

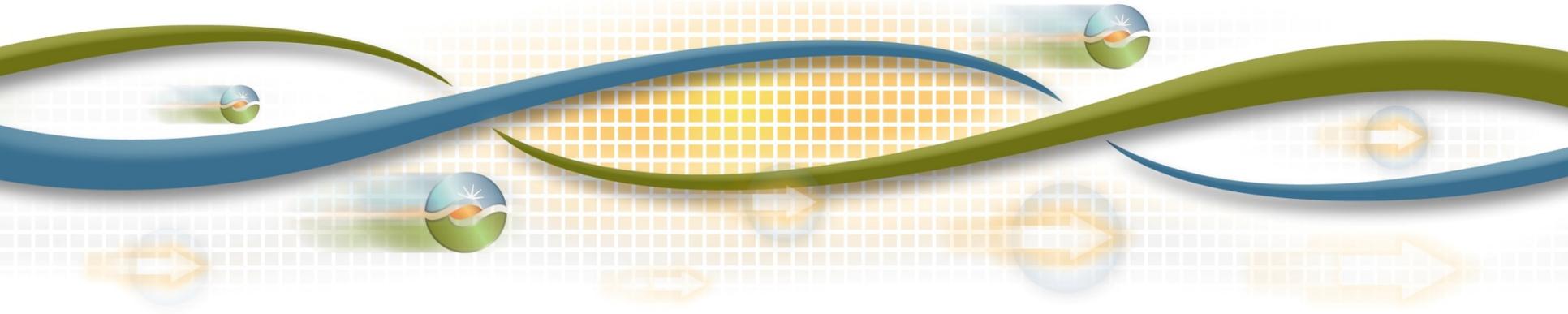


Aliso Canyon Technical Conference

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Winter Key Finding: Gas reliability still threatened but electricity challenges are fewer than in Summer

- Demand flips, so core customers use 60% of gas supply
- Electric generators are noncore customers and are first to lose gas during a curtailment
- Winter peak day in gas balance (1-in-10 for noncore):

Customer	2016 Forecasted Peak Demand	Percent of Peak Demand
Core	3.050 Bcf	60
Electric Generation	1.031 Bcf ¹⁷	20
Noncore, not electric generation ¹⁸	0.996 Bcf	20
Winter Total	5.077 Bcf	100

Source: CPUC Energy Division *Preliminary Staff Analysis*, February 16, 2016; initially taken from 2014 *California Gas Report*, p. 90

- Electricity demand lower in winter; more flexibility to shift generation to resources outside the SoCalGas service area

Hydraulic analysis shows winter peak day gas demands cannot be met without Aliso Canyon

- Gas balance cannot assess operating pressures or look within a day
- Assumes no Aliso Canyon
- Exposes problem that if Line 225 is full with gas from Wheeler Ridge, cannot take full 1 Bcf from Honor Rancho
- Cannot meet winter peak day design criterion of 5.2 Bcf

Condition: Flowing Supply at Receipt Points (Pipeline Utilization by Shippers) or Pipeline Outage	Maximum Servable Demand
100%	4.7 Bcf
Loss of 0.2 Bcf flowing to Line 3000 work	4.5 Bcf
85% pipeline utilization/less gas at receipt points	4.2 Bcf

Winter action plan contains 10 new mitigation measures – no additional impact to CAISO market design

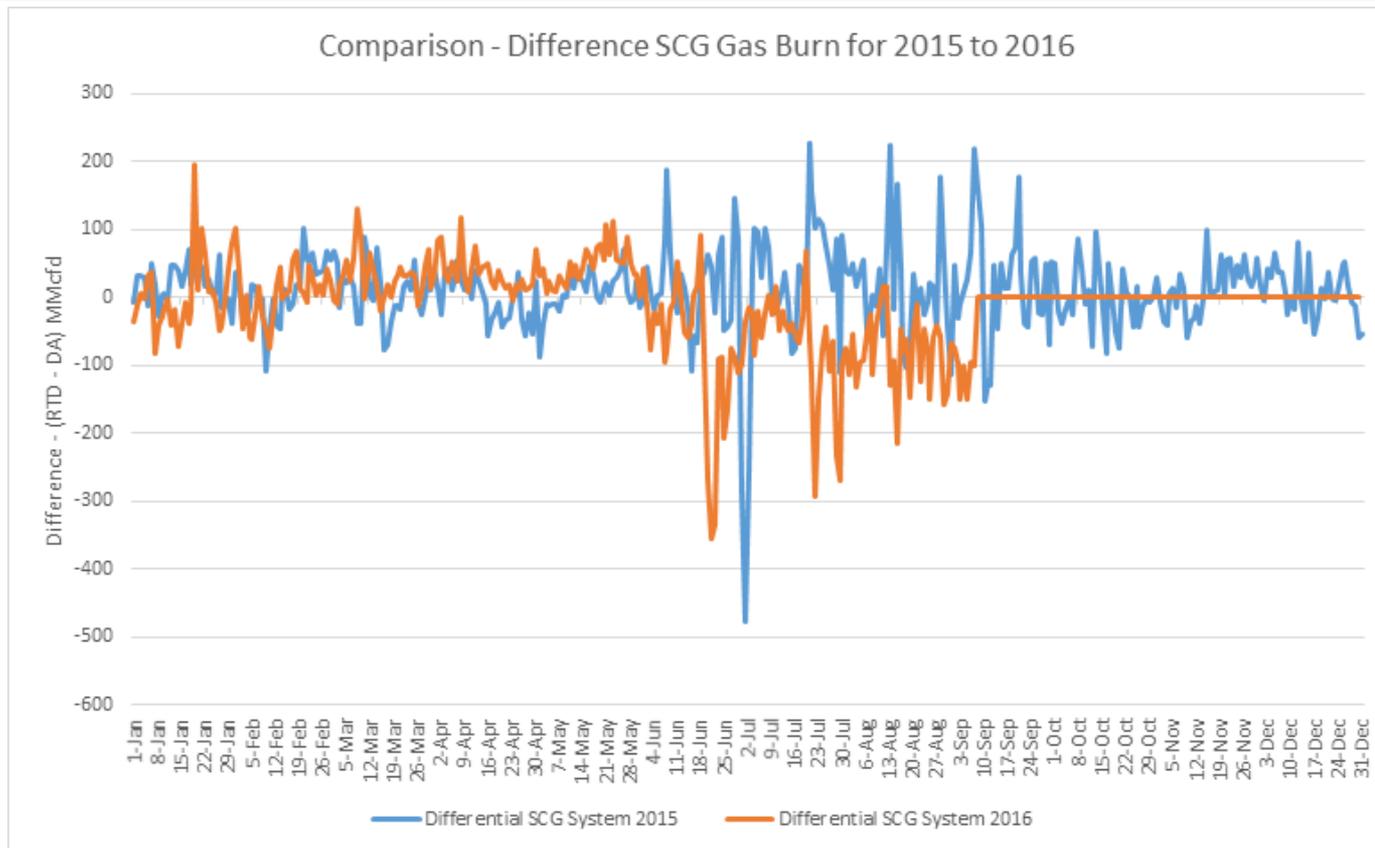
Category	Mitigation Measure
Gas-targeted Programs to Further Reduce Usage	Develop and Deploy Gas Demand Response Program
	Develop and Deploy Gas Cold Weather Messaging
Winter Operations Changes	Extend Tighter Noncore Balancing Rules into Winter
	Add Core Balancing Rules
	Create Gas Burn Operating Ceiling for Electric Generation
Reduce Gas Maintenance Downtime	Submit Reports Describing Rapid Progress on Restoring Pipeline Service
Increase Supply	Ask for more California Natural Gas Production
	Prepare to Buy LNG
Use of Gas from Aliso Canyon	Update the Aliso Canyon gas Withdrawal Protocol and Gas Allocation Process
Refineries	Monitor Natural Gas Use at Refineries and Gasoline Prices

Max generation constraint already addresses this

How Summer Mitigation measures helped

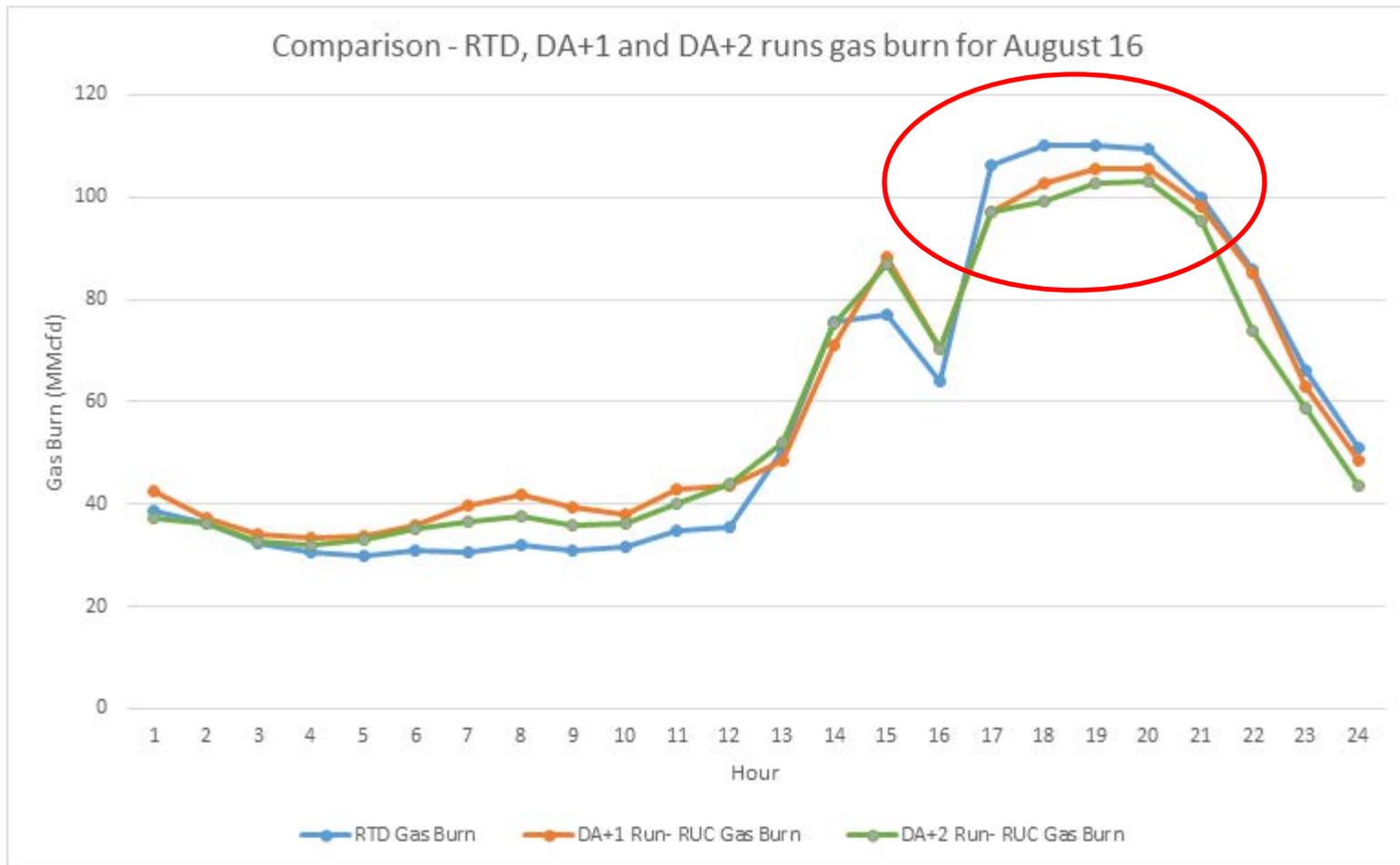
- Summer not over, Southern CA often peaks in September
- 2016 milder than expected; no long duration heat wave yet
- Tighter balancing rules seem to be effective at eliminating supply and demand mismatches
- For June 20, first high load conditions of Summer:
 - the weather moderate relative to forecast
 - had the Monday heat been as predicted or lasted longer, curtailments would have been likely
 - SoCalGas had Aliso prepared to withdraw
 - Demand response programs and calls for conservation reduced demand by several hundred MWs
 - No significant transmission outages

Good coordination and advanced planning helped mitigate risk of gas supply and demand differences

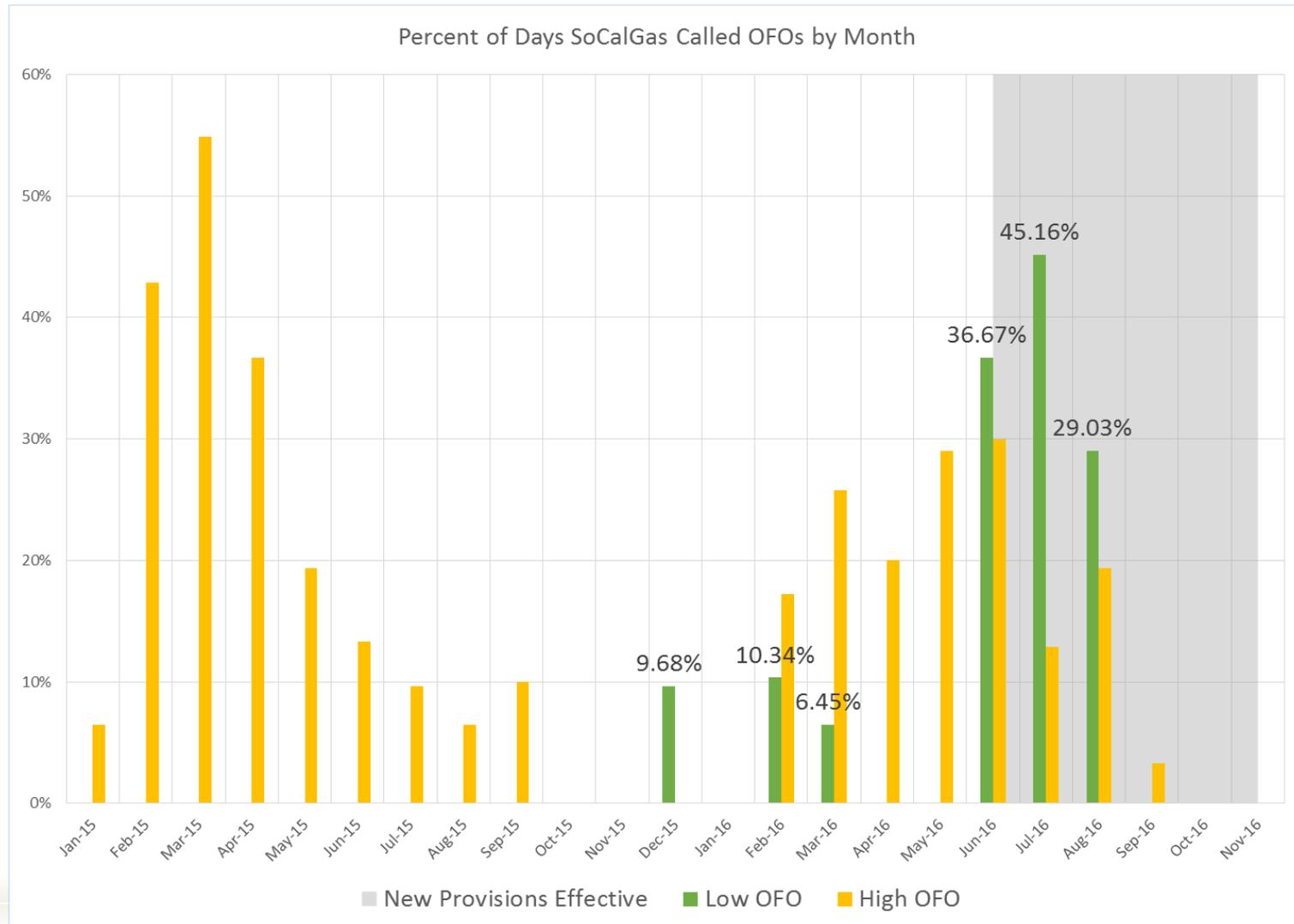


Row Labels	Max Under scheduled 2015	Max Under scheduled 2016
June	188	93
July	226	69
August	225	18

August 16 observed increased RTD gas burn as a result of fire causing transmission line outages into SoCal



SoCalGas frequent use of OFOs and SCs responding efforts to sufficiently schedule gas helped mitigate risk



Conclusions

- Increased coordination and market rule changes adopted this summer were effective
- Risk to electric reliability this winter is lower than what was estimated for summer, but not eliminated
- Gas curtailments are expected to be more than normal, even if reinject gas in October or November
- More ability to use electric generation sources outside the SoCalGas service area in the winter, subject to transmission and generation outages
- Uncertainty about weather and equipment remains
- 10 mitigation measures, including gas conservation and ability to use some of the 15 Bcf in Aliso, will help
- CAISO intends to request extension of existing operational and market rule changes, with some modifications based on lessons learnt