

Panel on Preparations for Los Angeles Basin Gas-Electric Reliability and Market Impacts (AD16-21-000)

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Analysis simulated impact of actual operating days

DATE	CONDITION	Demand (Bcf per Day)
9/16/14	LADWP Peak Day	3.5
7/30/15	Large Electric Generation Ramp	3.2
9/9/15	CAISO – Large Difference between Day Ahead and Real Time actual + LADWP 2015 Peak	3.5
12/15/15	Winter Day and High Electric Generation	4.0

- Aliso Canyon considered unavailable
- No planned or unplanned gas system outages
- Honor Rancho, La Goleta fully used; Playa Del Rey used for reserve
- Must restore system to neutral balance overnight to prevent cascading problems

Analysis identified operating constraints with Aliso unavailable

1. Scheduled flowing gas can fail to meet actual demand
2. Planned and unplanned gas system outages can limit pipeline and other storage availability
3. Rapid ramping of electric generation can exceed dynamic capability of gas system
 - Recovering from contingencies
 - Following changes in renewable generation
 - Important: gas moves ~30 mph or less

Analysis reflects serious risk to gas/electric reliability this summer

- Without gas supply from Aliso, the LA area can expect 16 summer days of gas curtailment in 2016
- Electric generators are first to be curtailed
- Up to 14 summer days may require electric service interruption, potentially to millions of customers

	Scenario	Gas Quantity Curtailed	Days of Gas Curtailment Risk for Electric Generators (Summer)	Gas Curtailment Interrupts Electricity Service (Summer)
A.	150 MMcf mismatch between scheduled gas and actual demand	180 MMcf	2	Not Likely
B.	Mismatch <u>plus</u> outage at other storage field	480 MMcf	2	Likely
C.	Mismatch <u>plus</u> pipeline outage	600 MMcf	9	Yes
D.	Mismatch <u>plus</u> outages both on other storage and pipeline	1100 MMcf	3	Yes

CAISO Specific Actions

- May 9: Filed tariff changes to enhance gas-electric coordination for summer 2016
- Coordinating with PeakRC / WECC:
 - Measures to maximize transfer capability into Southern CA during emergency conditions
 - May 26 meeting with neighboring balancing areas
- Coordinating with SoCalGas and LADWP:
 - Outage coordination
 - Curtailment coordination
 - Process for Aliso withdrawal for reliability
 - Flex Alert program to promote conservation
- Exploring opportunity to support additional demand response and electric storage for 2016/2017

Appendix

Mitigation measures help but do not eliminate risks

CATEGORY	MITIGATION MEASURE	STATUS UPDATE
Prudent Aliso Canyon Use	1. Make available 15 bcf stored at Aliso canyon to prevent summer electricity interruptions	Discussions underway to develop protocol. Draft plan and order expected by mid-May. CPUC disposition by end of May.
	2. Efficiently complete the required safety review at Aliso Canyon to allow safe use of the field	DOGGR website shows underway with 1 well having passed all tests
Tariff Changes	3. Implement tighter gas balancing rules	Incorporated into proposed settlement submitted 4/29/16. CPUC disposition expected in June.
	4. Modify operational flow order rule	OFO rule changes incorporated into proposed settlement submitted 4/29/16. CPUC disposition expected in June.
	5. Call operational flow orders sooner in gas day	SoCalGas considering
	6. Provide market information to generators before cycle 1 gas scheduling	Changes approved by ISO BOG 5/4/16. Incorporated into ISO FERC Tariff filing submitted 5/9/16.
	7. Consider ISO market changes that increase gas-electric coordination	Incentives approved by ISO BOG 5/4/16 and incorporated into ISO FERC Tariff filing submitted 5/9/16.
Operational Coordination	8. Increase electric and gas operational coordination	Training scheduled for 5/26/16 and additional table top exercises scheduled for 5/16/16 & 5/31/16. Coordinating w/Peak RC and WECC to maximize transfer capability
	9. Establish more specific gas allocation among electric generators in advance of curtailment	Discussions underway to develop protocol
	10. Determine if any gas maintenance tasks can be safely deferred	Working on list of potential projects

Mitigation measures help, but do not eliminate risks

CATEGORY	MITIGATION MEASURE	STATUS UPDATE
LADWP Operational Flexibility	11. Curtail physical gas hedging	Completed & continuing
	12. Stop economic dispatch	Completed & continuing
	13. Curtail block energy and capacity sales	Completed & continuing
Reduce Natural Gas and Electricity Use	14. Ask customers to reduce natural gas and electricity energy consumption	Advice letter for Flex Alert and gas messaging funding completed 4/28/16. Task force for gas messaging created and ISO will be ready for flex alert triggers by mid-May.
	15. Expand gas and electric efficiency programs targeted at low income customers	CPUC Approved on 4/21/16 with monthly impact reporting to begin 5/23/16.
	16. Expand demand response programs that target air conditioning and large commercial use	Proposed Decision Issued 5/4/16 with CPUC disposition expected early June.
	17. Reprioritize existing energy efficiency towards projects with potential to impact usage	List of custom projects identified. Next, SCE and SCG to finalize agreements to accelerate projects. LADWP kicked-off LAUSD implementation on 4/6/16. LADWP will launch adding components to existing programs by 7/1/16.
	18. Reprioritize solar thermal program spending to fund projects for summer and by end of 2017	Approved funding transfer from general market program to low-income program. Advice letter filed 4/15/16 for incentive design modifications to SCG CSI Thermal Program.
	19. Accelerate Storage(added in response to workshop comments)	Identified energy storage projects in SoCalGas territory which could help alleviate needs caused by Aliso Canyon. Working on multiple approaches to accelerate online dates.