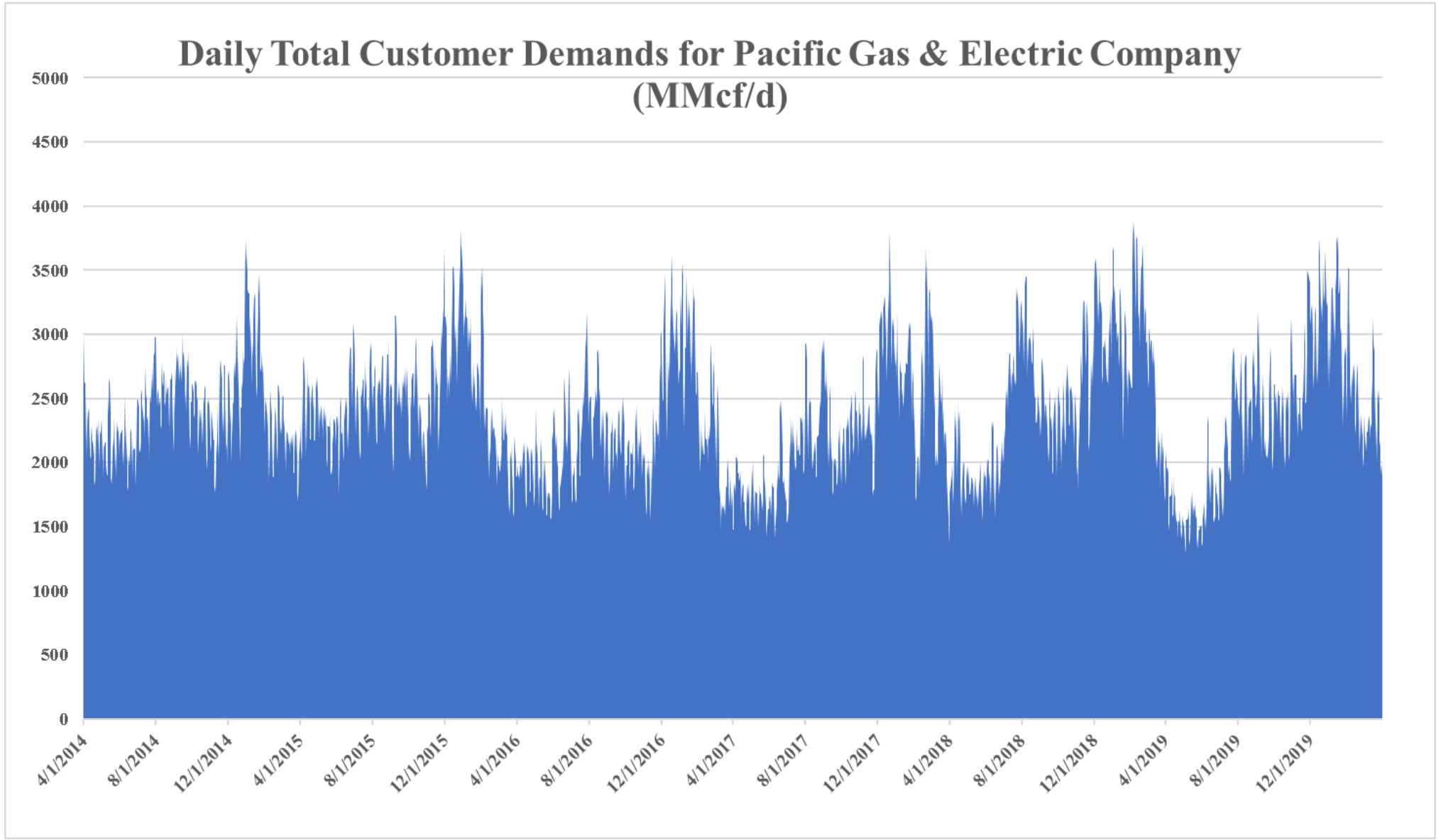
2c. Gas-fired generators comprise approximately 40 percent of electric supply during the summer months. Temperature trends forecast warmer summers in California; thus, should the Commission establish separate reliability standards for the summer months?

Norman Pedersen, Hanna and Morton LLP,
on behalf of Southern California Generation Coalition, Vistra Energy,
Middle River Power, and Calpine

SUMMER RELIABILITY STANDARDS FOR PLANNING SOCALGAS AND PG&E GAS UTILITY BACKBONE AND STORAGE INFRASTRUCTURE ARE UNNECESSARY.

- System reliability standards are used to size SoCalGas and PG&E gas utility backbone and storage combined infrastructure.
- Gas utility backbone and storage combined are sized to meet peak daily system demand.
- SoCalGas and PG&E systems have been and still are winter peaking systems as shown by recent actual daily data.


Daily Total Customer Demands for Southern California Gas Company
(MMcf/d)
4500
4000
3500
3000
2500
2000
1500
1000
500
0
4/1/2014
8/1/2014
12/1/2014
4/1/2015
8/1/2015
12/1/2015
4/1/2016
8/1/2016
12/1/2016
4/1/2017
8/1/2017
12/1/2017
4/1/2018
8/1/2018
12/1/2018
4/1/2019
8/1/2019
12/1/2019
Source: SoCalGas Envoy Operating Data

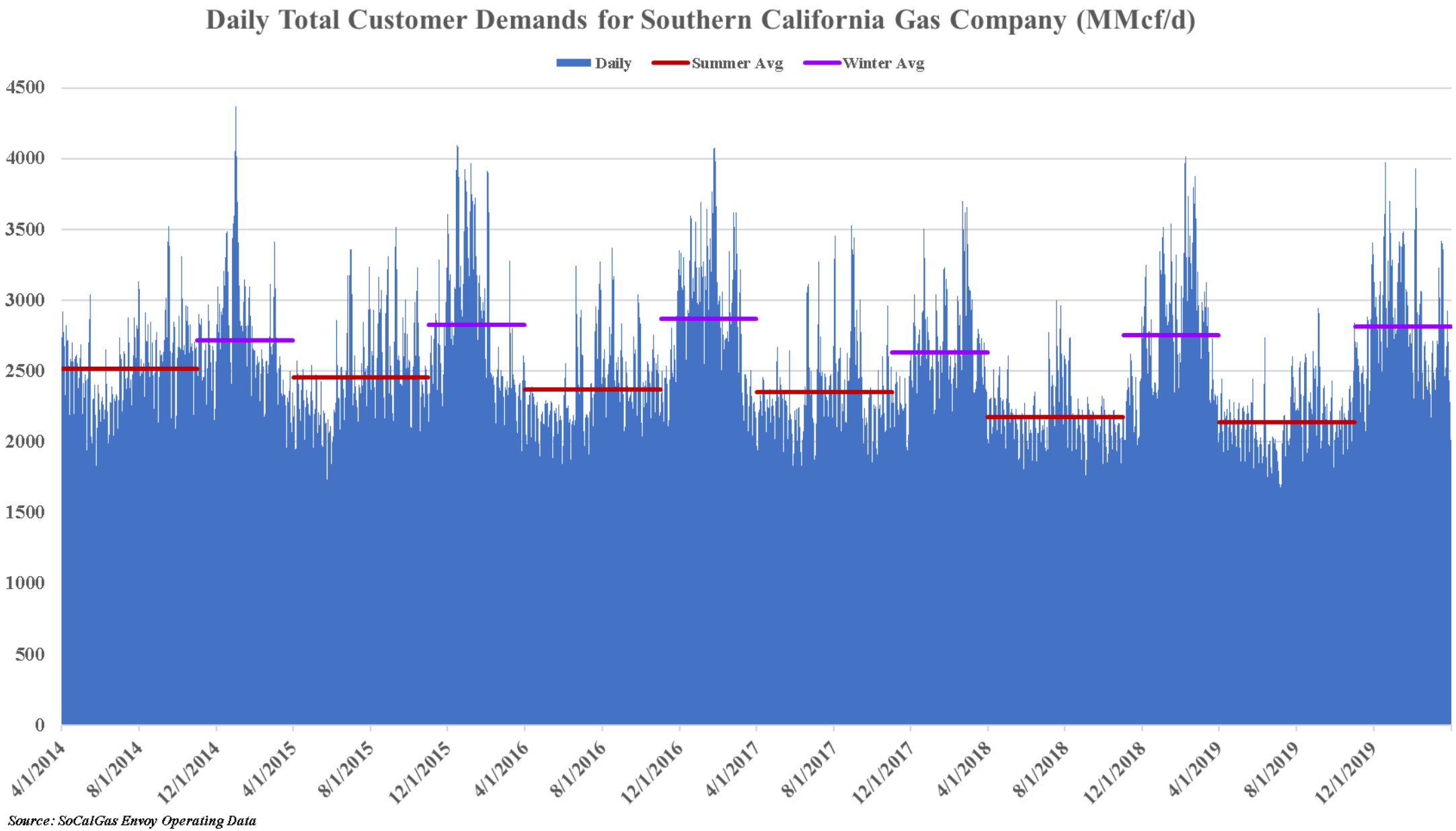


Source: PG&E Pipe Ranger Operating

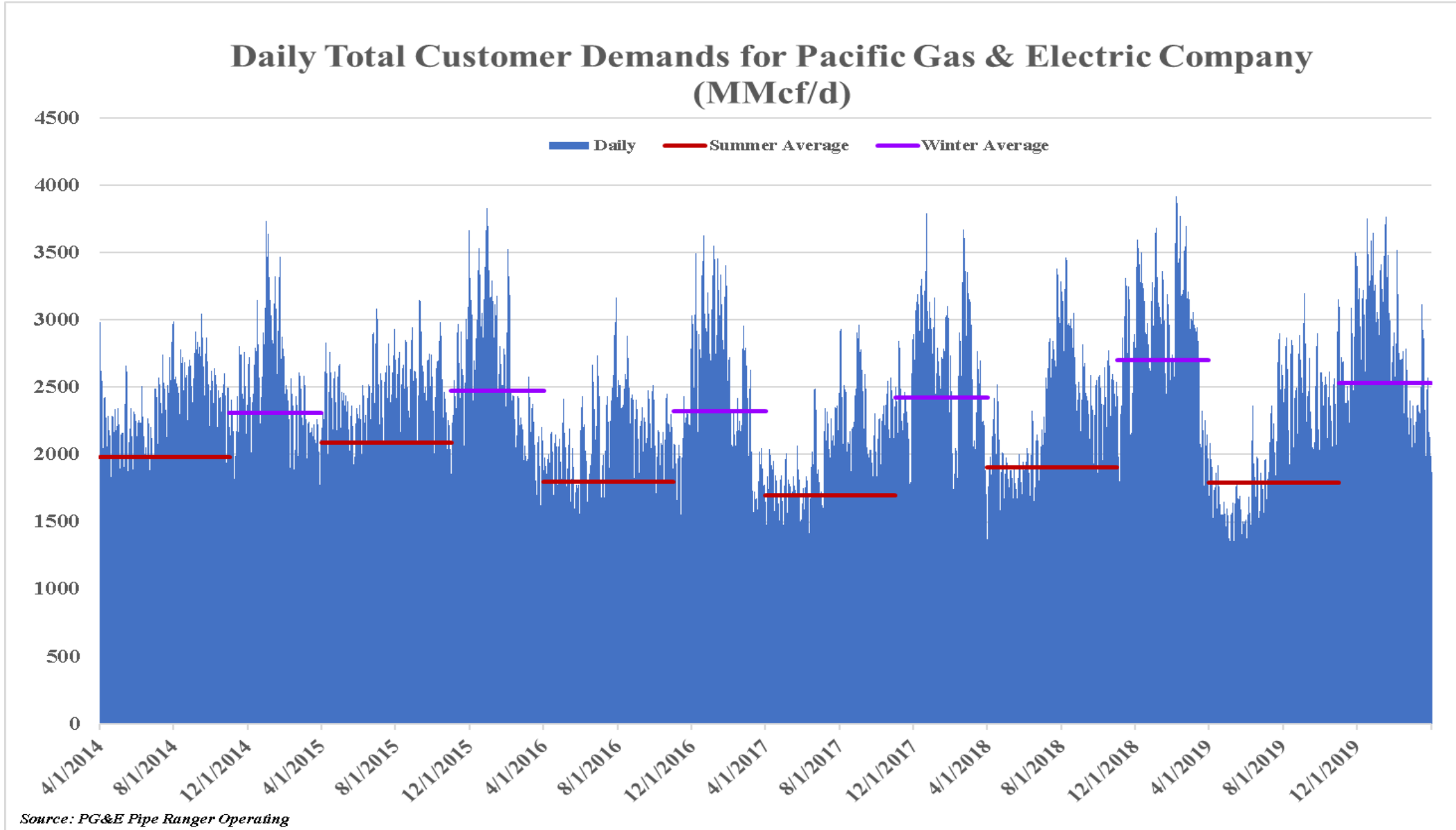
- The trend of summer and winter demand in relation to each other can be seen by eliminating the "noise" of daily demand by looking at average summer daily gas demand and average winter daily gas demand.

- Average summer daily gas demand is gradually decreasing due to California policy initiatives favoring the addition of renewable generation resources.

- Data from recent Gas Years (twelve months April 1 through March 31) show that the differential between summer daily gas demand and average winter daily gas demand is increasing for SoCalGas and increasing even more for PG&E.



Source: SoCalGas Envoy Operating Data


Daily Total Customer Demands for Pacific Gas & Electric Company (MMcf/d)
Daily
Summer Average
Winter Average
4500
4000
3500
3000
2500
2000
1500
1000
500
0
4/1/2014
8/1/2014
12/1/2014
4/1/2015
8/1/2015
12/1/2015
4/1/2016
8/1/2016
12/1/2016
4/1/2017
8/1/2017
12/1/2017
4/1/2018
8/1/2018
12/1/2018
4/1/2019
8/1/2019
12/1/2019
Source: PG&E Pipe Ranger Operating

FORECASTS SHOW THAT THE HISTORICAL TREND WILL CONTINUE THIS SUMMER 2020

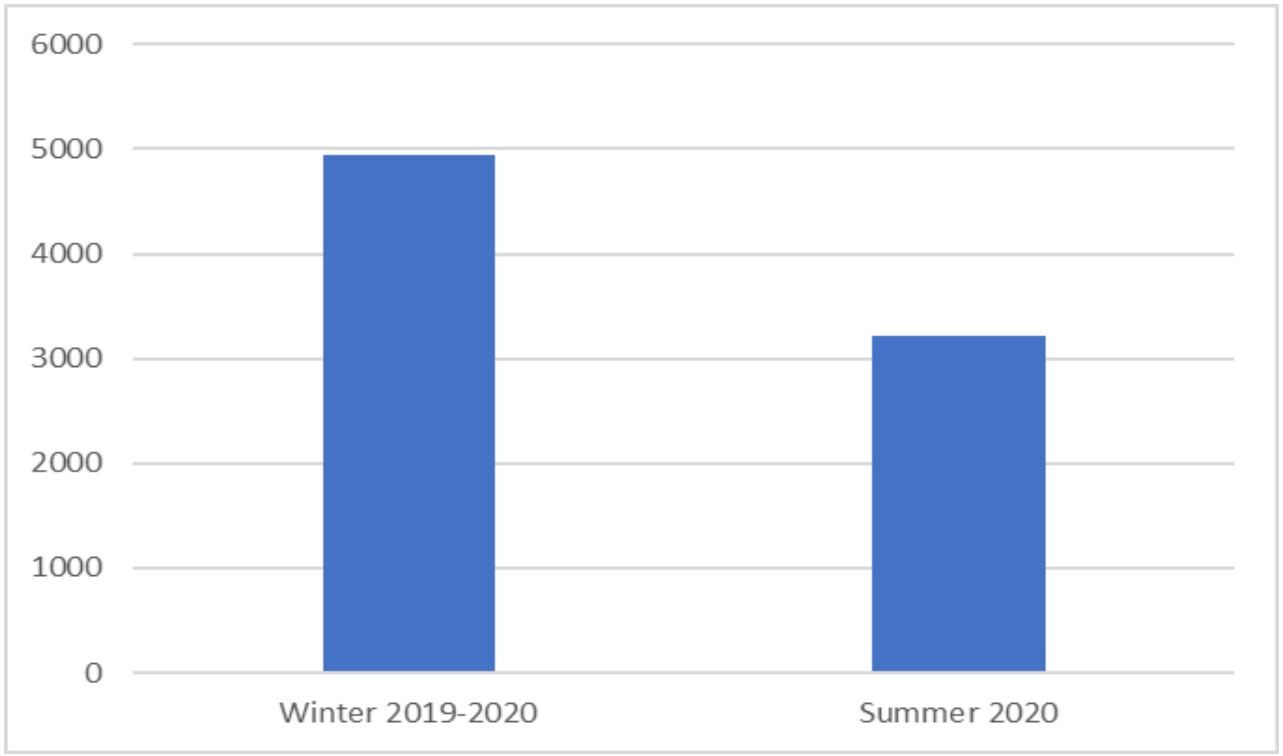
- The 2018 California Gas Report shows that the differential between last winter's peak day demand* and this summer's peak day demand* will be large for SoCalGas and even larger for PG&E.

---

*As defined in the California Gas Report.

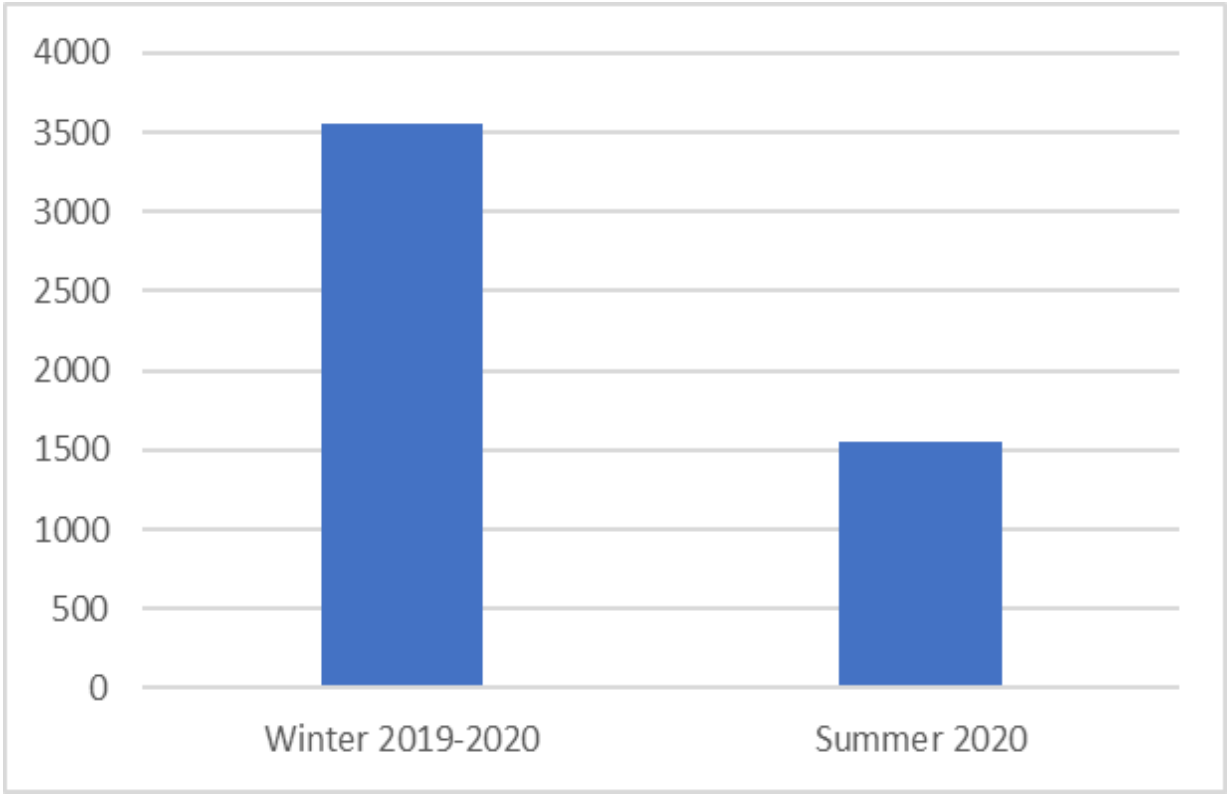
2018 CALIFORNIA GAS REPORT AND ENERGY DIVISION WINTER AND SUMMER ASSESSMENTS (1-IN-10 PEAK DAY) SOCALGAS

Winter 2019-2020	4949 MMcfd
Summer 2020	3,211 MMcfd
Difference	1,738 MMcfd (35 %)



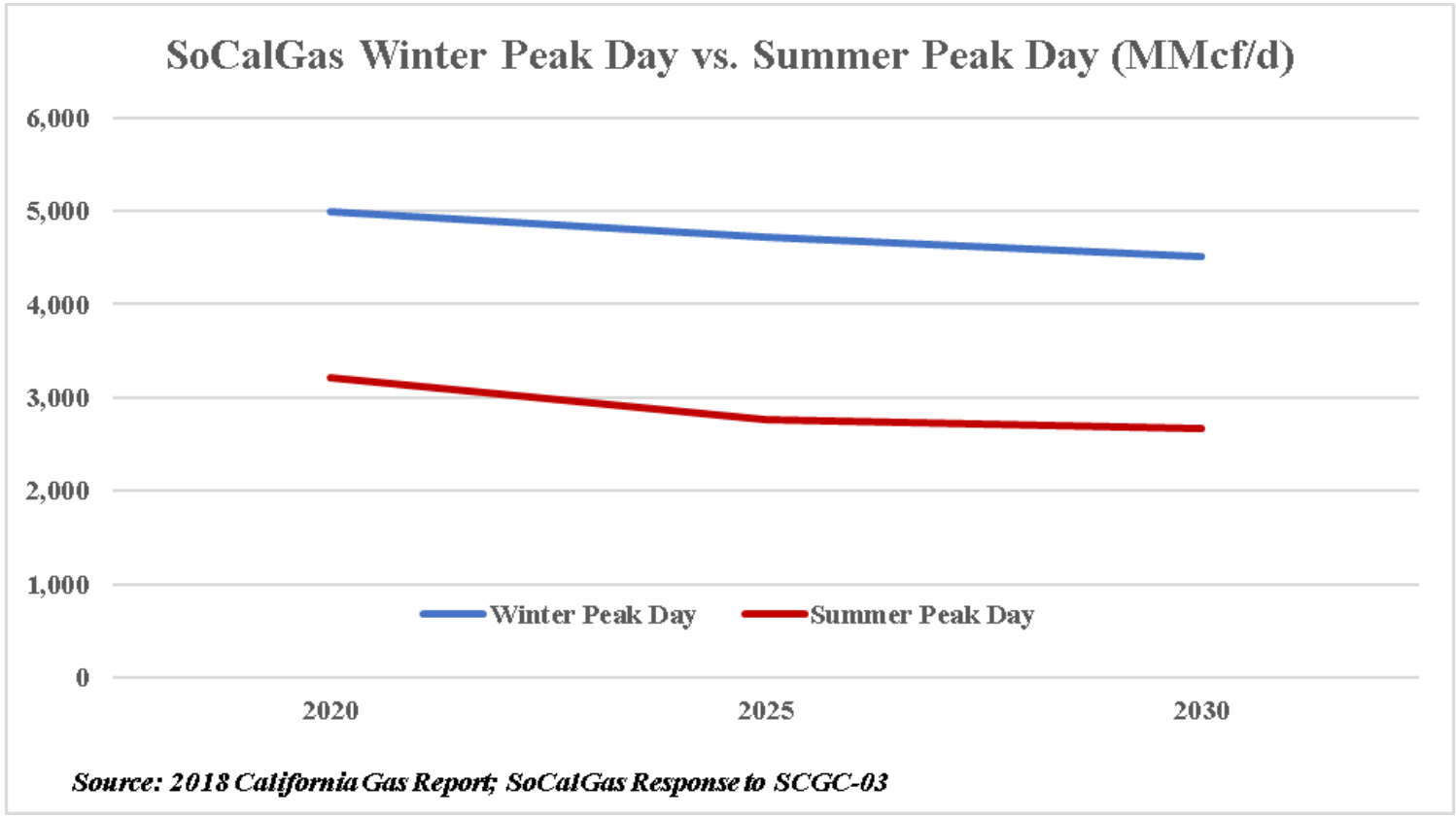
2018 CALIFORNIA GAS REPORT
PG&E

Winter 2019-2020	3,557 MMcfd
Summer 2020	1,557 MMcfd
Difference	2,000 MMcfd (56 %)

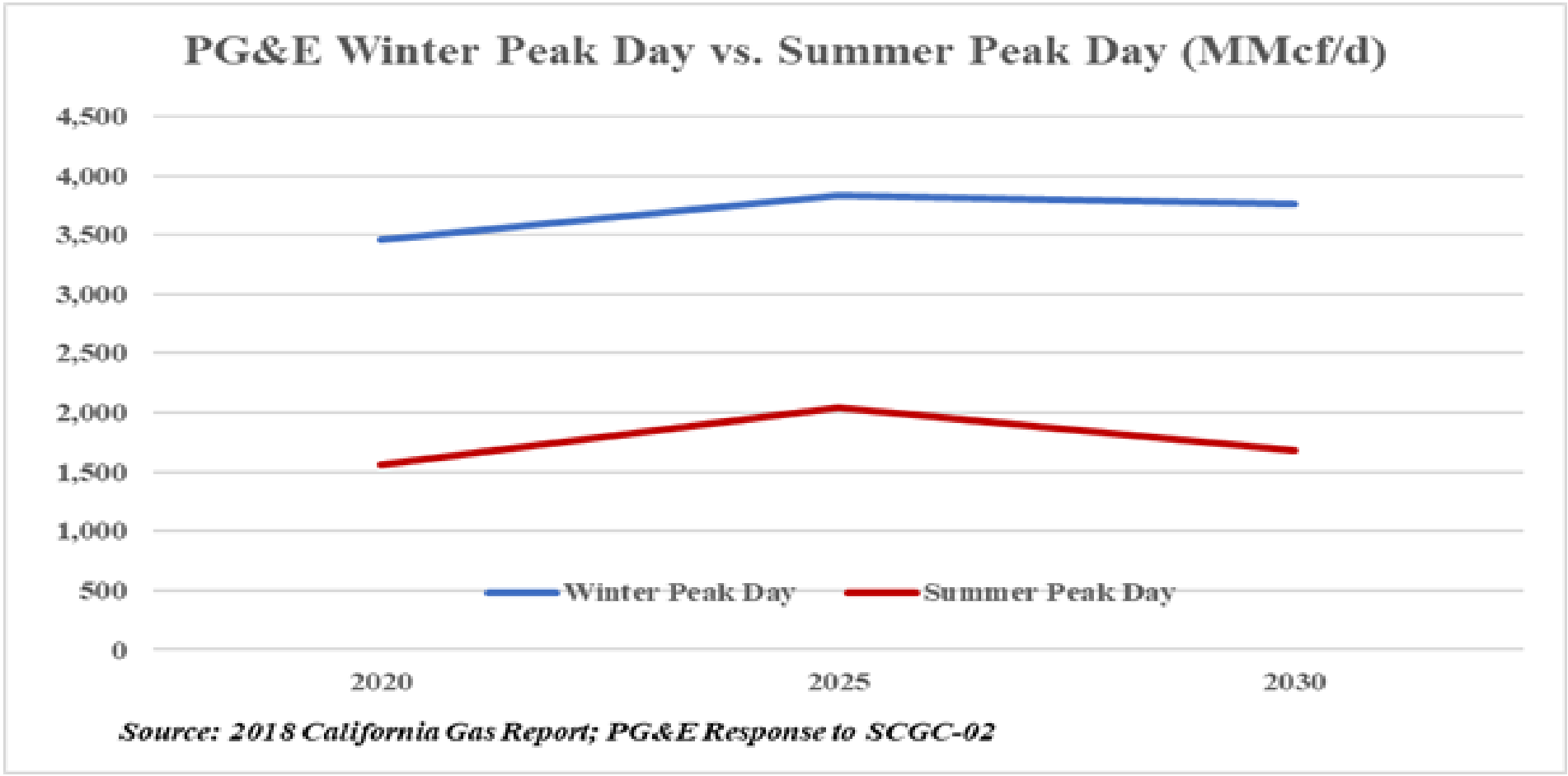


EXTENDING THE 2018 CALIFORNIA GAS REPORT DATA TO 2025 AND 2030 FORECASTS SHOWS A CONTINUED DIFFERENTIAL BETWEEN WINTER AND SUMMER DEMAND.

SoCalGas:



PG&E:


PG&E Winter Peak Day vs. Summer Peak Day (MMcf/d)
4,500
4,000
3,500
3,000
2,500
2,000
1,500
1,000
500
0
Winter Peak Day
Summer Peak Day
2020
2025
2030
Source: 2018 California Gas Report; PG&E Response to SCGC-02

THE 2018 CALIFORNIA GAS REPORT DATA WILL SOON BE UPDATED.

- The 2020 California Gas Report should be available by next month (August 2020).

- The record in this rulemaking should incorporate the 2020 California Gas Report data.

Conclusion: Summer reliability standards for planning SoCalGas and PG&E gas utility backbone and storage infrastructure are unnecessary.

- A system designed to meet the winter peak daily demand will continue to be sufficient to meet the summer peak daily demand.

R. 20-01-007: Is There a Need for A New Summer Reliability Requirement?

Presentation to Workshop in Track 1A

Tom Beach
Crossborder Energy on behalf of Calpine

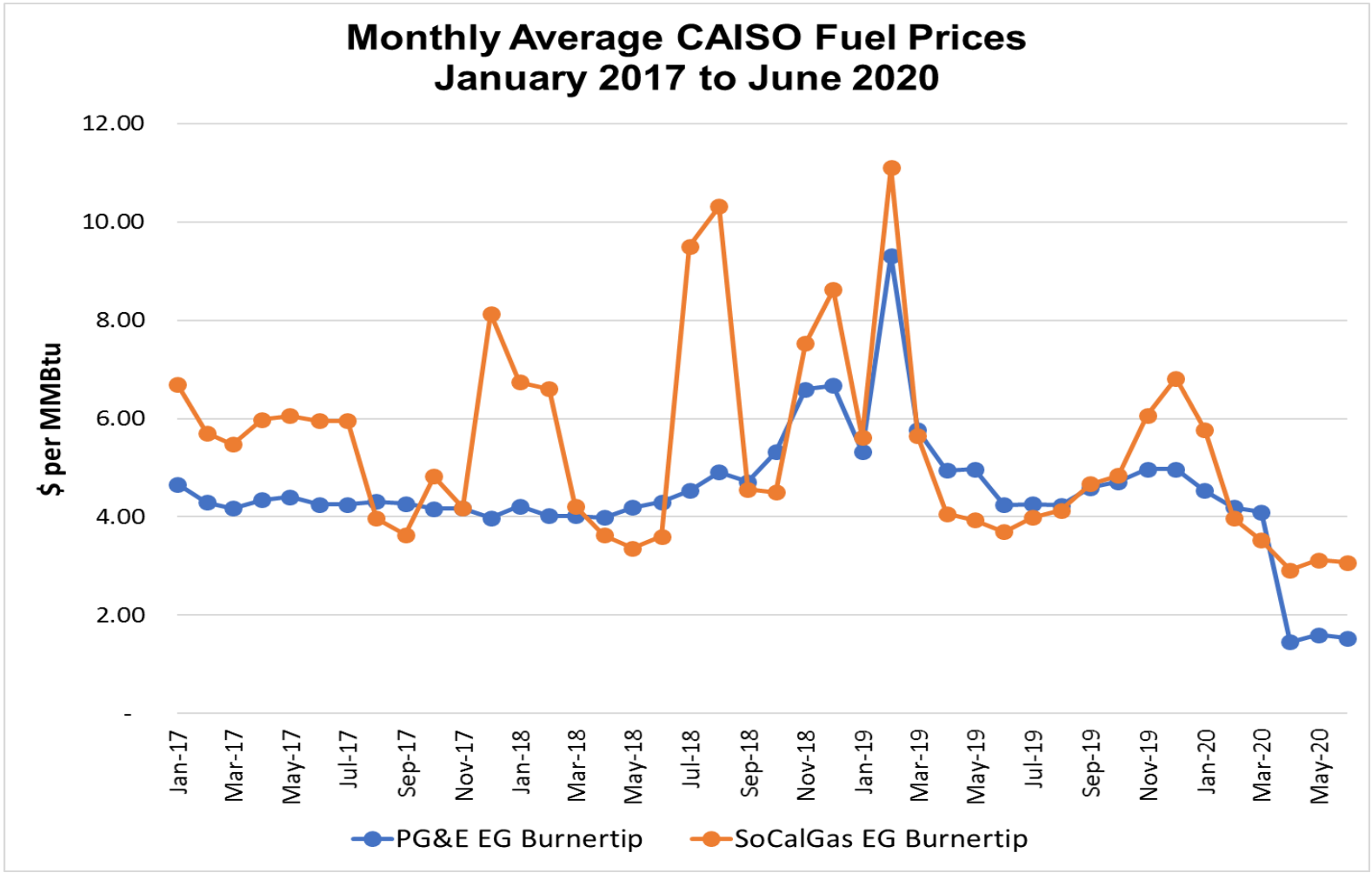
July 7, 2020

Is There A Need for a Summer Reliability Requirement?

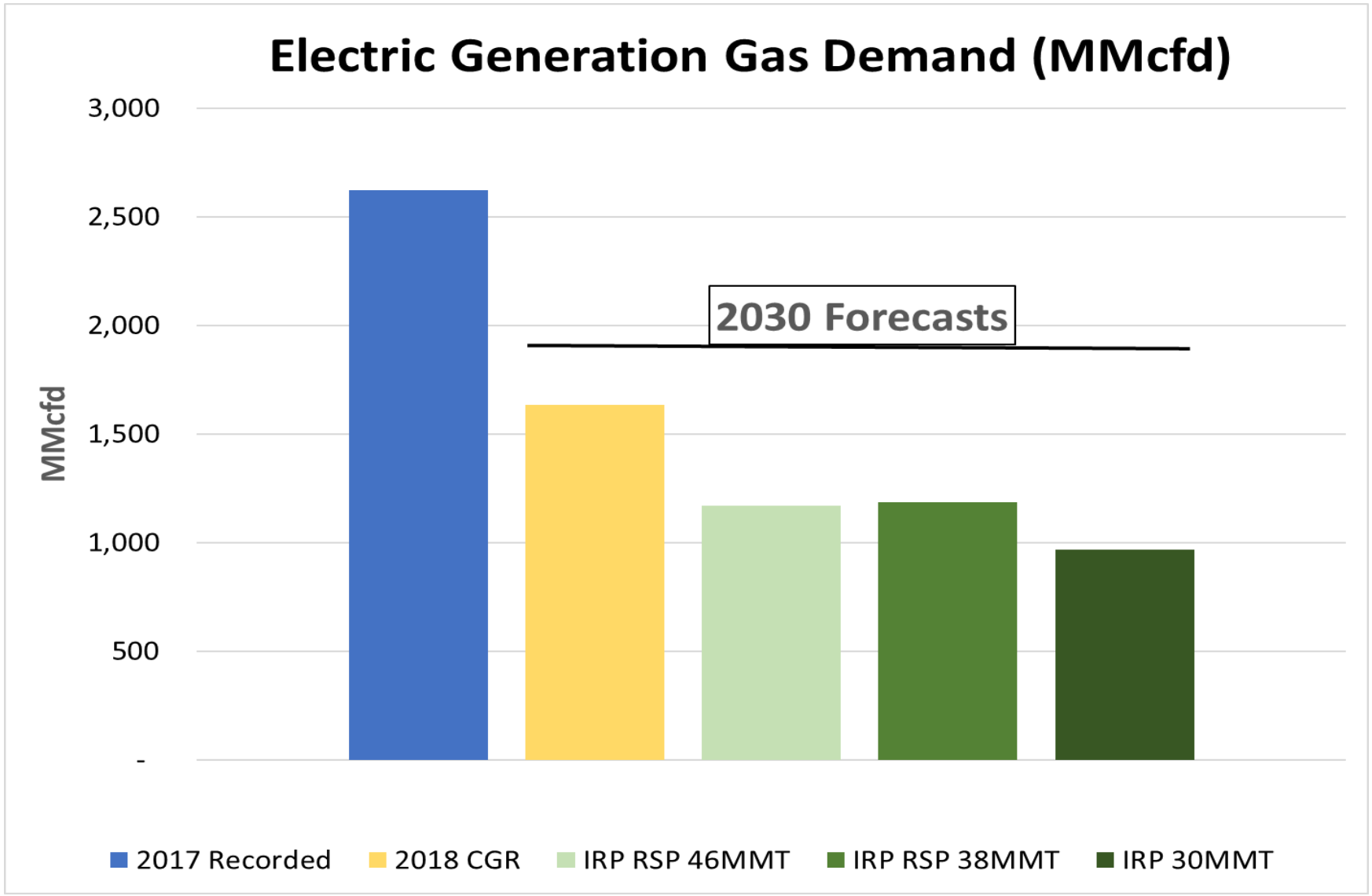
- Existing standard per D. 06-09-039:
  - Conclusion of Law 1: "We should adopt a backbone adequacy standard of one-in-ten cold and dry-hydroelectric year reliability."
  - Hydro conditions are the most important variable for summer gas demand.
- Gas demand peaks in the winter due to core heating demand.
- Recent decisions expand gas balancing and reserve services
  - PG&E D. 19-09-025 (GT&S Rate Case)
    - Adopts Reserve Capacity – 1 Bcf inventory, 250 MMcfd withdrawal
    - Expands system balancing capacity by 4x (withdrawal) and 3x (injection)
  - SoCalGas D. 20-02-045 (TCAP) allocated more capacity for balancing, subject to availability of Aliso Canyon capacity.

Impact of recent pipeline outages in southern California

- Concern is availability of infrastructure, not adequacy of the reliability standard
- Most of the price spikes have been in winter months (except July/August 2018).



Per SB 100, EG throughput will fall substantially over time



Is There A Need for a New Summer Reliability Requirement? No – here's why:

- Existing standard includes dry hydro, the key contingency for summer gas demand.
- Gas demand peaks in the winter to meet peak core loads, when reliability issues are most likely to emerge.
- Recent decisions have expanded gas balancing and reserve services.
- Summer EG gas demand will drop substantially, per SB 100.


Questions or comments?
Submit questions in the chat or raise your hand

Gas System Planning OIR (R.20-01-007) Natural Gas Reliability Standards Track IA – Workshop

Slack Capacity: Prudent or Wasteful?

Presented by Roger Graham

July 7, 2020

Should gas utilities maintain a specific amount of slack capacity or additional infrastructure in excess of the amount of backbone transmission and storage capacity necessary to meet the existing one-in-ten cold and dry year reliability standard? If so, how much and under what conditions?

Slack Capacity

- **PG&E still agrees with the CPUC's (D.) 06-09-039 slack capacity of 80%-90% annual utilization factor under cold temperature and dry hydroelectric conditions**
  - A reasonable amount of slack capacity allows for gas on gas competition, utilization of gas storage, pipeline outages and maintenance
  - A more complex standard could be constructed to account for each of the above considerations individually. However the construction of such a standard could be difficult to account for all the various conditions that could impact each system as well as the interaction between the various considerations
- **PG&E still agrees with the specific amount of capacity, 250 MMcf/d, identified as reserve capacity to account for outages and forecast error as adopted in D.19-09-025**
- **All the standards depend on customers using the capacity and balancing supplies to demand each day**
  - OFOs and EFOs are essential tools to reliable operation of the system

Thank You

R.20-01-007 Track 1A Workshop

Slack Capacity

July 7, 2020

SoCalGas

A Sempra Energy utility®

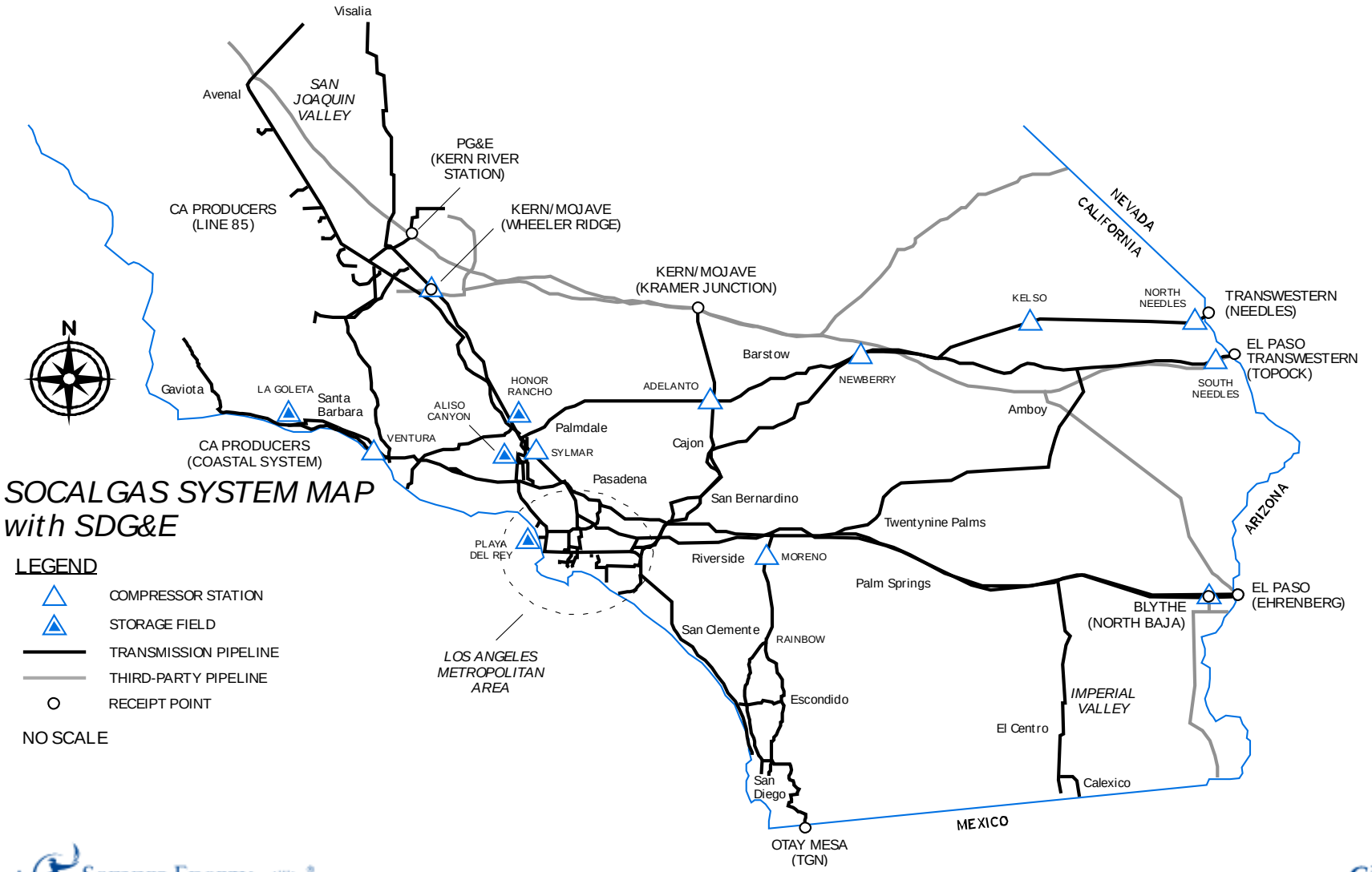
Glad to be of service.®

Scoping Memo Issue 3

- Should gas utilities maintain a specific amount of slack capacity or additional infrastructure in excess of the amount of backbone transmission and storage capacity necessary to meet the existing one-in-ten cold and dry year reliability standard?

- If so, how much and under what conditions?

SoCalGas/SDG&E System



SoCalGas A Sempra Energy utility®

Glad to be of service.®

Average Day 1-in-10/Dry-Hydro Demand

- Current receipt capacity of 2,965 MMcfd exceeds the average day 1-in-10/dry-hydro demand forecast of 2,566 MMcfd

- Receipt capacity assumptions
  - Southern (1210), North Desert (990), and Wheeler Zones (765) MMcfd
  - Excludes 210 MMcfd of capacity for CA producers
  - Excludes storage capacity, as D.06-09-039 established this standard to quantify excess receipt capacity

"Slack" Receipt Capacity (Reserve Margin) Limitations

- Requires a forecast of both demand and receipt capacity
- Receipt capacity is not receipt point utilization
- Storage capacity is not considered
- Forecast demand is an annual average forecast
  - 50% chance actual demand is higher or lower
  - Cannot be used to assess facility need for high sendout conditions/design standards
    - SoCalGas/SDG&E requires both interstate pipeline and storage supplies to meet current design standards

Reserve Margin Forecast

Year	Average Daily Demand (MMCFD)	Receipt Capacity (MMCFD)	Reserve Margin (%)
2020	2,679	3,175	19%
2025	2,512	3,775	50%
2030	2,388	3,775	58%
2035	2,390	3,775	58%

- Demand forecast from 2018 CGR
- 2020 represents current receipt capacity
  - Northern System at 990 MMcfd receipt capacity
  - California producer receipt capacity of 210 MMcfd
- 2025-2035 receipt capacity assumes all pipelines returned to service at former operating pressures
  - Northern System at 1,590 MMcfd receipt capacity
  - California producer receipt capacity of 210 MMcfd

Slack Capacity Considerations

- What is the intended purpose?
  - Improve reliability and resiliency?
  - Minimize curtailments?
  - Moderate price fluctuations?
  - Allow cost efficiency?
- Maintain slack capacity at all times?
  - During upset events? How?
  - Under the daily design standard(s)?
- Include storage capacity? To what extent?
  - How to maintain gas in storage and by whom?
- Funding?
  - Who benefits – core, noncore, both?
  - GRC support to maintain slack capacity with new investment?

Quantify Slack Capacity

- Identify the “acceptable” excess annual cost resulting from insufficient slack capacity
  - This becomes the annual revenue requirement for system improvement

- Instruct utility to find improvement that increases slack capacity with this annual revenue requirement or less, and authorize investment recovery
  - Note that an improvement may not be possible if the acceptable annual revenue requirement is too low

Scoping Memo Issue 3: Should gas utilities maintain a specific amount of slack capacity or additional infrastructure in excess of the amount of backbone transmission and storage capacity necessary to meet the existing one-in-ten cold and dry year reliability standard? If so, how much and under what conditions?

OIR 20-01-007 Track 1A Workshop

Catherine Yap, Barkovich & Yap, Inc.

On Behalf of Southern California Generation Coalition & Indicated Shippers

July 7, 2020

What is Slack Capacity?

- D.06-09-039 defines slack capacity as excess backbone transmission capacity when compared with an average day in a cold year with dry hydro electric conditions
- D.06-09-039 does not require slack capacity for storage capacity

- Scoping Memo Issue 3 raises the question of whether slack capacity should be maintained for the *combined* transmission and storage systems not just the transmission system
- D.06-09-039 requires SoCalGas and PG&E to maintain *sufficient* combined transmission and storage capacity to meet extreme peak day requirements without reference to slack capacity

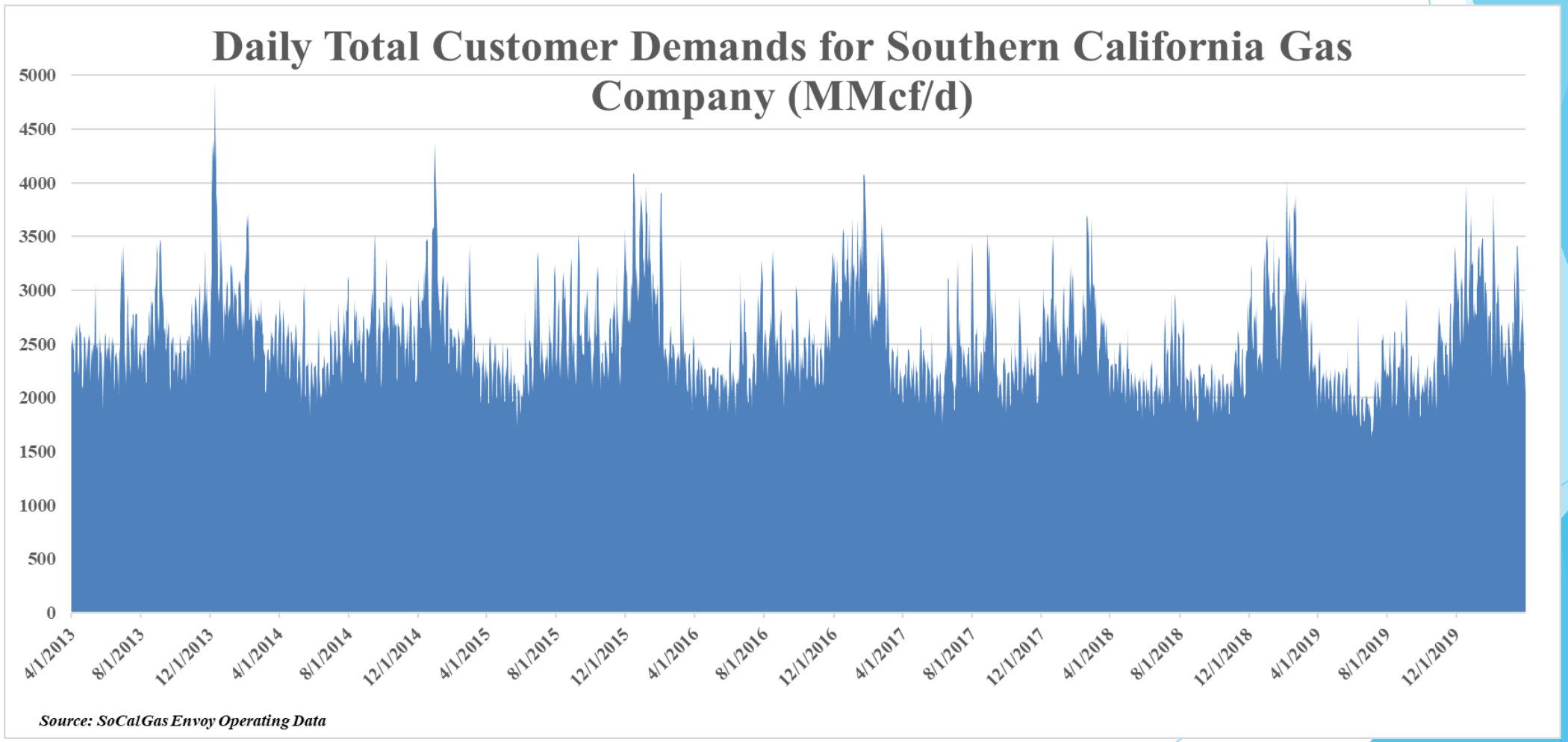
- Both SoCalGas and PG&E are addressing maintenance and repair issues in their transmission pipelines that produce capacity constraints on those lines
- The impact on the SoCalGas system has been particularly noticeable

Why Is Slack Capacity Important?

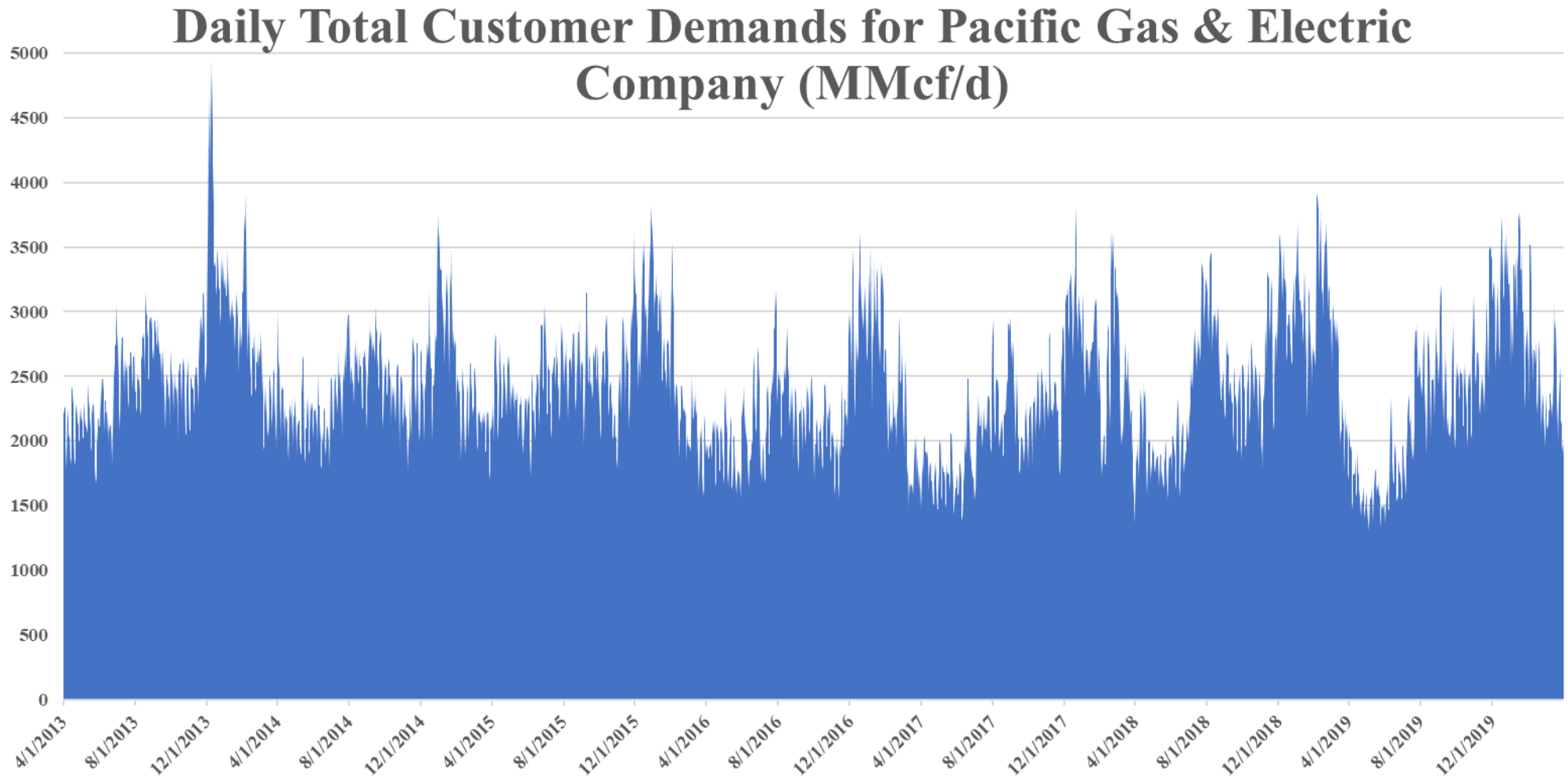
- Slack capacity enables gas-on-gas competition
- Sufficient capacity is needed to ensure that capacity needs for storage injection and maintenance activities do not interfere with gas-on-gas competition

- Slack capacity on the backbone transmission system has been greatly reduced by maintenance and repair requirements
- Improved access to storage withdrawal capacity would compensate for the reduced backbone capacity ensuring that we do not have a repeat of the high gas prices witnessed in 2018

Usage is highly variable on both a daily and seasonal basis on the SoCalGas system



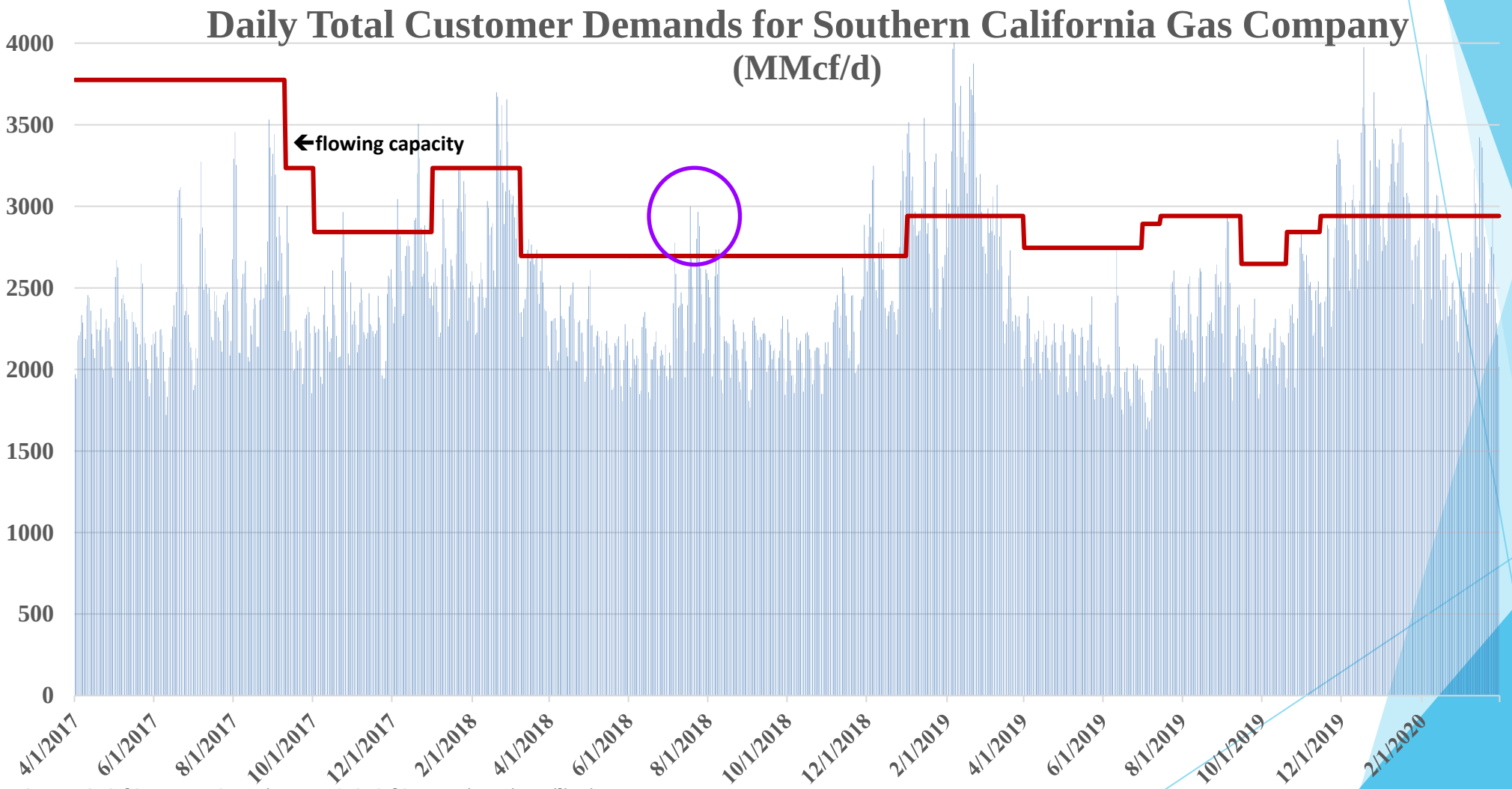
and on the PG&E system



Source: PG&E Pipe Ranger Operating Data

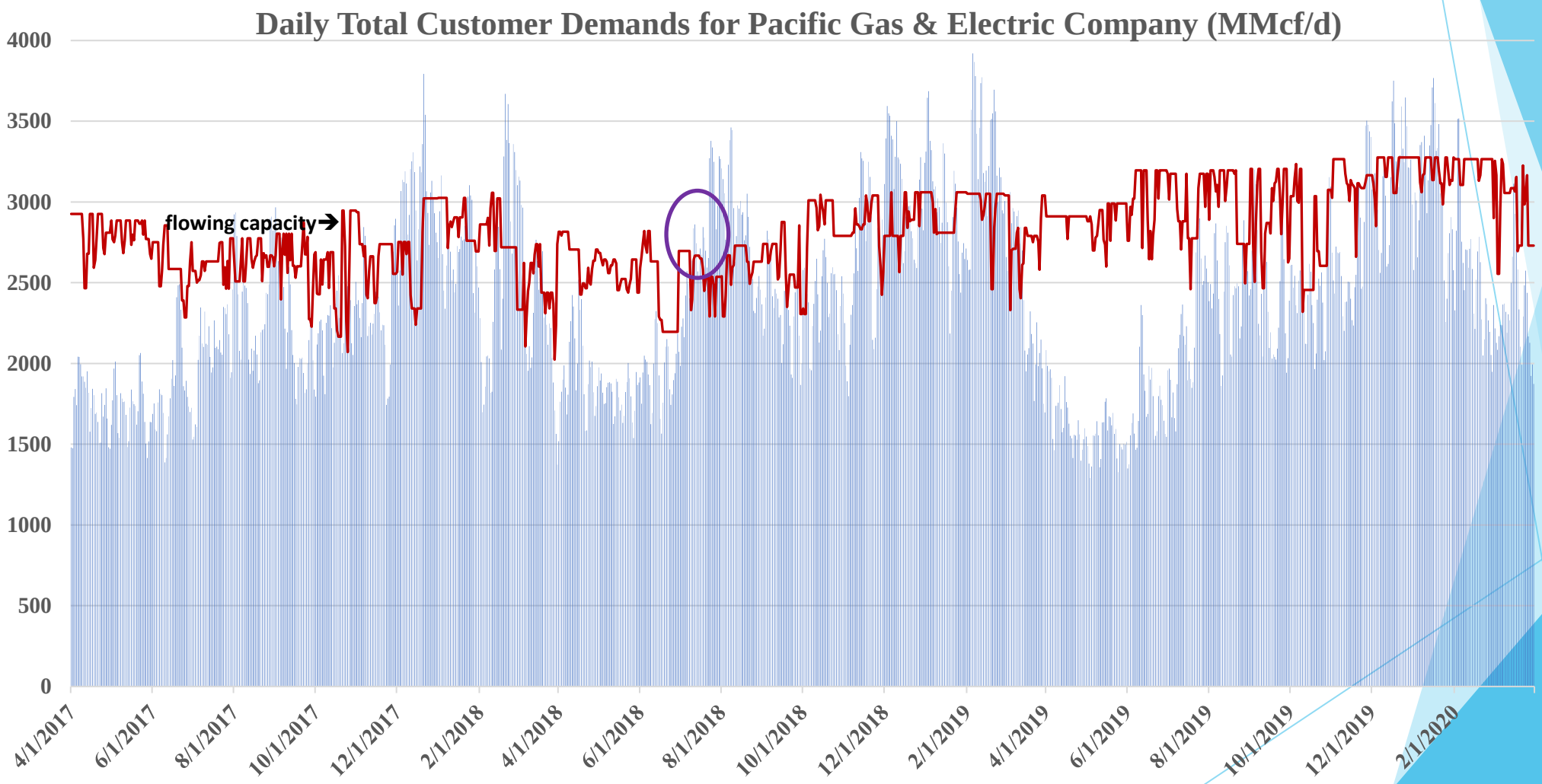
- Peak day demands are uncertain as they are largely weather driven
- Need adequate capacity to meet demand if curtailments are to be avoided
- Need sufficient capacity to avoid price jumps

Capacity can be flowing supplies or storage



Source: SoCalGas Envoy Operating Data & SoCalGas Receipt Point Utilization Reports

Capacity can be flowing supplies or storage

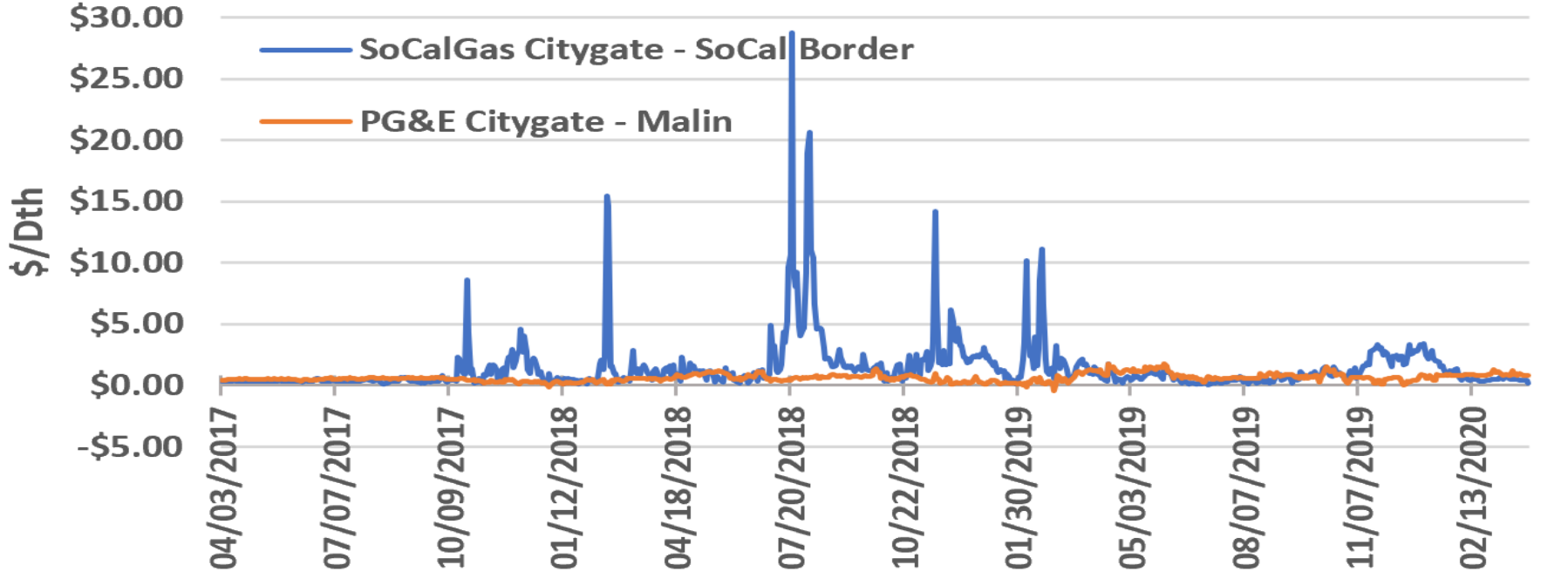


Source: PG&E Pipe Ranger Operating Data & Maintenance Logs

What happens if we don't have enough capacity in the system?

- There can be dramatic increases in the price for natural gas
- We've seen this phenomenon in other markets where demand for products or services exceeds supply

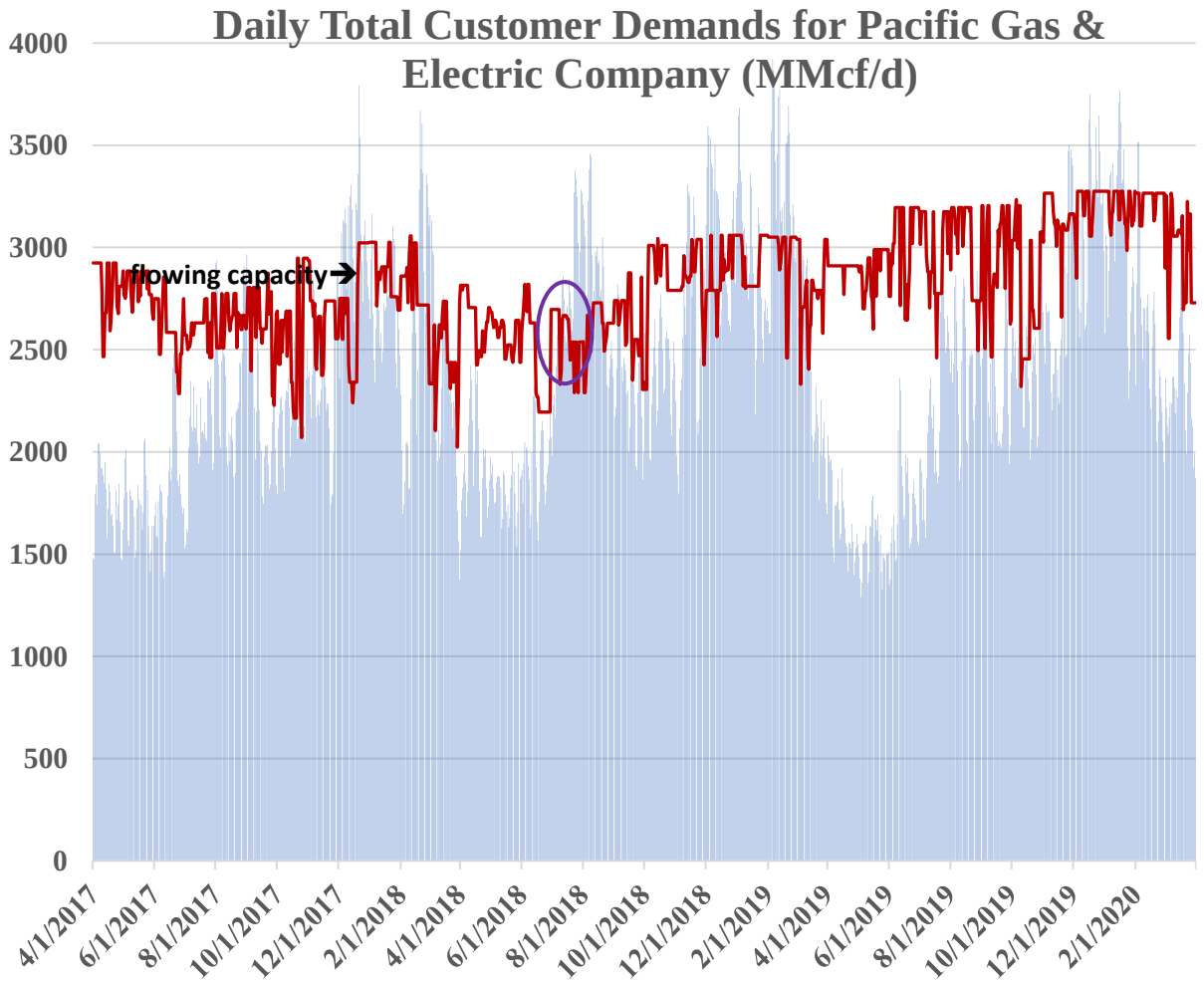
What did we see in the summer of 2018 when demand exceeded flowing supplies?



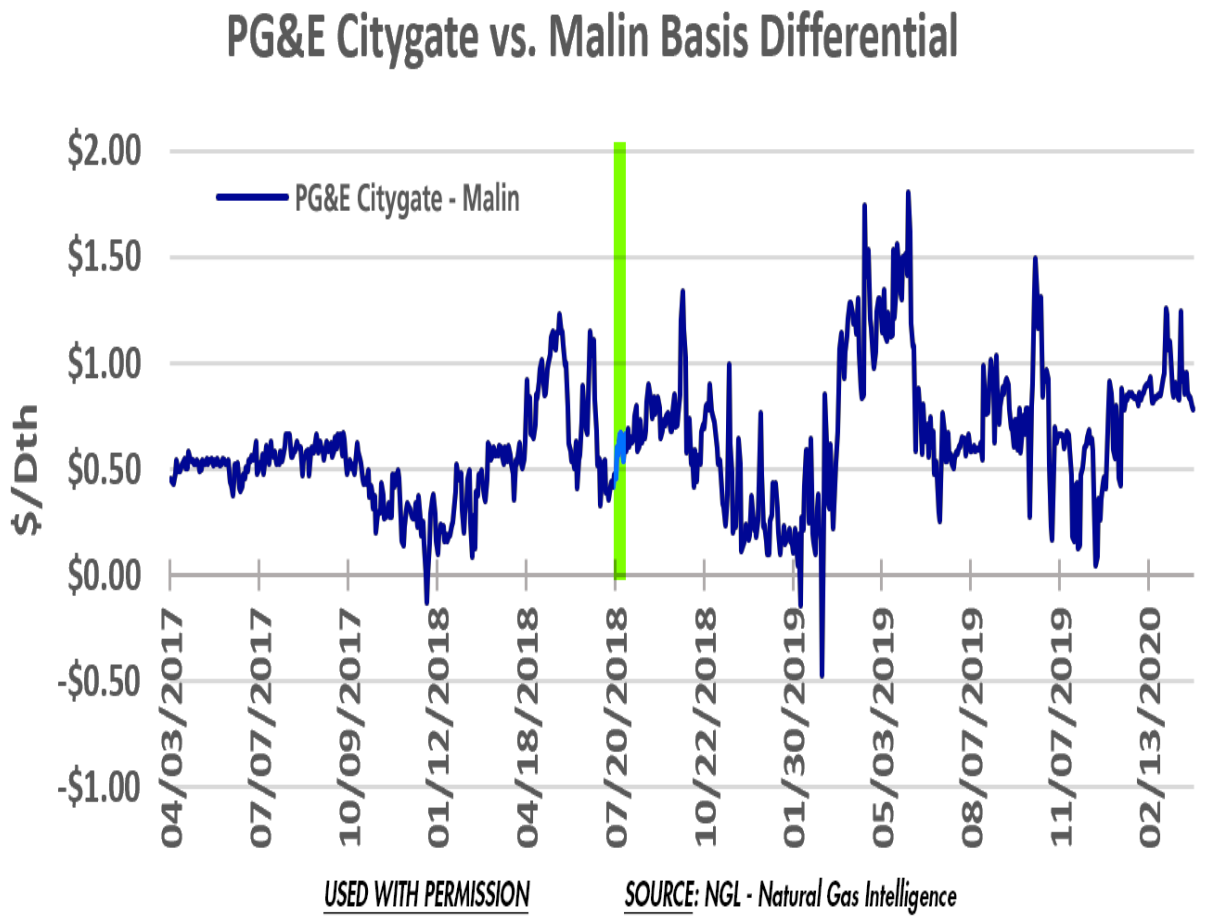
USED WITH PERMISSION

SOURCE: NGI - Natural Gas Intelligence

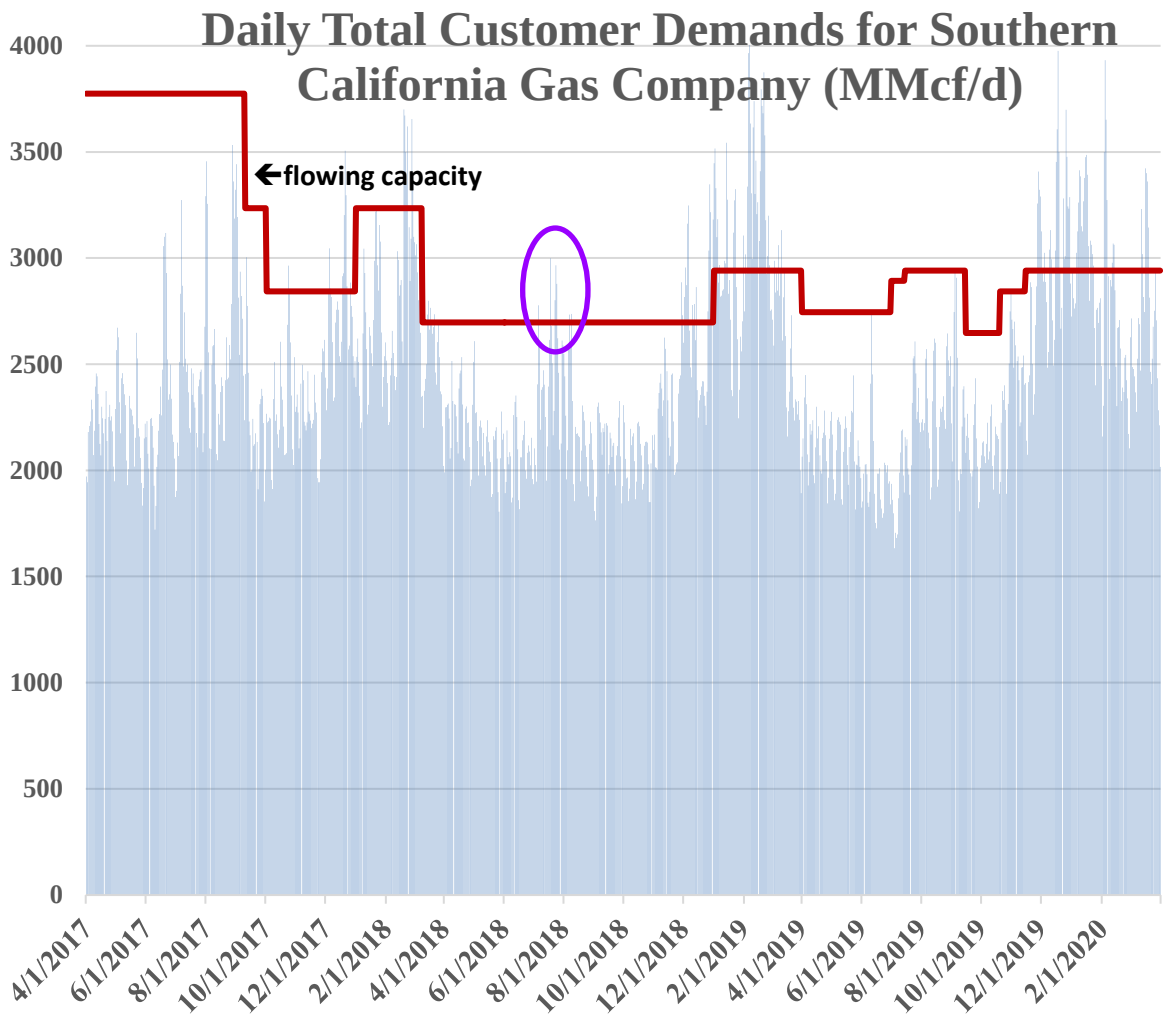
Why did the prices in PG&E's system differ



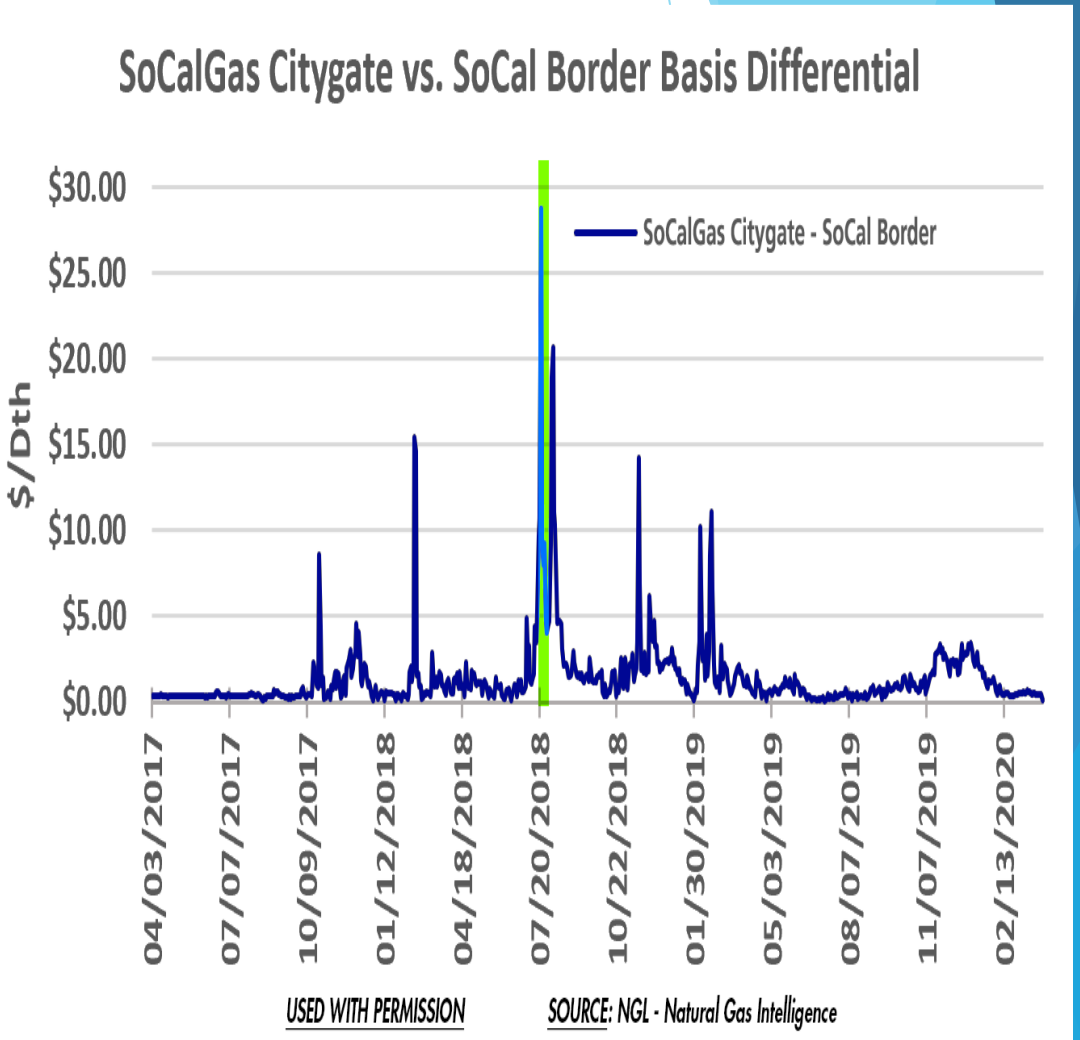
Source: PG&E Pipe Ranger Operating Data & Maintenance



from the prices in SoCalGas' system?



Source: SoCalGas Envoy Operating Data & SoCalGas Receipt



Why was there such a difference in basis?

- Both SoCalGas and PG&E experienced daily demands in July 2018 in excess of flowing supplies
- SoCalGas had significant constraints on storage availability and only Gas Acquisition and System Operator had access
- PG&E had multiple storage fields on its system with unconstrained access

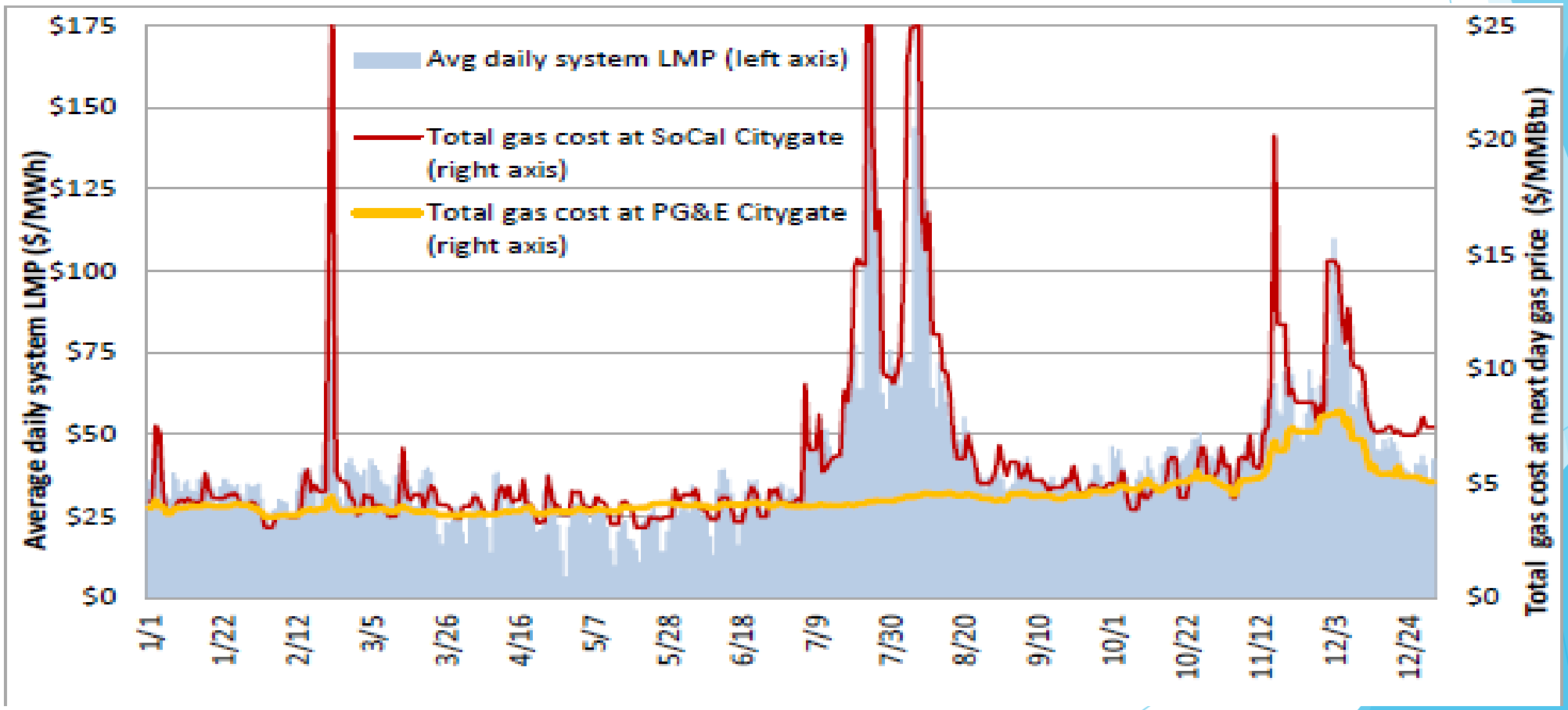
Customers on the SoCalGas system faced higher gas prices at the citygate

- CAISO awarded electric generator bids after the gas markets closed making generators largely dependent on citygate gas supplies after Cycle 1
- Electric generator demand was inelastic given penalties faced for non-performance

- Constraints to flowing supplies limited citygate gas availability with no noncore access to storage
- SoCalGas Gas Acquisition Department sold gas 3.4 million Dth at average $12.19/Dth in July 2018 at the citygate from core storage which is allowed under the GCIM

Electric customers statewide paid higher prices

- The CAISO's 2018 Market Monitoring Report (page 68) shows gas costs in SoCalGas' service territory set electricity prices




Questions or comments?
Submit questions in the chat or raise your hand


BREAK
TIME !!
10 minutes, return at 3:15

R.20-01-007 Track 1A Workshop

North Baja Xpress Project Impacts

July 7, 2020

SoCalGas

A Sempra Energy utility®

Glad to be of service.®

Agenda

- El Paso Natural Gas (EPNG) South Mainline Capacity and Supply
- Operating Policy
- North-South Project Application Policy Findings
- Current Situation
- Recent System Reliability Support Activity Results

EPNG South Mainline Capacity

EPNG South Mainline

- Source of supply and upstream capacity for North Baja Xpress Project
- North Baja Xpress is one of many pipeline projects proposed or completed to serve gas requirements in Mexico from the South Mainline
- Prices for natural gas on the South Mainline would be expected to increase as supply, capacity and demand balance
  - Permian Basin is the major supply source for the South Mainline

EPNG South Mainline

- Current EPNG Ehrenberg delivery capacity is 2.3 Bcfd
  - SoCalGas takeaway with no maintenance outages is 1.2 Bcfd
    - Current SoCalGas takeaway is approximately 0.75 Bcfd based on average annual daily demand conditions on the Southern System
  - North Baja takeaway is currently 0.51 Bcfd
    - North Baja Xpress would take away an additional 0.48 Bcfd

- Currently, supply is available to buyers with Backbone Transportation Service (BTS) rights on the SoCalGas system at Ehrenberg
  - Available supply from the Permian Basin is a relevant question in the 5-10 year term

- The System Operator is obligated to have gas supply delivered to the Southern System to meet minimum flow requirements when gas buyers choose to deliver supply to non-Southern Zone receipt points

Current Operating Policy for System Reliability

Current Operating Policy for System Reliability

- It is expected that gas will be available at Ehrenberg to meet minimum load requirements on the SoCalGas Southern System

- SoCalGas does not currently believe that the System Operator needs to acquire upstream firm capacity rights on the EPNG system in order to meet Southern System Minimum Flow Requirements

Current Operating Policy for System Reliability

- SoCalGas Rule 41 spells out the requirements and procedures for maintaining system reliability on the SoCalGas Southern System

- Due to constraints between the North Desert Backbone System and Southern System load centers SoCalGas mostly serves Southern System loads with supply from the Ehrenberg and Otay Mesa system receipt points

Current Operating Policy for System Reliability

- SoCalGas has implemented 4 tools to maintain Southern System Reliability when BTS shippers go elsewhere to procure their customers' requirements
  1. Spot Market Purchases and Sales
  2. Memoranda in Lieu of Contracts (MILCs) between the System Operator and Gas Acquisition Department
  3. Base Load Transactions
  4. Discounted BTS contracts

- Continued use of these tools was ratified by the Commission in the North-South Project Application Decision (D.16-07-015)

North-South Project Application

North-South Application

- SoCalGas and SDG&E sought Commission approval to construct a pipeline and system enhancements needed to secure reliability of gas supplies to customers in Southern System and increase Northern System receipt point capacity

- In D.16-07-015, the Commission acknowledged that:
  1. There was a need for enhanced system reliability on the Southern System
  2. Minimum flow requirements must be met every day of the year
  3. Gas deliveries from EPNG are sometimes inadequate to meet minimum flow requirements on the Southern System

North-South Application

- The Commission found that existing tools already in place to address minimum flow requirements were reasonable alternatives to the North-South Project

- The suggestion that contracting for upstream capacity could work to address minimum flow requirements was incomplete; neither the cost and effort to procure reliable upstream supplies nor the departmental role at SoCalGas for that responsibility were considered

Current Situation

Current Situation

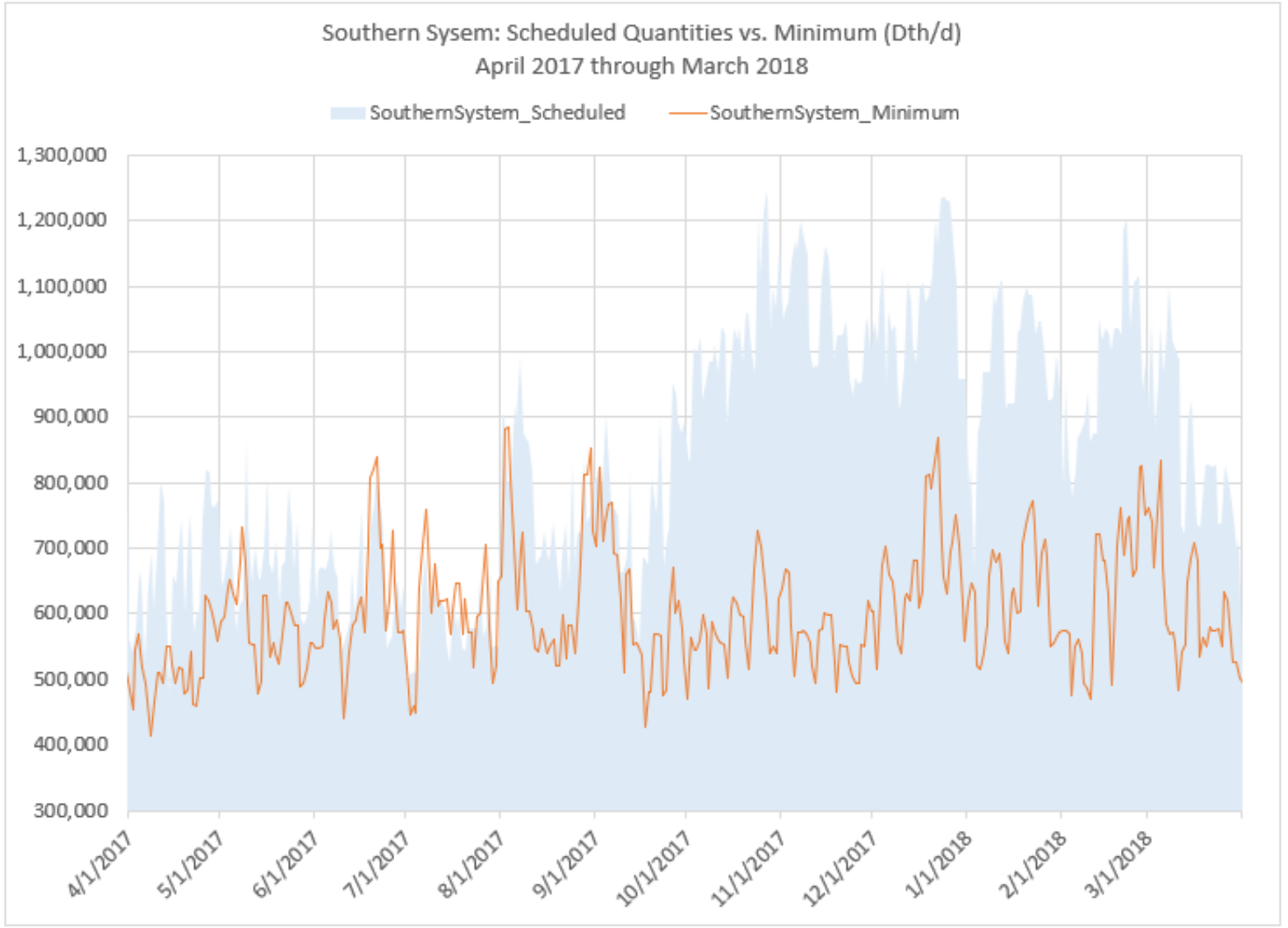
- Gas supply receipts to the Southern System has exceeded the minimum every day for the past 2 annual April-March storage cycles
- The biggest impediment to higher receipts is low gas demand on the Southern System
- The Gas Acquisition Department continues to perform under the MILC to meet the core's share of the minimum flow requirement
- SoCalGas expects this situation to continue until gas demand balances with available supply on the EPNG South Mainline system

Recent System Reliability Support Activity Results

Southern System Reliability (SSR) Purchases and Interruptible BTS Discounts

- There were no Southern System Reliability purchases or interruptible BTS discounts from April 1, 2018 to March 31, 2020

- From April 2010 through March 2018 total annual net cost to maintain system reliability excluding the MILC ranged from a high of $23.4 million in 2013-14 to a low of $0.9 million in 2017-18


Southern Sysem: Scheduled Quantities vs. Minimum (Dth/d)
April 2017 through March 2018
SouthernSystem_Scheduled
SouthernSystem_Minimum
1,300,000
1,200,000
1,100,000
1,000,000
900,000
800,000
700,000
600,000
500,000
400,000
300,000
4/1/2017
5/1/2017
6/1/2017
7/1/2017
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10/1/2017
11/1/2017
12/1/2017
1/1/2018
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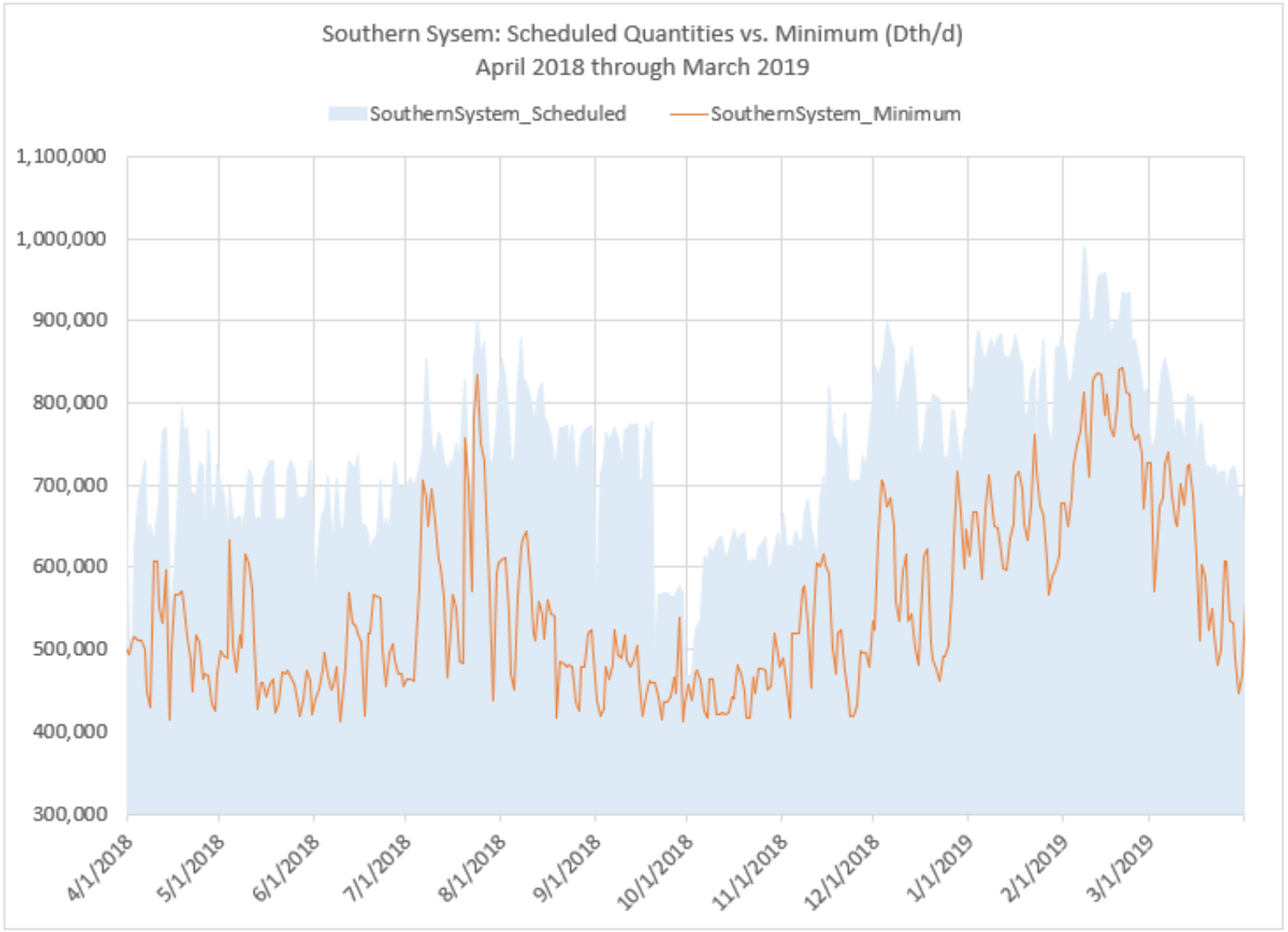
3/1/2018


Southern Sysem: Scheduled Quantities vs. Minimum (Dth/d)
April 2018 through March 2019
SouthernSystem_Scheduled
SouthernSystem_Minimum
1,100,000
1,000,000
900,000
800,000
700,000
600,000
500,000
400,000
300,000
4/1/2018
5/1/2018
6/1/2018
7/1/2018
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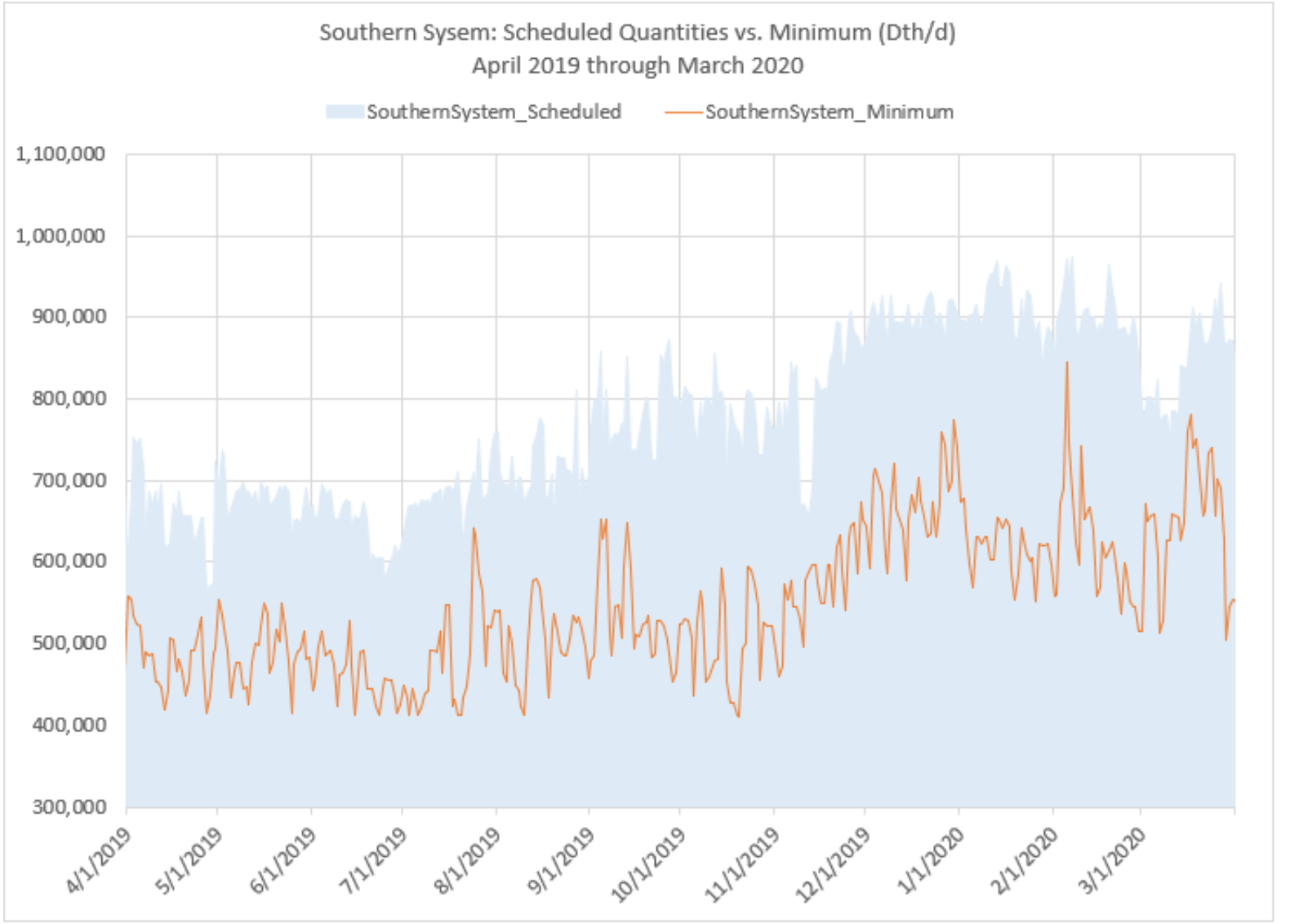
10/1/2018
11/1/2018
12/1/2018
1/1/2019
2/1/2019
3/1/2019


Southern Sysem: Scheduled Quantities vs. Minimum (Dth/d)
April 2019 through March 2020
SouthernSystem_Scheduled
SouthernSystem_Minimum
1,100,000
1,000,000
900,000
800,000
700,000
600,000
500,000
400,000
300,000
4/1/2019
5/1/2019
6/1/2019
7/1/2019
8/1/2019
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10/1/2019
11/1/2019
12/1/2019
1/1/2020
2/1/2020
3/1/2020


Questions or comments?
Submit questions in the chat or raise your hand

Closing Remarks

- Reminder: Track 1B workshop on July 21.
- In September, a staff report will be published providing recommendations based on feedback and input from the workshops or, at a minimum, a range of options for resolving the issues. Parties will have an opportunity to provide comments on the staff report.
- Thank you!