DOCKETED

Docket Number:	17-IEPR-11
Project Title:	Southern California Energy Reliability
TN #:	217837
Document Title:	Comment letter from Environmental Defense Fund and Skipping Stone
Description:	N/A
Filer:	System
Organization:	Tim O'Connor
Submitter Role:	Public
Submission Date:	6/5/2017 9:38:24 AM
Docketed Date:	6/5/2017

Comment Received From: Tim O'Connor
Submitted On: 6/5/2017
Docket Number: 17-IEPR-11

Comment letter from EDF and Skipping Stone

Please see attached comment letter

Additional submitted attachment is included below.

June 5, 2017

Robert Weisenmiller
Chair, California Energy Commission

cc:
Michael Picker, President, California Public Utilities Commission
Steve Berberich, Executive Officer, California Independent System Operator

Submitted electronically via Commission Website

Subject: Comments on Docket #: 17-IEPR-11: Southern California Energy Reliability

Dear Chair Weisenmiller,

Thank you for the recent opportunity to provide comments to the California Energy Commission ("CEC") on the recent reliability analysis and action plan presented at the May 22, 2017 public workshop on Southern California Energy Reliability.

As was the case one year ago, the CEC and other energy agencies in California are faced with the ongoing task of ensuring safe and reliable operation of the California energy system without the operation of the Aliso Canyon gas storage field at historic levels. This effort has not only resulted in unprecedented levels of energy system analysis and regulatory coordination between the agencies, but has also led to the creation and implementation of a series of mitigation measures designed to alleviate energy system challenges in the near and medium term. EDF therefore offers these comments on the analysis and proposed mitigation measures – offering additional ideas for energy system management that can have a profound effect on the reliability and cost-effectiveness of gas system operation going forward – and should thus receive consideration going forward.

Assumptions and results of the hydraulic modelling indicate that the joint energy agencies have embedded significant conservativeness into the results, and should start work on a winter reliability technical assessment as soon as possible

At the outset of these comments, EDF must first acknowledge, with appreciation and positivity, the openness of the May 2017 reliability report offered for stakeholder review prior to the May 22 meeting. The display of the data and assumptions, and also the use of a third party review of the technical information adds both clarity and confidence in the findings and results, and is a major step forward for the agencies as compared to the original reliability analysis presented about 1-year ago. That said, since many parties, including the Southern California Gas Company ("SoCalGas") indicate a strong nervousness towards energy system reliability during the upcoming winter months, EDF recommends the CEC and other agencies begin work on a Winter Reliability Assessment right away, opening the assumptions and findings to public review and comment prior to analysis completion.

As a result of the Commission's openness and sharing of the fundamental underpinnings of the reliability analysis, EDF and our technical consultant, Skipping Stone LLC (SS), have been able to review

the information at the core of the technical report and its conclusions. Through this review, EDF and SS note that it appears that the technical analysis pulls from values that represent conservative assessments of both upstream capacity (amount of interstate pipeline volume available for gas imports to SoCal facilities) and supply deliverability (amount of gas that is available for hourly delivery California using SoCal's pipeline and remaining storage facilities).

EDF and SS therefore observe that the technical analysis has concluded that reliability looks less certain (in the absence of NG storage at Aliso canyon) than the actual facts on the ground create.

For example, the data underpinning the technical analysis assumes 440 MMSCF/D less SoCal designated system capacity to move Interstate Pipeline capacity (gas) into interior CA than the California Gas Report (CGR) shows, and the technical analysis assumes an additional 628 MMSCF/D of less daily supply deliverability provided by in state production and storage withdrawal (post Aliso). This brings the total potential undercount to a staggering 1,068 MMSCF/D of gas available to serve the energy needs of Southern California.

The build-up of these figures and their sources are set forth in the below Table 1 provided by Skipping Stone.

SoCal Envoy Observed End of Day Scheduled Quantity Data, 2016 CA Gas Report Capacity Data vs. Technical Report Capacity Data								
Reciept Pts	Observed Max EOD Sched Qtys (Non-Coincident) (Dthd)	System Designation	2016 CA Gas Report Flow Capacity (Thru Distinct SoCal Designated Systems) and Observed Avg Avail Supply (at CA Production Pts and post Aliso Storage Wdl) (Dthd)		Aliso Canyon Risk Assessment Technical Report Summer 2017 Assessment		Difference (D) minus (E)	Rcpt Pt Capacity to System Capacity Pctg (B) / (E)
(A)	(B)	(C)	(D)		(E)		(F)	(G)
El Paso-Topock	489,000	Northern						
Transwestern-Topock	242,000	Northern						
Transwestern-North Needles	890,000	Northern						
Southern Trails-North Needles	88,000	Northern						
Kern River/Mojave-Kramer Junction	575,000	Northern						
Total	2,284,000	Northern	1,590,000	1/	1,350,000	6/ 8/	240,000	143.6%
El Paso-Ehrenberg	1,047,000	Southern						
North Baja-Blythe	35,000	Southern						
TGN-Otay Mesa	146,000	Southern						
Total	1,228,000	Southern	1,210,000	1/	1,010,000	6/	200,000	101.5%
Kern River/Mojave-Wheeler Ridge	797,000	Wheeler Ridge						
Elk Hills-Wheeler Ridge	50,000	Wheeler Ridge						
PG & E-Wheeler Ridge	382,000	Wheeler Ridge						
Total	1,229,000	Wheeler Ridge	765,000	1/	765,000	1/ 6/	0	160.7%
Total Available from Interstate Pipelines Via SoCal Instate Facilities			3,565,000		3,125,000		440,000	
CP-Line 85	74,000	Line 85	35,003	3/				211.4%
CP-North Coastal	19,000	Coastal	13,184	3/				144.1%
CP-Others	70,000	Other	11,113	3/				629.9%
Total	163,000	CA Production	59,300		60,000	6/	(700)	274.9%
Honor Rancho		Storage Withdrawal	835,000	5/	198,000	6/		
La Goleta		Storage Withdrawal	170,000	6/	170,000	6/		
Playa del Rey		Storage Withdrawal	100,000	6/	100,000	6/		
Total	1,097,000	7/ Storage Wdl	1,097,000	7/	468,000		629,000	100.0%
Total In State Daily Supply Available in addition to Interstate Capacity			1,156,300		528,000		628,300	
Total-Total	6,001,000		4,721,300		3,653,000		1,068,300	127.1%
Column (B) Data supplied by SoCal Envoy System for 11/1/2015 thru May 24, 2017 Period								
1/ 2016 California Gas Report								
3/ Observed Average Day flow from SoCal's posted Envoy Data for 11/1/2015 thru 5/24/2017 Period								
5/ SoCal Gas Response to Data Request of Southern California Generation Coalition Response # 17.5 (A.15-06-020)								
6/ Aliso Canyon Risk Assessment Technical Report Summer 2017 Assessment Table 1.								
7/ Observed Maximum Withdrawal End of Day Scheduled Qty for 1/24/2017 from SoCal's posted Envoy Data minus 30,000 Mcf attributable to Aliso per EES Consulting Report dated Feb 6, 2017 - Note: Sum of Honor Rancho, La Goleta, and Playa del Rey above is 1,105,000 Dthd								
8/ Short Term Impact of Line 3000 Outage which reduces Northerm System Capacity by 240,000 Mcfd to 1,350,000 Mcfd								

Table 1. Source: Skipping Stone

Furthermore, based on a review of SoCal's Envoy data for Nov 1, 2015 thru May 24, 2017 and the best available data on SoCalGas Capacity (Daily and Hourly), long term (i.e., after Line 3000 and its 240,000 Mcfd and 10,000 Mcf/hr is back), California is likely to have has 15.8% (30,691 Mcf/hr) more hourly delivery capacity than that presented in the Technical Report.

These figures are set forth below in Table 2 provided by Skipping Stone.

Best Available Assessment of SoCal Available Daily and Hourly Capacity vs. Technical Report Daily and Hourly Assumptions														
Reciept Pts	System Designation	Best Assessment of Available Capacity Using Observed Data where Available and Mid-Range Data Where Data Range Exists		Aliso Canyon Risk Assessment Technical Report Summer 2017 Assessment		Daily Difference (D) minus (E)	Best Available Data Hourly		Technical Report Hourly		Hourly Difference (G) minus (H)
(A)	(C)	(D)		(E)		(F)	(G)		(H)		(I)
El Paso-Topock	Northern										
Transwestern-Topock	Northern										
Transwestern-North Needles	Northern								33,300	6/	
Southern Trails-North Needles	Northern										
Kern River/Mojave-Kramer Junction	Northern								22,900	6/	
Total	Northern	1,590,000	1/	1,350,000	6/	240,000	66,250	8/	56,200	6/	10,050
El Paso-Ehrenberg	Southern								42,100	6/	
North Baja-Blythe	Southern								0	6/	
TGN-Otay Mesa	Southern								0	6/	
Total	Southern	1,210,000	1/	1,010,000	6/	200,000	50,417	8/	42,100	6/	8,317
Kern River/Mojave-Wheeler Ridge	Wheeler Ridge										
Elk Hills-Wheeler Ridge	Wheeler Ridge										
PG & E-Wheeler Ridge	Wheeler Ridge										
Total	Wheeler Ridge	902,000	2/	765,000	6/	137,000	37,583	8/	31,900	6/	5,683
CP-Line 85	Line 85	35,003	3/								
CP-North Coastal	Coastal	13,184	3/								
CP-Others	Other	11,113	3/								
Total	CA Production	59,300		60,000	6/	(700)	2,471	8/	2,500	6/	(29)
Honor Rancho	Storage Withdrawal	835,000	5/	198,000	6/		41,670	5/	35,000	6/	6,670
La Goleta	Storage Withdrawal	170,000	6/	170,000	6/		13,800	6/	13,800	6/	0
Playa del Rey	Storage Withdrawal	100,000	6/	100,000	6/		12,500	6/	12,500	6/	0
Total		1,097,000	7/	468,000		629,000	67,970		61,300	6/	6,670
Total-Total		**4,858,300**		**3,653,000**		**1,205,300**	**224,691**		**194,000**		**30,691**
Amount More Hourly Delivery Capacity from Best Available Data versus Technical Report Assumptions									**15.8%**	9/	

1/ 2016 California Gas Report

2/ Observed maximum End of Day Scheduled Quantity on 3/5/2016 from SoCal's posted Envoy Data for total simultaneous receipts consuming Wheeler Ridge Ca

3/ Observed Average Day flow from SoCal's posted Envoy Data for 11/1/2015 thru 5/24/2017 Period

5/ SoCal Gas Response to Data Request of Southern California Generation Coalition Response # 17.5 (A.15-06-020) also See Honor Rancho Table for Hourly Peak From same Data Response

6/ Aliso Canyon Risk Assessment Technical Report Summer 2017 Assessment Table 1.

7/ Observed Maximum Withdrawal End of Day Scheduled Qty for 1/24/2017 from SoCal's posted Envoy Data minus 30,000 Mcf attributable to Aliso per EES Consulting Report dated Feb 6, 2017 - Note: Sum of Honor Rancho, La Goleta, and Playa del Rey above is 1,105,000 Dthd

8/ Data in Column (D) divided by 24 which is the same as assuming Ratable Daily Flow of Scheduled Quantity

9/ Column (I) Total-Total Line divided by Column (H) Total-Total Line

Table 2. Source: Skipping Stone

This 15.8% can also be considered a conservative estimate because, for instance, the US EIA lists the three remaining SoCalGas gas storage fields' withdrawal capacity as being 1,820,000 Mcfd (1.82 Bcfd)

whereas the 15.8% analysis is based on this past winter's observed highest withdrawal of 1,097,000 Mcfd as posted on Envoy and excluding the 30,000 of Aliso withdrawn on the same day.

Table 3 below is an extract from the EIA listing of every storage field in the U.S. showing the maximum withdrawal rates that SoCal reported to the EIA.

Year	Report State	Company Name	Field Name	Field Type	County Name	Region	Base Gas	Working Gas Capacity (Mcf)	Total Field Capacity (Mcf)	Maximum Daily Delivery (Mcf)
2015	CA	SOUTHERN CALIFORNIA GAS COMPANY	ALISO CANYON	Depleted Field	Los Angeles	Pacific Region	81,525,000	86,200,000	167,725,000	1,860,000
2015	CA	SOUTHERN CALIFORNIA GAS COMPANY	HONOR RANCHO	Depleted Field	Los Angeles	Pacific Region	20,996,949	27,000,000	47,996,949	1,000,000
2015	CA	SOUTHERN CALIFORNIA GAS COMPANY	LA GOLETA	Depleted Field	Santa Barbara	Pacific Region	24,589,073	19,700,000	44,289,073	420,000
2015	CA	SOUTHERN CALIFORNIA GAS COMPANY	PLAYA DEL REY	Depleted Field	Los Angeles	Pacific Region	4,461,545	2,400,000	6,861,545	400,000
						Total Pre-Aliso Blow-out		135,300,000	99,147,567	3,680,000
						Totals w/out Aliso		49,100,000		1,820,000

Table 3. Sources: EIA, Skipping Stone

The Joint Energy Agencies should pursue all options to enhance energy system reliability, including making the important step of developing new mechanisms to balance gas demand in real time

Over the course of several decades, California has created a reliance on natural gas fired generation as its dominant non-renewable generation resource. And as the state transitions to higher amounts of renewables, it also is transitioning from a total excess of deliverability vis a vis supply and demand to more normal, but tighter deliverability conditions vis a vis supply and demand. As a result, and because no other state either has as pronounced a "duck curve" as California nor as big an objective of moving as much renewables to its primary source of in-state energy as does CA, no other state is so dependent on coordination between the gas and electric market as is CA.

Accordingly, when looking at California's energy system and energy markets from an outside perspective, namely how those markets, (both gas and electric) facilitate increased amounts of zero carbon generation, the state should be seen as the proverbial "canary in the coal mine". That is, if designed poorly, energy markets can lead to unattainable and unsustainable outcomes. On the other hand, if designed well, market mechanisms can make the path CA is on attainable and sustainable – leading to important improvements in reliability and environmental performance.

Fundamentally, energy markets are too complicated and too dynamic and quick changing for administrative processes to keep up. Following, market rules that lead to correct incentives and disincentives that steer us towards a reduced carbon-sourced energy, are the most efficient, sustainable and least likely to be subject to political whims or winds that in the past have turned against renewables, and could again in the future. Such is the case with a gas imbalance market – the likes of which California has never pursued.

New equipment, and evidence from recent gas market changes indicate that the formation of a gas imbalance market is feasible and worthwhile

Before getting into the details of the how to form and operate a gas imbalance market, it is valuable to examine some of the fundamental data that suggest California can pursue one. First, as documented in SoCalGas company documents and CPUC filings, there are approximately 5.9 million advanced metering installations (AMI) across the SoCalGas service territory. These devices, installed using massive amounts of ratepayer funds are capable of performing assessments of natural gas use, assisting in developing accurate forecasts and predictions, key to the development of demand response programs. Over time, according to the California Gas Report, the vast amount of data the AMI gathers can create downward pressure on gas use that can yield less overreliance gas storage to meet that demand. As a result, these meters not only deliver the fundamental data necessary to advance initiatives targeted at ensuring core customers' needs are accurately predicted, they provide data that can be directly injected into market design efforts that reduce gas storage demand and increase reliability.

Second, prior to getting into the details of how a gas imbalance market works, it is valuable to examine whether gas market incentives in general can work to facilitate behavioral change that leads to beneficial action. For this, the Commission should look no further than the prior reliability action plans and technical reports of effectiveness. For example, in the prior action plan the Commission opted to create new gas balancing rules that operate only on days where an OFO is called. As compared to other plan actions that reduce gas demand in Southern California, these market rule changes are responsible for 95% of the gas demand reduction thus far. Such an overwhelming percentage of reductions of gas use being delivered by a single market rules change initiative demonstrates the power of getting the market rules correct – and clearly indicates the need and potential value to be gained from examining additional gas market rule changes such as the creation of a gas imbalance market.

Gas Imbalance Market (GIM)

What follows are the recommended design considerations and parameters of a gas imbalance market that should be evaluated and developed by the Commission as both an Aliso Canyon mitigation measure and as a measure to facilitate deep carbon reductions across Southern California. We offer these design details both for illustrative purposes and as a recommendation for explicit consideration within the Joint Energy Agency Action Plan to respond to the long term outage at Aliso Canyon.

1) Objectives – Among the many objectives of a gas imbalance market (GIM) in California are:
    a. Facilitate more efficient gas market operations within SoCal Operating Area, with possible wider CA wide applicability as well,
    b. Provide an intraday balancing market to address within day variances of demand versus supply,
    c. Provide intraday price formation and price discovery in the gas market to compliment the within day/real-time price formation and price discovery in the electric market,
    d. Empower and unleash market forces to address reliability of both systems on a permanent self-correcting basis,

e. Promote efficient market compatible investments on both the gas and electric side that acknowledge the real costs and benefits to market participants of operating in a reliable and efficient manner,
f. Maintain Summer period storage inventories at between 70% and 80% of maximum working gas levels so as to both maintain deliverability (i.e., withdrawal capability) and injection capability (for absorbing gas supplies due to fast de-ramp of gas fired generators in particular) for reliable and predictable operations of the SoCal system.

2) Market Rules – Among the market rules being recommended for a California GIM are:
   a. Core, Non-Core and Electric Generation participants including marketers to and agents of same (Market Participants) are all required to nominate, confirm and schedule flowing gas supplies to meet gas demand requirements within 5% +/- of burn every day.
   b. Imbalances beyond 5% +/- are force-balanced by Gas Market Operator to the extent market participants do not self-balance as set forth below.
   c. Market Operator to maintain between 70% and 80% storage inventory across all operating storage facilities (not including Aliso Canyon) between the months of June thru October (i.e., Summer). To accomplish this:
      i. Market Operator should use Gas Imbalance Market operations to go on maximum injections beginning in March of each year so as to attain minimum 70% (or greater not to exceed 80%) inventory position by June 1 of each year.
      ii. Market Operator takes bids from Market Participants and operates a reverse auction to acquire gas to achieve such injection level.
   d. Market Operator charges Market Participant(s) for imbalances that are Force-Balanced (i.e., not self-balanced by the Market Participant) as set forth below.
      i. There are charges for Within-day, and Daily Force Balance operations which vary based upon whether the system is under normal operations or OFO operations.
      ii. For normal operations, they are based upon the same tiers as those for Monthly imbalances; however, instead of being based upon Monthly California Border Prices, they are based upon Daily California Border prices.
      iii. For OFO operations, they are based upon those tiers employed during OFO periods.
   e. Market Operator operates a within-day Gas Imbalance Market where Market Participants anonymously offer to sell (when they are long gas) or bid to buy (when they are short gas) in order to avoid Force Balance by Market Operator.
      i. Market Operator settles the Market Participants' buys and sells but does not take title, except as set forth below (i.e., when Market Operator is seeking to achieve or maintain target storage inventory levels).
      ii. Market Operator publishes settled prices by transaction and volume for all transactions.
   f. During a normal operations day, in the within day market, the Gas Imbalance Market has a Force Balance Rule that operates when a Market Participant's imbalance exceeds 15% +/- (supply to burn) during the lesser of a **rolling 6 hour period** or cumulative daily,

and the Market Participant has not otherwise self-balanced prior to exceeding the 15% +/- level, the Market Operator will Force Balance the Market Participant to the 15% level for the rolling 6 hour period(s) and to the 5% for the day (absent Market Participant self-balancing). [1]

i. Note that where the Market Participant does not exceed 15% in any 6 hour period and remains fully matched the balance of the day, they are within the 5% daily balance requirement (i.e., 15% divided by 25% (the portion that 6 hours is of 24 hours) equals 2.5% for the day.

ii. Likewise, where the Market Participant does not exceed 15% in any 6 hour (or cumulative period and remains within 2.5% of balance the balance of the day, they are within the 5% daily balance requirement (i.e., 15% divided by 25% (the portion that 6 hours is of 24 hours) equals 2.5%, and 2.5% for the balance of day (in the same direction) means that they will be at the 5% level for the day.

g. During an OFO day, in the within day market, the Gas Imbalance Market has a more strict Force Balance Rule which requires that when a Market Participant's imbalance exceeds 5% +/- (supply to burn) during the lesser of a rolling 6 hour period or cumulative daily, and the Market Participant has not otherwise self-balanced prior to exceeding the 5% +/- level, the Market Operator will Force Balance the Market Participant to the 5% level.

h. Supplies purchased or sold by the Market Operator under Force Balance conditions are purchased and injected into storage or sold out of storage. These transactions are also published as to volume and price.

i. For those times when the Storage Inventory of the Market Operator falls below 70%, the Market Operator conducts a reverse auction to acquire supplies for injection at optimum injection rates in order to return to a minimum 70% (or higher, not to exceed, 80%) level.

i. Optimum injection rates should be within days as set by the Market Operator based upon forecasted weather.

j. For those times when the Storage Inventory of the Market Operator exceeds 80%, the Market Operator conducts an auction to sell supplies for withdrawal at optimum operational withdrawal rates in order to return to a maximum 80% (or lower not less than 70%) level.

i. Optimum withdrawal rates should be within days as set by the Market Operator based upon forecasted weather.

3) Gas Imbalance Market Operations and Structure

[1] The basis for recommending 15% over a 6 rolling hour time period (or cumulatively if less than 6 hours) is that the general curve of electric markets elapses typically over 6 hours. In other words, electric generator shippers, in addition to the Core market, typically ramp-up and down over those periods of time, and if they are out of balance by more than the 15%, they can pose challenges to the system in recovering, (absent injections or withdrawals from storage). Having a gas imbalance "market" address these situations creates incentives to avoid stressing the overall energy system and creates signals to the market and market participants associated with the value in balancing and or innovating to maintain balance.

a. The location of the GIM is a virtual location (a paper "Pool") associated with the default storage injection or withdrawal locations. Those Market Participants that are long (have gas to sell) would sell that gas at the paper Pool; or, end up selling to the Market Operator when they are Force Balanced. Likewise, those Market Participants that are short would either buy gas from one or more sellers at the Pool, or end up buying the gas from the Market Operator. In either case with the GIM, the Market Operator would behave, and require Market Participants to behave, under the conditions currently imposed only during OFO days. GIM would operate throughout the day, every day. And; it is this aspect of the market which brings transparency and liquidity to the intraday gas market in CA.
b. The Market Operator would continue to assess delivery charges on gas delivered to end-use locations.

The benefits of pursuing a gas imbalance market stemming from market mediated investment signals should not be understated

Among the many benefits of the Gas Imbalance Market is that it will lead to transparency of intraday gas market pricing. This happens because there is a "default price" which drives and brackets the intraday price. In our example above, this "default price" is based upon the Force Balance/Cash-Out price tiers in operation that day for 15% +/- (or greater) imbalances, within the day, and imbalances in excess of 5% cumulative for a day. Because these prices are discounts or premiums to the California Border Price, such bands of pricing in the intraday market are knowable. The location of the GIM is a virtual location (a paper "Pool") associated with the default storage injection or withdrawal. Those that are long (have gas to sell) would sell that gas at the paper Pool; or, end up selling to SoCal. Likewise, those that are short would either buy gas from one or more sellers at the Pool, or end up buying the gas from SoCal. In either case with the GIM SoCal would act under its system currently used only on OFO days. GIM would operate throughout the day, every day. And; it is this aspect of the market which brings transparency and liquidity to the intraday gas market in CA.

For Generators, this price transparency in the intraday market, and the predictability of pricing makes their interactions and bidding in the real-time Electric Energy Market efficient. As a result, price transparency will also promote economic dispatch to a greater extent.

Participation in the GIM would apply to both Non-Core and Core. For the core, the SoCal Gas Acquisition Department would be charged or credited with that Department's margin[2] on sales and/or purchases of its imbalances. In short the SoCal Gas Acquisition Department would behave like and be treated like any other Market Participant. The CPUC would determine ultimate disposition of such net margins on some periodic basis. We recommend being careful to provide rewards/incentives for rational economic and operational behaviors and penalties/disincentives for the opposite behaviors.

[2] Here "margin" is the difference between gas purchased in the day-ahead gas market and subsequent sale of that gas in the GIM during the Gas Day or purchase of additional gas for that Gas Day in the GIM.

Conclusion

Provided in this letter is information on observed conservativeness of the technical assessment's current reliability analysis (for the upcoming summer) and a recommendation to soon start the analysis necessary to evaluate winter reliability in Southern California. Additionally, we offer a proposal for a new market based framework for creating transparency in and connectivity between California gas and electricity markets – namely a gas imbalance market (GIM). The ideas presented on the GIM are not new concepts, and although no other states have implemented one yet, the contours of the GIM have already been presented to the California joint agencies involved in the response to the Aliso Canyon reliability concerns by entities such as the Southern California Generation Coalition. However, what has been presented here are the details of a GIM that would have dramatic benefits to the California energy system and are deserved of appropriate consideration as a viable mitigation measure for reliability improvements going forward.

Sincerely,

Tim O'Connor and Jonathan Peress
Environmental Defense Fund

Greg Lander
Skiing Stone LLC