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On Southern California Energy Reliability

Additional submitted attachment is included below.

Southern California Energy Reliability Comments by Herbert Emmrich

Joint Agency Workshop on Energy Reliability In Southern California

Docket 17-IEPR-11-Southern California Energy Reliability

May 23, 2017

Aliso Canyon Storage Inventory and Withdrawal Capacities are needed for Core Customers in a 1-in-35 Year Cold Temperature Year and Cold Temperature Peak Day

- Based on my analysis, I believe that the Aliso Canyon Gas Storage Field needs to be made operational and put into service at least at a 20 billion cubic feet (BCF) level to assure reliable gas service to Southern California's gas and electric customers.

- However, based on the retrofits, safety improvements and testing of refurbished gas wells a full restoration at an 86 BCF level is warranted.

- With all of the upgrades, retrofits and monitoring devices installed, the Aliso Canyon gas storage facility is now the safest gas storage field in the United States and probably the entire world.

- However, if the Division of Oil and Gas finds a lower level and lower pressure is warranted due to an abundance of caution the historical Aliso Canyon 67 BCF inventory level should be adopted. Aliso was operated at that level for over 30 years without incident.

- The following is my analysis of the Aliso Canyon storage inventory and withdrawal capacities needed to assure core cold year and peak day protection in a 1-in-35 year cold temperature year and peak day.

Aliso Canyon Storage Requirements for an Average Temperature Year with 1,340 HDD and a 1-in-35 Cold Year with 1,659 Heating Degree Days (HDD)

Core Inventory Needed For an Average Temperature Year with 1,340 HDD (BCF)	Balancing Inventory (BCF)	Available Inventory without Aliso Canyon (BCF)	Inventory Available for non-core customers (BCF)	Aliso Canyon Inventory Needed for Core Customers (BCF)
47	5	52	0	0
Core Inventory Needed For a Cold Temperature Year with 1,659 HDD (BCF)				
76	5	52	0	19

Aliso Canyon Storage Requirements for Core Customers on a 4 Day Peak Day Event at 25 HDD

Core Peak Day Requirements with 25 HDD for SoCalGas and 22 HDD for SDG&E	HDD 24	HDD 25	HDD 24	HDD 23	4 Day Flowing Supply and Storage Withdrawal (BCF)	Inventory Needed for Peak Day Withdrawal Pressure (BCF)	Inventory Needed before 4 Day Peak day Event (BCF)
Core 1-in-35 4 Day Peak Day Demand (MMcfd)	3,239	3,326	3,239	3,166	13	24	32
Core Flowing Supply (MMcfd)	1,165	1,165	1,165	1,165	5		5
Storage Withdrawal Available Without Aliso (MMcfd)	1,315	1,315	1,315	1,315	5	12	17
Aliso Storage Withdrawal Needed (MMcfd)	759	846	759	686	3	12	15

Aliso Canyon Storage Requirements for Core and Non-Core Customers in a Cold Year and Dry Hydro Conditions

Core Peak Day Requirements with 25 HDD for SoCalGas and 22 HDD for SDG&E	HDD 24	HDD 25	HDD 24	HDD 23	BCF	Inventory Needed for Peak Day Withdrawal Pressure (BCF)	Inventory Needed before 4 Day Peak Day Event (BCF)
Core 1-in-35 4 Day Peak Day Demand (MMcfd) Plus Non-Core Demand	3,239	3,326	3,239	3,166	13	24	32
Non-Core Demand	2,066	2,066	2,066	2,066	8		
Core Flowing Supply (MMcfd)	1,165	1,165	1,165	1,165	5		5
Non-Core Flowing Supply Required (MMcfd)	965	1,052	965	892	4		
Storage Withdrawal Needed (MMcfd)	3,175	3,175	3,175	3,175	13		
Non Aliso Storage Withdrawal Available (MMcfd)	1,315	1,315	1,315	1,315	5	12	17
Aliso Storage Withdrawal Required (MMcfd)	1,860	1,860	1,860	1,860	7	13	20
Sources: 2016 CGR and CPUC Preliminary Report							